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HEARING

ON

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2013

AND

OVERSIGHT OF PREVIOUSLY AUTHORIZED PROGRAMS

BEFORE THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON STRATEGIC FORCES HEARING

ON

FISCAL YEAR 2013 NATIONAL DEFENSE AUTHORIZATION BUDGET REQUEST FOR MISSILE DEFENSE

HEARING HELD
MARCH 6, 2012

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FISCAL YEAR 2013 NATIONAL DEFENSE AUTHORIZATION BUDGET REQUEST FOR MISSILE DEFENSE

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON STRATEGIC FORCES,
Washington, DC, Tuesday, March 6, 2012.

The subcommittee met, pursuant to call, at 3:05 p.m., in room 2118, Rayburn House Office Building, Hon. Michael Turner (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. MICHAEL TURNER, A REPRESENTATIVE FROM OHIO, CHAIRMAN, SUBCOMMITTEE ON STRATEGIC FORCES

Mr. TURNER. Good afternoon. I want to welcome everyone to today's hearing on the fiscal year 2013 national defense authorization budget request for missile defense.

We have a great team of witnesses today for this important topic. We have the Honorable Brad Roberts, Deputy Assistant Secretary of Defense for Nuclear and Missile Defense Policy, U.S. Department of Defense.

We have General Patrick O'Reilly, director of the Missile Defense Agency.

General, I note that this will be your last appearance before us, as your term is up this December. We thank you for your 22 years of service to the United States. And General, I hope that you will always think fondly of the times that you have been before us. We appreciate your dedication and certainly your hard work.

We have the Honorable Michael Gilmore, Director, Operational Test and Evaluation, Office of the Secretary of Defense.

We have Mr. David Ahern, Deputy Assistant Secretary of Defense, Strategic and Tactical Systems, Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics.

Since entering office, the Obama administration has demonstrated a lack of interest, quite frankly, and support for missile defense, specifically the defense of the homeland of the United States. In its first budget submission to Congress, President Obama slashed $1.16 billion out of the missile defense budget, more than a 10 percent reduction in one single year.

If you turn your attention to the screen, you will see the fiscal year 2009 Future Year's Defense Plan, the FYDP, from the Bush administration, slide one, and the fiscal year 2010, FYDP, fiscal year defense plan from the Obama administration, slide two. The President's fiscal year 2013 submission is, in fact, lower than the President's own fiscal year 2010 budget request by over $100 million, slide three.

[The slides referred to can be found in the Appendix beginning on page 99.]

Mr. TURNER. Remember, slide one shows that the fiscal year 2010 request from the Obama administration was $1.6 billion less than the previous President recommended, and slide two shows it was less even than President Obama's only budget request for fiscal year 2010.

What's more, the Missile Defense Agency fiscal year 2013 FYDP projection for fiscal year 2013 to 2016 is $3.6 billion less than even President Obama's fiscal year 2012 fiscal year defense plan projection for fiscal year 2013 to 2016 just last year and is $2 billion less than the previous administration's projection for fiscal year 2013. [See slide 4, Appendix page 102.]

And, where the President has requested support for missile defense, it has been to support regional missile defenses, to the exclusion of national missile defense. According to the MDA [Missile Defense Agency] budget charts, the United States and the Obama administration will spend approximately $4 or $5 on regional missile defense, including the European Phased Adaptive Approach, EPAA, for every $1 on national missile defense. This trend continues over the FYDP, slides five and six. That is a ratio, again, of $4 or $5 for regional for every $1 for national missile defense.

Let me give a caveat to say that every one of these slides comes right from the MDA or MDA numbers, the Missile Defense Agency, other than slide six, which was put together by staff based on the MDA budget outline breakdowns for fiscal year 2013.

I note the so-called hedge we see on line five is the IIB [Standard Missile 3 Block IIB] and PTSS [Precision Tracking Space System] systems, which the MDA budget outlined for fiscal year 2013 labels an EPAA [European Phased Adaptive Approach] regional contributor, on slide seven.

[The slides referred to can be found in the Appendix beginning on page 103.]

Mr. TURNER. As we know, the administration is contributing the EPAA to NATO free of charge. Such a contribution could cost the U.S. as much as $8.5 billion over the course of the FYDP fiscal year 2013 to 2017, possibly even more. According to the GAO, responding to a request regarding the EPAA from Mr. Langevin and me in 2009, the response was, "the limited visibility into the cost and schedule for EPAA reflect the oversight challenges with the acquisition of missile defense capabilities that we have previously reported."

Senator Sessions and I were concerned enough about these challenges related to the EPAA that we wrote to Mr. Frank Kendall, the President's nominee for the Under Secretary of Defense for Acquisition, Technology and Logistics, in November of last year to ask for help in remedying what GAO has found concerning an inability to cost or to provide costs for the EPAA system.

And I am going to ask that this letter be placed into the record.

[The information referred to can be found in the Appendix on page 107.]

Mr. TURNER. Three months later, less than 3 weeks ago, we were told that DOD would work to develop such a cost. I hope so, but

I also understand that we won't have it until July. Still troubling, as we continue to ask for these numbers.

[The information referred to can be found in the Appendix on page 109.]

Mr. TURNER. We need these costs because if we look ahead to the budget, we have to understand how we are helping the administration deliver on what it says is the number one priority, which is the defense of the homeland. I have to say, I am not sure how we are going about doing this in this budget.

The final budget of the previous administration, the fiscal year 2009 budget request, requested $1.5 billion for national missile defense, the Ground-based Midcourse Defense, GMD, system. But the President's budget request fiscal year 2013 seeks $900 million, $260 million less than the fiscal year 2012 request, which was itself a decrease of $185 million from fiscal year 2011.

At the same time, we have had two test failures of the GMD system, and I understand that we won't see return flight tests for the CE2 kill vehicle for 2 months more than projected, to July 2012, and the return to flight intercept tests for the CE2 kill vehicle will be delayed 3 months, to December 2012.

Yet the nuclear missile programs of Iran and North Korea continue to expand. Secretary Gates referenced a potential new North Korean mobile Intercontinental Ballistic Missile in June of 2011 at the Shangri-La conference saying, with the continued development of long-range missiles and potentially a road-mobile Intercontinental Ballistic Missile and their continued development of nuclear weapons, North Korea is in the process of becoming a direct threat to the United States. A road-mobile Intercontinental Ballistic Missile [ICBM] would be a profound leap forward in North Korea's ballistic missile technology.

I remind my colleagues of the classified briefing that we had on the subject just last November.

Yet we cut GMD. And General O'Reilly, this budget continues to underfund national missile defense.

General, I appreciate your comment in my office the other day that more of your time is spent on GMD than any other program. But I have to say that your time doesn't appear to be a substitute for the administration's shortchanging of the programs in its budgets as evidenced by the last two test failures.

And now I see that we are going to mothball Missile Field 1 and the Sea-Based X-Band [SBX] Radar.

And, General, I know that you'll say that we are not mothballing the SBX system. But the $10 million request simply does not fund keeping this radar in a ready status, able to be deployed and defend the homeland in a moment's notice.

I am grateful that the administration appears ready to finally brief the hedging strategy for homeland missile defense, but I note that this strategy is long overdue.

Dr. Roberts, we have discussed this. Dr. Miller and you essentially promised previously that we would have this within weeks of your last appearance before us last year.

I trust the strategy will answer this committee's concern. But I note that there is no money in the budget request to do anything approximating a real hedge. No money to employ additional GBIs

beyond the test articles being purchased this year. No money to dig more holes at Fort Greely or Vandenberg or even to maintain all of the silos that we have.

And when five members of the subcommittee and I wrote to Secretary Panetta in November asking about the hedging strategy, the response we got back indicates that while Iran and North Korea are developing and perhaps readying the deployment of significant numbers of ICBMs, the Obama administration is concentrating on building communications terminals and crossing its fingers about reliability improvements.

I have the letter of the response that we received, the letter that we sent to Secretary Panetta. And I will make both these letters a part of the record.

[The information referred to can be found in the Appendix beginning on page 110.]

Mr. TURNER. I note that we are not even—from, General, your comments earlier—testing these systems against actual ICBM targets for 3, possible 4, more years. And we have discussed that in my office, and I know you will have some discussion today.

I don't even see a dollar figure for an East Coast site, which NORTHCOM recommended before the EPAA was announced and in which the Institute for Defense Analyses and the National Academies of Sciences recently recommended, not even a cent for environmental impact study work, which would consume at least 18 months of time.

Why don't we knock this out at least a part of the way so we have an option to proceed if we are wrong about the threat of Iran and we need to move more quickly?

Let me note something else of interest to the subcommittee. The administration made a series of promises to the Congress in its 2010 Nuclear Posture Review and the 1251 plan.

Dr. Roberts, I know you are intimately familiar with those promises.

When the President decided to break his promise to fully fund that plan, he re-evaluated his policy and decided that we could afford more risk and delay the B61 gravity bomb, the W76 warhead and indefinitely delay the CMR [Chemistry and Metallurgy Research] facility in New York—in New Mexico, excuse me.

However, when the President decided to cut $3.6 billion out of his own missile defense budget, we lose 6 GBI silos in Alaska; we mothball the SBX; we cut the number of TP2 radars we are procuring; we cut 3 THAAD [Terminal High Altitude Area Defense] batteries and over 60 THAAD interceptors, yet we continue with the EPAA without delay. In fact, we increase the budget for the PTSS system and other EPAA systems like the IIB missile, which according to the MDA budget outlined for fiscal year 2013, on slide seven, which I will make a part of the record, our regional system is in support of EPAA.

[The slide referred to can be found in the Appendix on page 105.]

Mr. TURNER. Now, I don't think we should have to choose between regional missile defense and national missile defense.

But I don't think it's a good idea, as apparently the President does, to gut our GMD system or for the President to cut his own missile defense budget by $3.2 billion over the next several years

or to underfund missile defense by $2 billion this year alone, based on the level of funding that the Bush administration had projected that we would need to fund missile defense, slide one and three.

Let me dwell on this graphic long enough to note that many of these cuts occurred while the Obama administration first came to office. It isn't possible to blame all of these cuts on the Budget Control Act or even the sequestration or the deal on raising the debt limit, as the President has recently attempted to do for many of the cuts that are falling on national defense.

The President's missile defense policy must be re-evaluated. National missile defense must be adequately funded, as opposed to the lip service that has been recently paid by the Obama administration.

This is an important hearing as we look to the budgets, we look to the issue of, what is the policy? What are we pursuing? Why are we pursuing these policies and these levels of funding? And that nexus is, of course, the subject matter of our hearing.

Ms. Sanchez.

[The prepared statement of Mr. Turner can be found in the Appendix on page 37.]

STATEMENT OF HON. LORETTA SANCHEZ, A REPRESENTATIVE FROM CALIFORNIA, RANKING MEMBER, SUBCOMMITTEE ON STRATEGIC FORCES

Ms. SANCHEZ. Thank you, Mr. Chairman.

You know, when I was first starting in the Congress, I was taught about DIME, diplomacy, intelligence, military, economics, and that that is what equals national security for this country.

We see in recent days the whole despair over what's going on with the euro and the questioning of it and our own markets suffering because of that.

So I think that the work that we do with our European allies is incredibly important. And we have decided that the types of threats that exist today are imminent enough that they could hurt our European allies. So if we think some discussion over the euro is hurting our own economy, imagine what our economy would look like if, in fact, there was some sort of missile attack on any of our European allies.

So I think it is incredibly important that we continue that work, and I think we have a good program to do that.

And I think it is just as important that we look at our national, at our homeland and try to understand what types of threats are out there and prepare for those. Obviously, we already have some preparation.

But unfortunately, our recent tests indicate that we need to be better at this. And I have always been one of those people who thinks it is important that we get the testing right and understand what we should have before we begin to acquire any more of that.

So I don't think it is a reflection, quite frankly, Mr. Chairman, of the Obama administration not liking national missile defense or ground-based systems. I think they are just trying to do a much better job of making sure that what we have actually will work under the conditions that may come up.

I would like to thank the gentlemen before us, once again, for coming before us and explaining the President's budget and the programs, where they stand since the last time we saw each other.

You know, cost is really of a concern right now in this Congress and to the American people. Congress is just a reflection of what goes on with the American people. And they have stated quite clearly that they are worried about how we spend our money here in Washington, DC. So if we are weathering a serious economic crisis, then we have to do a lot more with less.

And I applaud you all in front of us for really doing that. And I have seen you in the last couple of years really address that issue.

So, since 1999, we have invested over $90 billion. And the fiscal year 2013 budget request for missile defense is nearly $10 billion. Now more than ever, it is a time for smart investments driven by strategy to meet our current and our future security needs.

We have to focus on the proven technology against the most likely short- and medium-range threats. We have to make careful investments to prepare for the developing threats, and we need to leverage our international cooperation to increase the opportunities for burden sharing. This means ensuring the development of mature, operationally proven and reliable technology before producing and deploying it.

In the immediate term, for example, in the GMD program, which stands at about a 45 percent test success rate, it means determining the causes of the recent test failures and that they are adequately resolved and corrected before buying additional costly interceptors.

And I am pleased—in particular, General O'Reilly, for your work and your rigorous analysis to correct these problems as we move forward. Smart investments also mean enhancing discrimination and reliability by making improvements to our existing capacity. And this approach will improve our shot doctrine and maximize the use of our available interceptors. We can no longer afford costly investments that are wasteful or unnecessary. And as the Ballistic Missile Defense Review stated, the commitment to new capabilities must be sustainable over the long term. So I am actually encouraged that this administration is implementing a layered defense to protect the homeland, our deployed troops, and our allies.

We must partner with our allies for effective burden sharing and providing an effective defense. And I commend the administration again for strengthening the international cooperation that we have on missile defense. We have seen significant progress in working closely with NATO as we implement the first phase of the European Phased Adaptive Approach, which protects our forward-deployed troops and our NATO partners.

We are sustaining robust cooperation with Israel and Japan and our other allies. We are identifying increased opportunities for burden sharing, which becomes even more important at this time when everybody is looking for more money.

As we develop defenses against the threats from Iran and North Korea, we continue to seek cooperation with Russia. And we are trying to engage China in this also, and we are trying to reduce a risk of a miscalculation or a misperception that will remain cru-

cial in preserving strategic stability and avoiding a potentially dangerous nuclear arms race.

A return to a nuclear weapons build-up, I believe, would prove unnecessarily dangerous and very expensive.

And again, I welcome this discussion, and I welcome the gentlemen before us.

And thank you, Mr. Chairman.

[The prepared statement of Ms. Sanchez can be found in the Appendix on page 43.]

Mr. TURNER. Thank you.

We appreciate the witnesses have given us written testimony, and we would ask now if each would summarize their written testimony in a period of 5 minutes, and then we will turn to questions from the Members.

We will begin with Dr. Roberts.

STATEMENT OF DR. BRADLEY H. ROBERTS, DEPUTY ASSISTANT SECRETARY OF DEFENSE, NUCLEAR AND MISSILE DEFENSE POLICY, OFFICE OF THE SECRETARY OF DEFENSE

Dr. ROBERTS. Thank you, Chairman Turner, Ranking Member Sanchez, members of the committee. I am grateful for the opportunity to be here today and directly address the perceptions and misperceptions of the administration's policy and investment strategy here.

I would like to focus in on this question of the overall balance in our investment strategy and in our missile defense strategy. I would like to address the misperception that the President has a lack of interest in homeland defense. In fact, I think he has a very specific interest in the strengthening of homeland defense.

And I want to, first of all, make the case for regional missile defense.

As you, Mr. Chairman, observed, this shouldn't be an either/or question. We should be doing enough of both.

But I think we shouldn't forget the case for doing more on regional missile defense today. We see this as following from a need and an opportunity. The need is the fact that we live in an era of missile proliferation. We project power forward globally. We have security commitments in regions where missiles are proliferating. We must protect our forces. We must protect our allies. They must participate in protecting themselves. To not do that calls into question the very foundation of our security role in the international environment today.

So if that's the need, the opportunity arises from the fact that the missile defense business over the last 10 to 15 years put a lot of resources into developing real capability that is now available for us to put against the problem of regional missile defense. So we've put in place a program to ramp up these regional defense capabilities over the years ahead, and we hope that it will, again, gain the support of this committee.

This ramping up is something we are doing in partnership with allies. They are not along for a free ride. We've given them many opportunities to strengthen their own self-defense, and many are rising to this challenge. Even as we accomplish this ramping up in

regional defense, we remain firmly committed to a strong homeland defense and to some ramping up in this area as well.

In anticipation of future threat developments, we are committed to strengthening the homeland posture and to ensuring that it remains overwhelmingly advantageous in the way it is today for the United States, even in the face of future missile proliferation. Therefore, the question is not whether we should continue to strengthen homeland defense. I believe we are in agreement about this. The question is, how?

We do have a strategy for strengthening homeland defense. And it's a two-step process. It is the strengthening of the Ground-based Midcourse Defense system in this decade and the shift to the SM–3 as a complementary second layer in the next decade.

A simple way to grow the homeland defense posture is just to put more GBIs into the ground, whether at one of the existing sites or a new one. Here is our case for the blended approach of GBIs and SM–3 IIBs, four main elements: For regional defense, we now have two layers of protection. The homeland deserves the same. Depth and redundancy are better than reliance on a single system.

Secondly, effectively exploiting the full missile defense battlespace requires forward and rear basing of interceptors. A shoot-look-shoot capability is more effective and more efficient with forward placement of the first shooter.

Third, forward placement of the first shooter becomes even more important if and as proliferators field missile defense countermeasures.

And lastly, a ramp-up of SM–3 IIB capability will be much more affordable than a ramp-up of GBIs. With the SM–3 IIB projected to be roughly one-third the cost of the GBI, we can grow a capability at triple the rate for every dollar invested. Now until the SM–3 IIB becomes available in the 2020 time frame, our focus is on improving the performance of the GMD system.

One way to do this is again the simple way, more GBIs in the ground. And our hedge plan of 2 years ago set aside some funds for this purpose, additional silos, additional GBIs, and the current budget proposes a bit more money for more GBIs.

But again, the simple way isn't necessarily the best way to solve this problem. Working closely with MDA, we have determined that significant improvement is possible in the performance of the existing system with the current inventory. Indeed, the performance can be at least doubled. In essence, we can double the number of ICBMs the current force is capable of defeating without adding a single new GBI. Especially in a time of physical austerity, this more cost-affordable approach should be the basis of our pathway forward.

These conclusions about how best to strengthen the homeland defense posture flow from the work we have had underway in the Department for well over a year—and I do recognize it has been well over a year, and we made a promise to you a year ago, and we look forward to making good on that promise before markup.

But we have had this work underway. We have arranged a return later this month for a classified discussion of the elements of that work, including threat information, hedge options, and decisions reflected in the current budget on how to sustain the hedge.

So, in sum, we promised in the Ballistic Missile Defense Review a balanced approach that would reflect all of the developments in the threat environment, not just a selection of them, and an affordable approach, as we were enjoined to do by you, who created the Ballistic Missile Defense Review, and an affordable approach that ensures stronger protection for the homeland, stronger protection for our forces abroad, stronger protection for our allies. And we believe the current budget effectively supports these commitments and hope that it will benefit from your support.

Thank you.

[The prepared statement of Dr. Roberts can be found in the Appendix on page 45.]

Mr. TURNER. General.

STATEMENT OF LTG PATRICK O'REILLY, USA, DIRECTOR, MISSILE DEFENSE AGENCY

General O'REILLY. Good afternoon, Chairman Turner, Ranking Member Sanchez, and other distinguished members of the subcommittee.

I appreciate the opportunity to testify before you today on the Missile Defense Agency's, or MDA's, $7.75 billion fiscal year 2013 budget request to continue to develop protection against the proliferation of increasingly capable ballistic missiles of all ranges.

MDA's highest priority is the protection of our homeland against the growing threat of ICBMs. We have made significant progress in enhancing our current homeland defense over the past year, including activating a forward-based TPY–2 radar in Turkey and an upgraded early-warning radar at Thule, Greenland, to track intercontinental ballistic missiles, or ICBMs, from the Middle East; upgrading three existing ground-based interceptors, or GBIs; activating a second command and control node, and completing our newest missile field at Fort Greely, Alaska.

However, further enhancement of our homeland defense is paced by the resolution of a technical issue identified in the last GBI flight test and the need for a successful intercept with the newest version of the GBI Exoatmospheric Kill Vehicle by the end of this year. A successful non-intercept GBI flight test this summer will confirm our resolution of the previous flight test issue.

We propose almost half of the President's 2013 budget request for the Ground-based Midcourse Defense, or GMD, program, the SM–3 IIB interceptor, the Precision Tracking Space System, and other programs that support homeland defense, including the completion of the hardened power plant at Fort Greely; construction of the GBI Inflight Interceptor Communication System at Fort Drum, New York; upgrading the Clear, Alaska, Early Warning Radar; test preparation and targets for two- and three-stage GBIs; enhancing the reliability of 3 existing GBIs; resumption of the production of new GBIs; and the procurement of 5 additional GBIs for a total of 57. Most important, our GBI enhancements will effectively double the firepower of our 30 operational GBIs over the next 6 years.

As our highest priority, we do not believe the United States should be reliant on only one missile defense interceptor system to protect our homeland. Thus, it is critical we continue the SM–3 IIB interceptor program currently in concept development to greatly

enhance our homeland defense by 2020 by providing a forward-located mobile and land-based first layer of missile defense against ICBMs, independent of the second layer provided by the GMD system.

Furthermore, the development of the PTSS will provide unprecedented capability to track large raid sizes of ballistic missiles of all ranges throughout their entire flight without solely depending on the large number of radars with limited ranges hosted by other nations.

The combination of GMD, SM–3 IIB, PTSS, and other programs will provide effective and adaptable missile defense for our homeland to counter the uncertainty of ICBM capability from today's regional threats or decades into the future.

However, the greatest growth in the ballistic missile defense threat is the proliferation of regional missiles. Our progress in regional defense over the past year was highlighted by the on schedule deployment of the first phase of the Phased European Adaptive Approach, comprising a command-and-control node at Ramstein Air Force Base, Germany, a forward-based radar in Turkey, and an Aegis Ballistic Missile Defense, or BMD, ship in the Mediterranean Sea. The demonstration of that architecture by an Aegis ship intercepting a 3,700-kilometer target last April, the installation of BMD capability into four additional Aegis ships, the Army material release of the first THAAD battery, and THAAD's simultaneous intercept of two targets last October.

This year, we will install BMD capability into five additional Aegis ships, conduct three SM–3 IB flight tests to demonstrate resolution of the previous flight test failure; and material release of a second THAAD battery.

Our 2013 budget request will deliver a third THAAD battery, 3 additional Aegis BMD upgrades, for a total of 32 BMD-capable ships.

Finally, this year and in 2013, we will conduct the largest, most complex integrated layered regional missile defense test in history by simultaneously engaging up to five cruise and ballistic missile targets with Aegis, THAAD, and Patriot interceptor systems. A forward-based AN/TPY–2 radar and a command-and-control system operated by soldiers, sailors, and airmen from multiple combatant commands.

To meet the Department's affordability goals, the 2013 missile defense budget request was prioritized and reviewed by the Missile Defense Executive Board with participation of the Joint Chiefs of Staff, combatant commands, the services, the Department of State, and ultimately was approved by the Secretary of Defense. As a result of these reviews, we terminated the Airborne Infrared Sensor Program, revised THAAD battery production to a total of 6, and AN/TPY–2 production to a total of 11 radars, and limited the Sea-Based X-Band Radar to flight test operations with availability for contingency operations.

Although we terminated the Airborne Laser Test Bed program, we are maintaining the Nation's directed energy expertise as we pursue the demonstration of the next-generation high-energy laser on a high-altitude, unattended air vehicle in this decade.

Additionally, through our efficiency initiatives, we awarded in December a new 7-year GMD contract with a price of almost $1 billion less than the previous independent government process.

Mr. TURNER. General, if you could summarize. You have now exceeded the time by more than Dr. Roberts exceeded the time. So I just would like to ask you to conclude.

General O'REILLY. Okay. I will summarize, and I am available for questions.

[The prepared statement of General O'Reilly can be found in the Appendix on page 57.]

Mr. TURNER. Mr. Ahern.

STATEMENT OF DAVID G. AHERN, DEPUTY ASSISTANT SECRETARY OF DEFENSE, PORTFOLIO SYSTEMS ACQUISITION, OFFICE OF THE UNDER SECRETARY OF DEFENSE FOR ACQUISITION, TECHNOLOGY, AND LOGISTICS

Mr. AHERN. Good afternoon, Chairman Turner, Ranking Member Sanchez, members of the committee.

Thank you for the opportunity to appear before you today to discuss certain aspects of the Department's missile defense efforts.

Let me begin with a few remarks about MEADS, the Medium Extended Air Defense System. As I testified last year, MEADS is a cooperative development program managed by a NATO program office. It was conceived in the mid-1990s as a flagship program for international cooperative development to develop a ground-based air and terminal ballistic missile defense capability. The program experienced a number of technical and management challenges, which led the Department and our MEADS partners to agree to restructure the program as a reduced scope of effort, titled the Proof of Concept, in order to close out the development within the original funding limits set by the MEADS' MOU [memorandum of understanding]. By completing the Proof of Concept, the U.S. will fulfill our commitments to our partners under the current MOU by demonstrating MEADS elements and associated technologies that are fully realized, that would add to the set of capabilities available to advance U.S. air and missile defense architectures.

The program has made progress, but we recognize the schedule is aggressive, and we will watch major milestones carefully to ensure the Proof of Concept is fully completed within the planned funding. The MEADS lightweight launcher successfully completed a PAC–3 missile shot during a test at White Sands. The MEADS X-band fire-control radar is in near-field testing and calibration in preparation for far-field radiation testing this summer to support first intercept flight test at the end of this calendar year. An additional intercept flight test is scheduled in mid calendar 2013.

The NDAA Act for 2012 requires that the Secretary of Defense submit to the Congress a plan to use the fiscal year 2012 authorized and appropriated for MEADS as the final obligations to either implement a restructured program of reduced scope or to pay for contract termination costs. Despite having agreed to a restructured program just last October, the Department has once again consulted at the highest levels with our partners about developing a plan to further restructure the program using fiscal year 2012 funding alone. In response, the German and Italian armaments di-

rectors recently cosigned a letter reiterating that their nations remain fully committed to their MEADS MOU obligations and expect that all partners will fulfill their MOU obligations to continue with a Proof of Concept as previously agreed.

While we have consulted with our partners, the contracted Proof of Concept work has continued. The U.S. provided the available fiscal year 2012 funds, currently 25 percent of the fiscal year 2012 appropriation. I expect the plan required by the NDAA to be delivered in early April. While we are developing a plan that complies with the fiscal year 2012 NDAA legislative requirement, the Department believes that completing a MEADS Proof of Concept is still the better course of action.

The Department's fiscal year 2013 budget request includes sufficient funds to meet our MEADS MOU obligations. Secretary Panetta has made clear that we would work with Congress to secure those funds. And I ask for your support so that we can live up to our MOU commitments.

With regards to the Department's management and oversight of the Missile Defense Agency, the USD(AT&L) continues to exercise full authority and responsibility for comprehensive and effective oversight of MDA and its programs through the Missile Defense Executive Board, or the MDEB.

Since I testified before you last year, the MDEB has conducted seven meetings, and USD(AT&L) has issued six acquisition decision memoranda. Through the MDEB, the Department maintains early and continued visibility into MDA programs and is able to provide the necessary guidance to achieve missile defense priorities within cost and schedule constraints.

In the past year, MDEB meetings have included reviews, as General O'Reilly mentioned, of the MDA budget request and assessment of the effects of a reduced budget on the BMDS program. Progress reviews of regional phased adaptive approaches and endorsement of MDA and military department management and funding responsibility guidance, including a process to define and schedule transfer of responsibilities. The MDEB also reviewed and endorsed or provided direction regarding the U.S. Strategic Command's prioritized capabilities list and the agency's fiscal year 2011 budget execution.

In summary, the Department's missile defense activities continue at a high pace. We have made hard choices in this portfolio in the fiscal year 2013 budget, including a request for 2013 funding for MEADS. The Department will continue to seek ways to wring out the maximum capability from our investments in air and missile defense.

We are grateful for the continued support of Congress, which has been critical to the success to date in developing and fielding missile defenses.

Thank you for this opportunity, and I look forward to answering any questions you may have.

[The prepared statement of Mr. Ahern can be found in the Appendix on page 72.]

Mr. TURNER. Mr. Gilmore.

STATEMENT OF HON. J. MICHAEL GILMORE, DIRECTOR, OPERATIONAL TEST AND EVALUATION, OFFICE OF THE SECRETARY OF DEFENSE

Mr. GILMORE. Mr. Chairman, Congresswoman Sanchez, I'll briefly summarize my written statement.

During the last year, Aegis Ballistic Missile Defense 3.6.1 and the Terminal High Altitude Area Defense system demonstrated progress in testing toward achieving intermediate-range and short-range threat class capability, respectively. Aegis intercepted an IRBM flying a 3,700-kilometer flight path, and it did so using launch on remote, which is a capability that is important to the European Phased Adaptive Approach.

THAAD demonstrated in an operational test that was the most realistic operational test of a missile defense system conducted to date, because it used the soldiers who would deploy with the first THAAD battery to conduct the test; it demonstrated successfully and intercepted two simultaneously launched short-range ballistic missiles.

GMD suffered a second consecutive flight test failure, flying the Capability Enhancement II Exoatmospheric Kill Vehicle. A failure review board has investigated the cause of that failure, determined the cause, and MDA has identified mitigating steps that need to be taken and is taking those steps and planned, as General O'Reilly said, is planning to conduct two flight tests this year to demonstrate that those fixes have been effective. The flight tests have been delayed somewhat because the analysis that has been done of manufacturing techniques has identified additional problems that need to be corrected. And there is no point in conducting the test until those problems have actually been corrected.

The Integrated Master Test Plan that I work with General O'Reilly to develop each year on a 6-month cycle—there is a review at the intermediate part of the year, and then there is a final version of the IMTP developed for submission to Congress—has maintained the test sequence and test pace for a ground-based missile defense—that is defense of the homeland—this year in comparison with last year. And in fact, all of the major GMD test events that were planned in the first IMTP, with which I was involved back in 2010, have been maintained in this IMTP.

The flight test pace of about one per year is the best that we have been able to do on average over about a decade. That is because these tests are extremely complex. There is over a terabyte of data that is collected during these tests that has to be analyzed. I am all for testing at the most rapid pace possible, but you have to assess and analyze the results of the tests in order to learn from them. It takes a good deal of time to learn from these tests and to plan them. And as I said, they are extremely complex.

And in that regard, I would note that when the Bush administration declared the limited deployment option [LDO] capability achieved with five GBOs and silos at Fort Greely, Alaska, on 30 September 2004 and, on 31 December 2004, when NORTHCOM accepted the LDO capability with eight GBIs and silos at Fort Greely, there had been no successful flight tests at all of the GBI and kill vehicle that were used in that limited deployment option.

The first flight test of the GBI and kill vehicle that were actually deployed occurred on 1 September 2006, about 2 years after the initial deployment was declared. That was a zero offset fly-by that did not achieve a kill.

The first actual intercept with a kill occurred on 28 September 2007. At that time, the test plans that existed all—and they didn't go out nearly as many years as the IMTP does in terms of planning ahead for the testing that is needed in order to collect all the data that will be needed to demonstrate the operational performance of the system. At that time, none of the test plans involved an ICBM intercept. They involved IRBM intercepts for targets fired from Kodiak that were side shots at closing velocities that are substantially lower than would occur during an ICBM test.

We now have ICBM tests planned. The first one will be in the fourth quarter of fiscal year 2015. That will be a salvo shot, two GBIs and an incoming ICBM target. One year later, there will be a multiple simultaneous engagement of two ICBMs. So, in my view, the test plan that we have, which is for GMD, which is the same test plan that we had a year ago, is a robust and rigorous test plan. We can argue about the pace at which it could be achieved. But as I have noted, it is the best—the one-per-year test pace is about the best that we have been able to achieve over a decade because of the complexity of the tests.

Thank you, and I look forward to your questions.

[The prepared statement of Mr. Gilmore can be found in the Appendix on page 84.]

Mr. TURNER. Thank you. Gentlemen, I appreciate your comments. And I think it has been very helpful because it illustrates some of the issues of where the divergent views are on policy.

Dr. Roberts, you said something akin to, well, the simple way would be—and I think it was dot dot dot, fill in more GBIs. And I want to give an analogy. The simple way for the defense would be, load your gun. The long way would be, develop a study of a new gun. The smart way would be, load your gun and study. So what I am concerned with is, is that we are depending too much upon the study phase instead of the current defense phase.

Your statement of the next decade for the SM–3 IIB is where we diverge. Senator Lieberman, as you know, famously called this a paper system. I think we are concerned that we may be throwing paper wads of designs of SM–3 IIBs rather than throwing actual interceptors that could make a difference for the defense of our Nation.

General O'Reilly, you said—I think as an accomplishment, we have upgraded our radar for identifying ICBM launches from the Middle East. You are obviously accomplishing upgrades of looking for things at the time that we are looking at upgrades for encountering them if they should be there.

The issue, Dr. Roberts, of the hedge, our concern with the hedge is not just an assignment that has not been returned to us. It is an administration that we think is unconvinced it needs a hedge. And so, ergo, our concern about being able to have that policy debate back and forth of reviewing what the administration's view is of a hedge and then the view of what Congress would be for the need of a hedge.

Dr. Roberts, I have a great deal of respect for you. You have been incredibly both kind and helpful in all of our discussions, including to this whole committee, in both briefing us and giving us information, so we understand where we are and understanding the administration's policy. I would like to engage you in a series of questions that go to try to get on the record some issues and concerns with respect to the threat.

I want to give you two statements that have been obviously on the record and then have a discussion with you on what information that we can discuss in an unclassified manner, again, looking to your discernment of where that line is, of what we can say about North Korea capability. And let me start by saying that last week at the committee's hearing on the Pacific Command posture, I asked Admiral Willard about the development by North Korea of a road-mobile intercontinental missile defense. Specifically, I had started with the statement from Secretary Gates where he had said, with the continued development of long-range missiles and potentially a road-mobile intercontinental ballistic missile and their continued development of nuclear weapons, North Korea is in the process of becoming a direct threat to the United States.

So I asked Dr. Willard to respond, and he said in our hearing last week, "There is development within North Korea of a road-mobile intercontinental ballistic missile system that we have observed. We have not observed it being tested yet, to my knowledge." That, of course, was his unclassified statement in a hearing.

So, Dr. Roberts, an unclassified answer, is it deployed?

Dr. ROBERTS. There is no unclassified answer to that question.

Mr. TURNER. What can you tell us in an unclassified basis to give us some fidelity into the Admiral's statement or Secretary Gates' statement about the development of the road-mobile intercontinental ballistic missile system that Secretary Gates has indicated he is worried about and Dr. Willard says that there is development of that has been observed, although it has not yet been tested?

Dr. ROBERTS. I wish there was something I could say about that in an open forum, but that information remains classified and a part of what we would like to discuss on the 29th.

Mr. TURNER. Do you agree with Secretary Gates' statement that with the continued development of long-range missiles and potentially a road-mobile intercontinental ballistic missile and their continued development of nuclear weapons, North Korea is in the process of becoming a direct threat to the United States?

Dr. ROBERTS. Yes.

Mr. TURNER. Okay. The reason why I push this is because—and back to your statement, again, of showing that the divergence of the policy issue, is the concern that the development of the SM–3 IIB is a next decade development?

And General O'Reilly, you indicated that you are going to be doubling the numbers, effective numbers of our GBIs. But we all know from the budget that no one sees a physical doubling of our GBIs, which takes me to the next question, which gets us back to the hedge. At what point would North Korea deploy enough ICBMs—or maybe export them to Iran so that we have to look at North Korea and Iran—where there are ICBMs that are deployed, where under our current shot doctrine—I mean, let's not take General

O'Reilly's statement of increased effectiveness—at what numbers would our current GBI inventory be sufficient if they had, let's say, 10 ICBMs between North Korea and Iran pointed at the United States; would we consider that what we currently have in GBI inventory insufficient to need to pursue a hedge or sufficient? Dr. Roberts? General O'Reilly?

Dr. ROBERTS. Again, I think we are both constrained by the fact of classification. The performance characteristics of the GMD system, shot doctrine, classified. The rate at which shot doctrine will improve, classified. The rate at which the threat is growing, classified. So we are eager to have that conversation with you but not in this forum.

Mr. TURNER. Well, one thing that we can have in a unclassified discussion, because General O'Reilly has specifically said it in this hearing, that it would double our numbers. We know, on an unclassified basis, the numbers that are in the ground. So we would know on an unclassified basis that we don't have—I mean, regardless of shot doctrine, we don't have two ICBMs for one GBI, right? We can say that on an unclassified basis, right?

Dr. ROBERTS. It is physically impossible to get to two with one.

Mr. TURNER. Yes. So there is going to be a point at our inventory of that ICBM inventory that might be pointed at us versus inventory that we currently have where we are bypassed, right?

Dr. ROBERTS. Correct.

Mr. TURNER. And I can say on an unclassified basis, certainly the current inventory of those, if that were exceeded, that that would be a limit?

Dr. ROBERTS. Correct.

Mr. TURNER. Dr. Roberts, you know and we all know that there is concern about cooperation with the systems that North Korea and Iran are developing, both between them, with others, and concerns as to how information is being shared, how these systems are being developed.

The concern of sharing is a concern of rapid advancement. Part of the issue that we face as we look to the SM–3 IIB being available in the next decade is an assumption of the current graph of capabilities of the countries that we are looking at. Does it concern you that there might be this sharing that could result in rapid development and then a greater increase of a need for a hedge?

Dr. ROBERTS. Of course.

Mr. TURNER. Will that be part of the hedge document that you are going to deliver to us prior to the markup?

Dr. ROBERTS. Yes.

Mr. TURNER. Great.

General O'Reilly, the Precision Tracking Space System. Last November, I wrote to Secretary Panetta asking a series of questions about the Precision Tracking Space System. I asked specifically, the Cost Assessment and Program Evaluation, CAPE, Office review of the cost be undertaken. While I was told that CAPE would get back to me on this review, I have yet to receive an actual response. I will make the correspondence part of the record that we sent.

[The information referred to can be found in the Appendix beginning on page 114.]

Mr. TURNER. Can you tell me the status of this review.

General O'REILLY. Yes, sir. We have provided data, and we are participating with the CAPE. They are in the lead on doing an independent cost estimate of our numbers that we have used in our evaluation of the PTSS.

Mr. TURNER. General O'Reilly, if Congress provides the funding for this system to go forward, the system which is projected to cost $1.5 billion in the FYDP alone, can you detail when it will have discrimination capability? Will it have it at deployment?

General O'REILLY. It will have some discrimination capability at deployment. It contributes—our approach to discrimination is many layers of assessments, using different frequencies, different radars, different capability. It will provide a critical one because it will be watching the deployment itself. It will see a missile over its entire flight. We are working on advanced capabilities that go beyond that.

Mr. TURNER. How long will the satellites remain in orbit? And are you expecting to have to replenish this system once, twice? How many satellites will it take over a 10-year period, over a 20-year period?

General O'REILLY. The minimum capability for the system is nine. We want to put 20—or 12 on orbit to give ourselves a redundancy and a self-healing capability if something happened to them. Our initial estimate of the life or time on orbit is 3.5 years, but that is done very conservatively; like our current two satellites that are up, they are both very healthy. And at this point, under their original estimate using the same techniques we just talked about, they both would have finished their on-orbit life. So the number I just gave you I believe is very conservative, and that is what our history shows.

Mr. TURNER. So over a 10-year period, you would be estimating at least twice?

General O'REILLY. As we stagger them out, yes, sir.

Mr. TURNER. General O'Reilly, I have a memorandum from General William Shelton. As you know, he helped the Congress work on the issue of protecting our GPS system earlier this year. This memo, dated December 30, 2011, states that General Shelton is interested in the space situational awareness possibilities and the 20 new satellite low-orbit constellation. Can you briefly describe the SSA benefits of this system?

General O'REILLY. Sir, because of the design where it is operating on the Equator looking north, it has a great capability to see the ascending satellites as they are rotating around the Earth and other objects. So the capability for a missile defense system like this will spend most of its time doing functions other than missile defense.

What's driving the design of the PTSS is the need to track a missile over its entire flight. But that itself is an inherent capability to be contributing significantly to space situational awareness and early warning.

Mr. TURNER. Well, the purpose of my question is to ask you to assure Congress that before you proceed too far down the road of this PTSS concept, that you will work with the Air Force Space Command to fully exploit the SSA capabilities of the system, in-

cluding SSA requirements that General Shelton may feel appropriate, while the design phase is taking place.

General O'REILLY. Yes, sir. And that is how I responded back to General Shelton, exactly that way.

Mr. TURNER. Ms. Sanchez.

Ms. SANCHEZ. Thank you, Mr. Chairman.

Before I ask my questions, I wanted to make a brief statement and put it into the record.

It is about the hold that is placed on the reprogramming request for the Army budget due to the concerns by the committee majority about receiving information on EPAA MILCON cost and life cycle cost of the architecture.

And while I agree that the cost information is important and I understand that Chairman Turner and Senator Sessions are waiting for a broader response to their request for the CAPE analysis, I am concerned that prolonging this hold will further withhold approval of the Army's intent to build barracks for our United States soldiers stationed in Turkey. A further delay could result in our U.S. soldiers having to endure yet another long and cold winter of extreme weather conditions at the site in tents ill-suited for that purpose. And I hope that the majority will consider releasing the hold soon because I think that we will have an opportunity to address any outstanding concerns in our bill.

Dr. Roberts and General O'Reilly, the Ballistic Missile Defense Review stated that the U.S. BMD capabilities must be flexible enough to adapt as the threats change. Given the updated intelligence community's assessments of the threat from Iran and from North Korea, is the proposed PA plan, starting with the EPAA in Europe and the current proposed hedging policy, is it still adequate to respond to the threat? Why? Or why not?

Dr. ROBERTS. In our view, the balanced approach we set out is still active to deal with the threat, in part because both approaches are scalable. In fact, we cannot project—the intelligence community cannot tell us the numbers of missiles that we'll face, the numbers and the different inventory types, whether short, medium, intermediate, or long range. There is a great deal of uncertainty about when new threats will emerge and how significantly they will emerge in terms of raw quantitative capability. So we have approaches to the defense of the homeland and approaches to the defense of the regions that are flexible and responsive. I should explain that this is in part what accounts for the slowness with which we have provided the costing information on EPAA.

EPAA is sometimes characterized as a defense acquisition program. It is not. It is sometimes characterized as an architecture. It is not. It is an approach. It is an approach for the flexible use of capabilities over the coming decade, and that flexibility extends not just within a region but across the regions. So we have some uniquely associated assets with each of the regional approaches, for example, radars in Turkey and in the future Romania.

But most of the assets are mobile, relocatable, sea-based, would swing from one region to another in time of crisis. And, indeed, the naval vessels are multi-mission vessels, so how do they get accounted in accounting of EPAA? So, in our view, we have the flexi-

bility in these two approaches that's required, given the uncertainty in future threat development.

Ms. SANCHEZ. General, do you have any comment to that?

General O'REILLY. Congresswoman, I just want to stress the fact that we emphasize in our design of these systems the ability to surge them so you can go to a rapidly increase in the capability in any one region if, in fact, you have to.

Ms. SANCHEZ. Thank you. Thank you, General.

General O'Reilly and Dr. Gilmore, what is the cause for delaying the intercept flight test by 90 days where it slips from fourth quarter fiscal year 2012 to fourth quarter fiscal year 2013? Is that just enough time to ensure that we are getting it right and in the meantime would you be able to use additional GMD funds for fiscal year 2013?

General O'REILLY. The delay in the flight test for the first intercept by 90 days was driven by an assessment done by myself and the senior engineers from the aerospace companies involved. As we looked at the results emerging from the last flight test in the Failure Review Board, we did identify a component that had an error that was not apparent. You couldn't test it with the facilities on the ground. So we have reestablished new specifications that we believe will be robust, and we will prove that in a flight test this summer.

But we also found that not only are the specifications needed to be revised for these devices but the stringency in which they were produced, and it was in the review of the factories and the plants themselves that we saw that we needed more stringent production processes. Unfortunately, these devices are the very first ones you use when you build up enhanced kill vehicle, and so by replacing them with production representative devices actually will cause a delay because we had to start over the production of these KVs.

What was important to me was not only were we going to fly for this next test the design that we have determined we need, but they are built exactly like they'll be built in production. So we have a production representative missile, and it gives us the confidence based on the results of a successful intercept that, in fact, we can put the rest of the production line into operation.

Ms. SANCHEZ. Okay.

Mr. GILMORE. We want to do the tests with the most production representative system that we can so that we can understand how the fueling systems will operate, and so I support the delay in order to make certain that this particular part can be fully production representative.

The first test will be done with an existing part. It will demonstrate mitigations to the problems that were discovered in the earlier flight test with the existing part. But, as General O'Reilly said, they are building a new part and they have to make certain that they are building it to the right tolerances under the right conditions; and so the intercept test, I agree, should be postponed until we can have a fully production representative part in the test.

Ms. SANCHEZ. Thank you.

My next question for Dr. Roberts and for General O'Reilly, the September 2011 Defense Science Board Task Force report on the Science and Technology Issues of Early Intercept Ballistic Missile

Defense expressed concern about the overall effectiveness of U.S. missile defenses. For example, the report points out that the radars deployed in the context of the EPAA have limited capability; and the report also points out that the DOD has not been able to demonstrate the ability to reliability discrimination between warheads, decoys, and other debris. And we have also received the National Academy of Sciences report and the Institute for Defense Analyses report. So what are we doing to increase the reliability and improve discrimination to improve our shot doctrine?

General O'REILLY. As I said earlier, the most effective way, we believe, for discrimination, which is identifying a reentry vehicle [RV] amidst many other objects, is to interrogate that cluster through many different frequencies and many different sensor systems. You want more than one. And also to observe how those objects are coming off a missile as it is finishing its boost phase. So one advantage we saw for the PTSS system is it will observe very early in flight, which today there are locations where a ground-based radar would not have that range in order to see that deployment.

So step one is to watch the deployment of the objects. You can learn a lot from that.

Step two is to employ advanced technologies from space and radars that we are developing today. We can describe in more detail at a higher level of classification. But between the combination of that and the opportunity to study these over a long period of time.

And, finally, when you are in the terminal phase, the best way we know to defeat a discrimination is, especially in a regional context, is as they start reentering the Earth's atmosphere and above 100 kilometers you start to see movement of lightweight replicas and so forth. And that is why the THAAD system, for example, is designed to intercept both in and outside the Earth's atmosphere, so that it can watch the stripping away of lighter objects, and it is a very effective way of identifying where the RV is.

Ms. SANCHEZ. Thank you. Thank you, gentlemen.

Thank you, Mr. Chairman.

Mr. TURNER. Mr. Brooks.

Mr. BROOKS. Thank you, Mr. Chairman.

My question is for Dr. Roberts and General O'Reilly.

Section 1244 of the National Defense Authorization Act for Fiscal Year 2012 prohibits the transfer of classified ballistic missile defense information to the Russian Federation. What instruction has the White House given DOD for implementing Section 1244's prohibition?

Dr. ROBERTS. We have received no special instruction. We have the legislation in front of us. We understand our obligation. We fully intend to comply with the requirement of the law. We intend not to share information with Russia that would in any way endanger our national security, and we intend to keep the Congress informed in this area.

Mr. BROOKS. Is the administration negotiating a Defense Technology Cooperation Agreement with Russia?

Dr. ROBERTS. I honestly don't know the status of that effort, so let me take that question and come back to you with a response and follow-up, if I may.

Mr. BROOKS. When you say you don't know the status of it, does that mean you don't know if they are doing it or you don't know the current status of it, but it is being done?

Dr. ROBERTS. The former.

Mr. BROOKS. General O'Reilly, would you like to add anything, any insight in that regard, either with respect to the National Defense Authorization Act's prohibition of transfer of classified ballistic missile defense information to the Russian Federation and, most particularly, the very expensive hit-to-kill technology that American taxpayers have paid for over the course of many years?

General O'REILLY. Congressman, I am the classifying authority for the Missile Defense Agency in these technologies, and so we have a very strict way of determining and abiding by what is classified, primarily to protect any vulnerabilities or capability that are not apparently available easily. And I have never received a request to release classified information to the Russians; and so, as far as I can tell from my position, there is abidance to this requirement, and I have not seen personally, have no knowledge of anyone transferring that type of technology or proposing to.

Mr. BROOKS. Well, what causes us concern is that there have been many reports in the news media about the potential of this kind of information being transferred to the Russian Federation; and with those kind of media reports—and we all understand how they may be right, they may be wrong—nonetheless, they raise issues.

The President in his signing statement with respect to Section 1244 stated, and I quote, I will treat the provisions as nonbinding, end quote. Do you know why the President in a signing statement with respect to this prohibition of that kind of technological transfer to Russia would state, quote, I will treat the provisions as nonbinding, end quote?

Dr. ROBERTS. The White House's concern is that it not be compromising diplomatic negotiations.

I would like to make the general point that we are keenly aware of the advantages that flow to our national defense from the sophisticated technologies that have been developed for missile defense over the last 20 years. There is no value in handing those away to anybody and risk in doing so.

That said, we are not the first administration to seek cooperation with missile—with Russia on missile defense. We are not the first administration to believe that that cooperation could be well-served by some limited sharing of classified information of a certain kind if the proper rules are in place to do that. The Bush administration headed down precisely the same path.

Now, we are not naive. Cooperation with Russia in this area is not going well, progress will be difficult, but we will keep you fully informed.

Mr. BROOKS. You mentioned the phrase "compromising diplomatic negotiations." If there is no risk of our hit-to-kill technology being shared with Russia, then how could those negotiations be compromised?

Dr. ROBERTS. That is a good question, sir; and I am afraid I don't have a good answer for you.

I do have an additional piece of information, which is that we are currently negotiating a DTCA, we are making no progress in doing so, and that this is a process that started under the Bush administration, not one that we initiated.

Mr. BROOKS. For the record, when you say "DTCA," I know in defense there are a tremendous number of acronyms, you are referring to the Defense Technology Cooperation Agreement?

Dr. ROBERTS. Yes, sir.

Mr. BROOKS. Can you give us any assurances that in the negotiations of this Defense Technology Cooperation Agreement with Russia that the administration is not in any way, shape, or form apt to include transfer of our hit-to-kill technology to Russia?

Dr. ROBERTS. Apt to include? Sir, we have no plans, no ambition, no expectation. Hit-to-kill is our technology, and it serves our interests well to keep it in our hands.

Mr. BROOKS. Is the White House and are you in a position where you can commit to this Congress that that information will not be shared with the Russian Federation?

Mr. TURNER. Your time has expired. Please answer.

Dr. ROBERTS. Yes, sir.

Mr. TURNER. Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman.

General O'Reilly, Secretary Ahern, and Director Gilmore, I want to thank you all for your testimony here today before this subcommittee.

I have, obviously, a long-standing interest in our missile defense program; and I certainly am cognizant of its complexities and the many technical challenges still yet to overcome. However, at the same time, I strongly understand the crucial importance of this program to our defense posture.

General O'Reilly, last year, the House NDAA bill zeroed out the Precision Tracking Space System, PTSS. Why do we need PTSS and what capability for homeland defense would we lose without this capability?

General O'REILLY. Sir, as we look at the proliferation of ballistic missiles around the world, as we have discussed in here, we see pursuit of long-range ICBMs. But if you look at the sheer number of shorter-range ICBMs, estimates are that there is over 6,000 of them in smaller countries around the world and hundreds of launchers. So we believe that the raid size is something that is a particular concern to our deployed forces around the world, raid size meaning the number of simultaneously launched missiles. The PTSS system is designed with that in mind so that it can handle three or four times more and track more ballistic missiles simultaneously than can be tracked with radars.

Also, as we deploy radars around the world, there is an involved process of negotiation and the difficulties of logistics and so forth to support them; and with a satellite system we would have pervasive coverage of the Northern Hemisphere, of the latitudes where we are most concerned about continuously, and we would want to be able to leverage that.

Mr. LANGEVIN. Is it duplicative of existing or future capabilities? You know, can other sensors fulfill similar functions?

General O'REILLY. Sir, there is no sensor that can fill the function of tracking a missile over its entire flight from space in the broad field of views which we need to cover an entire theater where we could see missiles simultaneously launched. This will be the only sensor able to do that in a broad field of view and have the right frequencies on board, the sensors, in order to track a missile as it gets cold after it is launched all the way to before it starts reentering the Earth's atmosphere.

Mr. LANGEVIN. While I still have time, as you know, I have a long-standing interest in directed energy; and I am of the opinion that in the outyears we are going to need the capabilities of directed energy, that kinetic weapons alone will never be able to handle the type of raid sizes that we are going to have to protect against as we go forward. I am talking decade and beyond.

How does the fiscal year 2013 budget request preserve some of the important investments made on a directed energy program, and what updates can you give the committee on progress we are making on directed energy?

General O'REILLY. Sir, with the funding levels that we have received for 2012, we have grounded the airborne laser test platform. But, before we did, we intercepted two missiles at the speed of light from over 50 miles away, proving that the atmosphere could be compensated and other issues.

We learned an awful lot from the ABL. We have a tremendous brain trust in our country now; and our first concern is to preserve that expertise, unique, high-energy laser expertise in industry and in the government team.

So where we want to move next is basically the third generation of an airborne laser system; and we have fundamental research at Lawrence Livermore National Lab, MIT Lincoln Labs, and some of our industry partners that we believe can give us a compact capability that advance us beyond the 1996 capability that we used in an airborne laser system. And by "small" I mean the size of a typical couch, to actually produce the amount of power that we have seen previously only in very, very large aircraft; and that makes the deployment of directed energy much more flexible. And so we have sustained those two programs at Lawrence Livermore and at MIT Lincoln Labs, and we have basically a horse race of who can hit the efficiencies which we are looking for.

Mr. LANGEVIN. Do you have a timeline of when that will have some determining——

General O'REILLY. Sir, we have set up a very definitive list of milestones, technical milestones so we can monitor the progress. If they achieve the milestones they are currently looking at, it will be in the middle of this decade or sooner.

Mr. LANGEVIN. Very good. My time has expired. I have a lot more questions, many more questions, but I will submit those for the record.

And, General, thank you for the job that you and your team are doing. I was impressed by how thorough you are, and again appreciate you and the rest of the members of the panel here for testifying.

With that, Mr. Chairman, I yield back.

Mr. TURNER. Before we move on, I just want to take a moment to recognize our former chair's work in directed energy, and I agree with his statements and appreciate his focus on that.

Turning to Mr. Lamborn.

Mr. LAMBORN. Thank you, Mr. Chairman; and also let me build on that same issue.

Because I share exactly the same sentiments that Representative Langevin just cited; and I have his same concern that we should harvest from the advancements in technology that were made, even though we are seeing the retirement of the airborne platform. And I would be extremely disappointed and concerned that we are not using all the arrows in our quiver to not exploit those possibilities. So you can assure us that we are doing everything we can to harvest and exploit and build on what we have learned in the past?

General O'REILLY. Sir, our funding request was about half of what we requested last year for this area, so we did retire the aircraft earlier. And I am very concerned about the criticality, the critical mass of knowledge that we have in this area; and we have structured our budget this year so that we can maintain the maximum amount of people as well as making progress. But my first focus and my continued concern is on maintaining the personnel in this business that have been working on it for 20 to 30 years, most of whom are Ph.D.s. It is state-of-the-art technology, and it is a tremendous accomplishments we have had, and we want to make sure we apply those lessons learned.

Mr. LAMBORN. Because it was obvious to me that with the advances we are going way beyond the objections people had by saying, oh, keeping aircraft in the air 24/7 was logistically impossible. And, I mean, we were beyond that. Weren't we to the point where we could do seaborne platforms and things like that that were much logistically easier?

General O'REILLY. Sir, one of the advantages we found is, is the higher you go in altitude the smaller the package needs to be to actually compensate for the atmosphere and give you your pointing and so forth. So there was a tremendous amount of learning, and we have maintained the program office at Albuquerque and our aerospace companies that have been involved.

So, yes, sir, there was a tremendous amount of firsts, scientific firsts, we had never done before; and we have learned a tremendous amount that we are anxious to apply to the next generation.

Mr. LAMBORN. Okay, thank you. That is more reassuring.

For both Dr. Roberts and General O'Reilly, have you seen anything in Iran's ballistic missile developments, including space launch technology, in the last 3 years that would change the decision that this administration made in 2009 to adopt the phased adaptive approach? Because, as you know, that was based in part on a revised assessment made at that time that Iran's short- and medium-range missiles were more of a threat than anything longer range. So has there been anything that has changed in the last 3 years that would change that decision you made 3 years ago?

Dr. ROBERTS. The short answer would be no, but that's because I think we view the decision of 3 years ago a little differently, meaning we looked out at the threat environment and saw from Iran both a rapid increase in short-, medium-, and later expected

intermediate-range missiles. And, at the same time, we could see ICBM capabilities aborning in one form or another, at least the technologies maturing that would take them in that capability direction at some point.

And so we look ahead to the threat environment and see the requirement to protect our forces from short- and medium-range and intermediate-range ballistic missile attack by Iran and to provide the means for the protection of our allies and for them to join us in that process.

We also look ahead to the possibility that in the future we will have a rapid increase in the number of ICBMs deployed in Iran, the deployment of countermeasures; and this is a part of the reason we are less persuaded that the GBI pathway is the full solution set to this problem.

If we come to a point where Iran and North Korea are beginning to produce ballistic missiles, deploy them in significant numbers, we need to be able to compensate for that. Indeed, we need to stay ahead of it. When they are at the point of having countermeasures, we have to be capable of doing what all these advisory bodies have told us to do, which is make sure you have the technologies to exploit the full battlespace.

Now, what does that mean? That means that you are not just stuck working in the mid-course phase and that you are not just stuck with terminal defense. You need to get out as far forward into this zone of operation as possible.

So my characterization of our decision of 3 years ago is that we looked into the future and saw significant potential threat developments across the full suite of capabilities, and we needed to have a strategy in place that would meet both sets of threats, and that is why we are wedded to this two-step GBI/SM–3 approach.

Mr. LAMBORN. Okay, thank you all.

Mr. TURNER. Mr. Garamendi.

Mr. GARAMENDI. Thank you, Mr. Chairman; and, for the witnesses, thank you very much for your work, your service, and your testimony.

I am going to continue on the directed energy issue. I personally think it is very exciting and has great potential in many different theaters and applications.

My question goes to General O'Reilly. The research programs at MIT Lincoln Labs and Lawrence Livermore, are they at the same level of funding this year as last year, or do you intend to change the level of funding up or down?

General O'REILLY. Sir, they are at a lower level of funding this year, given the—last year, we went through a transition where we ended up with about half the budget we had requested in this area, and we have been—and at that point we did lose personnel off the program, so we have laid out a more stable workforce. We believe right now the most prudent thing to do is maintain stability in these programs.

At the same time as I retire the airborne laser platform, I do have an environmental remediation bill, about $13 million a year; and given that the funding is around $50 million right now, that is also taxing us from our ability to fund these two research programs that you are referring to.

Mr. GARAMENDI. So will there be layoffs and diminution in the pace and the intensity of the programs at either laboratory?

General O'REILLY. Sir, last year, it occurred at both locations as we went through the——

Mr. GARAMENDI. And for the coming year?

General O'REILLY. At this level right now, we are maintaining where we were at the end of last year, which is lower than we had originally requested.

Mr. GARAMENDI. How much money do you need to maintain the appropriate pace? I am assuming that the present pace is not appropriate, not the desirable pace.

General O'REILLY. It is not as much the—it is the pace, sir, but the concern also is the expertise, maintaining the expertise and allowing them to move as quickly as scientifically and engineering-wise as possible.

We are also working with DARPA [Defense Advanced Research Projects Agency] and other organizations to combine our funding to maximize. But on the order, for example, at Lawrence Livermore, we're about 8 million less than what we had planned this time last year in order to have a stable funding.

Mr. GARAMENDI. Some of that expertise is going to be lost?

General O'REILLY. Yes, sir. They were not able—they may be able to maintain it in the lab—I am not sure—but they weren't able to maintain all of the personnel that were on the program at that time.

Mr. GARAMENDI. So for us to fully fund, we need about another $8 million?

General O'REILLY. That was at the level that the director at Lawrence Livermore and I felt would pace it at a technical pace, rather than one that was restricted by personnel.

Mr. GARAMENDI. It seems to me that this directed energy issue is extremely important, has extraordinary potential, without getting into the details. And so for $8 million out of a nearly $10 billion budget item, is it possible to move some money from somewhere, for example, to stretch out one or another of the multi-billion dollar programs?

General O'REILLY. Sir, we look at the execution of our program during the year and ensure that our contracts are executing as we had funded them. There is always opportunity to look for this. We would have to, obviously, come back for reprogramming actions as we watch, again, the progress that we make based on what was planned.

Mr. GARAMENDI. Let me speak directly to our chairman, Mr. Turner—excuse me—if I might.

It seems to me that we are shorting an extremely important program in the directed energy that many members of your subcommittee are interested in; and it would be, it seems, for $8 million to maintain the desired level at Lawrence Livermore and perhaps something similar at Lincoln Labs that we ought to move some money around or cause it to be moved around so that we could find enough money, $8 million out of a $10 billion allocation per year, for this entire system to make sure that this directed energy program moves——

And I think I am out of time. But, anyway, you know where I am going—or want to go.

Mr. TURNER. Mr. Scott.

Mr. SCOTT. Thank you, Mr. Chairman.

Gentlemen, thank you for being here.

I will try to be brief with this, and I think that maybe some of these will be questions that you will answer under a different setting.

But one of my primary concerns somewhat gets back to the workforce issue that Mr. Garamendi was speaking about, especially with regard to sequestration. The more advanced the weapons system is, the more likely it is that you have an extremely specialized workforce, not only a workforce that is employed by us, but vendors, much more likely to have a single-source vendor for certain supplies that we have to have for our missile systems.

And I don't want you to divulge anything here, General, since you determined what is and isn't classified. Would you speak to the issue of sequestration and the loss of the specialized workforce if we are not able to undo sequestration? And when we get behind closed doors, I think maybe some of the suppliers and the actual equipment that we might lose that would do irreparable harm to the systems that we have.

And then, if you would, just speak, if you will, to our relationship with Israel in making sure that there are adequate systems in place to defend them should they come under a serious missile attack.

General O'REILLY. Thank you, Congressman.

First of all, the concern in the area—I have the exact concern you have. If we have sequestration and a dramatic reduction in our programs, it will be most hardest felt in the supplier base.

And it is not only the availability of the supplies. As we were discussing before, it is the manufacturing processes. And a lot of these components that we use—and we use over 2,000, for example, on a ground-based interceptor—those components themselves are built in a certain way that give it its reliability; and the loss of the workforce in many of these cases I would say would be close to nonrecoverable. Or, if it is recoverable, it is going to be a very painful process.

So, sir, just to summarize again, I think it would be a significant impact to our capability. We may be able to keep the designs, but it is actually the flow of supplies and it is actually the processes and the personnel, the thousands of people that are working on these programs that would be very hard to reconstitute.

From the point of view of the Israeli programs, sir, we are actively involved. We co-manage the Arrow program, especially the Block 4, which has recently been very successful; the David's Sling Weapon System, where the Israeli program office and us are in full agreement on how we manage it. It is managed very rigorously now. And the Arrow-3 missile program. All of these programs are very aggressive with technology.

We are in great admiration of their technical ability, because we have not seen the Israelis not being able to overcome a problem. But it is the pacing of it. They have made a lot of progress over the last couple years, and we are about to sign some new agree-

ments to extend our mutual cooperation in the development of their interceptors.

Last year, I was asked to provide the funding and some oversight on the production of the Iron Dome system; and it has proven to be a combat-effective system, well over 60 percent capability and actually beyond that.

So we work very closely to the Israelis, and we have also expanded our ability to test and hardware in the loop, so that we can assure ourselves with the Israelis that our systems work together and can quantify how theirs and our systems work.

Mr. SCOTT. Thank you, General. And, again, as we go forward, I would like to, you know, make sure that when we are in a classified setting we talk about the potential loss of those vendors and those specialized parts, certainly not in here, and making sure that we do what is necessary in this subcommittee and in the full committee to make sure that we don't risk the loss of any of those things that we absolutely have to have to ensure the viability of these systems.

Mr. Chairman, I yield the remainder of my time.

Mr. TURNER. I am going to recognize Mr. Larsen.

I am going to ask Mr. Scott, if you would, please to take the gavel for a brief moment. I need to step out.

Mr. Larsen.

Mr. LARSEN. Thank you, Mr. Chairman.

Gentlemen, forgive me, I have a cold, and so I will struggle through my questions here if you will just be patient with me.

First, General O'Reilly, can you talk—can you tell us who did the independent reviews on the GMD contract and what history that you have using those agencies or organizations for the independent reviews?

General O'REILLY. Sir, we used the two organizations.

First of all, the contractor came in with his proposal, and us—my agency was the first level of review with the independent review of the cost-estimating approach that the contractors used when they proposed, and we do have support from the defense auditing agencies and the Defense Contract Management Agency on the labor rates and the estimations of the amount of time it would take.

Then what also has been put into place going back a few years is the OSD has another set of reviewers that go through and do an estimate looking at our independent review to make their own judgment on whether or not they believe that the costs are reasonable and accurately portrayed by the proposers.

Mr. LARSEN. Okay, and then can you say who is doing those reviews after you are done? Who at OSD, not which person.

General O'REILLY. It is under the Office of the Secretary of Acquisition, Logistics, and Technology, and it is an interdepartmental group. It has representation from several organizations besides the review I do with the Defense Audit Agency and the Defense Contract Management Agency.

Mr. LARSEN. Thank you.

Mr. Ahern, on MEADS [Medium Extended Air Defense System] we had a conversation here in the other room last year about it. In your testimony, you discuss the proof of concept. Can you just

explain to me what you mean in your testimony by the "proof of concept"?

Mr. AHERN. Yes, sir. Thank you for the question.

The plan is to demonstrate that the effectiveness of the fire control radar, the launchers, the TOC [Tactical Operations Center], the operational center through—well, we have had one launch, as I mentioned earlier, and then two launches, one in the end of this year and one the end of the next year. So the proof of concept phrase means that we are able to demonstrate that this AESA [Active Electronically Scanned Array] radar connected through software, the TOC, to the launcher, using the MSE [Missile Segment Enhancement] missile, is an effective missile defense system.

Mr. LARSEN. And at that point is that forming the basis of the technologies that would then be spun out in MEADS?

Mr. AHERN. Yes, sir, exactly. That really is the value; and it enabled the Germans, the Italians, and also the United States as we went forward to take advantage of that technology in a plug-and-play sense or the technologies as basic technologies themselves.

Mr. LARSEN. Yeah. And the budget request, though, also that includes an additional $400 million to close this out; is that correct?

Mr. AHERN. Yes, sir. The proof of concept was 12 and 13.

Mr. LARSEN. Yeah, right.

Mr. AHERN. And basically to bring us up to conclusion on our MOU commitment, the funding commitment, and the MOU and to give us the opportunity to, as you said, complete the exploration of those technologies and the proof of concept.

Mr. LARSEN. And your written testimony reflects, I guess, comments from the letter from the Italians and the Germans about expectations they have about the United States completing that obligation; is that correct as well?

Mr. AHERN. Yes, sir. Those letters are a jointly signed letter. It is a jointly signed letter.

Mr. LARSEN. It is a jointly signed letter.

Mr. AHERN. And I have had several meetings with my counterparts, and they do expect that from us, yes, sir.

Mr. LARSEN. All right. Well, much like last year when we had this conversation in the hearing, I expect we are going to continue to have it as we go through the markup as well, but look forward to hearing back from you if we have further questions on it.

Mr. AHERN. Absolutely, sir. And, as I said last year, I am committed to keeping you all informed on how we are progressing in the proof of concept.

Mr. LARSEN. Yeah, thanks.

Finally, Mr. Gilmore, if you could just review for me, because I didn't quite put things together, on your testimony you mentioned that we can expect about one test per year, but I wasn't quite sure because we do more than one test.

Mr. GILMORE. That was in ground-based missile defense.

Mr. LARSEN. But we do more than one test per year, so can you clarify what you meant?

Mr. GILMORE. Well, for ground-based missile defense you can expect about one test per year. The total number of tests that were done throughout—that are planned throughout the missile defense program in fiscal year '12 is 28, 13 flight tests and 15 ground tests.

Mr. LARSEN. Right, yeah. Okay.

Mr. GILMORE. So there are many more tests than that, but when it comes to the pace at which you can do the ground-based missile defense tests that employ ground-based interceptors and threat representative targets, it has been about, for the last decade, one per year.

Mr. LARSEN. All right. I will have some follow-up questions.

Mr. GILMORE. And in fact that is what is planned in the IMTP now through fiscal year '22 is the pace of one per year. And again that is consistent with what we have been able to do over the last decade.

Mr. LARSEN. Great. I will have some questions for you for the record just for follow-up. Appreciate it very much. Thank you.

Mr. GILMORE. Okay.

Mr. SCOTT [presiding]. Mr. Ruppersberger.

Mr. RUPPERSBERGER. Yeah, good afternoon, and I am glad you are here. My questions probably will be to you, Dr. Roberts, or to you, General O'Reilly.

I want to talk about the Precision Tracking Space System. Jim Langevin just asked some questions. Basically, the first thing, this is a satellite system that, from my understanding, will have the capability to track ballistic missiles in flight across 70 percent of the Earth. It is my understanding also that this is the only system that would be able to defend the United States in the event of numerous raids. Can you discuss that? Is that the situation?

General O'REILLY. Yes, sir, the satellite system itself is designed from the very beginning to handle very large raid sizes, many tens of missiles being launched simultaneously. We find that that leads you to a different architecture and a fundamentally different design; and working with the Applied Physics Lab at Johns Hopkins, they are leading the design and developing this capability. We believe that by using existing technology and the right architecture, you can, in fact, do that. And this satellite system doesn't replicate the current systems that are up there. It basically leverages them to spot the missiles being launched, and then the satellite system takes over and does the tracking over the rest of the way.

Mr. RUPPERSBERGER. Let me ask you this: In your position—you have a lot of expertise in this area—do you feel the threat of ballistic missiles is going to continue across the globe, that a system like this is necessary for our homeland defense?

General O'REILLY. Yes, sir.

Mr. RUPPERSBERGER. Why?

General O'REILLY. First of all, because of the pervasive nature of it. It can cover comprehensively large areas where, example, if we have an intercept to ensure we hit the right target if there is multiple targets up there. Its ability to see throughout the entire——

Mr. RUPPERSBERGER. Almost like a long dwell. In other words, probably, from my understanding, it will give us capacity for over 73 percent of the globe; is that correct?

General O'REILLY. Of land mass, yes, sir.

Mr. RUPPERSBERGER. Of land mass, okay.

General O'REILLY. It is primarily looking north, at the Northern Hemisphere.

Mr. RUPPERSBERGER. Now, you also mentioned Johns Hopkins Applied Physics Lab. It is my understanding that they are doing the initial design and research. They also have usually been on time and on budget. Is that your experience with them?

General O'REILLY. Yes, sir. They are one of the best we have ever seen in looking at their track record of satellite development.

Mr. RUPPERSBERGER. Okay. Then in order to build this program, if it is funded, then they will throw it out to competition, is that not correct?

General O'REILLY. Yes, sir. After we finish the preliminary design and go into the critical design, at that point we will have a competition for the production of it. But we own the intellectual property is a big difference from the way we are approaching this satellite program.

Mr. RUPPERSBERGER. Okay. You know, when you have a situation with space—and we have to maintain our space. We are the most powerful country in the world, and one of the main reasons we invested the money in the beginning for space and we know we have to continue to be strong in space, especially with the China/Russia threat. Competition is extremely important, in my opinion, to keep the cost down. When Johns Hopkins finishes their design, if they get the funding, then they are going to put out to actually build the program, and they will competitively build it; is that correct?

General O'REILLY. Yes, sir. We will actually do the competition, the Missile Defense Agency, based on the Johns Hopkins design; and it's to the advantage of the bidders to be as close to that design as possible because that will keep the——

Mr. RUPPERSBERGER. But it is also to our advantage because it brings the cost down.

General O'REILLY. Absolutely, sir.

Mr. RUPPERSBERGER. Which is extremely important.

Now the Precision Tracking Space System I believe is a necessity for our country, especially so we are not outgunned by the Irans, the South Koreas, the rogue states. Last year, the funding for this program was cut from this committee. The good news, we were able to restore it in conference. Now I just want to make sure that doesn't happen again. What would be the consequences to our national security if this program, which has been in existence for 2 years, we have already spent the money, would be cut?

General O'REILLY. Sir, the major impact would be we'd lose the ability to assure ourselves that we can track missiles very early in flight, which is key to intercepting early and being on the right end of a defensive position, and so we would lose that ability. We would lose the assurance that we would always have the ability to track missiles no matter where they are launched in the Northern Hemisphere.

Mr. RUPPERSBERGER. We don't have that capacity now, correct?

General O'REILLY. No, sir, not over their entire flight that we can use for an intercept.

Mr. RUPPERSBERGER. Is this the only system that we are moving forward with now that would provide this to us?

General O'REILLY. Yes, sir.

Mr. RUPPERSBERGER. So, again, I am going to ask you the question. If in fact this system were not funded and we would stop the system 2 years in, do you feel it would affect our national security?

General O'REILLY. Yes, sir.

Mr. RUPPERSBERGER. Explain why.

General O'REILLY. Because we would then have to rely on our existing radar systems that are either on our current weapon—our interceptor systems, and it is a much shorter range, so we would not see the missiles until they are much later in flight.

Mr. RUPPERSBERGER. We would basically save money, correct?

General O'REILLY. Yes, sir.

Mr. RUPPERSBERGER. Basically, we would have a lot more coverage than we have now?

General O'REILLY. That is correct, yes.

Mr. RUPPERSBERGER. Right. What would be the percentage of difference between the coverage with this program and what we have now?

General O'REILLY. Currently, we have a handful of radars, so it is hard to even compare. Probably we cover about less than 10 percent of what the PTSS could cover.

Mr. RUPPERSBERGER. All right. So less than 10 percent. From 73 percent to 10 percent, that's significant.

General O'REILLY. Yes, sir.

Mr. RUPPERSBERGER. Okay, thank you.

Mr. SCOTT. Thank you, gentlemen, for coming today.

Members have the ability to submit questions to you within 1 week, over the next week.

And, with that, we are adjourned.

[Whereupon, at 4:50 p.m., the subcommittee was adjourned.]

A P P E N D I X

March 6, 2012

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 6, 2012

Statement of Hon. Michael Turner,
Chairman, Subcommittee on Strategic Forces

Hearing on Fiscal Year 2013 National Defense Authorization Budget Request for Missile Defense

March 6, 2012

Good afternoon. I welcome everyone to today's hearing on the Fiscal Year 2013 National Defense Authorization Budget Request for Missile Defense. We have a great team of witnesses today for this important topic:

- The Honorable Brad Roberts
  Deputy Assistant Secretary of Defense for Nuclear and Missile Defense Policy
  U.S. Department of Defense

- Lt. Gen. Patrick O'Reilly
  Director
  Missile Defense Agency

General, I note this may be your last year appearance before us as your term is up this December. We thank you for your 22 years of service to the United States, General, and we wish you well.

- The Honorable J. Michael Gilmore
  Director, Operational Test and Evaluation
  Office of the Secretary of Defense

- Mr. David Ahern
  Deputy Assistant Secretary of Defense, Strategic and Tactical Systems
  Office of the Under Secretary of Defense for Acquisition, Technology and Logistics

Since entering office, the Obama Administration has demonstrated a lack of interest in, and support for, missile defense—specifically, the defense of the United States.

In its first budget submission to the Congress, President Obama slashed $1.16 billion out of the missile defense budget, more than a ten percent reduction,

in a single year. If you turn your attention to the screen, you will see the FY09 Future Years Defense Plan (FYDP) from the Bush Administration (slide 1) and the FY10 FYDP from the Obama Administration (slide 2).

The President's FY13 submission is, in fact, lower than the President's own FY10 budget request by over $100 million (slide 3).

Remember, slide 1 shows that the FY10 request from the Obama Administration was $1.6 billion less than the previous President recommended and slide 2 shows it was less even than than President Obama's own budget request for FY10.

What's more, the MDA FY13 FYDP projection for FY13-16 is $3.6 billion less than even President Obama's FY12 FDYP projection for FY13-16 just last year and $2 billion less than the previous administration projected for FY13. (slide 4)

And where the President has requested support for missile defense, it has been to support regional missile defenses to the exclusion of national missile defense. According to MDA budget charts, the United States under the Obama Administration will be spending approximately $4 or $5 on regional missile defense, including the European Phased Adaptive Approach (EPAA), for every $1 on national missile defense; this trend continues over the FYDP. (slide 5 and 6)

Let me caveat to say that everyone of these slides comes right from MDA or MDA numbers, other than slide 6 which we put together based on the MDA Budget Outline breakdowns for FY13. I note the so-called "hedge" we see on slide 5 is the IIB and PTSS systems, which the MDA Budget Outline for FY13 labels an EPAA regional contributor. (slide 7)

As we know, the Administration is "contributing" the EPAA to NATO free-of-charge. Such a contribution could cost the U.S. as much as $8.5 billion over the course of the FYDP (FY13-17). Possibly more.

According to the GAO, responding to a request regarding the EPAA from Mr. Langevin and me in 2009, "the limited visibility into the costs and schedule for EPAA…reflect the oversight challenges with the acquisition of missile defense capabilities that we have previously reported."

Senator Sessions and I were concerned enough about these challenges related to the EPAA that we wrote to Mr. Frank Kendall, the President's nominee for the Under Secretary of Defense for Acquisition, Technology and Logistics in November of last year to ask for help in remedying what GAO has found concerning an inability to cost the EPAA system. Three months later, less than three weeks ago, we were told that DOD would work to develop such a cost; I hope so, but I understand we won't have it until July. I will make both of these letters a part of the record today.

We need these costs because as we look ahead to the budget, we have to understand how we're helping the Administration to deliver on what it says is its number one priority: the defense of the homeland. I have to say, I'm not sure how we're doing that in this budget.

The final budget of the previous Administration, the FY09 budget request, requested **$1.5 billion** for national missile defense, the ground-based midcourse defense (GMD) system. But, the President's budget request for FY13 seeks **$900 million—$260 million less than the FY12 request**, which was itself a **decrease of $185.0 million from FY11**.

At the same time, we have had two test failures of the GMD system, and I understand we won't see a return-to-flight flight test for the CE2 kill vehicle for two more months than projected (to July 2012) and the return-to-flight intercept test for the CE2 kill vehicle will be delayed three months (to December 2012).

Yet, the nuclear and missile programs of Iran and North Korea have continued to expand. And, Secretary Gates referenced a potential new North Korean mobile Intercontinental Ballistic Missile in June of 2011 at the Shangri La conference:

> with the continued development of long-range missiles and potentially a road-mobile intercontinental ballistic missile and their continued development of nuclear weapons, North Korea is in the process of becoming a direct threat to the United States.[1]

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[1] Remarks by Secretary Gates at the Shangri-La Dialogue, International Institute for Strategic Studies, Singapore, June 3, 2011.

A road mobile intercontinental ballistic missile would be a profound leap forward in North Korea's ballistic missile technology. I remind my colleagues of our classified briefing on this subject last November.

Yet, we cut GMD, and General O'Reilly, this budget continues to underfund national missile defense.

General, I appreciated your comment in my office the other day that more of your time is spent on GMD than any other program, but, I have to say, your time doesn't appear to be a substitute for the Administration's short changing of the programs in its budgets as evidenced by the last two test failures.

And now I see that we're going to mothball Missile Field 1 and the Sea-based X-band radar. General, I know you'll say that we're not mothballing the SBX system, but the $10 million request simply does not fund keeping this radar in a ready status able to deployed to defend the homeland at a moment's notice.

I am grateful that the Administration appears ready to finally brief the hedging strategy for homeland missile defense, but, I note that this strategy is long overdue. Dr. Roberts, we've discussed this. Dr. Miller and you essentially promised we would have this within weeks of your last appearance before us this time last year.

I trust that the strategy will answer this committee's concerns, but, I note that there is no money in the budget request to do anything approximating a real hedge. No money to deploy additional GBIs, beyond the test articles being purchased this year. No money to dig more holes at Fort Greely or Vandenberg, or even to maintain all of the silos we have there.

And, when five members of this subcommittee and I wrote to Secretary Panetta in November asking about the hedging strategy, the response we got back indicates that while Iran and North Korea are developing and perhaps readying the deployment of significant numbers of ICBMs, the Obama Administration is concentrating on building communications terminals and crossing its fingers about reliability improvements. I will make both of these letters a part of the record. I note that we are not, in fact, even testing the system against an ICBM target for three, possibly four more years.

And, I don't even see a dollar for an East Coast site, which NORTHCOM recommended before the EPAA was announced, and which the Institute for

Defense Analyses and the National Academies of Sciences, recently recommended.

Not even a cent for environmental impact study work, which would consume at least 18 months of time. Why not knock this out of the way to at least have the option to proceed if you're wrong about the Iranian threat?

Let me note something else of interest to the Subcommittee: the Administration made a series of promises to the Congress in its 2010 Nuclear Posture Review and the 1251 plan. Dr. Roberts, I know you are intimately familiar with those promises. When the President decided to break his promise to fully fund that plan he reevaluated his policy and decided that it could afford more risk by delaying the B61 gravity bomb, the W76 warhead, and indefinitely delaying the CMRR facility in New Mexico.

However, when the President decided to cut $3.6 billion out of his own missile defense budget, we lose six GBI silos in Alaska, we mothball the SBX, we cut the number of TPY-2 radars we are procuring, we cut three THAAD batteries and over sixty THAAD interceptors…yet, we continue with the EPAA without delay.

In fact, we increase the budget for the PTSS system and other EPAA systems like the IIB missile, which, according to the MDA budget outline for FY13 (slide 7), which I will make a part of the record, are regional systems in support of the EPAA.

Now I don't think we should have to choose between regional missile defense and national missile defense, but, I also don't think it's a good idea, as apparently the President does, to gut our GMD system, or for the President to cut his own missile budget by $3.2 over the next several years, or to underfund missile defense by $2 billion this year alone based on the level of funding the Bush Administration projected we would fund missile defense (slide 1 and 3).

Let me dwell on this graphic long enough to note that many of these cuts occurred when the Obama Administration first came to office…it isn't possible to blame all of these cuts on the Budget Control Act as the President does all too often when convenient to him.

The President's missile defense policy must be reevaluated, and national missile defense must be adequately funded, as opposed to the mere lip service paid to it by the Obama Administration.

Ms. Sanchez, I look forward to your opening remarks.

Hearing on the FY13 National Defense Authorization Budget Request for Missile Defense

March 6, 2012

Ranking Member Loretta Sanchez
Opening Statement

I would like to join Chairman Turner in welcoming Dr. Roberts, General O'Reilly, Dr. Gilmore and Mr. Ahern to this hearing on the FY13 budget request for Missile Defense Activities.

I'd like to begin by addressing cost.

Our country is weathering a serious economic crisis, which means we must do more with less. We cannot continue to spend as if nothing has changed. Last summer, Congress debated and passed the Budget Control Act which imposes crucial funding caps to regain control of the fiscal crisis we are in.

Since 1999, we have invested over $90 billion and the FY 13 budget request for missile defense is nearly $10 billion. Now, more than ever, is the time for smart investments driven by strategy to meet our current and future security needs.

We must focus on proven technology against the most likely short and medium-range threats, make careful investments to prepare for developing threats, and leverage international cooperation to increase opportunities for burden-sharing.

This means ensuring the development of mature, operationally proven and reliable technology before producing and deploying it.

In the immediate term for example in the GMD program which stands at about a 45% test success rate, it means determining the causes of the recent test failures are adequately resolved and corrected before buying additional costly interceptors. I am pleased that a rigorous analysis is being done to correct the problems as we go forward.

Smart investments also mean enhancing discrimination and reliability by making improvements to existing capacity. This approach will improve our shot doctrine and maximize the use of available interceptors. We can no longer afford costly investments that are wasteful or unnecessary.

And as the Ballistic Missile Defense Review (BMDR) stated, "the commitment to new capabilities must be sustainable over the long-term." I am encouraged that the Administration is implementing a layered defense to protect the homeland, our deployed troops and our allies.

Which brings me to last point on international engagement.

We must partner with allies for effective burden-sharing and providing an effective defense. I commend the Administration for strengthening international cooperation on missile defense.

We have seen significant progress in working closely with NATO as we implement the first phase of the European Phased Adaptive Approach which protects our forward-deployed troops and our NATO partners.

And we are sustaining robust cooperation with Israel and Japan, and our other allies. Identifying increased opportunities for burden-sharing will only become more important.

As we develop defenses against the threats from Iran and North Korea, continuing to seek cooperation with Russia, making progress in engaging China, and reducing the risk of miscalculation and misperception will remain crucial to preserving strategic stability and avoiding a potential dangerous nuclear arms race. A return to a nuclear weapons buildup would prove unnecessarily dangerous and expensive.

Again, welcome. I look forward to the discussion.

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THE HOUSE ARMED SERVICES COMMITTEE

STATEMENT OF

DR. BRAD ROBERTS
DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR NUCLEAR AND
MISSILE DEFENSE POLICY
BEFORE THE HOUSE ARMED SERVICES COMMITTEE
MARCH 6, 2012

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THE HOUSE ARMED SERVICES COMMITTEE

Introduction

Chairman Turner, Ranking Member Sanchez, and members of the subcommittee, thank you for the opportunity to testify in support of the Department's Fiscal Year (FY) 2013 budget request for missile defense. As the new defense strategy makes clear, ballistic missile defense is a key capability for the United States with important ramifications in several of the Department's key mission areas.

In February 2010, the Administration completed the congressionally mandated review of missile defense policies and plans, the Ballistic Missile Defense Review (BMDR). This comprehensive review set out the following key policy priorities:

- First: The United States will continue to defend the homeland against the threat of limited ballistic missile attack.
- Second: The United States will defend against regional missile threats to U.S. forces, while protecting allies and partners – and enabling them to defend themselves.
- Third: Before new capabilities are deployed, they must undergo testing that enables assessment under realistic operational conditions.
- Fourth: The commitment to new capabilities must be fiscally sustainable over the long term.
- Fifth: BMD capabilities must be flexible enough to adapt as threats change.
- Sixth: The United States will seek to lead expanded international efforts for missile defense.

A year ago, we provided you an update on the status of our efforts to implement these policies. That testimony highlighted our progress with our NATO Allies in implementing the European Phased Adaptive Approach (EPAA).

This year I would like to focus on our progress in three key areas: sustaining a strong homeland defense, strengthening regional missile defense, and fostering increased international cooperation.

Sustaining a Strong Homeland Defense

On homeland defense, our policy is informed by the following key judgments:

- The homeland is currently protected against potential limited intercontinental ballistic missile (ICBM) attacks from states like North Korea and Iran. This is a result of the steady progress over the past decade in developing and deploying the Ground-based Midcourse Defense (GMD) system. This system consists of Ground-Based Interceptors (GBIs), early-warning radars, sea-based radar systems, and a sophisticated command and control architecture. With 30 GBIs in place, the United States is in an advantageous

position vis-à-vis the threats from North Korea and Iran. Although both countries have active programs to develop long-range ballistic missiles and space-launch vehicles, neither has successfully tested an ICBM or demonstrated an ICBM-class warhead.

- Maintaining this advantageous position is essential. This requires continued improvement to the GMD system, including enhanced performance by the GBIs and the deployment of new sensors. It also requires the development of the Precision Tracking Space System (PTSS) to handle larger raid sizes and the Standard Missile 3 (SM-3) Block IIB as the ICBM threat from states like Iran and North Korea matures. These efforts will help to ensure that the United States possesses a superior capability to counter the projected threat for the foreseeable future.

- The United States must also be well hedged against the possibility that new threats may emerge so rapidly as to call into question the currently advantageous position. It is also prudent for the United States to have a hedge strategy to address possible delays in the development of our missile defense. Key elements of the hedge were set out in the BMDR two years ago, including completion of the second field of 14 silos at Fort Greely, Alaska. This increases the availability of silos in the event that additional GBI deployments become necessary. Additionally, we continue to develop the two-stage GBI. In addition, the BMDR conveyed the Administration's commitment to pursue additional programs to hedge against future uncertainties.

The commitment to continued improvement of the GMD system is reflected in budget requests to:

- Implement an aggressive GBI reliability improvement program;
- Deploy forward-based AN/TPY-2 radars;
- Develop the Precision Tracking Space System;
- Upgrade the Command, Control, Battle Management, and Communications (C2BMC) system;
- Emplace an additional In-Flight Interceptor Communications System Data Terminal on the U.S. East Coast; and
- Upgrade the Early Warning Radars at Clear, Alaska and Cape Cod, Massachusetts by 2017; and
- Accelerate C2BMC development and discrimination software to handle larger raid sizes.

These improvements in sensor coverage, command and control, and interceptor reliability will have a significant impact on the expected performance of the GMD system. Their net effect will be to reduce the number of GBIs required per intercept, which will increase the number of ICBMs that can be defeated by the GMD system.

The commitment to the SM-3 IIB as part of the longer term solution is reflected in a request for a renewal of full funding for its development. When deployed in Europe beginning in the 2020 timeframe, the SM-3 IIB will provide an opportunity for early intercept of potential Iranian ICBMs. This also provides the United States with an additional type of interceptor for defeating ICBMs.

The commitment to being well hedged is reflected in a request to purchase an additional five GBIs. This will ensure the capability to rapidly emplace additional missiles in Missile Field 2, if necessary. It will also maintain enough GBIs for testing and operational spares. This decision also keeps the GBI production line warm in case the purchase of additional GBIs is needed in the future. These decisions follow the Department's commitment to pursue "additional programs to hedge against future uncertainty." To support those decisions, the Department has conducted a comprehensive review of possible future developments in the threat and of how best to ensure timely response to currently unpredicted developments. The Department will provide a classified summary of this work to the Subcommittee prior to mark-up.

Strengthen Regional Missile Defenses

On regional missile defense, our policy is informed by the following key judgments:

- After a decade of significant progress in developing and fielding capabilities for protection against short- and medium-range ballistic missiles, the United States is capable now of significantly strengthening protection of its forces abroad and to assist its allies and partners in providing for their own defense.

- The need to strengthen protection significantly is clear, as the threat is rapidly expanding in regions where the United States offers security assurances.

- Fixed architectures lack the flexibility to meet rapid and unexpected developments in the regional missile threat; so a more flexible approach is needed.

- Regional approaches must be tailored to the unique deterrence and defense requirements of each region, which vary considerably in their geography, history, character of the threat faced, and in the military-to-military relationships on which we seek to build cooperative missile defenses.

- Because the demand for missile defense assets within each region over the next decade will exceed supply, the United States will develop capabilities that are mobile and re-locatable.

- Missile defense is an integral part of a comprehensive U.S. effort to strengthen regional deterrence architectures. It plays a central role in the new strategic guidance the department released in January 2012.

- Regional missile defense architectures are not meant as a substitute for the defense of the homeland. However, over time they can become effective means to that end if threats to the homeland appear in specific regions as states like Iran and North Korea develop and deploy intercontinental-range capabilities.

The BMDR set out this new policy framework and committed the United States to pursue a phased adaptive approach (PAA) to missile defense within each region. The 2010 BMDR Report set out in detail the first regional application—in Europe. It also indicated that the approach would be applied in East Asia and the Middle East. A short summary of our progress on each of these projects follows.

PAA Implementation: Europe

A year ago, we were pleased to be able to report to you substantial progress within NATO in support of missile defense. At the 2010 summit in Lisbon a few months earlier, NATO heads of state and government had taken the unprecedented step of deciding to put in place full coverage and protection for the Alliance's European populations, territories, and forces against ballistic missile attacks. NATO also decided at Lisbon to expand its existing missile defense command-and-control backbone — the Active Layered Theater Ballistic Missile Defense (ALTBMD) — to encompass territorial missile defense. ALTBMD's initial capability is now in place, and will continue to evolve towards full capacity in 2018. EPAA will be the U.S. contribution to NATO missile defense. Almost precisely one year ago, the first deployment of EPAA capabilities came when the guided missile cruiser USS Monterey, carrying SM-3 interceptors, deployed to Europe.

In the interim, we have continued to make steady progress in implementing all four phases of the EPAA.

The elements of the first phase of EPAA are now in place. As noted, Phase 1 began with deployment of the first BMD-capable ship in March 2011. We have continued to maintain a sea-based missile defense presence in the region since that time. In August of last year, Turkey announced that it would host the forward-based radar as part of NATO's missile defense plan. By the end of 2011, the radar was deployed to the Turkish military base at Kürecik. Additionally, associated command and control capabilities are now operational, such as the U.S. Air Operations Center at Ramstein Air Base, Germany. Also of note, ALTBMD's interim capability is operational, and will continue to evolve towards full capability in the 2018-2020 timeframe.

In Phase 2, the architecture will be expanded with a land-based SM-3 site, or Aegis Ashore, in Romania, and SM-3 Block IB interceptors that will be deployed on land and at sea. The Ballistic

Missile Defense Agreement (BMDA) with Romania entered into force in December 2011, so the groundwork has been set for the site to become operational in the 2015 timeframe.

In Phase 3, a second land-based SM-3 site will be deployed in Poland. The more capable SM-3 Block IIA interceptors will be deployed on land and at sea, extending coverage to all NATO European countries. The Polish BMDA entered into force in September 2011.

Finally, with respect to Phase 4, the Department has begun concept development of a more advanced version of the SM-3 interceptor, the Block IIB, for deployment in the 2020 timeframe. This interceptor will be an especially important enhancement to the EPAA because Iran continues to develop ballistic missiles that are capable of threatening all of NATO Europe and the technology needed to field an ICBM that could threaten the U.S. homeland. The SM-3 IIB will be the most capable interceptor for addressing intermediate range ballistic missile (IRBM) threats to Europe and will enhance the protection of the United States by providing an early shot against an Iranian ICBM headed towards the U.S. homeland.

We have also taken steps to efficiently resource the requirement for sea-based BMD capabilities in all phases of the EPAA. Spain has agreed to host four U.S. Aegis destroyers at the existing naval facility at Rota. These multi-mission ships will support the EPAA, as well as other U.S. European Command and NATO maritime missions. The first two ships are scheduled to arrive in 2014, and two more ships will arrive in 2015.

The Committee has expressed a specific interest in the cost of this approach and the Department has signaled its intention to provide additional analysis. In this era of tightly constrained budgets, the Department's objective is to acquire flexible and adaptive missile defense capabilities and employ them in the most efficient way possible. The EPAA is consistent with this objective. We will deploy a level of capability that is commensurate with regional security needs in times of relative stability. By design, in times of tension or crisis, the United States is able to surge mobile and transportable missile defense capabilities into the region as a flexible deterrent option or, should deterrence fail, to defend against a ballistic missile attack. For this reason, placing an accurate cost on this regional missile defense approach becomes complicated and must be based upon assumptions of force levels and duration. Nevertheless, we will do our best to prepare an estimate of the EPAA to ensure we are employing our regional missile defense capabilities as efficiently as possible.

NATO Missile Defense

As we continue to implement the EPAA, we are also supporting the President's commitment to contribute the EPAA capabilities to NATO missile defense. The U.S. decision to implement the EPAA in a NATO context was instrumental in building a strong consensus among the Allies in support of missile defense.

NATO is now focusing on defining the command and control procedures that will guide how NATO missile defense will operate. At the May 2012 NATO Summit, the United States and the Allies plan to declare that NATO has achieved an "Interim BMD Capability."

In essence, this will mean that each nation's missile defense contributions, including the U.S. EPAA assets, will operate under the same "playbook" developed and agreed by Allies. Much of this work has already been completed, and the United States will continue to support and guide these efforts to ensure that NATO missile defense procedures result in the most effective and efficient missile defense protection of NATO European populations, territory, and forces possible.

As the EPAA continues to evolve, so will NATO missile defense. In the coming years, NATO will work towards future milestones for territorial missile defense. NATO is fully engaged in developing the details necessary to fully implement the Alliance missile defense decisions announced at the Lisbon Summit. Key enhancements of the future NATO missile defense capability will include:

- Engagement coordination among Allies to ensure the most efficient defense;
- Real-time sharing of engagement-quality data to improve the chances of engagement success;
- The ability to coordinate and manage "upper-layer" missile defense capabilities (defense against longer-range threats).

As a result, NATO's capacity to accommodate and coordinate additional Allied contributions will grow. Meanwhile, the United States will continue to deploy all four phases of the EPAA as a contribution to NATO missile defense.

There are still some complicated issues that must be resolved, as there are with any new capability at NATO, but the work is being driven by the political consensus achieved at Lisbon. The Allies agree that the ballistic missile threat to NATO is growing more urgent, not less. Furthermore, we agree that missile defense is a critical new capability in order to meet this threat and adapt to the evolving 21st century security landscape.

Phased Adaptive Approaches in Other Regions

We are also working to implement the principles of the phased adaptive approach in the Asia-Pacific and the Middle East, building on the existing foundations of U.S. defense cooperation in these regions. These regional approaches must be tailored to the unique mix of threat and geography in each region. In Asia, the security environment is largely maritime in character, with some vast distances. The Middle East is far more compact, and the threat comes from missiles of short and medium range. Moreover, the footprint of U.S. military presence is different in each region, and will evolve in different ways over the coming decade. The potential

threat to the U.S. homeland from regional actors varies, and with it requirements for the role that regional defenses play in protection of the United States.

These regional approaches to ballistic missile defense should allow strong partnerships with regional allies and partners in meeting emerging security challenges, and provide opportunities for building partnership capacity.

Strengthening International Cooperation

There has been significant progress in the area of international cooperation on missile defense. Let me highlight a few areas of particular note.

Europe

Within NATO, Allies are stepping up as contributors to the NATO missile defense effort. Germany and the Netherlands currently field Patriot PAC-3, Greece and Spain operate Patriot PAC-2, and France and Italy have the SAMP/T system, which has capabilities similar to those of the Patriot.

Other Allies plan to commit additional capabilities to contribute to NATO missile defense. The Netherlands has approved plans and funding to upgrade the SMART-L radar on four air defense frigates, giving the ships a BMD sensor capability. Additional sensor capabilities can greatly enhance the effectiveness of a BMD architecture. Germany is also exploring airborne sensor concepts that could support NATO BMD. In addition, France has proposed a concept for a shared-early warning satellite, and is developing a transportable midcourse radar for BMD and early warning.

NATO Allies have shown their financial, political, and military support for the implementation of EPAA and NATO missile defense in other ways. The commitment to upgrade the ALTBMD command and control system noted above was backed with an Alliance funding commitment. Turkey, Romania, Poland, and Spain have all agreed to host U.S. assets in support of NATO missile defense. These host governments will bear the costs of providing perimeter defense and security for the U.S. assets and infrastructure.

Looking to the future, the United States will continue to encourage its NATO Allies to do even more to cooperate and invest in missile defense. Several Allies have modern surface combatant ships that could be upgraded with a BMD sensor or shooter capability. A number of NATO Allies have also proposed concepts for a multinational interceptor "pool" concept, whereby Allies collectively purchase interceptors such as the SM-3 to support NATO missile defense. Additionally, some Allies are considering the purchase of Patriot PAC-3.

Asia-Pacific

In the Asia-Pacific region, Japan has acquired its own layered missile defense system, and the United States and Japan regularly train together, learn from each other, and have successfully executed cooperative BMD exercises and operations. The United States and Japan are also partnering in the co-development of an advanced version of the SM-3 interceptor, the SM-3 Block IIA.

The United States and Australia signed a memorandum of understanding on missile defense cooperation in 2004 and partner on ballistic missile defense research and development, most notably in the field of sensors.

The United States also continues to consult with the Republic of Korea regarding its future ballistic missile defense requirements.

The United States engages in a trilateral dialogue with Japan and Australia and another trilateral dialogue with Japan and the Republic of Korea. Missile defense is a topic addressed within each of the dialogues. These trilateral dialogues are a key element of U.S. efforts to expand international missile defense cooperation, strengthen regional security architectures, and build partner capacity.

Middle East

The United States and Israel cooperate extensively on missile defense issues. We have a long history of cooperation on plans and operations as well as specific missile defense programs. We hold regular consultations, and have conducted joint exercises since 2001 that are aimed at improving interoperability between U.S. and Israeli missile defense systems. In 2008, our countries worked together to deploy a forward-based radar in Israel to enhance the U.S. and Israel's missile detection capabilities. The United States' support to the security of Israel remains steadfast. U.S. security assistance to Israel has increased every year since FY2009. The Administration has requested nearly $450 million for Israeli rocket and missile defense between FY 2010 and 2013 and secured an additional $205 million in FY2011 to procure Iron Dome defense systems.

Separately, the United States is working with a number of Gulf Cooperation Council (GCC) countries on missile defense, including exploring the purchase of U.S. missile defenses through the Foreign Military Sales program. For example, the United Arab Emirates (UAE) recently signed an FMS case to purchase Terminal High Altitude Aerial Defense (THAAD) batteries, interceptors and associated equipment, and had earlier made a decision to purchase Patriot systems from the United States. These systems will greatly enhance the UAE's defense against ballistic missile attack. As our partners acquire greater missile defense capabilities, the United States will work to promote interoperability and information sharing among the GCC states. This will allow for more efficient missile defenses and could lead to greater security cooperation in the region.

A primary purpose of the phased adaptive approaches to regional missile defense is to build upon this solid foundation of cooperation in each of these regions to achieve needed protection improvements over the coming decade.

Russia

The United States has sought cooperation with Russia on missile defense, both bilaterally and with our Allies through the NATO-Russia Council. We are pursuing this cooperation because it would be in the security interests of the United States, NATO, and Russia by strengthening the defensive capabilities of both NATO and Russia. Allies embraced such cooperation with the hope of advancing broader strategic partnership with Russia. The United States has pursued missile defense cooperation with Russia with the clear understanding that we would not accept constraints on missile defense, we would implement all four EPAA phases, and Russia would not have command and control over the defense of NATO territory. NATO would be responsible for the defense of NATO, and Russia would be responsible for the defense of Russia.

The United States has kept the Congress and our Allies informed about our efforts to reach agreement with Russia to cooperate on missile defense, which have included the proposal of two missile defense cooperation centers in Europe. The United States has been open and transparent with Russia about our plans for missile defenses in Europe, and explained our view that missile defense in Europe does not threaten the Russian strategic nuclear deterrent.

Although we have had no breakthroughs, the Administration remains committed to pursuing substantive missile defense cooperation with Russia because it remains in our security interests to do so and, as President Medvedev noted in a statement last fall, Russia indicates that it remains open to further discussions and seeks a mutually acceptable agreement on the way forward.

The President's Budget for FY2013

The FY2013 budget requests $9.7 billion in FY2013 and $47.4 billion over the next five years to develop and deploy missile defense capabilities that protect the U.S. homeland and strengthen regional missile defenses. This number is less than last year's request, but it nevertheless demonstrates a continued high-level commitment to developing cost-effective missile defense capabilities while maintaining our commitments to homeland and regional defense. The phased adaptive approach to regional missile defense is fully in line with the main themes of U.S. defense strategy in a period of budget austerity.

This approach puts emphasis on a flexible military toolkit with forces that are mobile and scale-able so that they underwrite deterrence in peacetime, but can be surged in crisis to support additional war-fighter requirements.

On homeland defense, the budget takes advantage of savings from the GMD system competition, while continuing to improve the performance of the system while hedging against uncertainty. With regard to regional missile defenses, the budget request continues to increase the pool of mobile, re-locatable assets for the phased adaptive approaches -- but at a somewhat slower rate. This budget includes the purchase of an additional THAAD battery, an AN/TPY-2 radar, and SM-3 IB interceptors, as well as the conversion of three Aegis ships to bring the total number of BMD-capable ships to 32. The budget also includes $46.9 million for directed energy research. The budget forced us to make difficult choices that entail some risk. However, the missile defense capabilities we are pursuing enable us to field a force that is flexible and adaptive, and that can surge to meet the requirements of an uncertain future.

The FY2013 budget request also includes funding for the SM-3 IIB and Precision Tracking Space System (PTSS), two programs that faced Congressional reductions in the previous budget that will cause delays in their deployment timelines. These programs are vital to addressing the long-term threats from regional actors such as Iran and North Korea, so slips in the program schedules due to budget reductions introduce additional risk. The SM-3 IIB will provide improved protection against intermediate-range ballistic missile (IRBM) threats as well as supplement the protection of the homeland provided by the GMD system against ICBM threats with a significantly lower cost interceptor than the GBI. PTSS will also contribute to both homeland and regional missile defense by providing persistent coverage and tracking of ballistic missiles over their entire flight and address larger raid sizes. This will improve the performance of our missile defenses by providing better data to the interceptors and allowing us to more efficiently allocate terrestrial sensor resources more efficiently.

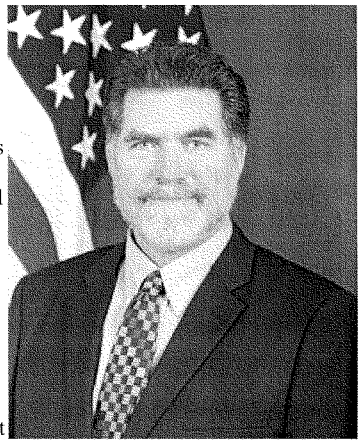
Conclusion

With your support, we have been able to make significant progress in strengthening the protection of the United States, our forces, and our allies and partners abroad from the threat of coercion and attack by ballistic missiles. We are grateful that Congress has been supportive of the President's missile defense annual budget requests, and in these more austere budget times, we hope for your continued support. We have had to make some difficult choices in this year's budget, but the result is fully consistent with the policy commitments set out in the BMDR.

Again, thank you for the opportunity to speak here today before the members of this Subcommittee. I look forward to answering your questions.

Bradley H. Roberts

Deputy Assistant Secretary of Defense for Nuclear and Missile Defense Policy



The Deputy Assistant Secretary of Defense (Nuclear and Missile Defense Policy) (DASD (NMD)) is responsible for providing policy advice and support to the Secretary of Defense and other senior Department of Defense (DOD) leaders by formulating, recommending, integrating, and implementing policies and strategies to improve United States strategic and conventional strike capabilities, defenses, arms control and related matters. This encompasses DoD policy relating to requirements, capability development, operations, declaratory policy, employment, and international cooperation or agreements (including arms control agreements) in the areas of missile defense, nuclear forces and global strike.

From 1995 until assuming his current responsibilities, Dr. Roberts served as a member of the research staff at the Institute for Defense Analyses in Alexandria, Virginia. Dr. Roberts also served from 2003 to 2009 as a member of DoD's Threat Reduction Advisory Committee and as chair of its panel on DoD implementation of the National Strategy to Combat WMD. He is an associate professorial lecturer at George Washington University, currently on leave from this responsibility. He has also served as special advisor to the STRATCOM Strategic Advisory Group, as vice chairman of the board of the U.S. Committee of the Council for Security Cooperation in The Asia-Pacific, as chairman of the research advisory council of the Chemical and Biological Arms Control Institute, and as member and founding chairman of the Threat Reduction Program Review Committee of Los Alamos National Laboratories. From 1986 to 1996 Dr. Roberts was editor of The Washington Quarterly and a research fellow at the Center for Strategic and International Studies (CSIS). His publications include articles in Foreign Affairs, International Security, and other leading journals. His most recent IDA publication is: Asia's Major Powers and the Emerging Challenges to Nuclear Stability among Them.

Dr. Roberts holds a bachelor's degree from Stanford University, a master's degree from the London School of Economics and Political Science, and a doctorate from Erasmus University, Rotterdam.

Unclassified Statement of

Lieutenant General Patrick J. O'Reilly

Director, Missile Defense Agency

Before the

House Armed Services Committee

Subcommittee on Strategic Forces

Regarding the

Fiscal Year 2013 Budget Request

Tuesday, March 6, 2012

Embargoed Until Released by the

House Armed Services Committee

United States House of Representatives

Lieutenant General Patrick J. O'Reilly, USA
Director, Missile Defense Agency
Before the
House Armed Services Committee
Strategic Forces Subcommittee
March 6, 2012

Good morning, Chairman Turner, Ranking Member Sanchez, other distinguished Members of the subcommittee. I appreciate the opportunity to testify before you today on the Missile Defense Agency's (MDA) $7.75 billion Fiscal Year (FY) 2013 budget request to develop protection for our Nation, our Armed Forces, allies, and partners against the proliferation of increasingly capable ballistic missiles. The Department developed the FY 2013 President's Budget Request in accordance with the February 2010 *Ballistic Missile Defense Review*, which balanced affordability concerns with intelligence community updates. We continue to demonstrate and improve the integration of sensor, fire control, battle management, and interceptor systems that transforms individual missile defense projects into a Ballistic Missile Defense System (BMDS) capable of defeating large raids of a growing variety of ballistic missiles over the next decade. For homeland defense, last year we completed the construction of the Ground-based Midcourse Defense (GMD) infrastructure for protection of the U.S. homeland against future limited intercontinental ballistic missile (ICBM) threats from current regional threats. This year we will activate our newest missile field and power plant at Fort Greely, Alaska (FGA), conduct two GMD flight tests and restart the Ground Based Interceptor (GBI) production line. For regional defenses, last year we deployed Phase 1 of the European Phased Adaptive Approach (EPAA) consisting of command and control in Germany, a forward-based radar in Turkey, and an Aegis Ballistic Missile Defense (BMD) ship in the Eastern Mediterranean Sea. This year we will have two

operational THAAD batteries, convert 5 Aegis ships and upgrade 1 for a total of 29 ships with BMD capability installed, and increase the number of associated SM-3 interceptors. This year, in our test program, we will conduct three flight tests of the SM-3 Block IB to demonstrate its ability to intercept complex Short-Range Ballistic Missile, or SRBM (up to 1,000km) targets. Finally, this year we will demonstrate the maturity of our layered regional defense with the first simultaneous intercepts of short- and medium-range ballistic missiles by the PATRIOT Advanced Capability (PAC)-3, THAAD, and Aegis BMD systems integrated with remote AN/TPY-2 radar.

Enhancing Homeland Defense

MDA's highest priority is the successful GMD intercept flight test of the newest GBI Exo-atmospheric Kill Vehicle (EKV). Last year, we concluded the Failure Review Board (FRB) evaluation for the December 2010 FTG-06a flight test by identifying the most probable cause of the failure and revising the EKV design to correct the problem. This year, we will execute a non-intercept GBI flight test (CTV-01) with an upgraded EKV in the fourth quarter before repeating the intercept test early in FY 2013 (FTG-06b). Other improvements to homeland defense during the past year included: upgrading and integrating the Thule Early Warning Radar into the BMDS to view and track threats originating in the Middle East; upgrading three emplaced FGA GBIs as part of our on-going GMD fleet refurbishment and reliability enhancement program; fielding improved GMD fire control software to allow testing or exercises to be conducted while simultaneously controlling the operational system; and upgrading the FGA communications system. After activating Missile Field 2 later this year, the number of total GBI silos will increase to 38 (34 at FGA and 4 at Vandenberg Air Force Base

((VAFB)) in California). This past December, we awarded the GMD Development and Sustainment contract, one of the Agency's largest and most complex competitive acquisitions, with a price of almost $1B less than the independent government cost estimate. For the next seven years, this $3.5B contract will provide for sustainment and operations as well as improvements and enhancements of the current capability, provide for a robust and vigorous testing program, and deliver new and upgraded interceptors.

We are requesting $903.2M in FY 2013 in RDT&E funding for the GMD program. We plan to maintain our fleet of 30 operational GBIs and continue to upgrade existing GBIs, and acquire 5 additional GBIs for enhanced testing, stockpile reliability, and spares, for a total of 57 GBIs. We will continue GBI component vendor requalifications for the future GBI avionics upgrade and obsolescence program, and we will enhance our Stockpile Reliability Program to support life-cycle management decisions and increase GBI reliability.

Today, 30 operational GBIs protect the United States against a limited ICBM raid size launched from current regional threats. If, at some point in the future, this capability is determined to be insufficient, we can increase the operational GBIs' fire power by utilizing all 38 silos, refurbishing our 6-silo prototype missile field, and accelerating the delivery of new sensor and interceptor capabilities. In FY 2013 we will begin construction of the GBI In-Flight Interceptor Communication System (IFCS) Data Terminal (IDT) at Fort Drum, New York, with a completion date by 2015. The East Coast IDT will enable communication with GBIs launched from FGA and VAFB for longer flights, thus improving the defense of the eastern United States. Our pro-active

GBI reliability improvement program will enable successful intercepts with fewer GBIs than are required today with the same probability of successful intercept. This additional firepower will increase the number of ICBMs that can be defeated by the GMD system. We will also continue to develop and assess the 2-stage GBI to preserve future deployment options, including an intercept flight test in FY 2014. Finally, we will continue development of the SM-3 Block IIB to protect our homeland in the future by creating a new first layer of intercept opportunities, thus expanding the forward edge of our homeland defense battle space.

This year, we will begin upgrading the Clear Early Warning Radar in Alaska for full missile defense capability by 2016. We will also continue operations of the Sea-Based X-band (SBX) radar and development of algorithms to improve its discrimination capability. We are requesting $347.0M in FY 2013 for BMDS Sensors development for homeland defense, including support of the Cobra Dane radar, the Upgraded Early Warning Radars (UEWRs) at Beale AFB (California), Fylingdales (United Kingdom), and Thule (Greenland). We are requesting $192 1M to operate and sustain these radars and $227.4M to procure additional radars and radar spares. In FY 2013, we will also place the SBX in a limited test operations status for affordability reasons, but we will be prepared to activate the SBX if indications and warnings of an advanced threat from Northeast Asia become evident. We will also continue to upgrade the GMD system software to address new and evolving threats, including enhancing EKV discrimination algorithms by 2015, improving GBI avionics, and increasing GBI interoperability with the Command and Control, Battle Management and Communications (C2BMC) system.

Enhancing Regional Defense

This year we will demonstrate integrated, layered regional missile defense in the largest, most complex missile defense test every attempted. We will simultaneously engage up to five air and ballistic missile targets with an Aegis, THAAD, PATRIOT and Forward Based Mode AN/TPY-2 radar integrated C2BMC system operated by soldiers, sailors, and airmen from multiple Combatant Commands. This test will allow our war fighters to refine operational doctrine and tactics while providing confidence in the execution of their integrated air and missile defense plans.

Last year, in addition to deploying EPAA Phase 1, we successfully supported negotiations for host nation agreements to deploy Aegis Ashore batteries to Romania (Phase 2) and Poland (Phase 3); we successfully tested the NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) Interim Capability with EUCOM C2BMC to enhance NATO situational awareness and planning; we installed the Aegis BMD 3.6.1 weapon system on three Aegis ships and upgraded one Aegis BMD ship to Aegis BMD 4.0.1 (increasing the Aegis BMD fleet to 22 operationally configured BMD ships); and we delivered 19 SM-3 Block IA interceptors and the first SM-3 Block IB interceptor. We continued SM-3 Block IIA system and component Preliminary Design Reviews. We delivered 11 interceptors for THAAD Batteries 1 and 2 and flight test, and started production of Batteries 3 and 4. We also delivered the latest C2BMC upgrades to Northern Command, Strategic Command, Pacific Command, and Central Command. These software builds will improve situational awareness, sensor management, and planner functions.

We also demonstrated critical BMDS regional capabilities in key tests over the past year. In April 2011, we conducted an Aegis BMD flight test (FTM-15) using the SM-3 Block IA interceptor launched using track data from the AN/TPY-2 radar passed through the C2BMC system to intercept an Intermediate-Range Ballistic Missile, or IRBM, target (3,000km to 5,500km) to demonstrate the EPAA Phase 1 capability. This mission also was the first Launch-on-Remote Aegis engagement and intercept of an IRBM with the SM-3 Block IA. In October 2011, the BMDS Operational Test Agency, with the oversight of the Director, Operational Test & Evaluation, conducted a successful Initial Operational Test & Evaluation test (FTT-12) of THAAD's ability to detect, track, and engage SRBM and MRBM targets simultaneously.

Enhanced MRBM Defense in Europe by 2015 (EPAA Phase 2). Our goal in this phase is to provide a robust capability against SRBMs and MRBMs by deploying several interceptors to engage each threat missile multiple times in its flight. The architecture includes the deployment of the Aegis BMD 5.0 weapon systems with SM-3 Block IB interceptors at sea and at an Aegis Ashore site in Romania. When compared to the current SM-3 Block IA, the IB will be more producible, have an improved two-color seeker for greater on-board discrimination, and have improvements to enhance reliability of the SM-3 Block IB's divert and attitude control system. These improvements also provide an enhanced capability against larger sized raids.

We are requesting $992.4M in FY 2013 for sea-based Aegis BMD to continue development and testing of the SM-3 Block IB, continue outfitting of ships with the BMD 4.0.1 system as well as spiral upgrades to Aegis 5.0 to support the operation of the SM-3 Block IB and IIA interceptors and associated flight tests. We are requesting $389.6M

in FY 2013 for the procurement of 29 SM-3 Block IB interceptors and $12.2M to operate and maintain already deployed SM-3 Block IA interceptors. In FY 2013, we are also requesting $276.3M to develop and build the Aegis Ashore Test Facility at the Pacific Missile Range Facility in Hawaii and $157.9M to construct the first Aegis Ashore Missile Defense System battery in Romania by FY 2015. We request $366.5M in FY 2013 to operate and sustain C2BMC at fielded sites and continue C2BMC program spiral development of software and engineering to incorporate enhanced C2BMC capability into the battle management architecture and promote further interoperability among the BMDS elements, incorporate boost phase tracking, and improve system-level correlation and tracking. We will also continue communications support for the AN/TPY-2 radars and PAA-related C2BMC upgrades.

In September 2011, we conducted FTM-16 to demonstrate Aegis BMD 4.0.1 fire control and the first flight test of the SM-3 Block IB interceptor. While we did not achieve the destruction of the SRBM separating payload, we demonstrated critical system functions, including the exceptional performance of the kinetic warhead divert system, which will allow Navy certification this month of the Aegis BMD 4.0.1 computer program. In the third quarter of FY 2012, we will conduct FTM-16 (Event 2a) to demonstrate the SM-3 Block IB's capability. We will also demonstrate the ability of the SM-3 Block IB to intercept more complex SRBM targets in FTM-18 and FTM-19. In the fourth quarter, we will conduct the first operational flight test led by the BMDS Operational Test Agency team involving a coordinated and simultaneous engagement involving Aegis BMD, THAAD and PAC-3 systems against three targets. Our FY 2013 testing program continues to demonstrate the SM-3 Block IB and Aegis BMD 4.0.1

(FTM-21 and FTM-22), including a salvo engagement involving 2 interceptors against an SRBM.

Enhanced IRBM Defenses in Europe by 2018 (EPAA Phase 3). The SM-3 Block IIA interceptor, being co-developed with the Japanese government, is on schedule for deployment at an Aegis Ashore site in Poland and at sea in 2018 to provide enhanced protection for European NATO countries from all ballistic missile threats from the Middle East. This year we will complete the SM-3 Block IIA preliminary and component design reviews, shock and vibration testing of the SM-3 Block IIA interceptor canister, and continue development of Aegis BMD 5.1 fire control system. We also reduced the execution risk of the SM-3 Block IIA program by increasing the time between flight tests while maintaining the original initial capability date of 2018. The FY 2013 request for SM-3 Block IIA co-development is $420.6M.

Expanded Interceptor Battle Space by 2020 (EPAA Phase 4). The SM-3 Block IIB will provide a pre-apogee intercept capability against IRBMs and an additional layer for a more enhanced homeland defense against non-advanced ICBMs launched from today's regional threats. This program is in the technology development phase, and its seven-year development timeline is consistent with typical interceptor development timelines, according to Government Accountability Office data. Last year we awarded risk reduction contracts for missile sub-system components, including advanced propulsion, seeker, and lightweight material technologies. We also awarded concept design contracts for the SM-3 Block IIB interceptor to three aerospace industry teams. In FY 2013, we are requesting $224.1M to develop the Request For Proposal and begin source selection for the SM-3 Block IIB Product Development Phase, which will begin in

early 2014. The SM-3 Block IIB will leverage advanced tracking and discrimination technologies deployed during EPAA Phase 4 as well as the entire sensor network, with PTSS and C2BMC upgrades to maximize homeland defense.

Additional Missile Defense Capabilities

This year, we are procuring 42 THAAD interceptors for Batteries 1 and 2, six launchers, and two THAAD Tactical Station Groups.. We are requesting $316.9M in RDT&E funding in FY 2013 to enhance communications and debris mitigation, which will allow THAAD to be more interoperable with PAC-3 and Aegis BMD and connected to the BMDS, and $55.7M for THAAD operations and maintenance. We also request $460.7M to procure 36 THAAD interceptors. THAAD will complete delivery of the first fifty interceptors in June 2012, demonstrating the capacity of the contractor supply chain and the main assembly factory in Troy, Alabama to deliver interceptors. The next production lots are under contract, with delivery beginning this summer. We will maintain a production rate of 4 THAAD missiles per month through June 2012 due to components on hand and enhance the supply chain's production capacity to sustain a 3 missile per month production rate beginning in spring 2013. In late FY 2012, we will demonstrate THAAD's ability to intercept an MRBM as part of an integrated operational test with PAC-3 and Aegis BMD.

Additional BMDS improvements include expanded coordination of missile defense fire control systems and improvements to radar discrimination. We are requesting $51.3M for the Space Tracking and Surveillance System (STSS) system in FY 2013. We continue to operate the two STSS demonstration satellites to conduct cooperative tests with other BMDS elements and demonstrate the capability of STSS satellites against

targets of opportunity. These tests demonstrate the ability of a space sensor to provide high precision, real-time tracking of missiles and midcourse objects that enable closing the fire control loops with BMDS interceptors and will lay the groundwork for a live-fire intercept using STSS and Aegis. Lessons learned from the two STSS demonstration satellites inform Precision Tracking Space System (PTSS) development decisions.

Developing New Capabilities

We are requesting $80M in FY 2013 to continue development of fiscally sustainable advanced BMD technologies that can be integrated into the BMDS to adapt as threats change. Intercepts early in the battle space will provide additional opportunities to kill threat missiles, enlarge protection areas, and improve the overall performance of the BMDS.

Last year, we accelerated our test campaign with the Airborne Laser Test Bed (ALTB) to collect data on tracking and atmospheric compensation, system jitter, and boundary layer effects on propagation for future directed energy applications. This year, in accordance with the funding reduction enacted by Congress and operating constraints, we grounded the aircraft and are examining the technical feasibility of high efficiency directed energy technology for the next decade. In FY 2013, we are requesting $46.9M to pursue Diode Pumped Alkaline-gas Laser System (DPALS) and coherent fiber combining laser technologies, which promise to provide high efficiency, electrically-driven, compact, and light-weight high energy lasers for a wide variety of missions of interest to MDA and the Department of Defense and support concept development for the next generation of airborne missile defense directed energy systems.

We request $58.7M in FY 2013 to continue support for research and development of advanced remote sensing technologies, demonstrate acquisition, tracking and discrimination of multi-color infrared sensors, and investigate techniques to improve the system's data fusion capability to further strengthen the nation's missile defense sensor network. We have integrated our international and domestic university research programs into the same structure, allowing the Agency to capitalize on the creativity and innovation within our small business and academic communities to enhance our science and technology programs.

The greatest future enhancement for both homeland and regional defense in the next ten years is the development of the PTSS satellites, which will provide fire control quality track of raids of hostile ballistic missiles over their entire flight and expand the forward edge of the our interceptors' battle space for persistent coverage of over 70% of the earth's landmass. PTSS will enhance the performance of all missile defense interceptors. PTSS spacecraft-sensors are much simpler in overall design than STSS, and use only components with a high technology readiness level. Due to the intrinsic simplicity and component maturity of the PTSS design, the integration of concurrent developments is considered to be a low acquisition risk. Partnering with Johns Hopkins Applied Physics Laboratory (APL), MDA is requesting $297.4M for PTSS in FY 2013 to continue development of preliminary design requirements to create these multi-mission satellites (e.g., missile defense, space situation awareness, DoD and Intelligence Community support). APL has a noteworthy track record, dating back to 1979, for meeting planned development cost and schedule projections involving 17 significant spacecraft missions. We will complete final design and engineering models

for the PTSS bus, optical payload, and communications payload in FY 2013. PTSS project scope includes delivery of PTSS ground segments and launch of the first two PTSS spacecraft in FY 2017.

International Cooperation

As stated in the 2010 *Ballistic Missile Defense Review*, developing international missile defense capacity is a key aspect of our strategy to counter ballistic missile proliferation. A significant accomplishment of international cooperation in 2011 was the signing of the first Foreign Military Sale case for the THAAD system to the United Arab Emirates, valued at nearly $3.5B. In Europe, we successfully tested our C2BMC system with the ALTBMD Interim Capability, demonstrating interoperability and sharing situational awareness and planning data. We are working with our NATO allies on developing requirements for territorial missile defense. In East Asia, we are supporting the BMDR-based objective in leading expanded international efforts for missile defense through bilateral projects and efforts with Japan, the Republic of Korea, and Australia. And in the Middle East, we continue to work with long-term partners, such as Israel, and are pursuing strengthened cooperation with various Gulf Cooperation Council countries that have expressed interest in missile defense. MDA is currently engaged in missile defense projects, studies and analyses with over twenty countries, including Australia, the Czech Republic, Denmark, France, Germany, Israel, Japan, Poland, Romania, Saudi Arabia, Republic of Korea, the United Arab Emirates, the United Kingdom, and NATO.

MDA continues its close partnership with Japan on the SM–3 IIA interceptor (Japan is leading the development efforts on the SM-3 Block IIA second and third stage rocket motors and the nosecone), studying future missile defense architectures for

defense of Japan, and supporting that nation's SM-3 Block IA flight test program, to include the successful intercept flight test in October 2010 involving a Japanese SM-3 Block IA. This test completed the first foreign military sale of Aegis BMD to a key maritime partner. Japan now has four Aegis destroyers equipped with Aegis BMD systems and a complement of SM-3 Block IA interceptors. We also continue collaboration with Israel on the development and employment of several missile defense capabilities that are interoperable with the U.S. BMDS. Last year, at a U.S. test range off the coast of California, the Arrow Weapon System successfully intercepted a target representative of potential ballistic missile threats facing Israel today. We are requesting $99.8M for Israeli Cooperative Programs (including Arrow System Improvement and the David's Sling Weapon System) in FY 2013. MDA will conduct a David's Sling flight test to demonstrate end game and midcourse algorithms and initiate David's Sling and Arrow-3 Low Rate Initial Production.

Conclusion

Our FY 2013 budget funds the continued development and deployment of SRBM, MRBM, IRBM, and ICBM defenses while meeting the warfighters' near-term missile defense development priorities. We are dedicated to creating an international and enhanced network of integrated BMD capabilities that is flexible, survivable, affordable, and tolerant of uncertainties of estimates of both nation-state and extremist ballistic missile threats.

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

MISSILE DEFENSE AGENCY

LIEUTENANT GENERAL PATRICK J. O'REILLY

United States Army

Director, Missile Defense Agency

Lieutenant General Patrick J. O'Reilly is the Director for the Missile Defense Agency (MDA), Office of the Secretary of Defense, Pentagon, Washington, DC. In this capacity, he oversees MDA's worldwide mission to develop a capability to defend deployed forces, the United States, Allies, and friends against ballistic missile attacks.

During his career, he served in both command and staff officer positions in a variety of operational units including the 1st Cavalry Division, the 3rd Support Command, Germany, and as an Assistant Professor of Physics at the United States Military Academy. As an Acquisition Officer, he served as Program Manager for Directed Energy Programs, PATRIOT PAC-3 Missile, Terminal High Altitude Area Defense (THAAD) Missile System, Ground-based Midcourse Defense (GMD) Program, and as the Army Program Executive Officer for Combat Support and Combat Service Support.

Lieutenant General O'Reilly is a graduate of the U.S. Military Academy and has Masters Degrees in Physics, National Security and Strategic Studies, and Business. Lieutenant General O'Reilly is a graduate of the U.S. Army Command and Staff College, the U.S. Naval College of Command and Staff, and the U.S. Army War College.

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HOLD UNTIL RELEASED BY THE
HOUSE COMMITTEE
ON ARMED SERVICES

STATEMENT OF

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DEPUTY ASSISTANT SECRETARY OF DEFENSE,
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OFFICE OF THE UNDER SECRETARY OF DEFENSE
(ACQUISITION, TECHNOLOGY, AND LOGISTICS)

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE

SUBCOMMITTEE ON STRATEGIC FORCES

March 6, 2012

HOLD UNTIL RELEASED BY THE
HOUSE COMMITTEE
ON ARMED SERVICES

Missile Defense
Mr. David G. Ahern
Deputy Assistant Secretary of Defense,
Strategic & Tactical Systems
Office of the Under Secretary of Defense
(Acquisition, Technology, and Logistics)

Good morning Mr. Chairman, Congressman Sanchez, and Members of the Committee. Thank you for the opportunity to appear before you today to discuss Department of Defense missile defense activities. I am pleased to provide you an update on the Medium Extended Air Defense System (MEADS) and the Department's oversight of missile defense via the Missile Defense Executive Board (MDEB).

Medium Extended Air Defense System (MEADS)

My remarks on MEADS are in three sections: Background, Program Status, and Current Situation.

Background. As I testified last year, MEADS is a cooperative development program managed by a NATO program office that was conceived in the mid-1990's as a flagship program for international cooperative development to develop a ground-based air and terminal ballistic missile defense capability that could replace existing Patriot systems in the United States and Germany and the Nike Hercules system in Italy. MEADS is designed to provide enhanced surveillance and intercept capabilities against air, cruise missile, and terminal ballistic missile threats beyond existing Patriot capabilities; to significantly reduce strategic lift requirements into theater; and to reduce logistics and operator workloads. The program experienced a number of technical and management challenges over the past two decades, which ultimately led the Department

and our MEADS partners to agree to restructure the Design and Development (or D&D) phase of the program as a reduced scope Proof of Concept, in order to close out the D&D phase within the original funding limits set by the MEADS Memorandum of Understanding (MOU). By completing the Proof of Concept, the U.S. would fulfill our commitments to our partners under the current MOU by demonstrating MEADS elements (including advanced 360 degree radars, a lightweight launcher with the PAC-3 Missile Segment Enhancement (MSE) missile, and a battle management system). These MEADS elements and associated technologies – if fully realized – would add to the set of capabilities available to advance U.S. air and cruise/terminal ballistic missile defense architectures. It is my understanding that Germany plans to integrate and field MEADS elements and technologies into their evolving air and missile defense system, while Italy has indicated their commitment to field a version of MEADS sometime after successful completion of the Proof of Concept in April 2014.

Regarding the decision to pursue the Proof of Concept last year, while our partners were absolutely committed to the program, including the addition of funding and extension of the schedule needed to complete a full scope D&D program, the Department decided as stated above that we could not support additional funding. At that time, with only two plus years remaining on the U.S. MOU funding commitment, we determined that MOU withdrawal would result in failure to achieve meaningful development and testing results and delivery of key technical data for technologies of interest to the U.S. and its partners. Furthermore, our analysis of the MOU provisions regarding unilateral withdrawal indicated the U.S. would be asked by our partners to provide U.S. funding to

allow them to complete the Proof of Concept without us (a position they have recently stated in a joint letter to the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)). Finally, we considered the effect of our possible withdrawal on other current and future cooperative efforts with our allies and determined that a unilateral U.S. MOU withdrawal would set a negative precedent for important international partnerships and multinational cooperation.

Program Status. Turning now to the status of the MEADS D&D program - as restructured - it is a late stage development program. The U.S. has provided nearly $2 billion to date for the MEADS D&D, with Germany and Italy contributing more than $1 billion combined. By refocusing the D&D program as a Proof of Concept, we avoided at least $974 million of additional U.S. investment that would have been required to complete the D&D phase as originally contemplated and we have focused on developing and demonstrating near-term key technologies and harvesting data from the development, both of which could be important to future air and cruise/terminal ballistic missile defense improvements for the U.S.

The program has made progress toward achieving the goals of the Proof of Concept, but we recognize the schedule is aggressive and we will watch major milestones carefully to ensure the Proof of Concept is fully completed within the planned funding. Just a few months ago, the MEADS lightweight launcher successfully completed a PAC-3 MSE missile shot during a test at White Sands Missile Range. The MEADS X-band fire control radar is in near-field testing and calibration in preparation for far-field radiation testing this summer to support the first intercept flight test at the end of this

year. At the contractor facility in Syracuse, the MEADS surveillance radar continues to demonstrate successful tracking of targets of opportunity. Software development, system-level integration and simulation in preparation for flight testing continue. Two additional intercept flight tests are scheduled, one in late calendar year 2012 and the second in mid-calendar year 2013, to provide critical information about the maturity and effectiveness of MEADS elements and technologies.

Current Situation. The National Defense Authorization Act (NDAA) for 2012 requires that the Secretary of Defense submit to the Congress a plan to use the U.S. Fiscal Year (FY) 2012 funds authorized and appropriated for MEADS as final obligations to either implement a restructured program of reduced scope, or pay for contract termination costs. Despite having agreed to a restructured program just last October, the Department has once again consulted, at the highest levels, with our partners about developing a plan to further restructure the program using FY 2012 funding only. Pursuant to the MOU, we notified the partners of the provisions of the NDAA, including the requirement to produce a plan to restructure the program using the remaining U.S. FY 2012 funds as our final commitment under the MOU or to use this funding to pay contract termination costs. We also pointed out that the FY 2013 funds may not be approved by Congress. In response, the German and Italian Armaments Directors recently co-signed a letter to the USD(AT&L) reiterating that their nations remain fully committed to their MEADS MOU obligations and expect that all partners will fulfill their MOU obligations to continue with the MOU Proof of Concept program plan as previously agreed.

While we have consulted with our partners, the contracted Proof of Concept work has continued. The U.S. provided the available FY 2012 funds, which is 25% of the FY 2012 appropriation, to the program. I expect the plan required by the NDAA to be delivered in early April after additional consultation with our partners and prior to expenditure of all the funds already made available.

I can report to you today that while we are developing a plan that complies with the FY2012 NDAA legislative requirement for MEADS, the Department believes that completing the MEADS Proof of Concept and securing the benefit of the development program is still the better course of action under current constraints. To paraphrase the recent remarks of Secretary Panetta occasioned by the visit of the German Minister of Defense Thomas de Maiziere, the Department will make every effort to fulfill our commitment to the MEADS MOU. The Department's FY 2013 budget request includes sufficient funds to meet our MEADS MOU obligations. Secretary Panetta made clear that we would work with the Congress to secure funds, and I ask for your support so that we can live up to our MOU commitments in good faith as our partners have indicated that they expect us to do and so that we may use technology from our MEADS investment in other programs. A failure to follow through on our MEADS obligations could negatively affect our allies' receptivity to future transatlantic projects and multinational cooperation with the United States.

I would like to emphasize, that while we have forcefully and repeatedly articulated to our partners the major problems that will arise if we continue with the current Proof of Concept plan in 2012 and U.S. FY 2013 funding is not available, we cannot force our

partners to modify or to terminate either the MOU or its contracts. On the other hand, the responsibilities of the parties under the MOU are subject to the availability of appropriated funds. Thus, our ability to honor our MOU commitment is dependent on authorization and appropriation of FY 2013 funds for MEADS as requested in the President's Budget. In the event that U.S. FY 2013 funding for MEADS is not authorized and appropriated, we have worked with the NATO program office to ensure it has sufficient funds set aside to cover U.S. contract termination liability through the end of FY 2012. However, our German and Italian partners may raise the inability of the U.S. to provide U.S. FY 2013 funds as a formal dispute under the terms of the MOU. While the Partners cannot force the U.S. to provide the funds needed to complete the Proof of Concept, we cannot force our partners to agree to restructure the contract or mutually agree to terminate the MOU. Since the MOU also provides that disputes arising under the MOU shall only be resolved by consultation among the parties, there is no guarantee of resolution of such a dispute. A protracted MOU dispute has the potential to throw the program into turmoil and cause a stand-off that could strain our relationship with Italy and Germany.

Providing the final U.S. funding in FY 2013 will allow the program to complete the planned flight tests, collect and analyze the associated data, demonstrate the design and performance of the MEADS elements, and make important MEADS design and performance data available to all the partners. Let me conclude by stating that I remain convinced that completion of the Proof of Concept remains the better course of action for

the U.S. and its partners, and I would urge the Congress to provide the requested FY 2013 funding.

Plans and Procedures for the Management and Oversight of the Missile Defense Agency

I testified before this subcommittee a year ago describing the structure, operation, and activities of the Missile Defense Executive Board (MDEB). The USD(AT&L) continues to exercise full authority and responsibility to exercise comprehensive and effective oversight of the Missile Defense Agency (MDA) and its programs through the MDEB. The USD(AT&L) has maintained the MDEB's structure and operation in essentially the same form since its inception allowing consistency in the Department's oversight. The MDEB was established "to recommend and oversee implementation of strategic policies and plans, program priorities, and investment options to protect our Nation and allies from missile attack." The MDEB authorities and responsibilities extend to comprehensive oversight of all of the MDA's activities including those outside the scope of the traditional milestone review process for individual Ballistic Missile Defense System (BMDS) elements (e.g., assessments and potential influence on policy, threat assessments, capability requirements, budget formulation, and fielding options).

Four committees support the MDEB: Policy, Test and Evaluation (T&E), Operational Forces, and Program Acquisition and Budget Development (PA&BD). The Policy Committee advises the Board on strategic missile defense policy direction, conducts and oversees international activities, and represents the Department in inter-Agency matters. The Test and Evaluation Committee oversees the T&E planning and

resource roadmap. It provides technical recommendations and oversight for the conduct of an integrated T&E program and investment strategy. The Operational Forces Committee oversees fielding schedules and deployments. It also oversees agreements, documentation, and requirements between MDA, DoD components, and fielding organizations for ensuring appropriate policies for operational and support resources. The PA&BD Committee ensures that MDA program and budget development is integrated effectively into the MDEB's oversight role and that missile defense programs are properly aligned with missions. The PA&BD Committee oversees implementation of missile defense acquisition guidance to include transition and transfer of responsibilities/authorities of BMDS elements to the Services and oversight of BMDS acquisition, operation and support.

Since I testified before you in 2011, the MDEB has conducted seven meetings and the USD(AT&L) has issued six Acquisition Decision Memorandums. Thus, it meets more frequently than a Defense Acquisition Board (DAB) for a typical program. Through the MDEB the Department maintains early and continued visibility into MDA programs and is able to provide the necessary guidance to achieve Missile Defense priorities within cost and schedule constraints.

One of several MDEB oversight areas is the Department's assessment of BMDS elements maturity for production and Lead Service operation. The Department's current criteria for missile defense element production decisions includes: an assessment of the depth and breadth of preparation including element progress; performance validated by testing results; reports by the Director, Operational Test and Evaluation; funding to

support program plans; and an executable plan for operation and support. MDA, in conjunction with the designated Lead Military Department, makes the recommendation for a production decision. The USD(AT&L) is responsible for the production review and decision. The next review of this type is planned for the Aegis Ballistic Missile Defense element.

In the past year, MDEB meetings have included: reviews of the FY 2013 MDA budget request as part of the BMDS Life Cycle Management Process and assessment of the effects of a reduced budget on the BMDS program; progress reviews of regional Phased Adaptive Approaches development in the Middle East and Asia; and endorsement of MDA and Military Department management and funding responsibilities guidance, including a process to define and schedule transfer of responsibilities, which the Deputy Secretary of Defense approved. The MDEB also reviewed and endorsed or provided direction regarding directed energy plans as a result of the retirement of the Airborne Laser Test bed; a revision to the MDA Integrated Master Test Plan based on current program progress and budget priorities; U.S. Strategic Command's Prioritized Capability List, which will influence investment decisions for the next two budget cycles; MDA's plans for return to flight of the Ground Based Midcourse Defense element and Standard Missile; the MDA FY 2011 budget execution progress; the Joint Staff requirements assessment termed the Joint Capability Mix study; and a U.S. Strategic Command-led sensor assessment including Cobra Dane, AN-TPY-2 radars, the Precision Tracking Space System and the Air Borne Infra-Red sensor.

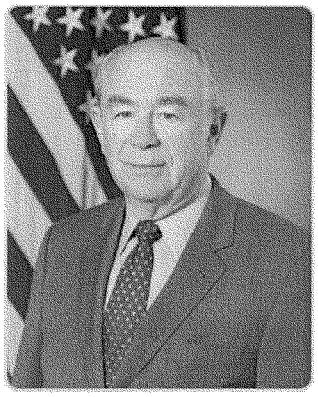
The MDEB, through focused USD(AT&L) leadership, has provided a consistent venue for Departmental involvement in a multitude of disciplines effecting missile defense prioritization, planning and execution. With continued interest across the Department and the involvement by a broad range of stakeholders, the MDEB will continue to be a force as BMDS operations continue.

Conclusion

In summary, the Department's missile defense activities continue at a high pace. While development of air and cruise/terminal ballistic missile defense capabilities remain of critical importance, we have made hard choices in this portfolio in the FY 2013 budget including a request for FY 2013 funding for MEADS. The Department will continue to seek ways to wring out the maximum capability from our investments in air and missile defenses.

The Department is ensuring proper management and oversight of this complex portfolio through its effective utilization of the Missile Defense Executive Board. We are taking prudent steps to transition and transfer individual elements to the Lead Military Departments at the appropriate time for operation and support. Continued cooperation between the MDA, OSD, the Military Departments, the Joint Staff, and COCOMs will be critical to long-term success of the BMDS.

We are grateful for the continued support of Congress which has been critical to the success to date in developing and fielding missile defenses. Thank you for this opportunity to testify on our management and oversight of the Department's missile defense program. I look forward to answering any questions you may have.



Biography

David G. Ahern

Deputy Assistant Secretary of Defense, Portfolio Systems Acquisition

As the Deputy Assistant Secretary of Defense for Portfolio Systems Acquisition, Mr. David Ahern is responsible for providing portfolio management, technical and programmatic evaluation and functional oversight. His office sustains Department of Defense (DoD) strategic and tactical programs in support of the Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L) and the Assistant Secretary of Defense for Acquisition.

Mr. Ahern was previously Professor of Program Management and Director of the Center for Program Management at the Defense Acquisition University (DAU) at Fort Belvoir, VA. While at DAU, Mr. Ahern also served as an Executive Course Learning Team Mentor and Instructor at the Defense System Management College School of Program Management. Mr. Ahern has also held business development, program management, and business unit positions in the development of tactical information systems with General Dynamics Information Systems Company and the Northrop Grumman Electronics System Sector.

A native of Connecticut, Mr. Ahern was a career Naval Officer and is a graduate of the Naval Academy in Annapolis, MD. He is also a graduate of the Navy Postgraduate School and Defense Systems Management College. Mr. Ahern's sea duty was as a Naval Aviator in the RA5C Vigilante during multiple deployments to the Pacific and Atlantic Oceans and as Executive and Commanding Officer of Tactical Electronic Warfare Squadron Thirty Three (VAQ-33). Ashore, he was Head, Tactical Command and Control Branch on the staff of the Chief of Naval Operations; Project Officer in the Navy Space Project (PM-16); Class 2 Program Manager at the Joint JTIDS Program Office (ESD-TD); Program Manager Navy Tactical Data Link Systems (PMW/PMA 159); and Deputy Program Executive Office Space, Communications and Sensors (PEO-SCS).

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COMMITTEE ON ARMED SERVICES
U.S. HOUSE OF REPRESENTATIVES

STATEMENT

BY

J. MICHAEL GILMORE

DIRECTOR, OPERATIONAL TEST AND EVALUATION

OFFICE OF THE SECRETARY OF DEFENSE

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE

STRATEGIC FORCES SUBCOMMITTEE

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COMMITTEE ON ARMED SERVICES
U.S. HOUSE OF REPRESENTATIVES
HASC – MARCH 6, 2012

J. Michael Gilmore
Director, Operational Test and Evaluation (DOT&E)
Office of the Secretary of Defense

Chairman Turner, Congresswoman Sanchez, distinguished Members of the Committee, thank you for the opportunity to discuss missile defense test planning, processes, and programs, including my assessment of the Ballistic Missile Defense System, or BMDS and the Integrated Master Test Plan (IMTP). I will focus my remarks in four areas:

First, my assessment of the Missile Defense Agency, or MDA, flight and ground test program during the past year, the details of which are in my annual report submitted to you on February 13th;

Second, the major events this last fiscal year that influenced the most recent update to the IMTP, version 12.1;

Third, my assessments of the Terminal High Altitude Area Defense (THAAD), the AN/TPY-2 Radar, and the Phased Adaptive Approach for the defense of Europe; and

Finally, I will provide my assessment of the current IMTP.

Fiscal Year 2011 Flight and Ground Test Program

The MDA conducted four intercept flight tests this past year: two for Aegis Ballistic Missile Defense (BMD), one for Ground-based Midcourse Defense (GMD), and one for THAAD. The U.S. Army conducted four Patriot intercept flight tests, one for the PAC-3 Missile Segment Enhancement interceptor, and

three supporting Post Deployment Build 7. The MDA conducted eleven ground tests and exercises, with the most significant ground test, the Ground Test Distributed-04 (GTD-04) series, occurring late in the calendar year supporting the implementation of the European Phased Adaptive Approach (EPAA) Phase 1 capability on December 31, 2011. These flight and ground tests were included in the DOT&E-approved IMTP.

During this period, Aegis BMD 3.6.1 and THAAD demonstrated progress toward intermediate and short-range threat class capability, respectively. Aegis BMD successfully completed Flight Test Standard Missile-15 (FTM-15) and THAAD successfully completed Flight Test THAAD-12 (FTT-12). However, in its first flight test of the Standard Missile-3 (SM-3) Block IB missile, the MDA failed to achieve a successful intercept during FTM-16 Event 2, although the MDA was successful in demonstrating many other 4.0.1 Aegis Weapon System capabilities. The cause of the FTM-16 failure is under investigation.

In April 2011, Aegis BMD completed FTM-15, the first intercept of an intermediate-range ballistic missile. In this test, an SM-3 Block IA interceptor was launched from an Aegis BMD 3.6.1 destroyer, set up with remote engagements authorized. The ship used up-range track data from an AN/TPY-2 radar in forward-based mode as well as data from its organic Aegis radar to prosecute the engagement and intercept the target.

In October 2011, THAAD completed an Initial Operational Test and Evaluation (IOT&E) (FTT-12) in which the system intercepted two incoming

threat missiles nearly simultaneously. In February 2012, DOT&E published a detailed report supporting a decision to proceed with material release of the system to the Army for operational use.

GMD suffered a second consecutive flight test failure flying the Capability Enhancement II Exo-atmospheric Kill Vehicle, and did not demonstrate any progress toward intermediate-range or Intercontinental Ballistic Missile (ICBM) threat class capability. A Failure Review Board has identified the root cause of the failure of the kill vehicle to intercept and the MDA has developed and is implementing corrective actions on the associated kill vehicle components to correct the problems that caused the failure. It will first test these fixes on a non-intercept flight test this spring followed several months later with a repeat of the previously attempted intercept flight test.

For the first time, the Command, Control, Battle Management, and Communications (C2BMC) element demonstrated during a ground test in December 2011 the capability to control two operationally-deployed AN/TPY-2 radars in forward-based mode, using existing operational communications architectures, personnel, and tactics, techniques, and procedures.

My assessment, based on the testing, is that the MDA flight and ground test program for FY/CY11 was adequate to support the development of the BMDS. The flight test program allowed the MDA to collect important data on Empirical Measurement Events and Critical Engagement Conditions (such as THAAD's near-simultaneous intercept of two short-range targets during FTT-12 and an

Aegis BMD intercept conducted at high closing velocity during the FTM-15 intercept of an intermediate-range target, respectively) that support model and simulation verification, validation, and accreditation. During the reporting period, the MDA continued to incorporate elements of operational realism when planning for and conducting both ground and flight testing.

The MDA and the BMDS Operational Test Agency have now collected sufficient data to permit a quantitative assessment of Aegis BMD and THAAD capability. This allowed me to include estimates of the probability of engagement success over the tested battlespace of these two weapon systems in my 2011 Annual BMDS Assessment Report.

Events Affecting Test Planning

Four events affected the development of version 12.1 of the IMTP, approved in March 2012:

1. The FTM-16 Event 2 flight test failure,
2. Funding changes to the 2013 test baseline and the future years defense program,
3. The availability of the targets originally planned for use in FTO-01 in 4QFY12, and
4. A Space Tracking and Surveillance System (STSS) tracking exercise, demonstrating target detection and stereo tracking, that enabled the inclusion of a launch-on-STSS in future flight testing.

Due to the FTM-16 Event 2 failure, the MDA added FTM-16 Event 2a as part of the SM-3 return-to-flight plan. This flight test will also support the future SM-3 Block IB production decision and provide data to certify the performance of the 4.0.1 Aegis Weapon System.

The MDA maintained the GMD test sequence in IMTP version 12.1. The MDA will conduct their first engagement of an ICBM, with the target flying a range of greater than 5,000 kilometers, in FY15. This will also be the first salvo test of two interceptors fired at a single target. The MDA will conduct a multiple simultaneous engagement of two interceptors on two targets in FY18.

The MDA slowed the THAAD test cadence to eighteen-month test centers due to budget constraints within the agency. As a result, FTT-11a (exo-atmospheric engagement of a complex short range target) is delayed by five quarters to 4QFY14, FTT-15 (endo-atmospheric engagement of a medium-range target with an Aegis BMD cue) by 11 quarters to 2QFY17, FTT-16 (endo-atmospheric engagement of a unitary short-range target with high re-entry heating effects), and FTT-17 (engagement of a maximum range medium-range target) deferred beyond the future years defense program. However, THAAD will nonetheless participate in several previously planned integrated and operational BMDS tests to be conducted through FY15.

The FTO-01 operational test of layered defenses comprising THAAD, Aegis, and Patriot was delayed, primarily due to the unavailability of the originally planned targets. Analysis conducted last year also raised currently unresolved

issues regarding the performance of THAAD under the planned conditions of the test. As a result, MDA now plans to conduct an integration test using the ballistic and cruise missile targets that will be available to provide data needed to resolve the identified performance issues, as well as to provide operational commanders with information they will use to develop tactics, techniques, and procedures for employing layered theater missile defenses. The MDA moved FTO-01 from 4QFY12 to 3QFY13 and, in its place, added the walk-up event FTI-01 in 4QFY12. FTI-01 will be conducted as a combined developmental/operational test utilizing Aegis BMD, THAAD, and Patriot simulating a layered defense of the Central Command Area of Responsibility.

The MDA added FTM-20 in FY14 to demonstrate launch-on-STSS capability. The STSS-generated track will be forwarded by the C2BMC to an Aegis BMD 3.6.1 ship that will engage the target with an SM-3 Block 1A interceptor.

Assessments of THAAD, the AN/TPY-2 Radar, and the EPAA

In February, I published a report on the initial operation test and evaluation (IOT&E) of THAAD and the AN/TPY-2 radar. I based my assessment primarily on FTT-12, the IOT&E conducted at the Pacific Missile Range Facility from August to October 2011. However, I used significant contributing data from prior flight tests, lethality testing, and other testing of mobility, safety, and electromagnetic/environmental effects conducted from 2006 through 2011. To assess AN/TPY-2 performance in its Forward-Based Mode (FBM), I also used

data from FTG-06a, FTM-15, and ground testing associated with the radars currently deployed in Israel, Japan, and Turkey.

THAAD is operationally effective against simple short-range ballistic missile threats intercepted in both the endo- and low exo-atmosphere. Although THAAD has not yet demonstrated its capability against medium-range threats, ground testing and analyses indicate it has an inherent capability to deal with those threats. The AN/TPY-2 (FBM) radar is operationally effective at providing track data on intermediate-range threats to the C2BMC, the BMDS command and control architecture, for use by Aegis BMD or GMD.

THAAD is operationally suitable, but examination of reliability data, ground test results, problems encountered during testing, and soldier feedback indicate that the THAAD system has a number of limitations that the MDA should investigate or correct to increase the suitability of the system. Available contractor data, combined with THAAD test results, indicate the AN/TPY-2 (FBM) radar is operationally suitable.

In February, I also published my annual BMDS Assessment Report that includes an assessment of EPAA Phase 1 capability. I based my assessment primarily on FTM-15, an operational test featuring an Aegis BMD launch-on-remote engagement of an intermediate-range ballistic missile using up-range track data provided by an AN/TPY-2 (FBM) radar. However, I also used data from previous Aegis BMD 3.6.1 testing and ground testing conducted from July to October 2011. I also used Technical Assessment-04 that explored EPAA Phase 1

capability by simultaneously executing multiple theater engagements with Aegis BMD, AN/TPY-2 (FBM), and C2BMC in a digital modeling and simulation environment. All of this testing supported an assessment of capability over a limited region of the overall EPAA battlespace.

As currently deployed, Aegis BMD 3.6.1 provides some BMDS capabilities against short-, medium-, and intermediate-range ballistic missiles targeted at Europe. Aegis BMD 3.6.1 includes midcourse-phase engagement capabilities with SM-3 Block IA interceptors and terminal-phase engagement capabilities with modified SM-2 Block IV interceptors.

While the MDA has made progress toward achieving and demonstrating integrated engagement planning and execution to support the EPAA, such capability for use against all potential threat classes during all relevant phases of flight has not yet been demonstrated. BMDS battle management includes engagement planning, sensor management, track forwarding, sensor-weapon system pairing, and BMDS engagement direction. C2BMC is the element that is planned to perform global battle management while BMD weapon elements retain element-level battle management and fire control functionality. In December 2011, the U.S. European Command upgraded C2BMC to Spiral 6.4 (S6.4), replacing S6.2, as part of the EPAA Phase 1 deployment.

The capability to launch on remote track data is crucial to the defense of Europe as it increases battlespace. In the fully implemented EPAA, Aegis BMD will rely upon at least two AN/TPY-2 (FBM) radars to provide radar cues and

launch-on-remote track data. Aegis BMD executed a launch-on-remote engagement of an intermediate range target using AN/TPY-2 (FBM) tracks forwarded by C2BMC during FTM-15. Several ground tests in the GT-04 campaign also exercised launch-on-remote capability culminating in GTD-04d Part 3, which used assets that are part of the initial EPAA Phase 1 deployment.

C2BMC software demonstrated track forwarding of single AN/TPY-2 (FBM) tracks to Tactical Digital Information Link J (Link 16) users in multiple ground tests and FTM-15 in FY11. C2BMC also exercised the forwarding of track data from two AN/TPY-2(FBM) radars in two integrated and one distributed ground tests as part of the EPAA Phase 1 capability demonstration. However, there has been no demonstration of this capability using multiple AN/TPY-2 (FBM) radars and Aegis BMD ships in a flight test.

As the MDA executes the IMTP during the next several years, additional test data supporting more comprehensive quantitative assessments of the EPAA, as well as other elements of the BMDS will become available. However, complete quantitative assessments of EPAA capability are still a number of years away because it will take time to collect the test data needed to verify, validate, and accredit the models and simulations required to perform these assessments.

Assessment of the Current IMTP

My comments to this committee during my testimony of the last two years, regarding the IMTP development process, remain accurate. The Director of MDA, General O'Reilly, has continued to pursue a rigorous IMTP development process that has produced a rigorous and well-justified set of tests. My office continues to be involved throughout the six-month review and revision process leading to each update of the IMTP. This process has worked well during the preparation of the five previous semiannual plans, including the most recent IMTP (version 12.1), that I approved jointly with General O'Reilly in March. The process has enabled each version of the IMTP to be revised in a timely manner consistent with policy changes, flight test results (including unsuccessful intercepts) such as those I have mentioned previously, or, fact-of-life changes in budgetary resources. The current IMTP is a rigorous plan for obtaining the test information needed to assess BMDS performance quantitatively.

However, as I noted in my previous testimony, the IMTP continues to be success-oriented. It does not include plans for backup or repeat tests that would be needed in the event of flight test mission failures. Therefore, the effects of unsuccessful tests, such as the FTG-06a and FTM-16 Event 2 failures, need to be mitigated through future updates of the IMTP. Nonetheless, the six-month revision process allows for making the necessary adjustments and creates flexibility when it is needed.

Conclusion

The ability to conduct comprehensive quantitative assessments of BMDS capability across the full battlespace for each of the elements is still a number of years away. BMDS testing has now produced sufficient data to enable a quantitative assessment of capability for both THAAD and Aegis BMD covering a limited portion of their battlespace. Executing the planned testing in the IMTP will enable the collection of data needed to validate the models and simulations required to perform those assessments and to demonstrate capability across the full battlespace. The rigorous testing incorporated in the IMTP will inevitably lead to flight test failures. These failures, although often perceived as setbacks, provide information that is absolutely critical to assuring that our ballistic missile defenses will work under realistic and stressing conditions.

Dr. J. Michael Gilmore

Director of Operational Test and Evaluation
Office of the Secretary of Defense

Dr. J. Michael Gilmore was sworn in as Director of Operational Test and Evaluation on September 23, 2009. A Presidential appointee confirmed by the United States Senate, he serves as the senior advisor to the Secretary of Defense on operational and live fire test and evaluation of Department of Defense weapon systems.

Prior to his current appointment, Dr. Gilmore was the Assistant Director for National Security at the Congressional Budget Office (CBO). In this position, he was responsible for CBO's National Security Division, which performs analyses of major policy and program issues in national defense, international affairs, and veterans' affairs. Specific areas of investigation included the long-term implications of current defense policies and programs, the implications of transformation for equipping and operating U.S. military forces, the effectiveness and costs of alternative approaches to modernizing U.S. military forces, and the resource demands associated with operating and supporting U.S. military forces.

Dr. Gilmore is a former Deputy Director of General Purpose Programs within the Office of the Secretary of Defense, Program Analysis and Evaluation (OSD(PA&E)). As the Deputy Director, he was responsible for developing, formulating, and implementing Secretary of Defense policies on all aspects of Department of Defense general purpose programs, including analyzing the operational effectiveness and costs of U.S. conventional military forces and supporting programs. Before serving as a Deputy Director, Dr. Gilmore served as the Division Director of Operations Analysis and Procurement Planning, within the Office of the Deputy Director, Resource Analysis and prior to that as an Analyst for Strategic Defensive and Space Programs Division, Office of the Deputy Director, Strategic and Space Programs. Dr. Gilmore's service with Program Analysis and Evaluation covered 11 years.

Early in his career, Dr. Gilmore worked at the Lawrence Livermore National Laboratory, Livermore, California performing research in their magnetic fusion energy program. He has also worked as an Analyst with the Falcon Associates, McLean, VA, and the McDonnell Douglas Washington Studies and Analysis Group, where he became Manager, Electronic Systems Company Analysis.

A native of Ohio and resident of Virginia, Dr. Gilmore is a graduate of The Massachusetts Institute of Technology, Cambridge, Massachusetts, where he earned a B.S. in Physics. He subsequently earned a M.S. and Ph.D. in Nuclear Engineering from the University of Wisconsin, Madison, Wisconsin.

DOCUMENTS SUBMITTED FOR THE RECORD

MARCH 6, 2012

Missile Defense Agency
Fiscal Year (FY) 2009-2013 President's Budget
($ Thousands)

Line Number	Program Element	Budget Project	Program	Budget Activity	FY07 Actual	FY08	FY09	FY10	FY11	FY12	FY13	FY08-13 Total
MILCON												
			Major MILCON		0	0	266,660	596,320	0	0	0	862,980
			BMDS-European Interceptor Site		0	0	132,600	528,780				661,380
			BMDS-European Midcourse Radar Site		0	0	108,560	67,540				176,100
			AN/TPY-2 Radar #3		0	0	25,500	0				25,500
			Minor MILCON		0	0	3,457	3,547	3,700	3,700	3,700	18,104
			Minor MILCON		0	0	3,457	3,547	3,700	3,700	3,700	18,104
			Planning & Design - MILCON		0	0	14,889	5,010	4,784	4,784	4,784	34,251
			Planning & Design		0	0	14,889	5,010	4,784	4,784	4,784	34,251
			MILCON Total		0	0	235,006	604,877	8,484	8,484	8,484	915,335
BRAC												
	0207998C		BRAC		0	103,219	159,938	61,931	8,724	0	0	230,593
		ZX36	Base Realignment and Closure (BRAC)		0	103,219	159,938	61,931	8,724	0	0	230,593
			BRAC Total		0	103,219	159,938	61,931	8,724	0	0	230,593
			PROGRAM TOTAL		9,381,258	8,655,316	9,335,681	9,446,939	9,458,617	9,623,106	9,777,897	47,642,240
* PE 09049030 – Defense-Wide Resource					0	0	0	1,487,782	1,529,152	1,561,167	1,592,493	6,170,594

* Includes funds in PE 09049030 – Defense-Wide Resource

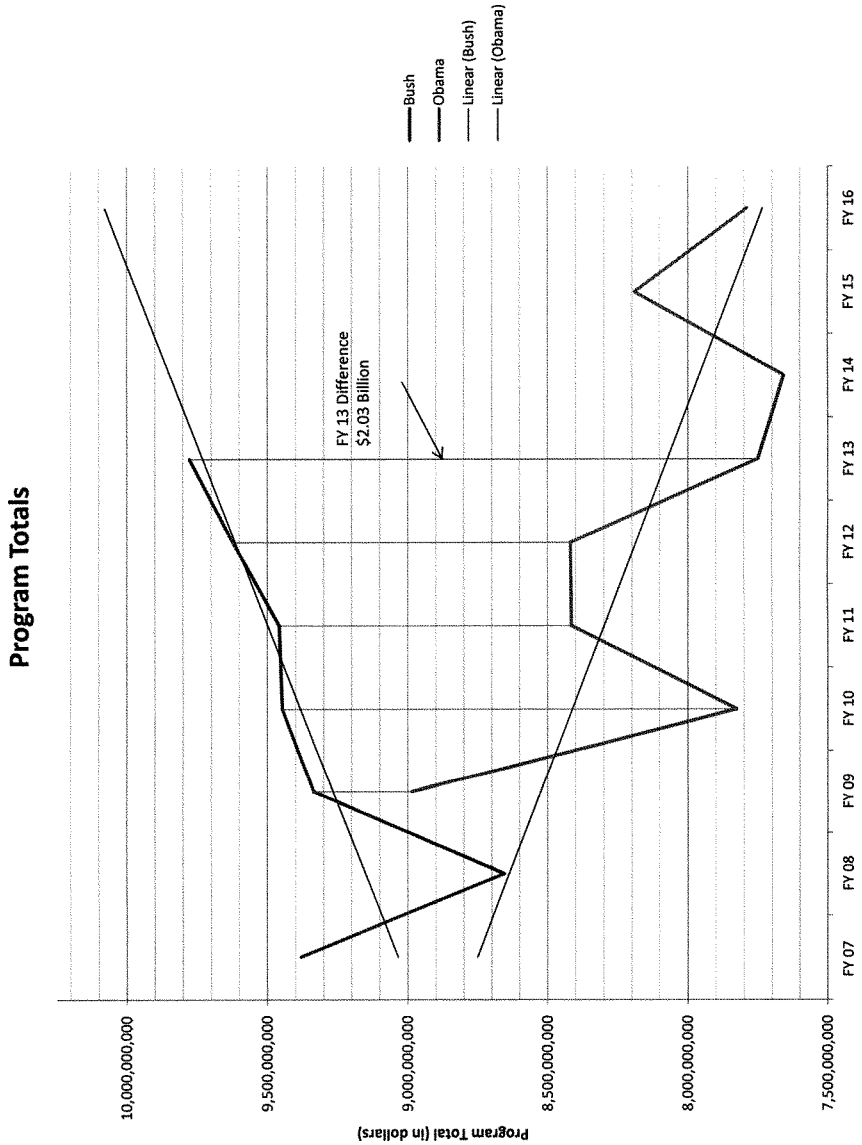
Missile Defense Agency
Fiscal Year (FY) 2010 Budget Estimates
FY2010 Appropriation Summary
($ Thousands)

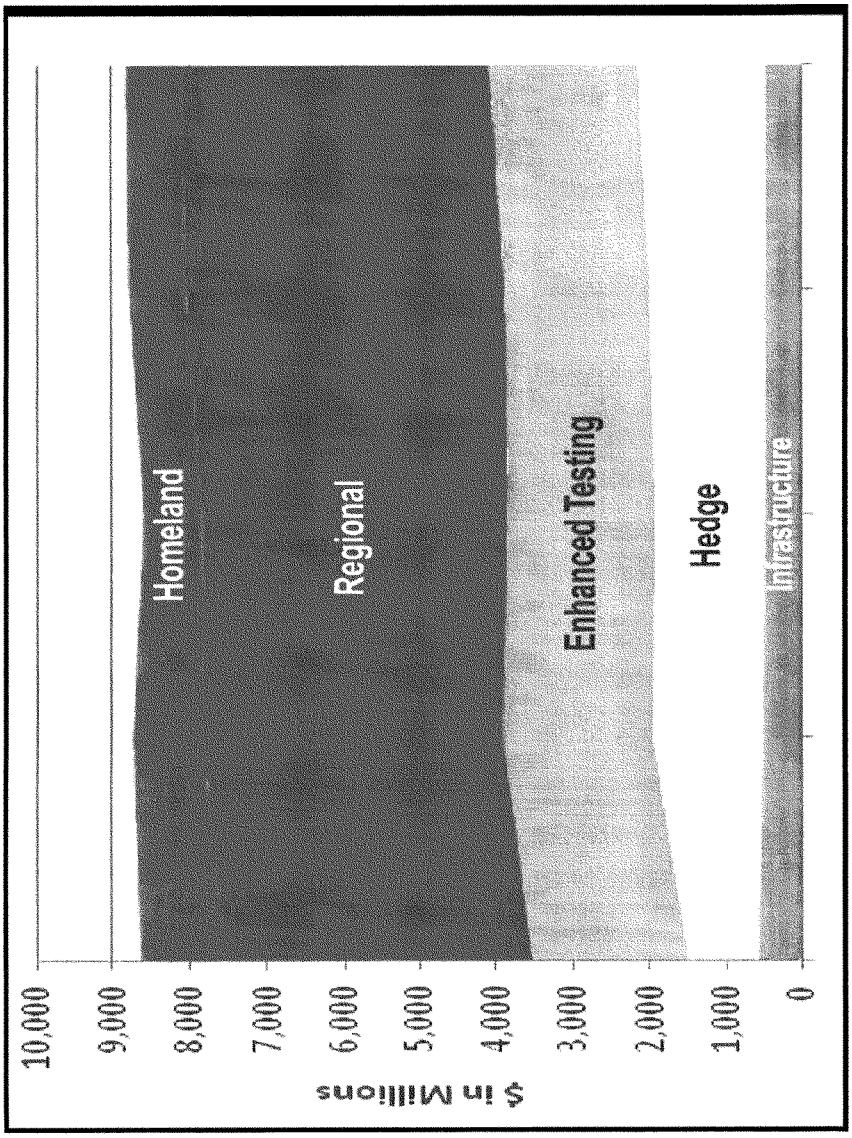
Line No.	Program Element	Budget Project	Program	Budget Activity	FY08 Actual	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY08-10
143	0605502C		Small Business Innovative Research BMDO	06	137,400	0	0	-	-	-	-	-	137,400
		ZX45	Small Business Innovative Research (SBIR)	06	137,400	0	0	-	-	-	-	-	137,400
168	0901585C		Pentagon Reservation	06	5,971	19,667	19,709	-	-	-	-	-	45,347
		ZX42	PRMRF	06	5,971	19,667	19,709	-	-	-	-	-	45,347
169	0901598C		Management Headquarters	06	83,987	81,174	57,403	-	-	-	-	-	222,464
		ZX38	Management Headquarters	06	83,987	81,174	57,403	-	-	-	-	-	222,464
			Budget Activity 06 Total		227,357	100,841	77,112	-	-	-	-	-	405,210
			RDT&E Total		8,855,532	8,464,341	7,120,538	-	-	-	-	-	24,270,515
		Procurement											
	0206505C		Procurement		0	161,822	589,023	-	-	-	-	-	750,845
		EX07	Terminal High Altitude Area Defense Block 5 Fielding		0	104,832	420,300	-	-	-	-	-	525,132
		EX09	AEGIS Block 5 Fielding		0	56,790	168,723	-	-	-	-	-	225,513
			Procurement Total		0	161,822	589,023	-	-	-	-	-	750,845
		MILCON											
			Major MILCON		0	151,160	24,500	-	-	-	-	-	175,660
			Aegis BMD Facility Expansion		0	0	24,500	-	-	-	-	-	24,500
			BMDS - European Interceptor Site		0	42,600	0	-	-	-	-	-	42,600
			BMDS - European Midcourse Radar		0	108,560	0	-	-	-	-	-	108,560
			Minor MILCON		0	3,457	3,717	-	-	-	-	-	7,174
			Minor MILCON		0	3,457	3,717	-	-	-	-	-	7,174
			Planning & Design - MILCON		0	14,889	2,000	-	-	-	-	-	16,889
			Planning & Design		0	14,889	2,000	-	-	-	-	-	16,889
			MILCON Total		0	169,506	30,217	-	-	-	-	-	199,723
		BRAC											
	0207506C		BRAC		110,019	159,932	86,822	-	-	-	-	-	356,573
		ZX39	Base Realignment and Closure (BRAC)		110,019	159,932	86,822	-	-	-	-	-	356,573
			BRAC Total		110,019	159,932	86,822	-	-	-	-	-	356,573
			PROGRAM TOTAL		8,765,666	8,965,413	7,826,362	-	-	-	-	-	25,577,463

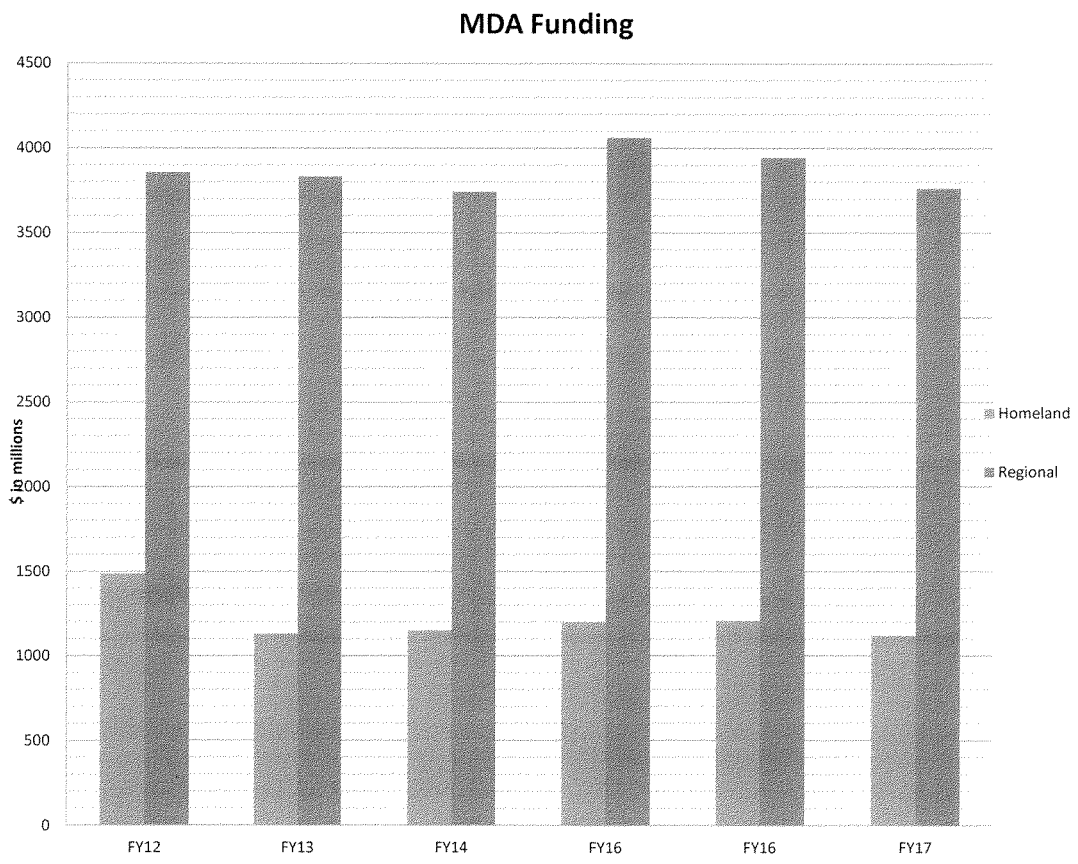
MDA Funding & Buy/Delivery Schedule

FY2013 Appropriation Summary ($ in millions)

Appropriation	PE#	PE Title	FY12	FY13	FY14	FY15	FY16	FY17	FY13-17
MILCON	MILCON	Aegis Ashore EPAA Phase II	0.000	157.900	0.000	0.000	0.000	0.000	157.900
		Aegis Ashore EPAA Phase III	0.000	0.000	0.000	0.000	144.452	0.000	144.452
		Clear AFS UEWR Upgrade	0.000	0.000	14.500	0.000	0.000	0.000	14.500
		Fort Drum IDT	0.000	25.900	0.000	0.000	0.000	0.000	25.900
		Planning & Design/Minor	8.368	4.548	9.806	10.825	10.109	10.454	45.742
		Von Braun Complex Phase IV	58.800	0.000	0.000	0.000	0.000	0.000	0.000
MILCON Total			**67.168**	**188.348**	**24.306**	**10.825**	**154.561**	**10.454**	**388.494**
Procurement	0208866C	THAAD	709.150	460.728	565.938	447.427	490.197	463.739	2428.029
		Aegis BMD	565.393	389.626	767.031	944.349	822.096	1049.430	3872.532
		BMDS AN/TPY-2 Radars	380.195	227.421	0.000	38.648	0.000	0.000	266.069
		Aegis Ashore Phase III			86.400	290.199	50.400	20.600	447.599
Procurement Total			**1654.738**	**1077.775**	**1419.369**	**1620.623**	**1362.693**	**1533.769**	**7014.229**
O&M	O&M	THAAD	50.405	55.679	77.932	84.550	83.745	97.242	399.148
		Aegis BMD		12.163	7.457	11.361	5.404	5.853	42.238
		BMDS Radars	151.937	192.133	212.160	234.940	249.311	247.427	1135.971
O&M Total			**202.342**	**259.975**	**297.549**	**330.851**	**338.460**	**350.522**	**1577.357**
RDT&E	0603175C	BMD Technology	74.920	79.975	81.388	115.427	133.742	136.654	547.186
	0603274C	Special Programs	61.371	36.685	39.736	42.726	46.310	47.213	212.670
	0603881C	BMD Terminal Defense	290.076	316.929	313.212	338.353	249.475	279.758	1497.727
	0603882C	BMD Midcourse Defense	1159.456	903.172	914.603	954.069	948.650	862.884	4583.378
	0603884C	BMD Sensors	222.075	347.012	327.342	362.520	341.780	326.095	1704.749
	0603888C	BMD Test & Targets	85.669	0.000	0.000	0.000	0.000	0.000	0.000
	0603890C	BMD Enabling Programs	415.048	362.711	339.197	373.346	395.350	394.085	1864.689
	0603891C	Special Programs	296.145	272.387	321.450	345.263	354.503	348.602	1642.205
	0603892C	BMD Aegis	988.928	992.407	960.870	950.097	1030.201	958.680	4892.255
	0603893C	STSS	96.232	51.313	45.355	32.423	34.195	35.087	198.373
	0603895C	BMDS Space Program	7.540	6.912	6.576	6.610	7.219	7.371	34.688
	0603896C	BMD C2BMC	363.640	366.552	376.116	383.055	358.431	364.725	1848.879
	0603898C	BMD Joint Warfighter	41.174	55.550	53.139	53.718	59.291	60.540	282.238
	0603901C	Directed Energy Research	49.543	46.944	47.865	47.357	52.519	54.513	249.198
	0603902C	SM-3 BLK IIB	13.443	224.077	299.248	455.373	508.356	430.239	1913.293
	0603904C	MDIOC	69.249	63.043	54.299	55.409	54.693	55.844	283.288
	0603906C	Regarding Trench	15.775	11.371	10.369	5.050	1.769	1.809	30.368
	0603907C	Sea Based X-Band Radar	176.631	9.730	9.725	9.739	9.725	9.728	48.647
	0603913C	Israeli Cooperative	235.700	99.836	95.782	96.803	103.940	106.020	502.381
	0603914C	DMD Test	407.699	454.400	420.397	446.642	370.395	421.602	2110.326
	0603915C	BMD Targets	454.357	436.747	475.175	505.691	406.931	485.950	2309.394
	0604880C	Land-Based SM-3	306.185	276.338	127.235	113.677	47.718	56.193	621.161
	0604881C	Aegis SM-3 Blk IIA	473.643	420.630	273.926	200.699	185.007	46.103	1126.365
	0604883C	Precision Tracking Space System	80.723	297.375	267.505	285.529	326.073	554.190	1630.672
	0604004C	Airborne Infrared (ABIR)	0.000	0.000	0.000	0.000	0.000	(0.000)	0.000
	0604886C	Advanced Remote Sensor Technology	0.000	58.742	35.159	18.889	18.884	18.883	160.557
	0901585C	Pentagon Reservation	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0901598C	Management Headquarters	28.908	34.855	25.473	30.838	31.482	32.798	155.446
RDT&E Total			**6495.230**	**6224.693**	**5917.102**	**6229.113**	**6079.639**	**5095.596**	**30346.143**
PB 2013 President's Budget Controls			**8419.478**	**7750.791**	**7658.326**	**8191.412**	**7935.353**	**7790.341**	**39326.223**


Program Totals
Bush
Obama
Linear (Bush)
Linear (Obama)
FY 13 Difference
$2.03 Billion
Program Total (in dollars)
10,000,000,000
9,500,000,000
9,000,000,000
8,500,000,000
8,000,000,000
7,500,000,000
FY 07
FY 08
FY 09
FY 10
FY 11
FY 12
FY 13
FY 14
FY 15
FY 16


$ in Millions
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Homeland
Regional
Enhanced Testing
Hedge
Infrastructure


MDA Funding
$ in millions
4500
4000
3500
3000
2500
2000
1500
1000
500
0
FY12
FY13
FY14
FY16
FY16
FY17
Homeland
Regional

Missile Defense Agency (MDA) Fiscal Year 2012 Budget Outline

1. Executive Summary: The FY 2013 budget request is $7.750 billion to develop and deploy sensors, interceptors, and command and control systems that constitute the Ballistic Missile Defense System (BMDS) to provide U.S. homeland defense and regional missile defense for deployed forces, allies, and friends. These resources and planned funding across the Future Years Defense Program (FYDP) will continue maintaining and improving the Ground-based Midcourse Defense (GMD) system for homeland defense. Resources and funding will also continue development, testing and fielding of the Phased Adaptive Approach (PAA) to deliver regional missile defense systems.

2. FY 2011 Major Achievements: MDA delivered additional capabilities to the Warfighter for homeland and regional defense:

• Thule Upgraded Early Warning Radar (UEWR) certified for operational use for missile warning, missile defense, and space surveillance missions
• Upgraded 3 emplaced Ground-Based Interceptors (GBIs) at Fort Greely, AK (FGA) as part of the GMD fleet refurbishment and upgrade program
• Fielded improved GMD Fire Control software and installed second Fire Control Node at FGA
• Completed FTG-06a Failure Review Board evaluation, a critical step toward the successful return to GMD flight testing in FY 2012
• Completed Missile Field-2 major construction
• Deployed one Aegis 3.6.1 Ballistic Missile Defense (BMD) ship, EUCOM Command and Control Battle Management and Communications (C2BMC) Spiral 6.4 and a AN/TPY-2 forward based radar in Turkey as part of European PAA (EPAA) Phase 1 capabilities to protect NATO populations and territories in Europe in 2011
• Supported negotiations for host nation agreements to deploy an AN/TPY-2 radar to Turkey and Aegis Ashore batteries to Romania and Poland
• Demonstrated NATO Active Layer Theater Ballistic Missile Defense (ALTBMD) interoperability with EUCOM C2BMC Spiral 6.4 for NATO Situational Awareness (SA) of populations and territories in Europe.
• Delivered 11Terminal High Altitude Area Defense (THAAD) interceptors for THAAD batteries #1 and #2 and started production of THAAD batteries #3 and #4
• Converted three ships to Aegis BMD 3.6.1, completed installation of Aegis BMD 4.0.1 on one ship, second Aegis BMD 4.0.1 ship installation underway
• Manufactured 19 SM-3 Block IAs.
• Continued SM-3 Block IIA system and component Preliminary Design Reviews
• Delivered C2BMC Spiral 6.2 in CENTCOM and Spiral 6.4 to NORTHCOM, STRATCOM, and PACOM

In FY 2011 MDA completed Integrated Master Test Plan version 11.1 (February) and version 11.2 (August) and conducted several key flight tests:

• Japan Aegis BMD used SM-3 IA to intercept a Short Range Ballistic Missile (SRBM) separating payload (JFTM-04 Event 3)

For EPAA phases 3 and 4, in FY 2013 MDA plans to:

- Continue development of the SM-3 IIA and conduct the Critical Design Review
- Complete the Preliminary Design Review of the PTSS
- Complete preliminary designs for the PTSS spacecraft bus, optical payload and communications payload
- Complete risk reduction of critical components, continue development of the Request for Proposal package and begin source selection for the SM-3 IIB Product Development Phase to begin in early FY 2014

MDA will continue to support and fully participate in the Israeli Cooperative Programs. During FY2013 MDA will conduct a David's Sling flight test to demonstrate end game and mid-course algorithms and initiate David's Sling and Arrow-3 Low Rate Initial Production.

Congress of the United States
House of Representatives
Washington, DC 20515

November 18, 2011

Mr. Frank Kendall
Acting Under Secretary of Defense for Acquisition, Technology and Logistics
3010 Defense Pentagon
Washington, DC 20301-3010

Dear Acting Under Secretary Kendall:

As you know, since the Administration created the European Phased Adaptive Approach (EPAA) architecture in September of 2009, Congress has been concerned with the plan and its cost. The Missile Defense Agency (MDA) enjoys a unique acquisition status that requires especially active oversight by Congress and the Administration.

For example, in response to an October 13, 2009 request from then-House Strategic Forces Subcommittee Chairman Langevin and Ranking Member Turner, the Government Accountability Office (GAO) stated:

> [W]e found that DOD has not fully implemented a management process that synchronized EPAA acquisition activities and ensures transparency and accountability...the limited visibility into the costs and schedule for EPAA...reflect the oversight challenges with the acquisition of missile defense capabilities that we have previously reported."

Additionally, House Armed Services Committee (HASC) staff, in response to a Request for Information of the Missile Defense Agency, were provided with the same presentation information provided to GAO in 2009 to assist it in the October Langevin-Turner request, but with the caveat that "[t]he EPAA approach and content has matured significantly since this document was developed." Furthermore, the slides presented to GAO and HASC staff cover only MDA costs, but not the likely considerable costs that may be assumed by the services and combatant commands, including EUCOM.

Adding to the confusion about cost, Under Secretary of State Tauscher recently stated to a conference in Washington DC that the EPAA would provide "more protection sooner against the existing threat using proven systems, and at a lower cost than the previous proposal." However, as you know, systems including the SM-3 IIB and Precision Tracking Space System are still, at best, only in existence on the drawing board.

It is clear that a Cost Assessment and Program Evaluation (CAPE) review of the EPAA is necessary to aid both the Administration and Congress in their respective oversight activities, and we ask that you promptly direct the same. To support the CAPE effort, we would like you to direct MDA and the military services to provide a written description of the complete EPAA

program plan to include design, acquisition, and support details and associated funding to the CAPE office. We ask that this review be provided to the Congress as soon as possible and not later than March 2012 to assist the Congress in writing the FY13 National Defense Authorization Act.

As you know, with almost $489 billion in cuts having already been sustained to the U.S. defense budget over the coming decade, and the specter of sequestration looming ahead, both Congress and the Administration must be equipped to make informed decisions about the expenditure of scarce defense resources, including those for missile defense. We are sure you agree that our first priority, especially when it comes to missile defense, must be protection of the U.S. homeland. With an adequate missile defense budget, this need not come at the expense of missile defense cooperation with our allies.

We appreciate your service to the United States.

Sincerely,

MICHAEL R. TURNER
Chairman
Subcommittee on Strategic Forces
House Armed Services Committee

JEFF SESSIONS
Ranking Member
Subcommittee on Strategic Forces
Senate Armed Services Committee

MRT:tm

CC: Lieutenant General Patrick J. O'Reilly, Director, Missile Defense Agency
The Honorable Michèle Flournoy, Under Secretary of Defense for Policy
The Honorable Loretta Sanchez, Member of Congress
Mr. Steven R. Miller, Division Director, Advanced Systems Cost Analysis, Office of the Secretary of Defense

THE UNDER SECRETARY OF DEFENSE
3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

ACQUISITION,
TECHNOLOGY
AND LOGISTICS

FEB 12 2012

The Honorable Michael R. Turner
Chairman
Subcommittee on Strategic Forces
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20510

Dear Mr. Chairman:

Thank you for your November 18, 2011, letter concerning the cost of the Ballistic Missile Defense System European Phased Adaptive Approach (EPAA) architecture. My office is working with the Under Secretary of Defense for Policy, the Under Secretary of Defense (Comptroller), the Assistant Secretary of Defense for Cost Assessment and Program Evaluation (CAPE), and the Missile Defense Agency to develop guidelines for an EPAA cost estimate. We will involve the Joint Staff, U.S. European Command, and the Military Departments to provide operation and support information for EPAA.

I would like to provide you some insight into what you can expect as our answer. As described in the 2010 Ballistic Missile Defense Review, the United States is pursuing phased adaptive approaches within geographic regions that are tailored to the threats and circumstances unique to each region and that will evolve over time as circumstances change and new capabilities become available. These approaches will heavily utilize mobile and relocatable assets in order to provide the maximum flexibility, which complicates the analysis of which costs are attributable to EPAA. The Department is working expeditiously to meet your request that CAPE assess the EPAA. However, we anticipate that completion of the analysis will occur in the July 2012 timeframe based on the requested scope of work. We would be happy to brief you on the status of our work in March 2012 in support of your oversight efforts.

I look forward to continuing to work with you on this and other national defense matters. A similar letter has been sent to Senator Sessions.

Sincerely,

Frank Kendall
Acting

cc:
The Honorable Loretta Sanchez
Member of Congress
The Honorable James D. Miller
Acting Under Secretary of Defense for Policy
Lieutenant General Patrick J. O'Reilly
Director, Missile Defense Agency
Mr. Steven R. Miller
Division Director, Advanced Systems Cost Analysis
Office of the Secretary of Defense

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COMMITTEE ON ARMED SERVICES

U.S. House of Representatives

Washington, DC 20515–6035

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ROBERT L. SIMMONS, II, STAFF DIRECTOR

The Honorable Leon Panetta
Secretary of Defense
1000 Defense Pentagon
Washington, DC 20301-1000

November 17, 2011

Dear Secretary Panetta,

As members of the House Armed Services Subcommittee on Strategic Forces – responsible for oversight of the nation's missile defense – we write out of concern about new intelligence concerning foreign developments in long-range ballistic missile development, specifically, ballistic missiles capable of attacking the United States. We believe this new intelligence reiterates the need for the Administration to correct its priorities regarding missile defense, which should have, first and foremost, the missile defense of the homeland.

In 2009, the Administration announced that it would reduce the development of the homeland missile defense system by severely limiting the purchase of ground-based interceptors (GBI) for deployment in the United States and by cancelling the deployment of the Third Site system in the Czech Republic and Poland. As you know, the only missile defense capability to project the homeland currently in place is the ground-based midcourse defense system (GMD) in Alaska and California, which this Administration and the previous Congress cut by over $1.65 billion. At the time, this decision was explained on the basis of "new intelligence" that justified de-prioritizing national missile defense in favor of defense against regional missile threats.

With regard to the intelligence, we believe this decision was in error at the time and that new information reaffirms that error. We further believe it is now critically important that the Administration immediately reprioritize the defense of the homeland. And we believe your predecessor, Secretary Gates, was of the same view when he announced prior to his departure from office that, "with the continued development of long-range missiles and potentially a road-mobile intercontinental ballistic missile and their continued development of nuclear weapons, North Korea is in the process of becoming a direct threat to the United States."

Almost from the day of the announcement of the Administration's new architecture for missile defense, the House Armed Services Committee has been pressing the Administration for a "hedging strategy" to be assembled and implemented for the defense of the homeland. And Administration witnesses have repeatedly promised such a strategy. For example, Dr. Jim Miller, the Principal Deputy Under Secretary of Defense for Policy, told the Strategic Forces Subcommittee in his March 2, 2011 testimony that, "the Department is in the process of finalizing and refining its hedge strategy." Less than a

month later, Dr. Brad Roberts, Deputy Assistant Secretary of Defense for Nuclear and Missile Defense Policy, testified that, "[t]he Administration is considering additional steps to strengthen the U.S. hedge posture…we are evaluating the deployment timelines associated with fielding additional capabilities."

Despite these commitments, and despite passage by the House of section 233 of the FY12 National Defense Authorization Act, the Congress has received no "hedging strategy" from the Department of Defense. Further, we are hearing from the Department of Defense that the Administration has no plans to restore the buy of GBI interceptors planned by the previous Administration, and may only be prepared to buy new missiles solely for testing purposes. What's more, we are informed that the Administration may be preparing to walk away from its commitment to develop the SM-3 IIB missile, perhaps by downgrading it to a mere technology risk reduction program. It would be a double blow to the defense of the homeland if the Administration now walks away from the IIB missile without restoring programs for missile defense of the United States.

Such decisions, which will further compromise the national missile defense of the United States, may be a result of the Administration's decision to build a missile defense system in Europe, with little application for the defense of the United States, as a contribution to NATO; in other words, to build a missile defense shield for Europe at enormous cost to the United States. Continued short-changing of the missile defense budget may force Congress to make a choice if the missile defense of the homeland continues to be deprioritized by the Administration.

In view of the briefing the subcommittee received this week, we do not believe the United States can afford further delay in the release of the hedging strategy by the Department of Defense. We urge you to take steps to ensure it is completed and briefed to the Congress before the end of the year. We further urge you to ensure that when the FY13 budget for the Department of Defense is submitted to the Congress next February, it restores funding to homeland missile defense programs to counter the rising long-range ballistic missile threat to the United States. The defense of the United States must be the top priority for the Department of Defense.

Sincerely,

Michael R. Turner
Member of Congress

Trent Franks
Member of Congress

Doug Lamborn
Member of Congress

Mac Thornberry
Member of Congress

Mike Rogers
Member of Congress

PRINCIPAL DEPUTY UNDER SECRETARY OF DEFENSE
2100 DEFENSE PENTAGON
WASHINGTON, DC 20301-2100

POLICY

JAN 23 2012

The Honorable Michael Turner
Chairman
Subcommittee on Strategic Forces
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Turner:

Thank you for your November 17, 2011 letter to Secretary Panetta regarding the ballistic missile threat from North Korea and U.S. missile defense priorities. Protecting the United States from the threat of ballistic missile attack is a critical national security priority, and missile defense of the homeland remains the first priority of the Department's missile defense efforts.

The United States now possesses a capacity to counter the projected threats from North Korea and Iran for the foreseeable future with the current Ground-based Midcourse Defense (GMD) system. Because of the uncertainty about the future ICBM threat, it is important that the United States maintain this advantageous position. In order to maintain this advantageous position, the Department has committed to implementing additional steps to maintain and enhance protection provided by the GMD system. These improvements to the program of record include:

- Procurement of additional Ground-based Interceptors (GBIs) (which will keep production lines warm through 2016);
- The deployment of additional sensors;
- Upgrades to the Command, Control, Battle Management and Communications system;
- Placement of an additional In-Flight Interceptor Communications System Data Terminal on the East Coast;
- Upgrades to the Early Warning Radars at Clear, Alaska and Cape Cod, Massachusetts; and
- An aggressive GBI reliability improvement program in order to reduce the number of GBIs required per intercept, which will increase the number of ICBMs that can be defeated by the GMD system.

In addition to the improvements to the GMD system, the Administration is also implementing a number of measures to strengthen the U.S. hedge posture, including:

- The construction and activation of Missile Field 2 at Fort Greely, Alaska, which will accommodate a contingency deployment of eight additional GBIs, if needed;
- Placement of six GBI silos at Missile Field 1 at Fort Greely in storage mode instead of

decommissioning, allowing their return to service within 18-24 months, if necessary; and

- The continued development and assessment of a two-stage GBI, which will continue to preserve future deployment options.

The Administration is also committed to implementing all phases of the European Phased Adaptive Approach (EPAA), including developing and fielding the SM-3 IIB interceptor. The EPAA will improve our homeland defenses while providing missile defense against the regional threat to our deployed forces, Allies, and partners in Europe. The EPAA augments homeland BMD defense by deploying a forward-based radar in Turkey, which will provide data to augment the missile defense coverage of the United States. Additionally, the SM-3 IIB interceptor will provide an early-intercept capability against potential Iranian ICBMs targeting the United States.

The United States continuously analyzes threat developments and future capabilities to identify additional measures that could be taken should new threats emerge. The analysis conducted for the hedge strategy is informing the budget decisions under consideration as part of the development of the Department's fiscal year 2013 budget request. The Department will ensure that Congress is briefed on the results of the hedge strategy at that time.

Sincerely,

James N. Miller

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U.S. House of Representatives

Washington, DC 20515–6035

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ROBERT L. SIMMONS, II, STAFF DIRECTOR

November 23, 2011

The Honorable Leon Panetta
Secretary of Defense
1000 Defense Pentagon
Washington, DC 20301-1000

Dear Secretary Panetta:

As you know, the House Armed Services Committee (HASC) expressed deep concerns about the Missile Defense Agency's (MDA) plan to begin a new acquisition program for a 9 or 12 constellation satellite system known as Precision Tracking Space System (PTSS) when it passed the FY12 National Defense Authorization Act. These concerns led the committee to take the step of eliminating all funds from the President's request for this program.

As Chairman of the Strategic Forces Subcommittee, which has responsibility for MDA programs, I have not been allayed of concerns about this planned system since the Defense Authorization Act was passed by the House of Representatives. I remain concerned about the acquisition approach for PTSS, the technological tradeoffs, the requirements which are driving its design and the potential for other systems in place or in development to provide much, if not all, of the capability expected out of PTSS.

Because of these persisting concerns, and before MDA commits further resources to a new multi-billion dollar decade-long acquisition program, I ask you to direct the Cost Assessment and Program Evaluation (CAPE) office to conduct a comprehensive review of the PTSS program to include an independent estimate of cost and schedule, long-term affordability and sustainability, and program executability. To support the CAPE effort, I request that you direct MDA to provide a written description of the PTSS program plan to include design, acquisition, and support details and associated funding. I ask that the CAPE office pay special attention to the space launch assumptions made by MDA.

I am concerned about MDA attempting to deploy its own satellite constellation, a highly technical and complex acquisition challenge for which the agency has no real experience. Additionally, in view of the likelihood that, for the vast preponderance of the useful life of a satellite constellation such as PTSS, it will not be engaged in missile defense missions, but likely another mission, such as space situational awareness, I am uncertain it makes sense to develop this satellite as a missile defense asset. Please describe what space situational awareness capability PTSS would have and how that capability will be used. Please also describe whether

MDA or the Air Force has evaluated whether there are additional space situational awareness capabilities that should be considered for this constellation, if it is deployed.

Additionally, I ask you to instruct the competent authority within DOD to evaluate whether there are other systems, space-based or airborne, being deployed or that are in development that can provide an opportunity for additional sensor data for the Missile Defense Agency. As part of this review, I hope you will instruct the Joint Staff to evaluate the requirements that are driving the design of the PTSS constellation, and specifically examine whether they represent realistic perspectives on missile defense threats and engagements timelines. The results of the Joint Capabilities Mix III Study were informative and should provide the starting point of this evaluation. I would hope this evaluation would also consider whether the PTSS system would provide more than a marginal improvement to the defense of the United States.

I further request that you instruct that MDA not commit to any new outlays in support of PTSS until these reviews are done and until the FY13 budget is presented to Congress; as you know, in view of the more than $489 billion in budget impacts already sustained to the U.S. defense budget, significant strategic choices are expected in the next budget submission to Congress.

We appreciate your service to the United States. We are sure you agree that MDA's unique status in the DOD acquisition system requires constant consideration and particularly attentive oversight to protect the taxpayer's scarce resources, especially in the current defense budget outlook. For any questions about this request, please direct your staff to contact Tim Morrison on the House Armed Services Committee staff.

Sincerely,

MICHAEL R. TURNER
Chairman
Subcommittee on Strategic Forces

MRT:tm

CC: Lieutenant General Patrick J. O'Reilly, Director, Missile Defense Agency
The Honorable Loretta Sanchez, Member of Congress
The Honorable Bill Young, Member of Congress
The Honorable Norm Dicks, Member of Congress

THE SECRETARY OF DEFENSE
WASHINGTON

DEC 12 2011

The Honorable Michael R. Turner
Chairman
Subcommittee on Strategic Forces
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

I recently received your letter regarding the Precision Tracking Space System. I have asked the Honorable Christine Fox, Director of Cost Assessment and Program Evaluation, to look into this matter in detail and get back to you as soon as possible.

With best wishes,

Sincerely,

OFFICE OF THE SECRETARY OF DEFENSE
1800 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-1800

COST ASSESSMENT AND
PROGRAM EVALUATION

DEC 29 2011

The Honorable Michael R. Turner
U.S. House of Representatives
Washington, DC 20510

Dear Representative Turner:

Thank you for your November 23 request to review the Missile Defense Agency's Precision Tracking Space System (PTSS) program. We share your interest in ensuring that we fully understand the cost and technical details of this important program. Accordingly, Secretary Panetta has asked my organization to lead the study, with support from the Office of the Under Secretary of Defense - Acquisition Technology & Logistics, the Missile Defense Agency, U.S. Strategic Command, and Joint Staff.

We will begin this effort immediately. To provide you quality analysis and because your request requires significant detailed analysis and modeling, we expect the effort will take some time. We expect to complete this effort by October 2012 to support our FY 2014 budget preparation. In the meantime, we recommend that funding continue for PTSS to support ongoing research, development and acquisition planning. In addition, continued funding of this effort will ensure that the required technical and programmatic personnel will be available to respond to queries from our study team.

I look forward to working with you on this important effort. My staff is always available if you wish a progress update. My POC is Dr. Dennis Evans at dennis.evans@osd.mil or (703) 695-7725.

Sincerely,

Christine H. Fox
Director

Status of Morale at MDA

April 2012

How is Morale?

- **Federal Employee Viewpoint Survey improvements, 2010-2011**
  - Overall positive increase of 4 percentage points
  - Increased 5 percentage points or more in 50% of questions
  - Significantly higher satisfaction scores than rest of Fed Gov in: Training, Salary, Ethical Conduct & Diversity
- **Launching 2012 "MDA Focus Groups"**
  - Investigate low-scoring areas and find root causes
  - Intent: prioritize and initiate corrective action plans

Highest MDA Ratings - 2011 FEVS

Overall Satisfaction:

- Job Training… 72% (*17% higher than Gov avg*)
- Pay… 78% *(15% higher than Gov avg)*

Perception of My Agency / Work Experience

- Cooperation is high between employees… 80%
- Agency Produces High Quality Work and is successful in overall mission… 79%
- We possess job relevant knowledge/skills to accomplish Agency goals… 77%
- Agency supports diversity programs… 73%

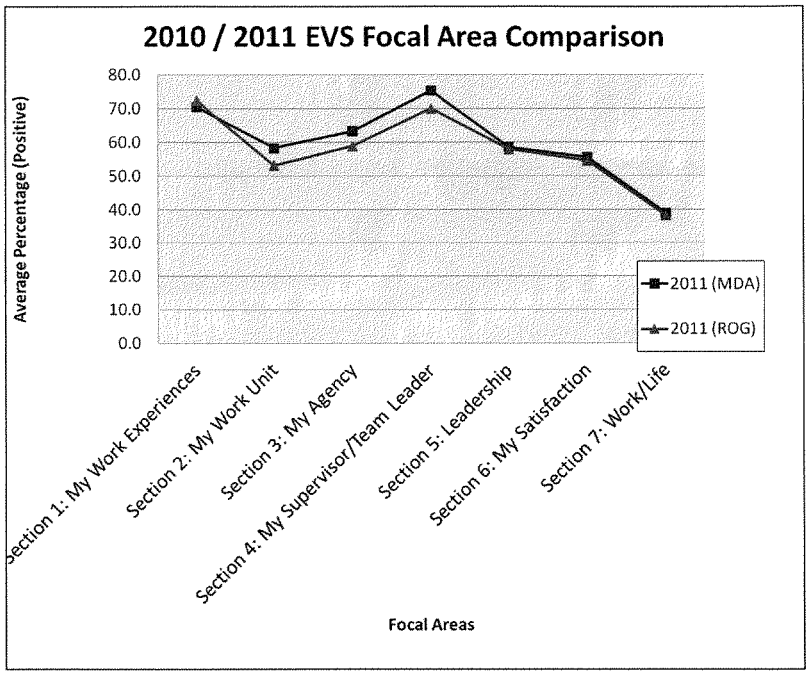
Perception of Supervisor / Leadership

- Treats me with respect and listens to employees… 86%
- Supports Work/Life Balance… 81%
- Provides Leadership opportunities… 74%
- Works well with employees from different backgrounds… 73%

UNCLASSIFIED

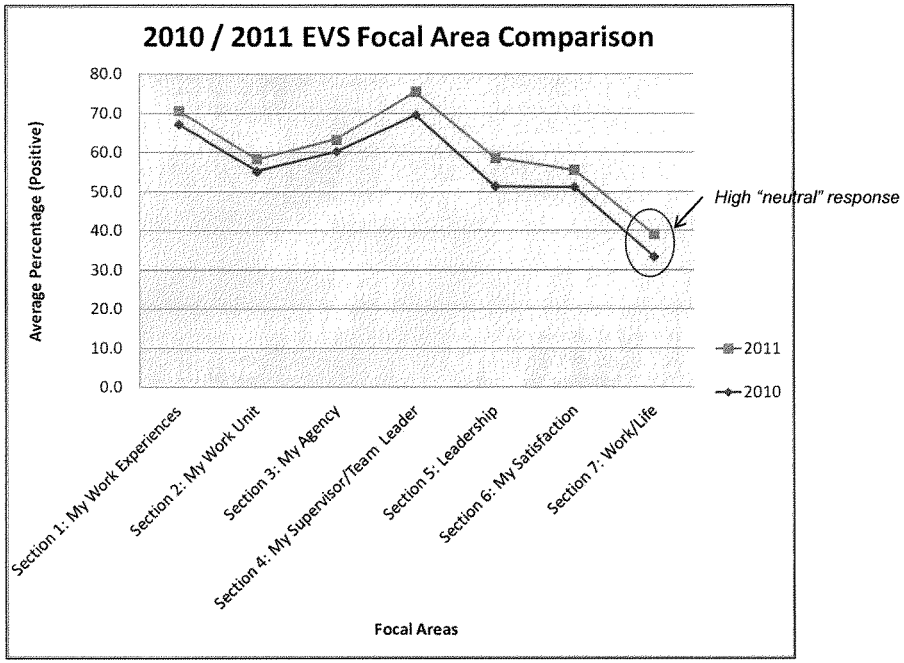
Federal Employee Viewpoint Survey (EVS)

MDA to "Rest of Gov't" Comparison



UNCLASSIFIED

Federal Employee Viewpoint Survey (EVS)
MDA Score Increases



2011 Federal Viewpoint Survey

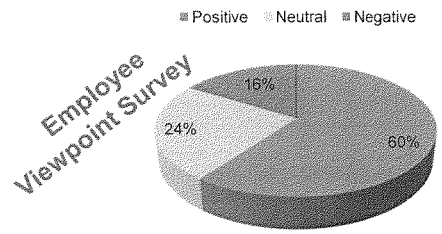
- EEO and Diversity Related Question -

- **17. I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.**

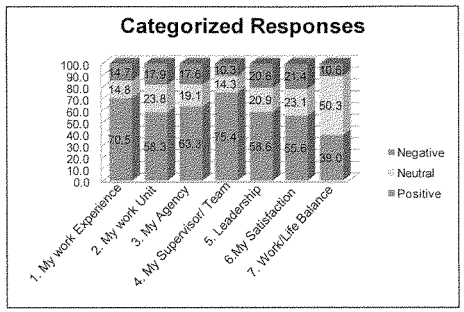
Year	Positive	Neutral	Negative
MDA 2010	62.0 %	18.0%	20.0%
MDA 2011	69.5%	18.9%	11.6%
Gov'twide 2011	62.5%	19.7%	17.8%

2011 FEVS Results Cross-walked to MDA Exit Survey

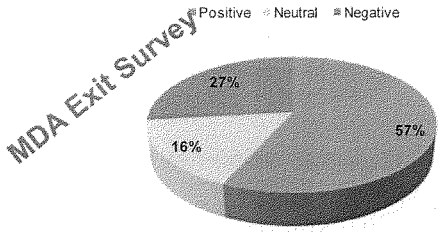
Overall Response Rollup

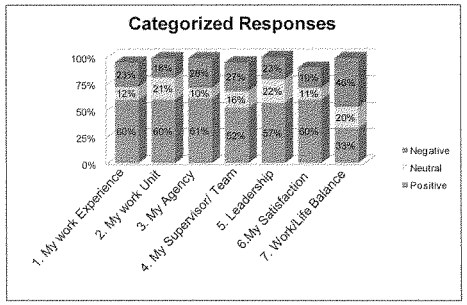


39.4% response rate (1,284 polled, 535 completed)



Overall Response Rollup





SBX Annual Cost Breakdown (TY $K) FY06-FY13															
Cost Element	FY06*		FY07*		FY08		FY09		FY10		FY11		FY12		FY13
	Request	Actual	Request	Actual	Request	Actual	Request	Actual	Request	Actual	Request	Actual	Request	Actual	Request
Total		**184,640**		**107,864**	**165,243**	**155,244**	**147,429**	**143,878**	**174,576**	**157,739**	**153,056**	**143,873**	**169,802**	**169,802**	**9,236**
Sea Based X-Band Radar Development (and Maintenance, if applicable)					43,643	28,908	23,000	16,733	14,350	18,000	-	-	23,002	23,002	-
SBX System Integration					28,200	5,826	27,829	4,652	3,600	-	-	-	-	-	-
System Force Protection					6,200	4,300	10,400	9,984	6,600	6,600	10,000	5,441	4,742	4,742	940
SBX Vessel Operations and Support					52,200	85,456	54,900	87,837	106,426	89,710	98,029	95,301	109,884	109,884	6,196
XBR Operations and Support					35,000	30,754	31,300	24,672	41,800	41,800	43,127	41,345	32,174	32,174	2,100
SBX Communications Operations and Sustainment**						-	-	-	1,800	1,629	1,900	1,786	-	-	-

* In FY 06-08, SBX was funded by GMD. In FY06 and FY07, SBX funding was not explicitly broken out as requested or actual expenditures

** In FY 08, FY 09, FY 12, and FY13, funding for SBX Communications Operations and Sustainment is included in X-Band Radar Operations and Support

PB13 Aegis BMD SM-3 Missile Buy-Deliver Plan

(Includes Fact of Life Changes from PB11, FY13 Reduction, does not include Return to Flight)

19 APR 12

		FY11				FY12				FY13				FY14				FY15				FY16				FY17			
SM-3 Blk I / IA Missiles																													
SM-3 Blk I (11)	11																												
SM-3 Blk IA (32 + 1 (Pathfinder))	33																												
CLIN 1 (27)	27																												
CLIN 3 (24)	17	4	3																										
CLIN 4 (18)				6	6	6																							
CLIN X (23)														11	12														
Expended/De-Miltarized*	19	1				3				1								9*				12*				19*			
Subtotal Deliveries /Inventory	88/69	107/87				113/92				113/91				136/114				136/105				136/88				136/70			
SM-3 Blk IB Missiles																													
Pathfinder (1)			1																										
CLIN 16/17 (24)	Δ						3	6	6	6	3																		
FY12 DWP (46)							Δ								12	12	12	10											
FY13 DWP (29)										Δ								7	7	7	8								
FY14 DWP (69)														Δ								17	17	17	18				
FY15 DWP (82)																		Δ								18	20	22	22
FY16 DWP (77)																						Δ							
FY17 DWP (72)																										Δ			
Expended/De-Miltarized*		1				3				1				5				5											
Subtotal Deliveries /Inventory	0/0	1/0				16/12				25/18				61/49				100/83				169/152				251/234			
SM-3 Blk IIA Missiles																													
RDT&E (22)																		Δ									2	2	3
FY17 DWP (12)																										Δ			
Expended/De-Miltarized*																													
Subtotal Deliveries /Inventory		0/0				0/0				0/0				0/0				0/0				0/0				7/7			
Cum. U.S. Deliveries (FY)	**88**	**108**				**129**				**138**				**197**				**236**				**305**				**394**			
Cum. U.S. Inventory (FY)	**69**	**87**				**104**				**109**				**163**				**188**				**240**				**311**			

FY 2009-2013 Major Accomplishments and Changes

Budget Project Actuals ($ Millions)	FY09	FY10	FY11	FY12	FY13*
Budget Requested	2,076.70	982.90	1,346.20	1,161.00	903.2
Budget Appropriated	1,472.70	1,022.00	1,245.50	1,159.50	NA
Delta	-604.00	39.10	-100.70	-1.50	NA
Program Integration and Control	**190.9**	**184.6**	**207.8**	**156.8**	**118.9**
Workforce	Continue	Continue	Continue	Continue	Continue
Prime Contractor Management	Continue	Continue	Continue	DSC Competition Savings	Continue
Safety and Quality	Continue	Continue	Continue	Continue	Continue
Element Engineering and Integration	**122.7**	**122.6**	**157.7**	**133.7**	**85.5**
Prime Contractor Systems Engineering	Continue	Continue	Continue	DSC Competition Savings	Continue
Models and Simulations	Continue	Continue	Continue	Continue	Continue
Component Lab Testing	Continue	Continue	Continue	Continue	Continue
Ground Systems	**217.8**	**91.4**	**205.8**	**73.3**	**70.0**
Missile Field 2 Construction	Continue	Stopped	Restarted	Completed	
FGA Power Plant	Continue	Continue	Construction Completed	Deployment Completed	
Software (6B, 6B1.5, 6B2.)	Continue	Stopped at 6B	Restarted 6B2	Continue	Continue
2nd RIDT at VAFB	Completed				
2nd FDC Node at FGA			Initiated	Completed	
Ft Drum IFICS Data Terminal					Initiate
BMDS Level Testing	**155.3**	**97.6**	**88.2**	**102.6**	**80.4**
Flight Testing	FTG-05	FTG-06, BVT-01	FTG-06a	CTV-01, FTG-06b^	
Ground Testing	Initiated GT-04	Continue GT-04	Continue GT-04	Continue GT-04	Complete GT-04, Initiate GT-06
Ground Based Interceptor	**418.1**	**276.7**	**352.6**	**446.7**	**295.2**
GBI Manufacturing 25-28	Completed				
GBI Manufacturing 29-33	Continue	Completed			
GBI Manufacturing 34-37	Continue	Continue	Continue	Continue	Complete
GBI Manufacturing 38-44	Continue	Stopped prior to Integration	Restarted	Continue	Continue
GBI FAU/OP	Continue	Stopped	Restarted to complete PDR	Continue	Continue
Return to Intercept (RTI) Program			Initiated	Continue	Incorporate Mitigation
GBI Manufacturing 48-52		Initiated Long-Lead		Initiated	Continue
GBI Manufacturing 53-57					Initiate
Sustainment	**249.5**	**187.1**	**182.2**	**198.1**	**207.1**
Program Wide Support	**78.2**	**12.1**	**51.2**	**48.2**	**46.0**
Congressional Add	**40.0**	**50.0**			
Total	**1,472.7**	**1,022.0**	**1,245.5**	**1,159.5**	**903.2**

* FY13 is requested and not appropriated

^ Subject to re-plan

Acronym Legend: Development & Sustainment Contract (DSC)

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

MARCH 6, 2012

QUESTIONS SUBMITTED BY MR. TURNER

Mr. TURNER. Which countries have made what contributions to NATO missile defense?

a. What procedures are in place, or will be needed, to sell or export SM–3 missiles to NATO allies in the event they seek to purchase them to support their own, or NATO's, missile defense activities?

Dr. ROBERTS. All NATO Allies are providing financial support for the implementation of European missile defense by agreeing to pay for the expansion of Active Layered Theater Ballistic Missile Defense (ALTBMD) with NATO common funding.

Within NATO, Allies are stepping up as contributors to the NATO missile defense effort. Germany and the Netherlands currently field Patriot PAC–3, Greece and Spain operate Patriot PAC–2, and France and Italy have the SAMP/T system, which has capabilities similar to those of the Patriot. In addition, the Netherlands has approved plans and funding to upgrade the SMART–L radar on four air defense frigates, giving the ships a BMD Long-Range Search and Track (LRS&T) capability. Germany is testing and intends to operationalize an Airborne Infrared System (ABIR) system, which could support NATO BMD. In addition, France has proposed a concept for a single geosynchronous infrared shared-early warning satellite, and is developing transportable, midcourse radar for BMD and early warning. Germany and the Netherlands have also proposed an interceptor pooling concept where several Allies would purchase SM–3 interceptors that could then be used in support of NATO missile defense.

Furthermore, Turkey, Romania, Poland, and Spain have all agreed to host U.S. assets in support of NATO missile defense. These host governments will bear the costs of providing perimeter defense and security for the U.S. assets and infrastructure.

Existing Foreign Military Sales procedures within the Department of Defense can be used by NATO Allies to explore the procurement of SM–3 missiles and associated infrastructure, including the weapons system to support their use.

Mr. TURNER. Please list the countries the U.S. has approached about contributing to defray the costs of the EPAA and their responses? What specific requests has the U.S. made to which countries?

Dr. ROBERTS. The EPAA is the U.S. contribution to a NATO missile defense effort. As with every other NATO mission, other nations do not pay for the national contributions of individual Allies. Turkey, Romania, Poland, and Spain have all agreed to host U.S. assets in support of NATO missile defense.

In addition, NATO Allies are providing financial support for the implementation of European missile defense by agreeing to pay for the expansion of Active Layered Theater Ballistic Missile Defense (ALTBMD) with NATO common funding. We also welcome Allied national contributions to NATO missile defense.

Mr. TURNER. What analysis has been done to understand how a IIB missile that cannot fit into the current 8-pack VLS system will affect Navy force requirements and deployment systems and schedules? Please provide that analysis.

Dr. ROBERTS. The SM–3 Block IIB is in the concept phase. MDA and industry are exploring a full range of performance, risk, and cost alternatives. This space is being done to support concepts that range from small diameter missile concepts (22 inches) compatible with the existing MK 41 VLS eight pack module, and higher performing large diameter missile concepts (potentially up to 27 inches) that would require a modification to a five cell VLS reload module. A design criteria imposed on the concept development contractor teams is that there will be no modifications to the VLS system.

Mr. TURNER. What is the current planning for other than Europe PAAs? What will costs and architectures look like? Force requirements? Burden sharing?

a. Why hasn't the following report required pursuant to directed report language in the FY10 House-passed NDAA been provided?*

*The new Phased Adaptive Approach (PAA) for missile defense in Europe announced by the President on September 17, 2009, is likely to create increased force structure and inventory de-

Continued

Dr. ROBERTS. The Ballistic Missile Defense Review stated that the United States would seek to develop regional phased adaptive approaches to missile defense for the Asia-Pacific and Middle East regions. These approaches will be tailored to the threats and circumstances unique to that region. The United States will consult closely with Allies and partners as we develop these approaches. As the work on the phased adaptive approaches for other regions is ongoing, we are unable to provide specific details on the approaches at the present time.

(Anticipate the Report will be provided April 2012).

Mr. TURNER. Will the U.S. seek to deploy an additional TPY–2 in Japan? Couldn't such a deployment be used to provided additional sensor coverage useful for the defense of the United States?

Dr. ROBERTS. Work on bolstering missile defenses in the Asia-Pacific is ongoing.

The United States will consult closely with our allies and partners as we develop proposals for consideration for a Phased Adaptive Approach for the Asia-Pacific region that contributes to Homeland and regional defense. This approach will be tailored to the threats and circumstances unique to this region.

Mr. TURNER. Who will make the decision to revise the current GMD shot doctrine?

a. If DPRK deploys 5 road mobile ICBMs, does the U.S. have enough GBIs under current assumptions of shot doctrine? What if it deploys 10? Or 20?

b. Does the DPRK presently have nuclear warheads capable of being mounted on its ballistic missiles?

Dr. ROBERTS. [The information referred to is classified and retained in the subcommittee files.]

Mr. TURNER. What is the plan to retain Cobra Dane capability? Which agencies will pick up the costs? If this has not been decided yet, who are the POCs involved in making the decision?

Dr. ROBERTS. The Department of Defense (DOD) agreed to assume ownership of the radar from the Director of National Intelligence (DNI) beginning in Fiscal Year 2013 (FY13). DNI and DOD are currently working out all of the transition details. The DNI will pay operation and maintenance (O&M) costs through FY14. The U.S. Air Force and the Missile Defense Agency are conducting an assessment of necessary O&M funding requirements for post transition which will be used to inform an agreement to pay for O&M costs thereafter.

Mr. TURNER. If the DPRK deploys 20 ICBMs by 2020, and the IIB is delivered and deployed on time, please explain where they will be deployed to protect CONUS from a North Korean ballistic missile? a. Does this mean they will need to be sea-based at initial deployment? b. If they can't fit in the existing 8-pack VLS configuration space, how many ships will have to be outfitted with how many interceptors to deal with the threat?

Dr. ROBERTS. The SM–3 Block IIB is in the concept definition phase, and the exact configuration number of missiles and location (land-based and/or sea-based) to defend CONUS from a North Korean ICBM attack has yet to be determined. The industry concept development teams have been given a goal to provide sea-based flexibility. MDA has commenced discussions with Navy regarding potential operations to examine trade space for shipboard deployment, which will determine the total number of missiles deployable per sea-based asset. Due to reductions to the

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mands. Furthermore, as noted in the Ballistic Missile Defense Review (BMDR) released on February 1, 2010, the Phased Adaptive Approach is to be tailored to other geographic regions such as East Asia and the Middle East, which is also likely to create significant force structure and inventory demands. As acknowledged in the BMDR, "regional demand for U.S. BMD assets is likely to exceed supply for some years to come."

Until these regional missile defense architectures are completed, the committee is concerned that the Department's missile defense force structure and inventory requirements, and the resulting resource implications will be difficult to quantify. In addition, certain missile defense capabilities, such as Aegis ballistic missile defense ships, will remain high demand, low density assets that must be carefully managed across the combatant commands so that no one theater accepts greater risk at the expense of another.

The committee is aware that the Department is developing regional missile defense architectures based on the PAA and also developing a comprehensive force management process. The committee directs the Secretary of Defense, in coordination with the Chairman of the Joint Chiefs of Staff, to provide a report to the congressional defense committees by December 1, 2010, describing: (1) the regional missile defense architectures, including the force structure and inventory requirements derived from the architectures, and (2) the comprehensive force management process, and the capability, deployment, and resource outcomes that have been determined by this process.

(House Report 111–491—NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2011)

budget request for the SM–3 IIB program in FY2012, the IIB will not be available until the 2021 timeframe.

Mr. TURNER. Has the Administration seen evidence/intelligence of foreign support—including materiel—for the North Korean, road mobile ICBM? a. Please detail what the Administration is doing to cut that off?

Dr. ROBERTS. [The information referred to is classified and retained in the subcommittee files.]

Mr. TURNER. Why would an East Coast site have to use GBIs? What analysis has been done of the potential of employing either IIA or IIB missiles? Please provide that analysis or indicate if it has not been done.

Dr. ROBERTS. [The information referred to is classified and retained in the subcommittee files.]

Mr. TURNER. How is morale in MDA today?

Dr. ROBERTS. The results of the 2011 Federal Employee Viewpoint Survey (EV survey), sponsored by the Office of Personnel Management (OPM), reflect an improvement in 41 of 84 areas, as compared to 2010 responses, which indicated overall job satisfaction in MDA. In key areas (e.g., overall satisfaction, training, salary, ethical conduct, diversity and equal employment opportunity etc.), MDA was 7–14 percentage points above the government wide average. Among the most improved agencies in the EV survey, MDA was number 32 of 154 government-wide. This improvement in morale was achieved despite the involuntary realignment of approximately 75 percent of the MDA National Capital Region workforce during Base Closure and Realignment Commission (BRAC) implementation.

[The information referred to can be found in the Appendix on pages 118–124.]

Mr. TURNER. Will both existing sensors and interceptors be evaluated as part of your Hedge report?

a. Will your plan assume use of existing discriminating radar for defense of the west and east coast CONUS regions?

b. Will your plan provide an investment strategy which will optimize sensor and interceptor performance to accommodate early deployment options as well as the longer term such as phase 4 of PAA?

c. What about the implementation of air launched weapons as part of the boost phase solution?

Dr. ROBERTS. Yes, the hedge strategy is focused on increasing the capacity and effectiveness of the Ground-based Midcourse Defense (GMD) system, including sensors and interceptors. Our homeland defense plans and the hedge strategy are focused on increasing the capacity and effectiveness of the GMD system, including sensors and interceptors. Yes, our homeland defense plans and hedging strategy are designed to maintain and enhance the future protection provided by the GMD system, and the Standard Missile-3 (SM–3) Block IIB. Potential implementation of air launched weapons is being assessed in the ongoing Airborne Weapons Layer Cost/Benefit Analysis (AWL C/BA). The AWL C/BA is a joint effort by the Air Force and the Missile Defense Agency, and is planned for completion in the fall of 2012.

Mr. TURNER. Will the IIB be deployed in land- and sea-based modes in 2020? In what quantities? Based on past experience with the GMD and SM–3 IA, and the recent test failure of the IB, what is the projected shot doctrine for the IIB likely to be?

Dr. ROBERTS. The SM–3 Block IIB will be designed and developed to be deployable in Aegis BMD assets both land- and sea-based. Initial fielding will occur in the 2021 timeframe with a planning factor of 24 SM–3 Block IIBs for each Aegis system with an anti-ICBM mission. Operational questions regarding shot doctrine and rules of engagement should be directed to the Combatant Commanders and Joint Staff.

Mr. TURNER. What requirements changed to support reducing THAAD battery purchases by 3 and THAAD interceptor purchases by 66?

Dr. ROBERTS. We had to prioritize due to affordability and chose to purchase Terminal High Altitude Area Defense (THAAD) batteries at a slower rate; however, our commitment to missile defense remains unchanged.

THAAD production continues and can be extended without re-start costs in FY 2014 if necessary. The regional protection provided by Aegis BMD ships and Patriot batteries provides some overlap with the protection that could be provided by a THAAD deployment.

Mr. TURNER. Why is MDA procuring 6 fewer TPY–2 radars under the FY13 budget and FYDP? What assumptions changed since last year?

Dr. ROBERTS. We had to prioritize due to affordability and chose to conclude the procurement of additional AN/TPY–2 Radars in FY 2013. However, our commitment to missile defense remains unchanged.

TPY–2 Radar production continues through FY 2013 and can be extended without re-start costs in PB14 if necessary. The recent Foreign Military Sales case with the United Arab Emirates also keeps the TPY–2 radar production line open, providing future production opportunities.

In addition, the Precision Tracking Space System (PTSS) could reduce the need to use TPY–2 radars as forward-based sensors when it becomes available.

Mr. TURNER. How much would an EIS on an East Coast missile defense site cost? Would it make sense to do an EIS on more than one location, e.g., Ft. Drum and Loring AFB?

Dr. ROBERTS. MDA's estimate for an Environmental Impact Statement (EIS) is approximately $8 million. The actual cost would depend on the final number of candidate sites and the locations within the sites analyzed to meet National Environmental Policy Act (NEPA) requirements. Environmental conditions that also impact costs include endangered and threatened species habitats, cultural resources, natural resources, and proximity to developed areas.

If an EIS is conducted, it is preferable to assess more than one location, based on sitting study input of viable alternatives.

Mr. TURNER. What was the cost estimate of the EPAA when the Obama Administration decided to make it a U.S. contribution to NATO? What is it today?

Dr. ROBERTS. As requested by Congress, the Assistant Secretary of Defense for Cost Assessment and Program Evaluation (CAPE) is completing a detailed estimate of unique EPAA costs.

The mobile and relocatable nature of the assets associated with the phased adaptive approach complicates the analysis of which costs are attributed solely to EPAA because BMD forces can be (and are) redeployed and sourced to different theaters and regions depending on when and where crises or conflicts may arise.

Mr. TURNER. Please list the specific exceptions to the National Disclosure Policy related to missile defense? Missile defense and Russia? Russia?

Dr. ROBERTS. U.S. national disclosure policy does not specifically address U.S. missile defense information. However, it makes clear that classified military information is a national security asset that shall be protected and shall be shared with foreign governments only when there is a clearly defined benefit to the United States.

Mr. TURNER. Please describe the role of the NORTHCOM Commander in producing the hedging strategy? Has he been involved at every step? How many of the iterations of the strategy has he seen and commented on?

Dr. ROBERTS. U.S. Northern Command has been involved in the development of the hedge strategy, including participation in interagency meetings and meetings of the Missile Defense Executive Board.

Mr. TURNER. Why is a DTCA needed with Russia?

a. What would such an agreement permit by way of U.S. and Russian missile defense cooperation?

Dr. ROBERTS. The Defense Technology Cooperation Agreement (DTCA) being negotiated would provide an overarching agreement for the legal framework under which the United States and the Russian Federation could conduct bilateral defense cooperative research and development projects with individual implementing agreements.

The Department is continuing to examine projects that would benefit the United States through the Defense Technology Cooperation Sub-Working under the Defense Relations Working Group. The DTCA itself does not authorize any specific project.

Mr. TURNER. In light of the limited number of GBI's in inventory, what is the COCOM inventory management strategy and is it consistent with MDA?

Dr. ROBERTS. The Commander, U.S. Northern Command is responsible for determining the most effective management of the GBI inventory. MDA provides technical analysis, including reliability data for the GBIs, for U.S. Northern Command's consideration in developing shot doctrine and inventory management.

Mr. TURNER. Which countries have made what contributions to NATO missile defense? a. What procedures are in place, or will be needed, to sell or export SM–3 missiles to NATO allies in the event they seek to purchase them to support their own, or NATO's, missile defense activities?

General O'REILLY. Our international allies are making significant contributions to the NATO territorial missile defense mission by hosting key EPAA assets within their respective countries. Turkey is hosting an AN/TPY–2 under Phase I of EPAA, Romania and Poland will host Aegis Ashore Sites beginning in Phase II and III respectively, and beginning in 2014, four multi-mission Arleigh Burke-class guided-missile destroyers with BMD capability will be forward deployed to Rota, Spain in support of EPAA.

As a result of a decision taken by NATO nations at the 2010 Lisbon Summit, the Active Layered Theater Ballistic Missile Defense (ALTBMD) program is being expanded to include the territorial missile defense mission. The ALTBMD Program is a NATO common funded command and control system that will enable real-time information exchanges between NATO and national missile defense systems. NATO will issue force goals for territorial missile defense in 2013 and invite nations to pledge missile defense assets for territorial missile defense. To date, the Netherlands, France and Germany, have all made political commitments to provide missile defense systems for territorial missile defense of Europe. The Netherlands, has offered to provide up to four frigates with upgraded SMART–L radars, beginning in 2017 for the NATO territorial missile defense mission. France has offered to provide satellite capabilities for early detection and warning as well as a long-range early warning radar for territorial missile defense. Germany has also committed to provide PATRIOT batteries for the same. Many other NATO nations are discussing upgrading shipboard sensors to enable BMD detection, tracking and cueing functions. We fully expect as NATO establishes force planning goals for territorial missile defense, that other NATO nations will offer their national missile defense systems, both land and sea-based for territorial missile defense of NATO Europe.

Existing Foreign Military Sales procedures within the Department of Defense can be used by NATO allies to explore the procurement of SM–3 missiles and associated infrastructure, including the weapons system to support their use.

Mr. TURNER. Please list the countries the U.S. has approached about contributing to defray the costs of the EPAA and their responses? What specific requests has the U.S. made to which countries?

General O'REILLY. MDA has not approached NATO Allies about contributing to defray the cost of EPAA. EPAA is the U.S. contribution to NATO territorial missile defense.

NATO Allies are addressing their own ability to contribute to NATO territorial MD. The Active Layered Theater Ballistic Missile Defense (ALTBMD) Program is a NATO common funded command and control system that will enable real-time information exchanges between NATO and national missile defense systems. NATO will issue force goals for territorial missile defense in 2013 and invite nations to pledge missile defense assets for territorial missile defense.

MDA has had discussions with Denmark regarding conducting a technical analysis of the L-band radar aboard their new frigates to determine inherent BMD capability these ships may possess to support territorial missile defense. In the near term, MDA will conduct a joint technical interchange meeting with Denmark to determine the scope, timeline and next steps for such an effort.

At the request of the Netherlands Ministry of Defence (MoD), MDA has met with Dutch government officials to discuss a multi-national NATO-led effort to analyze L-band radars aboard ships from NATO countries (including Germany, Denmark, and the United Kingdom) to determine inherent BMD capability and what upgrades may be necessary to increase this capability. Through a foreign military sales case, MDA has conducted a technical analysis with the Dutch Navy that resulted in the Dutch MoD commitment (and parliamentary approval) to upgrade the SMART–L radars aboard their four frigates for BMD surveillance and track functions.

Additionally, the U.S. continues to support the United Kingdom's efforts to understand the potential for their Type-45 Destroyer to contribute to BMD operations in a coalition environment.

Finally, it should be emphasized that our international allies are making significant contributions to the NATO territorial missile defense mission by hosting key EPAA assets within their respective countries. Turkey is hosting an AN/TPY–2 under Phase I of EPAA, Romania and Poland will host Aegis Ashore Sites beginning in Phase II and III respectively, and beginning in 2014, four multi-mission Arleigh Burke-class guided-missile destroyers with BMD capability will be forward deployed to Rota, Spain in support of EPAA.

Mr. TURNER. What analysis has been done to understand how a IIB missile that cannot fit into the current 8-pack VLS system will affect Navy force requirements and deployment systems and schedules? Please provide that analysis.

General O'REILLY. The SM–3 Block IIB is in the concept phase and the exact configuration, number of missiles, and location (land-based and/or sea-based) to defend CONUS has not been determined. To ensure that missile trade studies explore the full range of performance, risk, and cost alternatives, MDA and industry are exploring a broad trade space, allowing concepts to range from small diameter missile concepts (22 inches) compatible with the existing MK 41 VLS eight pack module, and higher performing large diameter missile concepts (27 inches) that would require a modified five cell VLS module. However, all industry concept development teams

have been given a goal to minimize any impacts to the Aegis system (including the VLS system).

Mr. TURNER. What is the current planning for other than Europe PAAs? What will costs and architectures look like? Force requirements? Burden sharing?

a. Why hasn't the following report required pursuant to directed report language in the FY10 House-passed NDAA been provided?*

General O'REILLY. The Under Secretary of Defense for Policy, the Department of Defense, is responsible for developing policy for the planning of PAAs beyond Europe.

The Defense Department provided an input for the reporting requirement of the FY11 NDAA in its August 18, 2011 correspondence to Senators Levin and Inouye and Representatives Rogers and McKeon which included the results of the Joint Capability Mix (JCM) III Study. Copies of this correspondence, which includes the JCM III briefing, are attached.

[The information referred to is classified and retained in the subcommittee files.]

Mr. TURNER. Will the U.S. seek to deploy an additional TPY–2 in Japan? Couldn't such a deployment be used to provided additional sensor coverage useful for the defense of the United States?

General O'REILLY. MDA does not determine where BMDS assets are deployed. The Warfighter, Joint Chiefs of Staff, and the Under Secretary of Defense for Policy advise the Secretary of Defense on international deployments.

From a technical perspective, an additional AN/TPY–2 radar in Japan, with an appropriate boresight, can provide sensor viewing of intercontinental ballistic missile trajectories from North Korea to the United States to add another layer of support to the Ballistic Missile Defense System sensor architecture.

Mr. TURNER. Who will make the decision to revise the current GMD shot doctrine?

a. If DPRK deploys 5 road mobile ICBMs, does the U.S. have enough GBIs under current assumptions of shot doctrine? What if it deploys 10? Or 20?

b. Does the DPRK presently have nuclear warheads capable of being mounted on its ballistic missiles?

General O'REILLY. (a) The Commander of United States Northern Command (CDRUSNORTHCOM) has the authority and responsibility for defense of the United States. Questions in this subject area should be directed toward CDRUSNORTHCOM.

(b) Questions in this subject area should be directed to the Under Secretary of Defense for Intelligence and the broader Intelligence Community. The Missile Defense Agency does not maintain the intelligence resources to assess foreign nuclear capability.

Mr. TURNER. What is the plan to retain Cobra Dane capability? Which agencies will pick up the costs? If this has not been decided yet, who are the POCs involved in making the decision?

General O'REILLY. MDA plans to fund our share of the operation and support costs for the sustainment of Cobra Dane with all other users for as long as it is operational.

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*The new Phased Adaptive Approach (PAA) for missile defense in Europe announced by the President on September 17, 2009, is likely to create increased force structure and inventory demands. Furthermore, as noted in the Ballistic Missile Defense Review (BMDR) released on February 1, 2010, the Phased Adaptive Approach is to be tailored to other geographic regions such as East Asia and the Middle East, which is also likely to create significant force structure and inventory demands. As acknowledged in the BMDR, "regional demand for U.S. BMD assets is likely to exceed supply for some years to come."

Until these regional missile defense architectures are completed, the committee is concerned that the Department's missile defense force structure and inventory requirements, and the resulting resource implications will be difficult to quantify. In addition, certain missile defense capabilities, such as Aegis ballistic missile defense ships, will remain high demand, low density assets that must be carefully managed across the combatant commands so that no one theater accepts greater risk at the expense of another.

The committee is aware that the Department is developing regional missile defense architectures based on the PAA and also developing a comprehensive force management process. The committee directs the Secretary of Defense, in coordination with the Chairman of the Joint Chiefs of Staff, to provide a report to the congressional defense committees by December 1, 2010, describing: (1) the regional missile defense architectures, including the force structure and inventory requirements derived from the architectures, and (2) the comprehensive force management process, and the capability, deployment, and resource outcomes that have been determined by this process.

(House Report 111–491—NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2011)

Mr. TURNER. If the DPRK deploys 20 ICBMs by 2020, and the IIB is delivered and deployed on time, please explain where they will be deployed to protect CONUS from a North Korean ballistic missile? a. Does this mean they will need to be sea-based at initial deployment? b. If they can't fit in the existing 8-pack VLS configuration space, how many ships will have to be outfitted with how many interceptors to deal with the threat?

General O'REILLY. The SM–3 Block IIB is in the concept definition phase and the exact configuration, number of missiles, and location (land-based and/or sea-based) to defend CONUS from a North Korean ICBM attack yet to be determined. The industry concept development teams have been given a goal to provide sea-based flexibility. MDA has commenced discussions with Navy regarding potential operations to examine trade space for shipboard deployment which will determine the total number of missiles deployable per sea-based asset.

Mr. TURNER. Has the Administration seen evidence/intelligence of foreign support—including materiel—for the North Korean, road mobile ICBM? a. Please detail what the Administration is doing to cut that off?

General O'REILLY. Questions in this subject area should be directed toward the Under Secretary of Defense for Intelligence and the broader Intelligence Community. The Missile Defense Agency does not maintain intelligence resources to assess North Korean and Iranian ICBM development.

(a) Questions regarding the Administration's actions in response to intelligence reports should be directed to the National Security Staff and the Office of the Secretary of Defense, specifically the Under Secretary of Defense for Intelligence.

Mr. TURNER. Why would an East Coast site have to use GBIs? What analysis has been done of the potential of employing either IIA or IIB missiles? Please provide that analysis or indicate if it has not been done.

General O'REILLY. [The information referred to is classified and retained in the subcommittee files.]

Mr. TURNER. How is morale in MDA today?

General O'REILLY. The results of the 2011 Federal Employee Viewpoint Survey (EV survey), sponsored by the Office of Personnel Management (OPM), reflect our improvement in 41 of 84 areas, as compared to 2010 responses, which indicated overall job satisfaction in MDA. In key areas (e.g., overall satisfaction, training, salary, ethical conduct, diversity and equal employment opportunity etc.), MDA was 7–14 percentage points above the government wide average. Finally, among the most improved agencies in the EV survey, MDA was 32 of 154 government-wide. Slides more fully summarizing our results are attached. This improvement in morale was achieved despite the involuntary realignment of approximately over 75% of the MDA NCR workforce during BRAC implementation.

[The slides referred to can be found in the Appendix on pages 118–124.]

Mr. TURNER. Will both existing sensors and interceptors be evaluated as part of your Hedge report?

a. Will your plan assume use of existing discriminating radar for defense of the west and east coast CONUS regions?

b. Will your plan provide an investment strategy which will optimize sensor and interceptor performance to accommodate early deployment options as well as the longer term such as phase 4 of PAA?

c. What about the implementation of air launched weapons as part of the boost phase solution?

General O'REILLY. While the Missile Defense Agency has provided analysis supporting Hedge options, this effort is under the purview of the Under Secretary of Defense for Policy (USDP), and I would defer to USDP on these questions.

Mr. TURNER. Will the IIB be deployed in land- and sea-based modes in 2020? In what quantities? Based on past experience with the GMD and SM–3 IA, and the recent test failure of the IB, what is the projected shot doctrine for the IIB likely to be?

General O'REILLY. The SM–3 Block IIB will be designed by the Missile Defense Agency in cooperation with the U.S. Navy to have both land-based and sea-based capability. Initial fielding will occur at land-based Aegis Ashore sites in Europe in the 2021 timeframe. The industry concept development teams have been given a goal and incentive to propose ship compatible SM–3 IIB concepts. The Navy and MDA will determine the opportunity and resultant timeline to deploy the SM–3 Block IIB on Aegis BMD ships.

Additional information is provided in the classified response.

Mr. TURNER. What requirements changed to support reducing THAAD battery purchases by 3 and THAAD interceptor purchases by 66?

General O'REILLY. There was no change in requirements. However, to meet budget constraints driven by debt ceiling considerations, the Department followed stand-

ard procedures for budget decisions. Specifically, the Missile Defense Executive Board provided guidance and considered many options before recommending the reduction of THAAD and AN/TPY–2 purchases to the Defense Management Action Group (DMAG). The DMAG concurred that these reductions posed the least impact on overall missile defense capability and approved the recommendation to reduce the number of THAAD and AN/TPY–2 radars for inclusion in the President's Budget for FY 2013.

Mr. TURNER. Why is MDA procuring 6 fewer TPY–2 radars under the FY13 budget and FYDP? What assumptions changed since last year?

General O'REILLY. To meet budget constraints driven by debt ceiling considerations, the Department followed standard procedures for budget decisions. Specifically, the Missile Defense Executive Board provided guidance and considered many options before recommending the reduction of THAAD and AN/TPY–2 reductions to the Defense Management Action Group (DMAG). The DMAG concurred that these reductions posed the least impact on overall missile defense capability and approved the recommendation to reduce the number of THAAD and AN/TPY–2 radars for inclusion in the President's Budget for FY 2013.

Mr. TURNER. How much would an EIS on an East Coast missile defense site cost? Would it make sense to do an EIS on more than one location, e.g., Ft. Drum and Loring AFB?

General O'REILLY. MDA's estimate for an Environmental Impact Statement (EIS) is $3 million. The actual cost will depend on the final number of candidate site(s) and the location(s) within the site(s) analyzed to meet National Environmental Policy Act requirements. Environmental conditions that also impact costs include endangered and threatened species habitats, cultural resources, natural resources, and proximity to developed areas.

Yes, it makes sense to do an EIS on more than one location based on siting study input of viable alternatives. Any location suitable for a missile field would have to account for a 50 km radius for a first stage booster drop zone and a 600 km radius for a second stage booster drop zone.

Mr. TURNER. Did IDA and NAS in their recently completed studies on missile defense conclude that an East Coast site would be beneficial for the defense of the United States? Didn't Northcom do the same in 2007–2008 before the President issued the BMDR and changed the policy?

General O'REILLY. [The information referred to is classified and retained in the subcommittee files.]

Mr. TURNER. Please explain what "cuing" PTSS will need? Which specific systems will provide the cue to PTSS?

General O'REILLY. PTSS is the persistent component of an overall BMDS sensor architecture that consists of multiple, mutually reinforcing sensor systems that cover the missile defense battle-space from ignition to reentry. PTSS looks above the horizon—away from the structured clutter of the hard earth and atmospheric limb—in the late boost, post boost and midcourse phases of threat flight, delivering precision 3D tracks to the BMDS fire control network. By design, PTSS does not perform the below-the-horizon boost phase acquisition and track functions. PTSS will leverage the integration of all-source Overhead Persistent Infrared (OPIR) data feeds (Air Force's Space Based Infrared System and several Intelligence Community sensors) into the BMDS and the distribution of OPIR data for missile defense processing on compressed engagement timelines. PTSS is a cued precision tracking capability that will receive tasking from C2BMC based on an OPIR handover or cue. OPIR state vectors will be used by PTSS to initialize the tracking sensor scheduling process and to refresh the target list as new launches are detected and processed.

Mr. TURNER. How many PTSS satellites will be procured in the initial constellation (6, 9, or 12)? When will this decision be made? What will factor in to the size of the constellation?

a. When will the first replacement satellites need to be procured? Launched?

b. How far in advance of such procurement and launch will that decision be made?

General O'REILLY. Nine (9) PTSS satellites will be procured in the initial constellation.

Two factors determine the size of the operational constellation: 1) raid handling capacity and 2) evolution of the threat. Six (6) satellites in the on-orbit constellation provide the minimum connectivity necessary for around-the-globe communications, nine (9) satellites provide stereo coverage of ballistic missile threats and twelve (12) satellites provide operational redundancy and resiliency.

a. Given a 9-satellite constellation, satellite #10 would be the first replenishment satellite to be used as the first vehicles near their predicated end of life. Launching PTSS satellites is more cost effective today if two satellites are launched together

on one Atlas or Delta launch vehicle, PTSS satellite #10 would accompany satellite #9 on the same launch vehicle. That tandem launch is expected to occur in FY24, with advanced procurement beginning six years prior to that (FY18).

Note: in this timeframe, the commercial marketplace may include a new launch provider that may be able to offer cost effective options for single-satellite launches, presenting the opportunity to decouple the launch of satellite #10 from satellite #9. MDA will monitor that as activities progress.

b. The advanced procurement decision for satellite #10 would be made in FY18. The production decision for satellite #10 would be made one year later (FY19).

Mr. TURNER. Please detail what opportunities the USAF will have to provide input on PTSS design requirements to optimize its SSA capabilities. When will this occur? Who will be the direct responsible POCs for USAF and MDA decisions on PTSS requirements in support of SSA?

General O'REILLY. The USAF and MDA have been working together since 2010 on PTSS support to Space Situational Awareness (SSA).

In the summer 2010, MDA and Air Force Space Command (AFSPC) conducted a joint study to assess the PTSS design to understand how PTSS could contribute to the SSA mission. This study provided a high level snapshot of how PTSS could contribute to the SSA mission as identified in USSTRATCOM's SSA Initial Capabilities Document.

In March 2012, a second joint study between MDA and AFSPC was kicked off to explore in further detail PTSS's inherent SSA capabilities, implementation options, required interfaces and cost estimates. This study is set to conclude in June 2012 and the results will be briefed to the July 2012 PTSS Systems Requirements Review (SRR).

AFSPC will update its long term SSA architecture with the inherent SSA capability delivered by PTSS as documented in the March 2012 joint study.

AFSPC and MDA will jointly review the study requirements. We expect that some will require changes to ground data processing and dissemination. These changes could be handled as new inputs from AFSPC and MDA to the DOD Joint Overhead Persistent Infrared (OPIR) Ground system architecture.

Mr. TURNER. Please provide an annualized and detailed cost breakdown on operating SBX since the capability came online. a. Please provide breakdown of how PBR13 will be spent.

General O'REILLY. The annualized cost breakdown for the Sea Based X-Band Radar (SBX) is contained in the attached table.

[The table can be found in the Appendix on page 125.]

In FY13, the SBX will be in a Limited Test Support Status. In this status, the Sea-Based X-Band (SBX) radar will retain its unique capabilities. Its technical performance capability will continue, including connectivity to the Ground-Based Midcourse Defense Fire Control System. SBX will maintain its American Bureau of Shipping (ABS) and Coast Guard certifications, and will be staffed to maintain the vessel, X-band radar (XBR) and other critical systems for support to both testing and contingency activation.

It will continue to participate in Ballistic Missile Defense System ground and flight testing, while being available to support contingency operations as directed by OSD and the Joint Staff. The Missile Defense Agency (MDA) is working with Joint Staff and the U.S. Strategic Command's Joint Functional Component Command for Integrated Missile Defense to determine the appropriate response time for contingencies.

The Navy and MDA joint cost estimate for Limited Test Support Status is still being developed and is expected to be complete in May 2012.

Mr. TURNER. What will be the discrimination capability of the PTSS constellation at IOC originating from the satellites themselves?

General O'REILLY. Discrimination of warheads, decoys, lifting bodies, debris, etc. is an activity with C2BMC and BMDS terrestrial and space-borne sensors each contributing a necessary part. PTSS has a three color infrared sensor. The three colors are Visible-Near Infrared (VNIR), Mid Wave Infrared (MWIR), and Mid Long Infrared (MLIR). Collecting observations in these three bands simultaneously aids PTSS in a process called bulk filtering (frame-to-frame comparisons based on radiometric features of an object like object temperature and emissivity area) to eliminate hot fuel debris associated with threat missile thrust termination and unsteady motor operation. This raw data is sent to the C2BMC for further discrimination and determination, such as combining PTSS with radar data to fully exploit the multiple sensor types. PTSS also has the ability to track ballistic missiles in a "birth-to-death" fashion and observe reentry vehicle deployments. PTSS will also be connected to other sensors by C2BMC to observe behaviors and features of closely spaced objects over extended time periods and during unexpected movements.

Mr. TURNER. Will PTSS transmit its data direct to interceptors, or will it have to be routed through land-based systems or other satellites? Please respond in detail.

General O'REILLY. PTSS does not communicate directly to interceptors or interceptor weapon systems; it is a node on the networked Ballistic Missile Defense System (BMDS) and therefore PTSS data is communicated to weapon systems through the BMDS Command and Control Battle Management Communications (C2BMC) element.

The PTSS architecture includes multiple communication paths to transmit tracking data to the C2BMC for networked dissemination to various weapon fire control systems. PTSS communication paths include:

- A satellite communications crosslink that allows any PTSS satellite to pass its tracking data to its neighboring satellite in the constellation
- Existing space entry point links
- MDA ground entry point links
- Emergency ground link to the Air Force Satellite Communication Network.

These links are available on all space vehicles in the PTSS constellation and thus provide connectivity to the PTSS operations center. The PTSS operations center provides connectivity to the C2BMC as well as other critical nodes, including the Joint Space Operations Center and the Joint Overhead Persistent Infrared (OPIR) Ground.

Mr. TURNER. What are your views on the Iron Dome system? What parts of the system (i.e., technologies) could be of value to the U.S.?

General O'REILLY. Iron Dome has been used in combat for Rocket, Artillery and Mortar Defense (RAM–D) and is currently in production with four batteries delivered and deployed in Israel. Iron Dome has demonstrated capability in defending populated areas against Rocket Artillery and Mortar (RAM) attacks with fly-out ranges of four to seventy kilometers.

The Missile Defense Agency is not the lead for ongoing studies within the Department for the Iron Dome System, but it is being considered in three U.S. suitability assessments: Indirect Fire Protection Capability (IFPC) Increment II Analysis of Alternatives (AoA); Cost Assessment and Program Evaluation (CAPE) study directed by the Deputy Secretary of Defense; and Center for Army Analysis Integrated Air and Missile Defense (CAA IAMD) future investment strategy for Assistant Chief of Staff, G–8. These studies are not yet completed, and questions regarding them should be directed to the appropriate lead within the Department.

Mr. TURNER. How would STSS be used to respond to an attack on CONUS today?

General O'REILLY. STSS is not an operational element within the BMDS and would not be used for the homeland defense mission.

STSS consists of only two satellites in lower earth orbit and as such has very limited coverage. It is a research and development system used to demonstrate on-orbit space-based technologies to track ballistic missiles in mid-course phase and provide a networked remote sensor capability to deliver fire control quality data to BMDS weapons systems such as Aegis. STSS is providing valuable insights and risk reduction for the Precision Tracking Space System (PTSS) and BMDS space integration across expected range of performance, CONOPS, Tactics, Techniques, Procedures, and BMDS architectures, and for potential contribution to other mission areas such as Space Situational Awareness.

Mr. TURNER. Please provide a detailed description of the costs to conduct an ICBM test in late FY13.

General O'REILLY. There are no ICBM tests planned in FY13. An ICBM test (FTG–11) is scheduled for late FY15, and another ICBM test (FTG–13) is planned for late FY16. Programmed funds associated with those tests are detailed below by fiscal year.

MDA Flight Test with ICBM Targets TY$M								
Flight Test	OPR	FY12$M	FY13$M	FY14$M	FY15$M	FY16$M	FY17$M	Total
FTG-11	AEGIS	-	-	-	3.680	-	-	3.680
Interceptor	C2BMC	-	-	0.137	1.738	0.576	-	2.451
Launch	C4ISR	-	-	-	0.643	0.154	-	0.797
Range	ENGINEERING	-	-	0.537	9.099	7.614	-	17.250
VAFB	TEST	-	-	-	11.258	-	-	11.258
	GMD	-	-	10.973	91.197	15.183	-	117.353
	SENSORS	-	-	-	17.325	3.380	-	20.705
	STSS	-	-	-	0.643	0.154	-	0.797
	Target ICBM	14.442	4.329	10.179	2.557	-	-	31.507
* FTG-11 Total		14.442	4.329	21.826	138.140	27.061	-	205.798
FTG-13	AEGIS	-	-	-	-	3.743	-	3.743
Interceptor	C2BMC	-	-	-	0.140	1.758	0.586	2.484
Launch	ENGINEERING	-	-	-	2.011	9.526	7.743	19.280
Range	TEST	-	-	-	0.844	11.454	-	12.298
VAFB	GMD	-	-	-	7.510	77.797	5.479	90.786
	SENSORS	-	-	-	-	16.351	3.153	19.504
	STSS	-	-	-	-	0.784	0.282	1.066
	Target ICBM	-	15.122	4.339	15.790	6.792	-	42.043
FTG-13 Total		-	15.122	4.339	26.295	128.205	17.243	191.204

Mr. TURNER. What is the minimum VBO required for the SM–3 IIB missile?

a. An SM–3 IIA missile?

b. An SM–3 IB missile?

General O'REILLY. [The information referred to is classified and retained in the subcommittee files.]

Mr. TURNER. Do you have sufficient missile inventory to meet PAA phase 1 and 2 deployment objectives?

General O'REILLY. In executing the attached proposed Standard Missile-3 Buy-Delivery Plan (assumes approval of MDA's Above Threshold Reprogramming request (Ser. # FY12–10PA)), missile inventory will be sufficient to meet the present PAA phases 1 and 2 deployment objectives at the end of FY 2015.

[The information referred to can be found in the Appendix on page 126.]

Mr. TURNER. Please describe how many spares MDA will have for testing if MDA procures 57 GBIs? How many years of reliability tests will that support?

General O'REILLY. (a): Procuring 57 Ground Based Interceptors (GBIs) will provide for 30 operational interceptors, 16 for planned Integrated Master Test Plan (IMTP) testing and 11 additional for Stockpile Reliability Program (SRP) testing and spares

(b): The 57 GBIs support IMTP testing and reliability testing through 2032.

Mr. TURNER. Regarding the SM–3 IB, what components is MDA accepting/not accepting from the vendor prior to a successful intercept test later this year?

General O'REILLY. MDA is currently only accepting missile components necessary for the RDT&E Flight Test Rounds. Further procurement of components for production missiles are pending Long Lead Kinetic Warhead Materiel Procurement Authorization currently scheduled for 1QFY13 and subsequent production decisions.

Mr. TURNER. Is it a requirements driver to have PTSS able to track a raid size of many (i.e., at least a dozen) SRBMs and/or MRBMs? How would the raid size requirements change if the constellation was oriented around purely homeland defense?

General O'REILLY. Yes, it is a requirement to have PTSS able to track a raid size of many dozens of MRBMs and IRBMs. PTSS also has the ability to track SRBMs if they reach a sufficient altitude and/or range. The raid size capacity requirement would not be impacted if the constellation was oriented around purely homeland defense. The current approach for PTSS supports Homeland Defense against areas where we are the most concerned, as well as from unexpected launch locations. The architecture is flexible and adaptable to evolving threats, such as if improved defense against emerging threats.

Mr. TURNER. Please provide an excursion showing sensor coverage of threats against the United States launched from North Korea using current radars, including SBX, and a TPY–2 deployed in Japan (facing the appropriate direction).

a. Provide the same with PTSS deployed.

General O'REILLY. [The information referred to is classified and retained in the subcommittee files.]

Mr. TURNER. Please provide an excursion showing sensor coverage of threats against the United States launched from Iran using current radars, including Cape Cod UEWR, and a TPY–2 deployed in the South Caucasus.

a. Provide the same with PTSS deployed.

General O'REILLY. [The information referred to is classified and retained in the subcommittee files.]

Mr. TURNER. Please provide a detailed description of the costs to conduct an ICBM test in late FY13.

General O'REILLY. There are no ICBM tests planned in FY13. An ICBM test (FTG–11) is scheduled for late FY15, and another ICBM test (FTG–13) is planned for late FY16. Programmed funds associated with those tests are detailed below by fiscal year.

MDA Flight Test with ICBM Targets TY$M								
Flight Test	OPR	FY12$M	FY13$M	FY14$M	FY15$M	FY16$M	FY17$M	Total
FTG-11 Interceptor Launch Range VAFB	AEGIS	-	-	-	3.680	-	-	3.680
	C2BMC	-	-	0.137	1.738	0.576	-	2.451
	C4ISR	-	-	-	0.643	0.154	-	0.797
	ENGINEERING	-	-	0.537	9.099	7.614	-	17.250
	TEST	-	-	-	11.258	-	-	11.258
	GMD	-	-	10.973	91.197	15.183	-	117.353
	SENSORS	-	-	-	17.325	3.380	-	20.705
	STSS	-	-	-	0.643	0.154	-	0.797
	Target ICBM	14.442	4.329	10.179	2.557	-	-	31.507
* FTG-11 Total		14.442	4.329	21.826	138.140	27.061	-	205.798
FTG-13 Interceptor Launch Range VAFB	AEGIS	-	-	-	-	3.743	-	3.743
	C2BMC	-	-	-	0.140	1.758	0.586	2.484
	ENGINEERING	-	-	-	2.011	9.526	7.743	19.280
	TEST	-	-	-	0.844	11.454	-	12.298
	GMD	-	-	-	7.510	77.797	5.479	90.786
	SENSORS	-	-	-	-	16.351	3.153	19.504
	STSS	-	-	-	-	0.784	0.282	1.066
	Target ICBM	-	15.122	4.339	15.790	6.792	-	42.043
FTG-13 Total		-	15.122	4.339	26.295	128.205	17.243	191.204

Mr. TURNER. If there was I&W of a threat to CONUS, how long and how much would it cost to fully load all 39 GBI silos with current GBI inventory? Please provide a detailed breakdown.

a. Will there ever be a year through 2025 when MDA would not have the GBI inventory to fully load out all 39 GBI silos?

General O'REILLY. (a) The Department continues to refine Hedge strategy options, and emplacing 38 operational GBIs is one of the considered courses of action. If approved by the Department, with Missile Field 2, there are 38 available silos for operational use (assuming Missile Field 1 is empty). The 39th silo referred to the question is a test silo and is required for the Integrated Master Test Plan test program. The Agency would have the GBI inventory to load 38 silos by 4QFY2014. This assumes:

- Successful execution of Return-to-Intercept Program (CTV–01 and FTG–06b)
- All spare GBIs are loaded into the eight operational Missile Field 2 silos

The cost to emplace the eight additional GBIs to reach a total of 38 operational is $16.0M.

Once the inventory of 38 GBIs is reached by 4QFY2014, the program could maintain that inventory level through 2025. Additional GBIs are included under the Development and Sustainment Contract and scheduled for delivery in FY2016 through FY2018 to support spares and flight tests.

Mr. TURNER. The NDAA states that the FY 12 funds are to be the "final obligation" of funds. Can you assure me that DOD understands this new law, and that DOD will work to find a resolution that avoids the U.S. continuing to have to spend hundreds of millions of dollars on a program that will never be procured?

Mr. AHERN. Section 235 of the Fiscal Year (FY) 2012 National Defense Authorization Act (NDAA) requires the Department to submit a plan to use FY 2012 funding for MEADS as final obligations for either implementing a restructured program of reduced scope or funding termination liability costs. DOD fully understands this law, noting also that it is within the President's sole authority to determine the content of his proposed annual budget in future years. Thus, submitting a President's Budget request for FY 2013 that included a request for funds for the MEADS was not in violation of the law. In accordance with the FY 2012 NDAA, the Department has repeatedly consulted and attempted to negotiate with our international partners, the German and Italian Ministries of Defense (MODs), regarding development of a plan to further restructure the program in the event that Congress does not authorize or appropriate FY 2013 funding to complete our MEADS Design and Development Memorandum of Understanding (MOU) obligations. We have advised the German and Italian MODs at the highest levels that there is significant risk that FY 2013 funding may not be made available by the Congress. In response, our partners have made clear to the Department, and the German Minister of Defense has advised Senator Levin directly, that they remain fully committed to their MOU obligations and expect that all partner nations will provide their 2013 funding to complete the Proof of Concept effort. They have also made clear that we are too late in the development effort to change course again and that we jeopardize our ability to realize the benefits of the program if we renege on our nine-year agreement near the end of the eighth year. The fact remains that, while we have aggressively engaged with our partners to complete MEADS MOU efforts using only FY 2012 funding, we cannot force them to agree to this course of action.

As with other cooperative MOUs, the Department considers the MEADS D&D MOU to be legally binding on the nations, recognizing that our financial responsibilities under such MOUs are subject to the availability of funds appropriated for such purposes. The Administration has requested funding in the FY 2013 budget to fulfill our MOU responsibilities vis-à-vis our international partners, the German and Italian MODs, consistent with the three MOU participants' direction to restructure the MEADS prime contract in April 2011.

More broadly, while the Department understands the need to make difficult choices in the current fiscal environment concerning funding for all of our activities, we also note that failure to meet our MEADS MOU funding obligations for FY 2013 could negatively affect our allies' implementation of current transatlantic projects and multinational cooperation—as well as their willingness to join future cooperative endeavors with the United States—that are strongly supported by the Administration and Congress. In fact, the ramifications of failing to provide funds for this program, which is so near completion, could impact our relationship with our allies on a much broader basis than just future cooperative projects.

Mr. TURNER. Can you tell me the exact amount of termination costs if the U.S. were to unilaterally terminate the MOU today?

Mr. AHERN. The MEADS Design and Development (D&D) Memorandum of Understanding (MOU) is a cooperative MOU entered into by the U.S. Department of Defense and German and Italian Ministries of Defense (MODs). U.S. DOD can withdraw from, but cannot unilaterally terminate the MEADS D&D MOU. Consistent with other cooperative MOUs, the Department considers the MEADS D&D MOU to be legally binding on the nations, recognizing that our financial responsibilities under such MOUs are subject to the availability of funds appropriated for such purposes.

Germany and Italy have made clear they do not wish to terminate the program in the final year of development. The DOD has expressed its support for the MEADS Proof of Concept as agreed to with Italy and Germany and urges the Congress to provide the necessary funds which have been requested in the President's FY 2013 budget request. The United States' national maximum commitment for the MEADS Program per the MOU is approximately $2.3 billion (in base year 2004 dollars). In current year dollars, the MOU ceiling amount is approximately $2.7 billion, of which at the end of FY 12, approximately $2.35 billion will have been obligated for the MEADS Program. The maximum remaining potential liability for the United States under the MEADS MOU is $348 million. This amount represents the difference between what the U.S. committed to provide under the MOU and what the U.S. has provided to date.

Mr. TURNER. Mr. Gilmore, do you believe one GBI test per year is statistically sufficient to ensure high confidence in GBI reliability into the middle of the next decade?

Mr. GILMORE. Due to urgent need, the Bush Administration decided to field the Ground-Based Missile Defense (GMD) system absent a successful flight test of the ground-based interceptor (GBI) and kill vehicle composing the deployed system, as well as absent a comprehensive program of ground-based component-level testing for reliability and performance of those interceptors and kill vehicles. Thus, the original decision to field GMD was made without data permitting statistical assessment at any meaningful level of confidence of the GBI's reliability or performance. The resulting concurrent fielding of the GMD system while it remains under development has complicated the challenge of testing the GMD system's reliability and overall operational effectiveness.

For other missile systems such as Minuteman III and Trident II, stockpile reliability testing has historically been conducted using three to four flight tests per year per missile type after initial development and testing. The booster stacks for these offensive missiles and the booster stack for GBIs are similar; however, the similarity ends there. Inter-continental Ballistic Missiles (ICBMs) have relatively large fielded inventories; the GBI fielded inventory is small. Also, unlike an ICBM, fully testing GMD mission reliability and effectiveness currently requires the GBI to complete an intercept in order to assess kill vehicle reliability and effectiveness. This means that every comprehensive GBI flight test (which tests both reliability and overall performance) must presently have a target to shoot at, making these tests much more complex, expensive, and difficult to plan, conduct, and assess relative to the flight test of a Minuteman III or Trident II. In particular, analyzing and understanding fully the implications of the large amount of data generated during GMD flight tests is time-consuming and difficult. Testing at a pace that exceeds the ability to understand and act on the data collected would not result in increased reliability or performance of the GMD system.

A key element of overall ICBM reliability is the reliability of the associated nuclear warhead, which is not assessed completely during ICBM flight testing. Component-level ground testing, modeling, simulation, and analysis play a substantial role in evaluating the reliability of ICBM warheads. Similarly, it has been the Department's plan for some time to use modeling, simulation, and analysis to asses GBI reliability, as well as to evaluate GMD operational effectiveness overall. The Missile Defense Agency (MDA) is also now initiating a comprehensive ground-based component-level reliability assessment and testing program for the GBIs.

QUESTIONS SUBMITTED BY MS. SANCHEZ

Ms. SANCHEZ. Do you agree with Chairman Turner's assertion that the Obama Administration is spending four or five times more on regional defense than on the protection of the homeland? And how much are we investing (percentage-wise) in homeland missile defense and in regional missile defense in FY13?

Dr. ROBERTS. The United States is not spending four times more on regional BMD than it is on the protection of the homeland. The Missile Defense Agency spends roughly a third of its missile defense budget on homeland defense, a third on regional defense, and a third on elements that contribute to both regional and homeland defense.

The United States has already made and continues to make substantial investments in homeland BMD, totaling billions of dollars over the past decade. This has put us in an advantageous position given the fact that neither North Korea nor Iran has successfully tested an ICBM or demonstrated an ICBM-class warhead. Meanwhile, deployed U.S. forces, allies, and partners are threatened today by hundreds of short- and medium-range ballistic missiles.

Ms. SANCHEZ. Do you still agree with Secretary Gates' decision to limit the number of deployed GBIs at 30? Does the rationale for that decision still exist?

Dr. ROBERTS. The rationale for then-Secretary Gates' decision remains valid. Secretary Gates directed the Department to pause at 30 deployed GBIs for the protection of the homeland based on three factors.

First, the ICBM deployments from Iran and North Korea did not occur, and Intelligence Community assessments determined that neither country was close to developing and deploying ICBMs successfully.

Second, a technical assessment indicated that high concurrency in the development and deployment of GBIs had resulted in technical challenges that required resolution.

Third, development and deployment of an advanced Standard Missile-3, the SM–3 IIB, would provide a valuable early intercept opportunity at a lower cost than procuring additional GBIs.

Secretary Gates also decided to finish construction of the remaining silos at Fort Greely, Alaska for deployment of up to 38 GBIs as a hedge against the possibility that long-range threats may emerge in numbers that could overwhelm the current inventory of 30 GBIs before the SM–3 IIB becomes available. As soon as current GBI technical issues are resolved and confirmed through flight testing, GBI production will resume.

The Department will continue to develop hedge options and improve the Ballistic Missile Defense System to provide the appropriate capability to counter the projected ICBM threat from Iran or North Korea.

Ms. SANCHEZ. As follow-up in more detail on a previous question about the adequacy of the current missile defense plan. The Ballistic Missile Defense Review stated that "U.S. BMD capabilities must be flexible enough to adapt as threats change." Given the updated intelligence community's assessment of the threat from Iran and North Korea, is the proposed PAA plan, starting with PAA in Europe, and the current proposed hedging policy still adequate to respond to the threat? Why? Why not? What steps are being taken to ensure that the plan is still responsive to the threat as it evolves?

Dr. ROBERTS. The Administration remains committed to the protection of the homeland, and our deployed forces, allies and partners. The FY13 budget request reflects these priorities.

The need to strengthen our regional missile defense protection is clear: deployed U.S. forces, allies, and partners are threatened today by hundreds of short- and medium-range ballistic missiles. After a decade of significant progress in developing and fielding capabilities for protection against short-, medium-, and intermediate-range ballistic missiles, the United States is now capable of strengthening protection of its forces abroad and assisting its allies and partners in providing for their own defense.

The homeland is currently protected against potential limited intercontinental ballistic missile (ICBM) attacks from states like North Korea and Iran. Maintaining this position is essential and will require the continued improvement to the Ground-based Midcourse Defense (GMD) system, including enhanced performance by the Ground-Based Interceptors (GBIs) and the deployment of new sensors. This necessitates the development and deployment of the Precision Tracking Space System (PTSS) to handle larger raid sizes and the Standard Missile 3 (SM–3) Block IIB as the ICBM threat from states such as Iran and North Korea matures.

It is prudent for the United States to have a hedge strategy to address possible delays in the development of our missile defense or new threats that may emerge. Key elements of the hedge strategy were set out in the Ballistic Missile Defense Review two years ago, including completion of a second field of 14 GBI silos at Fort Greely, Alaska. This increases the availability of silos in the event that additional GBI deployments become necessary. We also continue to develop the two-stage GBI and pursue additional programs to hedge against future uncertainties.

Ms. SANCHEZ. According to Director of National Intelligence James Clapper, "some Iranian officials—probably including Supreme Leader Ali Khamenei—have changed their calculus and are now more willing to conduct an attack in the United States in response to real or perceived U.S. actions that threaten the regime" and that "We are also concerned about Iranian plotting against U.S. or allied interests overseas." In this context, how prepared are we to defend against attacks from short- or medium-range missiles off U.S. coasts?

Dr. ROBERTS. We continue to be concerned about this scenario. However, we do not believe that there is a credible threat at this time.

Ms. SANCHEZ. What are the milestones for increasing reliability and discrimination?

Dr. ROBERTS. The GMD milestones for increasing reliability include successful GBI flight testing, GBI component reliability growth testing, upgrade of current GBIs, and delivery of new GBIs.

Controlled Test Vehicle One (CTV 01) and Flight Test Ground Based Interceptor (FTG)–06b flight tests will be in FY13, FTG–08 in FY14, and FTG–11a&b (salvo mission) in FY15. Although component reliability testing will be conducted over the life of the program, additional GBI component testing specifically focusing on reliability growth by FY15 is being planned for FY13–FY15. Capability Enhancement (CE)–I interceptors will continue to be upgraded through FY17; and CE–II interceptors will be reworked from 4Qtr FY13 through 4Qtr FY15 to integrate the FTG–06a fix. Manufacturing of CE–II interceptors will restart in 2Qtr FY13 following

successful flight testing of CTV–01 and FTG–06b; deliveries of new CE–II Block I interceptors will begin in 1Qtr FY16.

The milestones for increasing discrimination capabilities include completion of the Ground Test 06 (GT–06) campaign by 1Qtr FY16 to test and validate the capability to process near-term discrimination data from BMDS sensors. The subsequent flight test date and fielding date have not been sent. Candidate options to improve Exo-atmospheric Kill Vehicle (EKV) on-board discrimination capabilities are under study. Selected discrimination improvements developed from this effort will be incorporated into the next EKV software upgrades planned for Functional Qualification Testing in 2Qtr FY14 and 4Qtr FY14.

Ms. SANCHEZ. Will we be able to deploy SM3–IIBs on ships?

Dr. ROBERTS. The SM–3 Block II B will be designed and developed to be deployable in Aegis BMD assets at sea and ashore.

Ms. SANCHEZ. Why do we need regional missile defense and whom do these systems protect? And how does the EPAA contribute to homeland defense?

Dr. ROBERTS. The threat from short-range, medium-range, and intermediate-range ballistic missiles (SRBMs, MRBMs, and IRBMs) in regions where the United States deploys forces and maintains security relationships exists today and continues to grow, both quantitatively and qualitatively.

To address the rapid growth in regional ballistic missile threats, the United States has begun deploying phased adaptive approaches in regions where deployed U.S. forces, allies, and partners are threatened. The first application of this phased approach was in Europe, but the United States also maintains a missile defense presence in the Middle East and the Asia-Pacific that will be tailored to the threats and circumstances unique to those regions.

Phase Four of the EPAA will directly contribute to homeland defense through the deployment of the SM–3 IIB. When deployed in Europe, the SM–3 IIB serves as the first tier of a layered defense of the U.S. homeland from potential ICBM threats from the Middle East.

Ms. SANCHEZ. Can you tell us what savings were reaped from the new GMD contract competition?

Dr. ROBERTS. The independent government estimate was approximately $4.492B at the time of the Request for Proposal (RFP). The competitively awarded Development and Sustainment (DSC) contract is valued at $3.48B if all options are exercised.

The competition of the GMD Development and Sustainment contract netted a 20 percent reduction or approximately $1B less than the Government's independent estimate. Those savings provided the opportunity to procure five additional GBIs, fund the Return to Intercept (RTI) activities associated with the GMD Flight Test–06a failure, support the two additional flight tests associated with the RTI (Control Test Vehicle–01, and FTG–06b), and repair the fielded CE–II GBIs impacted by the flight test failure redesign. All of these efforts were presented to and endorsed by the Missile Defense Executive Board (MDEB).

Ms. SANCHEZ. Have previous administrations shared any sensitive information about U.S. missile defense systems with the Russian Federation? For what purpose? How does the Administration protect classified information?

Dr. ROBERTS. Russia accepted an invitation to observe a Ground-Based Interceptor (GBI) intercept flight test, FTG–03a, in September 2007. Because Russian observers saw classified test display data, the event required a vetted and approved exception to national disclosure policy. Presumably, the purpose for inviting Russia to observe the test was to increase transparency and to help lay the groundwork for missile defense cooperation.

Access to classified information is strictly governed by U.S. National Disclosure Policy and other applicable laws and policies.

Ms. SANCHEZ. On March 31, 2008, Deputy Secretary of Defense Gordon England stated that "we have offered Russia a wide-ranging proposal to cooperate on missile defense—everything from modeling and simulation, to data sharing, to joint development of a regional missile defense architecture—all designed to defend the United States, Europe, and Russia from the growing threat of Iranian ballistic missiles. An extraordinary series of transparency measures have also been offered to reassure Russia. Despite some Russian reluctance to sign up to these cooperative missile defense activities, we continue to work toward this goal." Can you expand why it makes national security sense for the current administration to continue the efforts by the previous Administration regarding the pursuit of missile defense cooperation with Russia?

Dr. ROBERTS. Cooperation with Russia on missile defense has long been a priority of successive Presidential Administrations. Sharing of early warning data could contribute by increasing reaction times and situational awareness. Cooperation with

the Russian Federation in missile defense, particularly sharing of early warning and sensor data, could enhance the effectiveness of both European regional and U.S. homeland defense. For example, the NATO Alliance could benefit from the data from Russia's Armavir radar for defense against projected Middle Eastern ballistic missile attack. The United States could also benefit from radars deployed in Russia's interior. These radars are optimally located for viewing North Korean launches, and would enhance U.S. homeland defense.

U.S.-Russia missile defense cooperation would also send a strong message of deterrence to Iran and North Korea and devalue their development of missiles and pursuit of nuclear capability.

Ms. SANCHEZ. Could you provide examples of cost-sharing with our allies on missile defense? What further improvements can be made on this front?

Dr. ROBERTS. As stated in the Ballistic Missile Defense Review, the United States is well-positioned to defend against regional ballistic missile threats to U.S. forces. In order to protect allies and partners most effectively and enable them to defend themselves from the growing ballistic missile threat, the United States is actively leading international efforts to expand regional ballistic missile defense (BMD) capabilities.

A prime example of a cost-sharing partnership is our ongoing collaboration with Japan on the SM–3 Block IIA interceptor. Japan has committed more than $1 billion to the development and testing of the upgraded version of the SM–3 interceptor. Japan has also invested in Aegis BMD capability for Japanese ships and acquired SM–3 Block IA interceptors through Foreign Military Sales (FMS) cases. In addition, Japan hosts an AN/TPY–2 radar in support of the BMD mission.

Elsewhere in the Asia-Pacific region, the Republic of Korea and Australia are actively engaged with the United States in joint modeling and simulation activities.

NATO Allies are providing financial support for the implementation of European missile defense. For example, NATO has agreed to pay for the expansion of Active Layered Theater Ballistic Missile Defense (ALTBMD) with NATO common funding, which is approximately $1 billion in committed funds. Some Allies are already committed to fielding additional capabilities of their own. For example, the Netherlands has approved plans and funding to upgrade the SMART–L radar on four air defense frigates, giving the ships a BMD Long-Range Search & Track (LRS&T) capability. Germany is testing and intends to operationalize an Airborne Infrared System (ABIR) system, which could support NATO BMD. In addition, France has proposed a concept for a single geosynchronous infrared shared-early warning satellite, and is developing a transportable, midcourse radar for BMD and early warning. Germany and the Netherlands have also proposed an interceptor pooling concept where several Allies would purchase SM–3 interceptors that could then be used in support of NATO missile defense.

Also in support of the European Phased Adaptive Approach to missile defense, Turkey, Romania, Poland, and Spain have agreed to host U.S. assets. These host governments will bear the costs of providing perimeter defense and security for the U.S. assets and infrastructure.

The United Kingdom and Denmark are currently providing critical contributions to the Ballistic Missile Defense System and U.S. homeland defense by hosting upgraded early warning radars at Fylingdales and Thule, respectively.

In the Middle East, there is growing interest in missile defense capabilities, especially with the Gulf Cooperation Council (GCC) countries. In December 2011, the United Arab Emirates signed an FMS case for the sale of the Terminal High-Altitude Area Defense (THAAD) system. Other GCC countries have expressed interest in acquiring regional missile defense capabilities.

The United States also has a long-standing relationship with Israel on the joint development of Israeli ballistic missile defense capabilities that are interoperable with U.S. capabilities forward-deployed in the region. This enduring partnership has resulted in the development and fielding of missile and long-range rocket defense for our close partner. Israel also hosts an AN/TPY–2 radar supporting enhanced regional BMD.

Ms. SANCHEZ. Russia is concerned about configurations of the European Phased Adaptive Approach (EPAA) that they believe would have capability against Russian ICBMs. For example, Phases 3 and 4 of the EPAA are of special concern to Russia, due in part to the large numbers of interceptors that MDA plans to buy. To gain Russia's cooperation would MDA consider missile defense architectures that would be effective against Iran but not against Russia? What is the minimum number of interceptors that are needed against Iran? Against North Korea? (please respond in classified form [if] necessary).

Dr. ROBERTS. The European Phased Adaptive Approach is designed and configured to counter ballistic missiles from the Middle East. The SM–3 interceptors we

will deploy as part of the EPAA are too slow and not in a position to intercept Russian ICBMs. Russia has many ICBM launch points from within its territory, as well as a capable sea-launched ballistic missile force and air-launched cruise missile force that will not pass within range of the EPAA deployment locations.

Because the ballistic missile threat from states like Iran and North Korea continues to grow, the United States cannot accept limits on the capability of missile defenses designed to meet the threat. The United States will continue to field new capabilities in order to defend ourselves and our allies and partners. Iran and North Korea already possesses hundreds of short- and medium-range ballistic missiles, so there is no minimum number of interceptors that are needed to defend against the regional threat.

Ms. SANCHEZ. Do you agree with Chairman Turner's assertion that the Obama Administration is spending four or five times more on regional defense than on the protection of the homeland? And how much are we investing (percentage-wise) in homeland missile defense and in regional missile defense in FY13?

General O'REILLY. No, MDA's FY13 President's Budget request includes 14 percent directly supporting Homeland defense and 19 percent to Homeland and Regional defense, for a total of 33 percent. There is 26 percent which contributes directly to Regional defense. The remaining 41 percent is for targets, test, engineering, agency operations, and future capabilities development.

Ms. SANCHEZ. Do you need more funding for GMD in FY13? Why/why not?

General O'REILLY. FY13 President's budget request is sufficient to address program requirements in FY13. The Missile Defense Agency (MDA) has executed a detailed plan to determine the root cause of its recent Ground-based Midcourse Defense (GMD) flight test failures. Based on those findings, MDA is implementing design fixes and will vigorously test these improvements through ground and flight testing prior to restarting production. The FY13 President's Budget fully supports this engineering development and testing work, and all the operations and sustainment requirements for the fielded GMD system and missiles.

Ms. SANCHEZ. As follow-up in more detail on a previous question about the adequacy of the current missile defense plan. The Ballistic Missile Defense Review stated that "U.S. BMD capabilities must be flexible enough to adapt as threats change." Given the updated intelligence community's assessment of the threat from Iran and North Korea, is the proposed PAA plan, starting with PAA in Europe, and the current proposed hedging policy still adequate to respond to the threat? Why? Why not? What steps are being taken to ensure that the plan is still responsive to the threat as it evolves?

General O'REILLY. The Missile Defense Agency does not maintain intelligence resources necessary to assess North Korean and Iranian ballistic missile development, and relies on Under Secretary of Defense for Intelligence (USD(I)) and the broader Intelligence Community for this data. With regards to threat assessments, questions should be directed to USD(I) and the broader Intelligence Community.

While the Missile Defense Agency has provided analysis supporting Hedge and Phased Adaptive Approach options, these efforts are under the purview of the Under Secretary of Defense for Policy (USDP), and I would defer to USDP on these questions.

Ms. SANCHEZ. In response to questions for the record pursuant to our hearing on the missile defense budget last year, you stated: "No GMD tests against a true intercontinental ballistic missile (ICBM) have yet been conducted." When can we expect MDA to conduct such a test?

General O'REILLY. There are no ICBM tests planned in FY13. An ICBM test (FTG–11) is scheduled for late FY15, and another ICBM test (FTG–13) is planned for late FY16. Programmed funds associated with those tests are detailed below by fiscal year.

MDA Flight Test with ICBM Targets TY$M								
Flight Test	OPR	FY12$M	FY13$M	FY14$M	FY15$M	FY16$M	FY17$M	Total
FTG-11	AEGIS	-	-	-	3.680	-	-	3.680
Interceptor	C2BMC	-	-	0.137	1.738	0.576	-	2.451
Launch	C4ISR	-	-	-	0.643	0.154	-	0.797
Range	ENGINEERING	-	-	0.537	9.099	7.614	-	17.250
VAFB	TEST	-	-	-	11.258	-	-	11.258
	GMD	-	-	10.973	91.197	15.183	-	117.353
	SENSORS	-	-	-	17.325	3.380	-	20.705
	STSS	-	-	-	0.643	0.154	-	0.797
	Target ICBM	14.442	4.329	10.179	2.557	-	-	31.507
* FTG-11 Total		14.442	4.329	21.826	138.140	27.061	-	205.798
FTG-13	AEGIS	-	-	-	-	3.743	-	3.743
Interceptor	C2BMC	-	-	-	0.140	1.758	0.586	2.484
Launch	ENGINEERING	-	-	-	2.011	9.526	7.743	19.280
Range	TEST	-	-	-	0.844	11.454	-	12.298
VAFB	GMD	-	-	-	7.510	77.797	5.479	90.786
	SENSORS	-	-	-	-	16.351	3.153	19.504
	STSS	-	-	-	-	0.784	0.282	1.066
	Target ICBM	-	15.122	4.339	15.790	6.792	-	42.043
FTG-13 Total		-	15.122	4.339	26.295	128.205	17.243	191.204

Ms. SANCHEZ. For GMD testing, is a hit considered a kill? Does this introduce any risk in reliability assumptions for GBIs?

General O'REILLY. During Ground-Based Midcourse Defense (GMD) testing, a hit is not necessarily counted as a kill. Analysis of the telemetry collected during the flight test identifies where the actual impact took place. This analysis determines if the impact is within the acceptable tolerance to be counted as a kill. This does not introduce any risk in reliability assumptions for Ground Based Interceptors (GBIs). If the GBI performs its mission and hits the target, the reliability assumptions are not considered a risk item. If the determination is made that the impact did not constitute a kill, then a review board would need to assess the collected data to determine if the problem is with kinematics, system design, or some other unknown issue.

Ms. SANCHEZ. According to Director of National Intelligence James Clapper, "some Iranian officials—probably including Supreme Leader Ali Khamenei—have changed their calculus and are now more willing to conduct an attack in the United States in response to real or perceived U.S. actions that threaten the regime" and that "We are also concerned about Iranian plotting against U.S. or allied interests overseas." In this context, how prepared are we to defend against attacks from short- or medium-range missiles off U.S. coasts?

General O'REILLY. The Commander of United States Northern Command (CDRUSNORTHCOM) has the authority and responsibility for defense of the United States. Questions in this subject area should be directed toward CDRUSNORTHCOM.

Ms. SANCHEZ. What are the milestones for increasing reliability and discrimination?

General O'REILLY. The Ground-Based Midcourse Defense (GMD) milestones for increasing reliability include successful Ground-Based Interceptor (GBI) flight testing, GBI component reliability growth testing, upgrade of current GBIs, and delivery of new GBIs. Controlled Test Vehicle-One (CTV–01) and Flight Test Ground Based Interceptor (FTG)–06b flight tests will be in FY13, FTG–08 in FY14, and FTG–11a&b (salvo mission) in FY15. While component reliability testing will be conducted over the life of the program, additional GBI component testing specifically focusing on reliability growth by FY15 is being planned for FY13–FY15. Capability Enhancement (CE)–I interceptors will continue to be upgraded through FY17; and CE–II interceptors will be reworked from 4Qtr FY13 through 4Qtr FY15 to integrate the FTG–06a fix. Manufacturing of CE–II interceptors will restart in 2Qtr FY13 following successful flight testing of CTV–01 and FTG–06b; and deliveries of new CE–II Block I interceptors will begin in 1Qtr FY16.

The milestones for increasing discrimination include completion of the GT–06 ground test campaign by 1Qtr FY16 to provide the capability to process near-term discrimination data from BMDS sensors. Options to improve EKV on-board discrimination capabilities are under study and will be incorporated in the next Exo-atmospheric Kill Vehicle (EKV) software upgrades, 23.0 and 10.0. Functional Qualification Testing (FQT) of software upgrades 23.0 and 10.0 are planned in 2Qtr FY14 and 4Qtr FY14, respectively, to provide improved discrimination capabilities. The FQT versions of 23.0 and 10.0 will be tested in ground and flight tests; the date for fielding has not been set.

Ms. SANCHEZ. What are MDA plans to increase reliability of the Ground-Based Interceptors?

General O'REILLY. The Missile Defense Agency plan for increasing the reliability of the Ground Based Interceptors (GBIs) consists of a Fleet Upgrade Program, a Flight Test Rotation Plan, a Reliability Growth Testing Program, and a Stockpile Reliability Program. These programs are to be guided by a detailed GBI reliability assessment that is ongoing as part of the recently awarded Development and Sustainment Contract. This assessment will be completed in late Fiscal Year (FY) 2012 and evaluates all GBI components against maximum expected life-cycle and operational environments. The results of this assessment will identify components for additional reliability growth. These components would require development, procurement, and testing.

GBI Fleet Upgrade Program consists of removing interceptors from silos, performing upgrades to remove known risks, replacing limited life items (replaced items are used in the Stockpile Reliability Program), and returning the newly upgrade interceptors to the operational fleet. All currently fielded interceptors will undergo an upgrade process by the end of FY 2017.

Flight Test Rotation Plan removes older interceptors from silos, performs a limited upgrade to support the flight test configuration requirements, replaces limited life items (replaced items are used in the Stockpile Reliability Program) and then delivers the test interceptor for the flight test program.

GBI Reliability Growth Testing Program ensures "fixes" to known risks are both effective and eliminate the risks. In the near term, Control Test Vehicle–One (CTV–01) and Flight Test Ground Based Interceptor (FTG)–06b flight tests are the final verification test milestones to demonstrate the design fixes effectively eliminate the FTG–06a issues.

Stockpile Reliability Program is a comprehensive effort that includes testing, trending analysis, and identification of reliability improvements for the GBI hardware. Aging and surveillance testing and analyses are also being performed. Service Life Extension testing will continue for one-shot devices. All one-shot devices removed from fielded vehicles during Upgrade and Flight Test Rotation activities will be fired to obtain performance data. The program also includes the dedication of older interceptors to Stockpile Reliability Program activities. Over the course of seven years, four interceptors are planned to be removed from service and will undergo stockpile reliability testing. Reliability and performance upgrades to the GBI booster and Exoatmospheric Kill Vehicle are in development. Four of the new build interceptors are currently planned to be placed into service in FY 2016 through FY 2017.

Ms. SANCHEZ. How long will the GBI production line remain warm?

General O'REILLY. Presidential Budget 2013 sustains a warm Ground Based Interceptor (GBI) production line for first tier subcontractors through Fiscal Year (FY) 2018 by funding the manufacturing completion of a total of 57 GBIs.

Ms. SANCHEZ. Will we wait to procure new GBIs until after a successful flight test? Why?

General O'REILLY. One of the key policy initiatives proposed by the 2010 Ballistic Missile Defense Review and approved by the Secretary of Defense was that we will "fly before we buy" (or flight test missiles and their components prior to mass production and fielding of these systems). Therefore, the Missile Defense Agency (MDA) will wait until a successful flight test to procure new Ground Based Interceptors (GBIs). The MDA initiated procurement of five Capability Enhancement II Block I GBIs under the Development and Sustainment Contract (DSC) awarded 30 December 2011, and plans to exercise an option to procure an additional five. The design of these DSC GBIs will include the fixes to address the recent flight test failures. Flight Test GBI–06b will validate these fixes and has a scheduled launch in FY2013.

Ms. SANCHEZ. What is being done to correct the SM3–IA anomaly and the SM3–IB test failure? Have these problems been fixed? What does this mean for keeping the SM3 production line warm and procurement of additional missiles?

General O'REILLY. A Failure Investigation Team (FIT) was established, in April 2011, shortly after the SM–3 Block IA anomalous behavior was observed during FTM–15. The FIT identified the intermittent failure of the Cold Gas Regulator (CGR) in the Third Stage Rocket Motor (TSRM) as the leading theory for root cause of the anomalous behavior. The FIT also identified indicators to serve as predictors of anomalous performance. Fleet assets were screened for these indicators. Affected rounds were identified by serial number and location. These rounds remain serviceable but will be returned at the earliest opportunity to replace the CGR. A CGR re-design effort was also started to address FIT's findings on CGR failure modes. The re-designed CGR is currently scheduled to be qualified by July 2012.

A Failure Review Board (FRB) was established immediately after observing the SM–3 Block IB TSRM energetic event during FTM–16 Event 2. The FRB has identified several leading theories for root cause of this failure mode through data collected from additional ground testing since the flight test and through supporting modeling and simulation efforts. In response to the FRB findings, missile fly-out parameters in the Aegis Weapon System are being adjusted to mitigate the failure seen in FTM–16 Event 2. Certification testing and subsequent Aegis BMD 4.0.1/SM–3 Block IB flight tests will verify the mitigation.

Through an above threshold reprogramming, the Missile Defense Agency (MDA) has requested funding for critical supplier sustainment and a limited quantity of missile procurement.

Ms. SANCHEZ. Will we be able to deploy SM3–IIBs on ships?

General O'REILLY. The industry concept development teams have been given a goal and incentive to propose ship compatible SM–3 IIB concepts. All Teams are pursuing viable concepts to meet all goals.

Ms. SANCHEZ. Why do we need regional missile defense and whom do these systems protect? And how does the EPAA contribute to homeland defense?

General O'REILLY. [The information referred to is classified and retained in the subcommittee files.]

Ms. SANCHEZ. Can you tell us what savings were reaped from the new GMD contract competition?

General O'REILLY. The independent government estimate was approximately $4.492B at the time of the Request for Proposal (RFP). The competitively awarded Development and Sustainment (DSC) contract is valued at $3.48B if all options are exercised.

The competition of the GMD Development and Sustainment contract netted a 20% reduction or approximately $1B less than the Government's independent estimate. Those savings provided the opportunity to procure five additional GBIs, fund the Return to Intercept (RTI) activities associated with the GMD Flight Test–06a failure, support the two additional flight tests associated with the RTI (Control Test Vehicle–01, and FTG–06b), and to repair the fielded CE–II GBIs impacted by the flight test failure redesign.

Ms. SANCHEZ. Russia is concerned about configurations of the European Phased Adaptive Approach (EPAA) that they believe would have capability against Russian ICBMs. For example, Phases 3 and 4 of the EPAA are of special concern to Russia, due in part to the large numbers of interceptors that MDA plans to buy. To gain Russia's cooperation would MDA consider missile defense architectures that would be effective against Iran but not against Russia? What is the minimum number of interceptors that are needed against Iran? Against North Korea? (please respond in classified form is necessary).

General O'REILLY. [The information referred to is classified and retained in the subcommittee files.]

Ms. SANCHEZ. What is the Administration doing to reduce the cost of the MEADS program, and to close out the program with FY12 funding? Given the direction to either re-scope or terminate, why does your FY13 budget request an additional $400 million? When were Secretary of Defense Panetta and Secretary of State Clinton brought into discussions with Germany and Italy, at a broader level than just missile defense discussions?

Mr. AHERN. The Administration has requested funding in the Fiscal Year (FY) 2013 budget to complete our international obligations as agreed under the MEADS Design and Development Memorandum of Understanding (MOU) with our international partners, Germany and Italy, and consistent with the three Nations' direction to restructure the contract in April 2011. The NATO MEADS Management Agency issued contract Amendment 26 to MEADS, International on October 31, 2011 to implement that direction for restructuring the MEADS Design and Development to a significantly reduced scope MEADS Proof of Concept (PoC) effort. The reduced-scope restructure was pursued to avoid an additional $1 billion in U.S. investment during fiscal years 2012 to 2017, which according to the DOD Cost Analysis

and Program Evaluation cost estimate, would have been required to fully complete the D&D phase as originally planned. This mutually agreed PoC effort, which will complete development and testing of MEADS elements and would provide the Participants with a useful data package for the future missile defense activities of each of the nations, requires 2012 and 2013 funding from the U.S. and partner nations, recognizing that actual funds availability from each nation is subject to appropriation by the Participants' respective legislative bodies in accordance with MOU paragraph 19.1.

In accordance with the FY 2012 National Defense Authorization Act (NDAA), the Department has repeatedly consulted and attempted to negotiate with our international partners, Germany and Italy, regarding development of a plan to further restructure the program in the event that Congress does not authorize or appropriate FY 2013 funding to complete our MOU obligations. Secretary Panetta met with the German Minister of Defense (MoD) in February where the German MoD reiterated his unequivocal support for completing the MEADS PoC. We do not know of any discussions between the Secretary of State and her German counterpart.

During our discussions, we have advised Germany and Italy that there is significant risk that FY 2013 funding may not be made available by the Congress. In response, our partners have made clear to the Department, and Germany has advised Senator Levin directly, that they remain fully committed to their MOU obligations and expect that all partner nations will provide their 2013 funding to complete the PoC effort. They have also made clear that we are too late in the development effort to change course again and that we jeopardize our ability to realize the benefits of the program if we renege on our nine-year agreement near the end of the eighth year. The fact remains that, while we have aggressively engaged with our partners to complete MEADS MOU efforts using only FY 2012 funding, we cannot force them to agree to this course of action.

As with other cooperative MOUs, the Department considers the MEAD as D&D MOU to be legally binding on the nations, albeit subject to the availability of funds. While the Department understands the need to make difficult choices in the current fiscal environment concerning funding for all of our activities, we note that failure to meet our MEADS MOU funding obligations for FY 2013 could negatively affect our allies' implementation of current transatlantic projects and multinational cooperation—as well as their willingness to join future cooperative endeavors with the United States—that are strongly supported by the Administration and Congress. In fact, the ramifications of failing to provide funds for this program which is so near completion could impact our relationship with our allies on a much broader basis than just future cooperative projects.

Ms. SANCHEZ. In response to questions for the record pursuant to our hearing on the missile defense budget last year, you stated: "No GMD tests against a true intercontinental ballistic missile (ICBM) have yet been conducted." When can we expect MDA to conduct such a test?

Dr. GILMORE. The Missile Defense Agency plans to conduct the first Ground-based Midcourse Defense flight test that will use an Intercontinental Ballistic Missile (ICBM)-class target during the 4th quarter of Fiscal Year 2015. In the just signed Integrated Master Test Plan, Version 12.1, this test is designated as FTG–11.

Ms. SANCHEZ. For GMD testing, is a hit considered a kill? Does this introduce any risk in reliability assumptions for GBIs?

Dr. GILMORE. A hit on the threat re-entry vehicle (RV) by the exo-atmospheric kill vehicle (EKV) is not automatically considered a kill. Ground testing (using rocket-propelled sleds), as well as modeling and simulation demonstrate the EKV can strike the RV in a location that does not result in a kill. This was the case in Flight Test Ground-Based Interceptor (GBI)–02 (FTG–02). Although the flight test objectives excluded actually killing the incoming RV, the EKV achieved a "glancing blow" on the RV. Subsequent analysis indicated the "glancing blow" would not have resulted in a kill. I score the FTG–02 flight test as a hit, but not a kill.

In principle, an intercept hit that does not result in a kill could have a number of causes, some of which could be related to reliability. The result of FTG–02, in which an RV kill was not planned (and was not achieved), is not a reliability issue.

Ms. SANCHEZ. What are MDA plans to increase reliability of the Ground-Based Interceptors?

Dr. GILMORE. In the immediate future, the Missile Defense Agency (MDA) will implement and flight test changes to the Capability Enhancement–II Exo-atmospheric Kill Vehicle used on a subset of the Ground-Based Interceptor (GBI) fleet. If successful, this test will be an important step in increasing the mission reliability of the Ground-Based Interceptors (GBIs). Following this, the MDA will execute the subsequent Ground-based Midcourse Defense test events contained in the Integrated Master Test Plan (IMTP), which are designed to demonstrate additional ca-

pabilities of Ground-Based Missile Defense over more of the system's battlespace. Executing the IMTP will, as it has already done, identify unexpected or otherwise unknown failure mechanisms, thereby enabling them to be fixed. This identification and correction of failure mechanisms accomplished through a rigorous program of flight testing increases the reliability of the GBIs. The MDA is also now implementing a rigorous program of component-level analysis and ground-testing of the GBIs that will provide additional data on failure mechanisms needing correction, resulting in improved reliability of the interceptors and kill vehicles.

Ms. SANCHEZ. Will we wait to procure new GBIs until after a successful flight test? Why?

Dr. GILMORE. The decision to produce more Ground-Based Interceptors (GBIs) rests with the Missile Defense Agency (MDA). The Agency has stopped production of the Capability Enhancement–II Exo-atmospheric Kill Vehicle until it has determined through flight test that it has found and corrected the problems associated with the most recent failure of the Ground-based Midcourse Defense system. In my view, this is a prudent decision. Building additional GBIs means building more kill vehicles. The components in the kill vehicle that caused the FTG–06a failure are some of the first to be assembled. Thus, building more kill vehicles now, which would have to be done using extant plans and designs, would require those kill vehicles to be nearly completely disassembled later—and then re-assembled—to implement needed corrections. Such an approach would entail substantial additional expense relative to assembling kill vehicles with corrections fully implemented. It would also increase the chance of inadvertent introduction of a fault during disassembly and re-assembly.

Ms. SANCHEZ. What is being done to correct the SM3–IA anomaly and the SM3–IB test failure? Have these problems been fixed? What does this mean for keeping the SM3 production line warm and procurement of additional missiles?

Dr. GILMORE. Both the SM–3 IA anomaly (Flight Test Standard Missile (FTM)–15) and SM–3 IB test failure (FTM–16) are under investigation by Failure Review Boards (FRBs) convened by the Missile Defense Agency. The boards are seeking to identify the root causes of the performance issues observed during the recent testing. Although the FRBs have not completed their work, it appears that both issues are associated with the Third Stage Rocket Motor (TSRM), a common component to both the IA and IB missiles.

The FTM–15 anomaly investigation remains focused on the TSRM Attitude Control System Cold Gas Regulator (CGR); it is expected to complete in June. The FRB has identified performance characteristics of the current regulators that are measured when they are manufactured. Those characteristics, which are documented for each regulator, indicate whether it will perform anomalously. Until re-designed regulators are retrofit to the fleet, these characteristics will be used to screen the existing fleet of SM3 1As to assure their reliable performance. A redesigned regulator has completed initial testing and is entering the qualification cycle. This redesigned regulator will be used on all future production missiles.

The leading theory to explain the FTM–16 failure is a case burn-through caused by a short-duration Inter-Pulse Delay (IPD) occurring between the first and second pulses of the TSRM burn. Ground testing has confirmed higher than expected damage to missile case insulation and nozzle components when the delay between the first and second pulses is short. A change is being implemented in Aegis BMD 3.6.2 and Aegis BMD 4.0.2 software early this fall to preclude causing the missile to execute damaging IPDs. An initial firing with the longer IPDs to be implemented in this software change shows no damage to the TSRM, and a full qualification of the TSRM will be conducted using this revised IPD. Operational performance of the missile is not expected to be affected significantly by the revised IPDs, and the performance of the revised IPD will be observed in subsequent flight testing.

The Missile Defense Agency can best address the question of the status of the Standard Missile production line.

QUESTIONS SUBMITTED BY MR. FRANKS

Mr. FRANKS. The FYDP cuts missile defense funding by approximately $3.6 billion over the next four years based on the FY12 FYDP, yet the Administration still insists the EPAA is on budget and on schedule. Can you explain how the EPAA is unaffected despite such budget cuts?

Dr. ROBERTS. Missile defense is emphasized in the new strategic guidance, and the Department used a clear set of priorities to guide spending decisions in this mission area. By balancing budget realities against threat projections, we have had an opportunity to develop a budget that met our priorities. We will continue to expand

our regional missile defense capabilities, but at a somewhat slower rate than envisioned in last year's budget request.

We have protected spending for our top missile defense priorities: defending the homeland, implementing the European Phased Adaptive Approach (EPAA), and pursuing phased adaptive approaches with allies and partners in the Middle East and Asia-Pacific.

Mr. FRANKS. EPAA is the U.S. contribution to NATO's newly adopted territorial missile defense mission. What can you tell us about the specific missile defense contributions our allies will be providing to the territorial missile defense mission, specifically: what is being done to ensure the United States isn't bearing the total burden of the EPAA program, and can we do this before knowing ourselves what these costs are?

Dr. ROBERTS. NATO Allies have already begun to act to provide financial support for the implementation of European missile defense. For example, NATO has agreed to pay for the expansion of Active Layered Theater Ballistic Missile Defense (ALTBMD) with NATO common funding.

Turkey, Romania, Poland, and Spain have all agreed to host U.S. assets in support of NATO missile defense. These host governments will bear the costs of providing perimeter defense and security for U.S. assets and infrastructure. Access to the hosted facilities contributes directly to core U.S. security goals.

In addition, some Allies are already committed to fielding additional capabilities of their own. For example, the Netherlands has approved plans and funding to upgrade the SMART–L radar on four air defense frigates, giving the ships a track and cue capability. The Dutch plan to field one ship per year from 2017–2020 at cost of €26M per ship. Germany is testing and intends to operationalize an Airborne Infrared System (ABIR) system which could support NATO BMD. In addition, France has proposed a concept for a single geosynchronous infrared shared-early warning satellite, and is developing a transportable, midcourse radar for BMD and early warning.

Mr. FRANKS. The Administration's decision in 2009 to adopt a Phased Adaptive Approach (PAA) for missile defense in Europe was based, in part, on a revised assessment that Iran's short- and medium-range ballistic missiles were developing more rapidly than previously projected, while the longer-range missile threat had been slower to develop than previously estimated. What trends in Iranian ballistic missile developments have you seen over the last three years that might change this assessment, and have you seen any changes in threat development since 2009?

Dr. ROBERTS. The Intelligence Community assesses that Iran has an active program to develop long-range ballistic missiles and space-launch vehicles, but Iran has not successfully tested an ICBM or demonstrated an ICBM-class warhead. At the same time, Iran currently possesses hundreds of short- and medium-range ballistic missiles, is developing and testing intermediate-range ballistic missiles, and continues to expand its ballistic missile arsenal both quantitatively and qualitatively.

Mr. FRANKS. The Ground-based Midcourse Defense program has seen sizeable budget cuts in the past three years. In FY10, it was reduced by $525 million. The FY11 request was a nearly $300 million increase over FY10, but the FY12 budget request further reduces the GMD program by $185 million and the FY13 request reduces the program by another $260 million. How are these reductions impacting GMD operations, sustainment, and any modernization activities, and does the FY13 budget request still reflect your funding requirements for GMD?

General O'REILLY. The FY13 President's budget is sufficient to accomplish the program content for FY13. Program progress has been paced by technical accomplishments—not funding limitations. The December 2011 competitive award of the Ground-based Missile Defense (GMD) contract reduced costs by over $1 billion. These savings allow the Missile Defense Agency to correct problems discovered during recent flight test failures and demonstrate those corrections in flight tests, and to continue all plans to support, field, and enhance our Homeland missile defense capability. The savings also support the procurement of five additional ground-based interceptors within the contract period.

The FY09 GMD appropriation was $1.472B, a reduction of just over $600M from the budget request. The reductions included a transfer of $390M for the European Capability into a new program element (PE) and a transfer of $104M for Targets into a Test PE. Further, there was a reduction of $115M in General Congressional Reductions and Congressional Undistributed Adjustments. During FY09, GMD continued manufacturing 3-Stage Capability Enhancement–Two (CE–II) Ground Based Interceptors (GBI) and delivered 4 GBIs, upgraded 2 CE–II GBIs, fielded an upgrade to ground systems (GS) software update version 6B and command launch equipment (CLE) software build 4.1, fielded a second Relocatable In-Flight Inter-

ceptor Communication System data terminal (RIDT) at Vandenberg Air Force Base, and conducted flight test GMD–05 (FTG–05).

The FY10 GMD appropriation was $1.22B which included a $50M Congressional add for GBI vendor base sustainment. GMD incorporated several program changes in response to a DOD decision to reduce the requirement from 44 to 30 fielded GBIs to include holding the GBIs 38–44 delivery at the major sub-assembly level, halt construction of Missile Field 2, and stopping GS software development and its associated models and simulations (M&S) development. During FY10, GMD continued manufacturing of 3-Stage CE–II interceptors delivering 5 GBIs, upgraded 2 GBIs, fielded Exoatmospheric Kill Vehicle (EKV) software update version 9.2, executed the first 2-Stage GBI test in Booster Verification Test–One (BVT–01), and conducted FTG–06 which resulted in a failed intercept.

The FY11 GMD appropriation was $1.245B, a reduction of $100M from the budget request. The reductions in FY11 included a $35M Congressional Reduction for excess award fee paid for test and integration failures, as well as an $8.9M Congressional Reduction and a $23.5M Congressional Rescission. The budget enabled GMD to resume activities stopped in FY10, including the delivery of fully integrated GBIs 38–44, a 14-silo Missile Field 2, and GS software development with associated M & S. During FY11, GMD continued manufacturing of 3-Stage CE–II interceptors, upgraded 3 GBIs, fielded GS upgraded software version 6B1.5, completed the Fort Greely Alaska (FGA) power plant construction, and conducted FTG–06a, a failed intercept test. The failure of FTG–06a initiated a GMD Return to Intercept (RTI) initiative. GBI manufacturing activities were adjusted to suspend the build-up of the EKV until the root cause was determined and design mitigations could be incorporated.

The FY12 GMD appropriation was $1.159B, which included a General Congressional Reduction of $1.5M. During FY12, GMD plans to repurpose two (2) operational GBIs to support the RTI flight tests including control test vehicle–One (CTV–01) and FTG–06b, complete development of the FGA power plant, complete Missile Field 2, deliver a second fire direction center node at FGA, conduct the CTV–01 mission (non-intercept flight test) and FTG–06b (intercept flight test), and initiate manufacturing for GBIs 48–52 in the first quarter of FY12. GMD awarded the development and sustainment contract to Boeing, which provided the program with savings across the FYDP.

The FY13 budget requested for GMD is $903.2M. The reductions in FY13 include the transfer of $5.8M for Defense Information Systems Agency (DISA) for the Command and Control, Battle Management, and Communications Program and a transfer of $20.7M for facilities support to the Program Wide Support account. During FY13, GMD will complete the RTI testing, correct deficiencies in existing CE–II interceptors, and restart interceptor manufacturing implementing the design solutions into the GBIs yet to be delivered. GMD will continue the manufacturing of GBIs 48–52 and initiate manufacturing for GBIs 53–57. GMD will commence construction of the IDT at Fort Drum, initiate planning for FTG–08 including the build-up of the second 2-Stage interceptor, planning for FTG–11, and continuing software development for both the interceptor and GS products.

[See table in the Appendix on page 127.]

Mr. FRANKS. The FYDP cuts missile defense funding by approximately $3.6 billion over the next four years based on the FY12 FYDP, yet the Administration still insists the EPAA is on budget and on schedule. Can you explain how the EPAA is unaffected despite such budget cuts?

General O'REILLY. For the EPAA, THAAD is a potential surge asset on an as needed basis determined by request from the COCOM and adjudicated in the Global Force Management Process (GFMP) by OSD and the Joint Staff. The $3.6 billion in FY12 FYDP budget cuts were taken in THAAD and AN/TPY2 procurement accounts do not impact the EPAA schedule.

Mr. FRANKS. EPAA is the U.S. contribution to NATO's newly adopted territorial missile defense mission. What can you tell us about the specific missile defense contributions our allies will be providing to the territorial missile defense mission, specifically: what is being done to ensure the United States isn't bearing the total burden of the EPAA program, and can we do this before knowing ourselves what these costs are?

General O'REILLY. Our international allies are making significant contributions to the NATO territorial missile defense mission by hosting key EPAA assets within their respective countries. Turkey is hosting an AN/TPY–2 under Phase I of EPAA, Romania and Poland will host Aegis Ashore Sites beginning in Phase II and III respectively, and beginning in 2014, four multi-mission Arleigh Burke-class guided-missile destroyers with BMD capability will be forward deployed to Rota, Spain in support of EPAA.

As a result of a decision taken by NATO nations at the 2010 Lisbon Summit, the Active Layered Theater Ballistic Missile Defense (ALTBMD) program is being expanded to include the territorial missile defense mission. The ALTBMD Program is a NATO common funded command and control system that will enable real-time information exchanges between NATO and national missile defense systems. NATO will issue force goals for territorial missile defense in 2013 and invite nations to pledge missile defense assets for territorial missile defense. To date, the Netherlands, France and Germany, have all made political commitments to provide missile defense systems for territorial missile defense of Europe. The Netherlands, has offered to provide up to four frigates with upgraded SMART–L radars, beginning in 2017 for the NATO territorial missile defense mission. France has offered to provide satellite capabilities for early detection and warning as well as a long-range early warning radar for territorial missile defense. Germany has also committed to provide PATRIOT batteries for the same. Many other NATO nations are discussing upgrading shipboard sensors to enable BMD detection, tracking and cueing functions. We fully expect as NATO establishes force planning goals for territorial missile defense, that other NATO nations will offer their national missile defense systems, both land and sea-based for territorial missile defense of NATO Europe.

Finally, it is important to note that the United Kingdom and Denmark already provided additional critical contributions to the BMDS and U.S. Homeland Defense by hosting upgraded early warning radars at Fylingdales and Thule respectively.

Mr. FRANKS. Iran has been undertaking a series of space launches for at least the past three years. Former Vice Chairman of the Joint Chiefs of Staff General Hoss Cartwright stated that space launches can translate into improvements to an ICBM program. In your opinion, what does Iran learn from these space launches that can inform its ICBM program?

General O'REILLY. In general, space launch events can reveal progress to successfully achieving technical capabilities directly applicable to the development of ICBMs such as staging, guidance, and propulsion. Space launch events do not however, demonstrate the survivability of a re-entry vehicle. The analysis required to assess what Iran may learn from these space launches is a core competency of the Intelligence Community, specifically in this area the National Air and Space Intelligence Center. That organization is best suited for questions pertaining to foreign ICBM development.

Mr. FRANKS. The SM–3 Block IIB interceptor is planned for deployment by 2020 to improve protection of the U.S. homeland against potential ICBM attack as part of Phase 4 of the EPAA. The FY13 budget request provides an additional $1.9 billion to the SM–3 Block IIB development program across the Future Years Defense Program (FYDP). How much more funding will be necessary to develop and deploy this system beyond what's in the FYDP, how did last year's funding cut to this system change the schedule for fielding this system, and will the SM–3 Block IIB design be optimized for ICBM intercept capabilities?

General O'REILLY. MDA's cost estimate is that $1.1 B is needed beyond the FYDP to complete the development and initial fielding of the system. The Office of the Secretary of Defense (OSD) Cost Assessment and Program Evaluation (CAPE) is conducting an independent estimate to be completed in June.

The FY12 funding reduction delayed the overall program schedule by approximately 4 months, though the SM–3 Block IIB is still planned for initial deployment in the 2020 timeframe.

The SM–3 Block IIB design is being optimized for its primary mission to counter first generation ICBMs targeted at the U.S. homeland as a first and independent interceptor layer.

QUESTIONS SUBMITTED BY MR. LANGEVIN

Mr. LANGEVIN. What is the value of the EPAA? What other regional PAA architectures are being considered?

Dr. ROBERTS. The missile defenses that are deployed as part of the European Phased Adaptive Approach (EPAA) protect U.S. deployed forces, allies, and partners in Europe. In addition, the EPAA will contribute directly to the ballistic missile defense of the U.S. homeland with the deployment of the SM–3 Block IIB interceptor and a forward-based AN/TPY–2 radar.

The EPAA is a strong symbol of the continued U.S. commitment to NATO, an alliance that has served our interests for more than six decades. By deploying the EPAA in a NATO context, we have increased the potential for additional Allied contributions because all contributions will be under the framework of a NATO effort in support of collective security. For example, NATO has agreed to pay for the ex-

pansion of Active Layered Theater Ballistic Missile Defense (ALTBMD) with NATO common funding.

Efforts to improve missile defenses in the Middle East and Asia-Pacific are ongoing. The approaches in these regions are being tailored to the threats and circumstances unique to those regions.

Mr. LANGEVIN. What did we accomplish in phase 1 of the EPAA? Are we on track to meet the ambitious goals of phase 2, 3 and 4?

Dr. ROBERTS. The elements of the first phase of EPAA are now in place. Phase 1 began with the upgrade to the command and control system in Ramstein, Germany, followed by the deployment of a BMD-capable ship for the defense of NATO mission in March 2011. We have continued to maintain a ship with missile defense capability in the region since that time. In December 2011, the United States deployed a forward-based radar to Turkey, and that radar is fully operational. Associated command and control capabilities, integrating the C2BMC at Ramstein Air Base in Germany and NATO's Active Layered Theater Ballistic Missile Defense (ALTBMD) Interim Capability, are now operational.

For EPAA Phases 2 and 3, the basing agreements required to deploy Aegis Ashore sites in Romania and Poland have been signed and have entered into force for the sites to become operational in the 2015 timeframe and 2018 timeframe, respectively. The SM–3 Block IB is on track to be deployed to Aegis BMD-configured ships and the Romanian Aegis Ashore site. This interceptor recently conducted a successful flight-test mission in May 2012. Two additional flight tests using more complex scenarios and targets are scheduled later this year. In addition, the more capable SM–3 Block IIA (intended to address longer range threats) is on track to be deployed on Aegis BMD-configured ships and at the Aegis Ashore sites in 2018. Flight testing is planned and scheduled to occur well in advance of this deployment.

With respect to EPAA Phase 4, the Department has awarded contracts to three prime contractors for concept development of a more advanced version of the SM–3 interceptor, the Block IIB. Due to funding cuts in Fiscal Year (FY) 2012, the deployment of this program has been delayed one year to 2021.

We have also taken steps to support the requirement for sea-based BMD capabilities in all phases of the EPAA. Spain has agreed to host four U.S. Aegis destroyers at the existing naval facility at Rota. These multi-mission ships will support the EPAA, as well as other U.S. European Command and NATO maritime missions. The first two ships are scheduled to arrive in 2014, and two more ships will arrive in 2015.

Mr. LANGEVIN. How does the FY13 budget request preserve some of the important investments made on the directed energy program?

Dr. ROBERTS. The FY13 budget request preserves directed-energy program investment efforts and builds on knowledge gained in developing and testing the airborne laser test bed (ALTB) lasers and beam control system. The ALTB's complexity drove the Missile Defense Agency (MDA) to pursue compact, efficient electric lasers for operation at high altitude, where the need for atmospheric compensation is minimized and laser beam jitter is greatly reduced.

In operating the ALTB, MDA gathered terabytes of acquisition and tracking algorithms and missile vulnerability test data to anchor directed-energy models and simulations. The budget request aims to preserve this knowledge base. Further, it expands the base's usefulness by re-hosting the data and providing a user-friendly interface to help design the next-generation airborne laser system. MDA's budget request also maintains key intellectual capital, and invests $15.2M in FY13 for laser development at Lawrence Livermore National Laboratory and MIT Lincoln Laboratory Both laboratories are able to maintain core expertise at this funding level.

The budget further provides $7.4M in FY2013 for high-altitude environment testing. MDA plans to use a surrogate platform, such as the Phantom Eye, to collect and quantify the benefits of high-altitude low-mach flight for laser operation. Data previously collected by the ALTB and other DOD programs is being used as a baseline to quantify the benefits of high-altitude, low-mach flight.

There is $2.6M in the FY13 budget request to begin definition and component development for a next-generation airborne laser for missile defense. This will give industry an avenue to invest in efficient lasers, lightweight beam control components, modeling and simulation, and target lethality for missile defense missions.

Mr. LANGEVIN. Why do we need regional missile defense and whom do these systems protect? And how does the EPAA contribute to homeland defense?

Dr. ROBERTS. The threat from short-range, medium-range, and intermediate-range ballistic missiles (SRBMs, MRBMs, and IRBMs) in regions where the United States deploys forces and maintains security relationships exists today and continues to grow, both quantitatively and qualitatively.

To address the rapid growth in regional ballistic missile threats, the United States has begun deploying phased adaptive approaches in regions where U.S. deployed forces, allies, and partners are threatened. The first application of this phased approach was in Europe, but the United States also maintains a missile defense presence in the Middle East and the Asia-Pacific that will be tailored to the threats and circumstances unique to those regions.

Phase Four of the EPAA will directly contribute to homeland defense through the deployment of the SM–3 IIB. When deployed in Europe, the SM–3 IIB serves as the first tier of a layered defense of the U.S. homeland from potential ICBM threats from the Middle East.

Mr. LANGEVIN. What is the value of Precision Tracking Space System and has it been tested? Is it duplicative of existing or future capabilities?

General O'REILLY. The Precision Tracking Space System (PTSS) provides benefits in two areas, one, resulting from its persistent global space based coverage and the other from its infrared sensor.

Space based sensors are valuable to national security because they are persistent, provide access to denied regions and have low operations and sustainment costs.

- Persistence. By operating from space, PTSS provides persistent tracking access to 70% of the Earth's surface for homeland and regional defense by covering the gaps in our existing sensor coverage, and specifically for coverage regional threat areas. PTSS can cover territory that is outside the field of view of airborne, sea, and land-based sensors, for example, territory hidden by the curvature of the Earth or out of range.
- Guaranteed access. PTSS has unfettered access in a way that land and air based sensors do not. With PTSS, host nation agreements are not necessary, nor are basing or over-flight rights, which are required for other land and airborne sensors.
- Low operations and sustainment costs. PTSS will perform its mission at operations and sustainment rates significantly lower than those traditionally associated with terrestrial radars like the AN/TPY–2 radar. The O&S cost of the entire PTSS system is less than the annual O&S of two TPY–2's.

The infrared payload on PTSS satellites provides unique technical capabilities for missile defense.

- When combined with radar data, PTSS infrared data provides the BMDS data to better discriminate among threat objects.
- PTSS will, for the first time, operationally track missile objects in the same infrared phenomenology as the kill vehicle, making threat target hand-off more effective.

PTSS Testing. PTSS is in the early steps of development and full system testing will begin immediately after first launch (4QFY17). As a precursor, the Space Tracking and Surveillance System (STSS) demonstration satellites currently on orbit are providing technical information and proving the value and concepts associated with PTSS. STSS has participated in a number of recent BMD flight tests. In 3QFY11, during Flight Test Mission-15, the U.S. Navy Aegis BMD weapon system simulator in San Diego conducted a simulated intercept using STSS tracking data and projected PTSS concept of operations received from the BMDS. Moreover, the PTSS satellite design is based on mature, high technical readiness level, qualified space components.

PTSS is not duplicative of other space capabilities. Unlike the Earth-pointing infrared sensors of the early warning satellites, PTSS features a side-pointing, infrared sensor that can track threat missiles through flight. This side-pointing capability is not available from any other operational or planned sensors today.

Mr. LANGEVIN. How does the new missile defense test plan increase reliability of our missile defense systems?

General O'REILLY. The Agency's test plan itself does not increase reliability. Reliability improvements are confirmed or verified through component-level and system-level testing on the ground at maximum predicted environments. Components are then assembled into complete interceptors for confirmation in system-level flight tests. When ground or flight testing identifies shortcomings, MDA addresses them through design improvements. The recently awarded GMD Development and Sustainment Contract (DSC) aggressively address reliability improvement. First, the DSC requires the contractor to address known shortcomings with design improvements in both new and upgraded interceptors. Second, the contract requires additional extensive ground testing of interceptor components to validate current reliability predictions, or identify additional areas for improvement through redesign and replacement. Finally, the DSC dramatically enhances Stockpile Reliability Program activity to test and track aging effects on the fielded systems.

Mr. LANGEVIN. What is the value of the EPAA? What other regional PAA architectures are being considered?

General O'REILLY. The European Phased Adaptive Approach (EPAA) capability which is adaptable to the predicted threat and flexible for protection of NATO allies, U.S. deployed forces, and infrastructure against increasingly capable ballistic missiles. In its later stages, the EPAA will enhance and augment the Ground-based Midcourse Defense system in protection of the U.S. homeland against future limited intercontinental ballistic missile threats from projected regional threats.

Questions related to other regional PAAs should be addressed tothe Under Secretary of Defense for Policy, the Department of Defense lead on this issue.

Mr. LANGEVIN. What did we accomplish in phase 1 of the EPAA? Are we on track to meet the ambitious goals of phase 2, 3 and 4?

General O'REILLY. Last year MDA supported certification and deployment of Phase 1 of the European Phased Adaptive Approach (EPAA) consisting of command and control in Germany, a forward-based radar in Turkey, and an Aegis Ballistic Missile Defense (BMD) ship in the Eastern Mediterranean Sea. Critical BMDS regional capabilities were demonstrated in April 2011, conducting an Aegis BMD flight test (FTM–15) using the SM–3 Block IA interceptor launched using track data from the AN/TPY–2 radar passed through the C2BMC system to intercept an Intermediate-Range Ballistic Missile (IRBM) target. This mission also was the first Launch-on-Remote Aegis engagement and intercept of an IRBM with the SM–3 Block IA.

MDA remains on track to meet Phase 2 development and deployment. MDA supported successful negotiations for host nation agreements to deploy Aegis Ashore batteries to Romania (Phase 2) and Poland (Phase 3); installation of the Aegis BMD 3.6.1 weapon system on three Aegis ships; upgrade of one Aegis BMD ship to Aegis BMD 4.0.1 (increasing the Aegis BMD fleet to 22 operationally configured BMD ships); and delivery of 19 SM–3 Block IA interceptors and the first SM–3 Block IB interceptor.

For EPAA Phases 3 and 4, the SM–3 Block IIA interceptor, being co-developed with the Japanese government, remains on schedule for deployment at an Aegis Ashore site in Poland and at sea in 2018. This year the SM–3 Block IIA preliminary and component design reviews will finish and development of Aegis BMD 5.1 fire control system with expected certification in 2018. Last year risk reduction contracts were awarded for the Block IIB missile sub-system components, including advanced propulsion, seeker, and lightweight material technologies and we awarded concept design contracts for the SM–3 Block IIB interceptor to three aerospace industry teams. The Request For Proposal and source selection for the SM–3 Block IIB Product Development Phase is on track to begin in early 2014. The Precision Tracking Satellite System (PTSS) development is on schedule as are the plans for a launch of the first two units by fiscal year 2017.

Finally, I would like to note that MDA took steps in the planning of EPAA to minimize the risk of accomplishing the goals. For example, the early phases of the approach consist of application of mature programs to the European theater. Some examples are the use of certified software programs (Aegis 4.01) and early flight testing of the SM–3 IB interceptor well in advance of its expected IOC (4 years). The design, build and deployment for the Aegis Ashore test site at PMRF serves as a risk reduction effort for the Phase 2 and Phase 3 Aegis Ashore fielding plan. The development plan for the Block IIA was extended by 2 years to allow for sufficient development and test to occur prior to the commit date. Finally, the Phase 4 approach includes program development timelines that are consistent with historical acquisition timelines for similar products. Specifically, over 6 years for the SM–3 Block IIB product development to production decision (5–6 years for other MDA missile programs) and 5 years for the PTSS, in-line with historical acquisition timelines for satellites of this mass (1600 kg in less than 6 years). These items, along with our historical success with fielding systems on time give me the confidence that we will continue to meet the attainable goals of EPAA. We do not assess the goals of EPAA phases 2, 3, and 4 as ambitious.

Mr. LANGEVIN. How does the FY13 budget request preserve some of the important investments made on the directed energy program?

General O'REILLY. The FY13 budget request builds on Airborne Laser Test Bed (ALTB) knowledge gained in developing and testing ALTB's multiple lasers and beam control system. ALTB's complexity drove the Missile Defense Agency's (MDA) pursuit of compact, efficient electric lasers for operation at high altitude where the need for atmospheric compensation is minimized and laser beam jitter is greatly reduced.

MDA's budget request maintains key intellectual capital. The budget invests $12.4M in FY13 for laser development at Lawrence Livermore National Laboratory

(LLNL) and MIT Lincoln Laboratory (MIT/LL). Both laboratories are maintaining core expertise.

The budget also funds $8.2M in FY13 for high environment altitude test. The Agency plans to use a surrogate platform, such as the Phantom Eye, to collect and quantify the benefits of high altitude low mach flight for laser operation. Data previously collected by the ALTB and other DOD programs will be used as a baseline to quantify the benefits of high-altitude low-mach flight.

In addition, the budget provides $3M in FY13 to begin component development for and concept definition of a next-generation airborne laser for missile defense. This provides industry an avenue to apply investments in efficient lasers, lightweight beam control components, modeling and simulation and target lethality to MDA missions.

MDA captured terabytes of acquisition and tracking algorithms and missile vulnerability test data to anchor directed energy models and simulations by operating the ALTB. The budget preserves this knowledge base and expands its utility by rehosting the data and providing a user friendly interface to aid in the design of the next-generation airborne laser system.

Mr. LANGEVIN. What is our current hedging capability for homeland defense?

General O'REILLY. While the Missile Defense Agency has provided analysis supporting Hedge options, this effort is under the purview of the Under Secretary of Defense for Policy (USDP), and I would defer to USDP on this question.

Mr. LANGEVIN. Why do we need regional missile defense and whom do these systems protect? And how does the EPAA contribute to homeland defense?

General O'REILLY. [The information referred to is classified and retained in the subcommittee files.]

Mr. LANGEVIN. Why is the Administration requesting $400 million in FY13 for MEADS? And how is the Administration implementing FY12 NDAA legislation to seek to reduce costs and close out the program with FY12 funds? Is the Secretary of State engaged, in addition to the Secretary of Defense?

Mr. AHERN. As with other cooperative Memoranda of Understanding (MOUs), the Department considers the MEADS Design and Development (D&D) MOU to be legally binding on the nations, albeit subject to the availability of funds. The Administration has requested funding in the Fiscal Year (FY) 2013 budget to complete our international obligations as agreed under the MEADS D&D MOU with the other program participants—the German Federal Ministry of Defense and the Italian Ministry of Defense—and consistent with the three participants' direction to restructure the contract in April 2011. The NATO MEADS Management Agency issued contract Amendment 26 to MEADS, International on October 31, 2011 to implement the participants' direction for restructuring the MEADS D&D program to a significantly reduced scope MEADS Proof of Concept (PoC) effort. This mutually agreed PoC effort, which will complete development and testing of MEADS elements and provide the participants with a useful data package for the future missile defense activities of each of the nations, requires 2012 and 2013 funding from the U.S. and partner nations, recognizing that, in accordance with MOU paragraph 19.1, actual funds availability from each nation is subject to appropriation by the participants' respective legislative bodies.

In accordance with the FY 2012 National Defense Authorization Act (NDAA), the Department has repeatedly consulted and attempted to negotiate with our international partners, the German Federal Ministry of Defense and the Italian Ministry of Defense, regarding development of a plan to further restructure the program in the event that Congress does not authorize or appropriate FY 2013 funding to complete our MOU obligations. We have directly informed the German and Italian participants that there is significant risk that FY 2013 funding may not be made available by the Congress. While DOD is the U.S. participant in the MOU, we have worked closely with officials in the Department of State (including the Ambassadors and country team members in the U.S. Embassies in Germany & Italy), who have provided DOD with useful advice and support.

In response to our attempts to engage in discussions, our partners have made clear to the Department that they remain fully committed to their MOU obligations and expect that all participants will provide their 2013 funding to complete the PoC effort. They have also made clear that we are too late in the development effort to change course again and that we jeopardize our ability to realize the benefits of the program if we renege on our nine-year agreement near the end of the eighth year. The fact remains that, while we have aggressively engaged with our partners to complete MEADS MOU efforts using only FY 2012 funding, we cannot force them to agree to this course of action.

More broadly, while the Department understands the need to make difficult choices in the current fiscal environment concerning funding for all of our activities,

we also note that failure to meet our MEADS MOU funding obligations for FY 2013 could negatively affect our allies' implementation of current transatlantic projects and multinational cooperation—as well as their willingness to join future cooperative endeavors with the United States—that are strongly supported by the Administration and Congress. In fact, the ramifications of failing to provide funds for this program which is so near completion could impact our relationship with our allies on a much broader basis than just future cooperative projects.

Mr. LANGEVIN. How does the new missile defense test plan increase reliability of our missile defense systems?

Dr. GILMORE. Identification and correction of failure mechanisms accomplished through a rigorous program of flight and ground testing increases the reliability of the BMDS. The newest Integrated Master Test Plan (IMTP), Version 12.1, is designed to collect important performance data on each of the elements of the Ballistic Missile Defense System (BMDS). The Missile Defense Agency (MDA) will use the data to verify and validate the models and simulations (M&S) that the Ballistic Missile Defense System (BMDS) Operational Test Agency will accredit and use to assess element performance. In conjunction with modeling and simulation, executing the IMTP will enable quantitative statistical assessments of the reliability and performance of all the elements of the BMDS. These statistical assessments will identify the known failure mechanisms that most impact system reliability in the context of their expected operational uses, and thus the highest priorities for reliability improvements. Executing the IMTP will, as it has already done, identify unexpected or otherwise unknown failure mechanisms, thereby enabling those to be fixed. In this way, the rigorous program of flight and ground testing in the IMTP increases the reliability of the BMDS.

QUESTIONS SUBMITTED BY MR. HEINRICH

Mr. HEINRICH. Given what we have learned from the Airborne Laser program, can you expand on any near- or medium-term applications for directed energy weapons in the ballistic missile defense architecture?

General O'REILLY. The Airborne Laser program was able to collect data on tracking and atmospheric compensation, system jitter, boundary layer effects on propagation, and prove the lethality of a directed energy weapon for missile defense. Current funding supports an airborne demonstration of a newly developed laser with test beginning in 2020. During that test period, MDA will explore directed energy in the full spectrum of missile defense missions including tracking, discrimination and, eventually, lethal boost phase defense.

Mr. HEINRICH. Is the $46 million for R&D requested in FY13 sufficient to maintain the brain trust that has enabled the recent advancements in directed energy?

General O'REILLY. The Missile Defense Agency's budget request is less than the FY12 Budget request but maintains much of the core expertise. The $46M R&D budget request includes: $20.6M for directed energy activities; $12.4M for laser development; and $8.2M for high altitude test and concept definition.

Laser expertise at Lawrence Livermore National Laboratories went from 39 personnel to 29 personnel; Program Office support contractors were maintained at 11 at Kirtland Air Force Base; industry contractor expertise was decreased from 22 to 9 contractors in support of high altitude environment testing and concept definition.

Mr. HEINRICH. The Congress was clear in the FY12 National Defense Authorization Act that the $389 million appropriated in that year should be the final expenses for the program. Can you explain why the President's budget request includes another $400 million for this program which the United States does not intend to procure?

Mr. AHERN. Section 235 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2012 (P.L. 112–81) requires the Department to submit a plan to use FY 2012 funding for MEADS as final obligations for either implementing a restructured program of reduced scope or funding termination liability costs. In accordance with the FY 2012 NDAA, the Department has repeatedly consulted and attempted to negotiate with our international partners, the German and Italian Ministries of Defense, regarding development of a plan to further restructure the program in the event that Congress does not authorize or appropriate FY 2013 funding to complete our MEADS Design and Development Memorandum of Understanding (MOU) obligations. We have advised Germany and Italy at the highest levels that there is significant risk that FY 2013 funding may not be made available by the Congress. In response, our partners have made clear to the Department that they remain fully committed to their MOU obligations and expect that all program participants will provide their 2013 funding to complete the PoC effort. They have

also made clear that we are too late in the development effort to change course again and that we jeopardize our ability to realize the benefits of the program if we renege on our nine-year agreement near the end of the eighth year. Although we have aggressively engaged with the other MOU participants to seek to complete MEADS MOU efforts using only FY 2012 funding, we cannot force them to agree to this course of action.

As with other cooperative MOUs, the Department considers the MEADS D&D MOU to be legally binding on the nations, recognizing that our financial responsibilities under such MOUs are subject to the availability of funds appropriated for such purposes. The Administration has requested funding in the FY 2013 budget to fulfill our MOU responsibilities vis-à-vis our international partners, Germany and Italy, and consistent with the three Nations' direction to restructure the contract in April 2011.

In furtherance of the MOU participants' direction, the NATO MEADS Management Agency issued contract Amendment 26 to MEADS, International on October 31, 2011 to implement the Nations' direction to restructure the MEADS Design and Development as a significantly reduced scope Proof of Concept (PoC) effort. This mutually agreed PoC effort will complete development and testing of MEADS elements and provide the Participants with a useful data package for the future missile defense activities of each of the nations. The President's Budget request for approximately $401M in FY 2013 funding was submitted in order to realize these objectives.

More broadly, while the Department understands the need to make difficult choices in the current fiscal environment concerning funding for all of our activities, we also note that failure to meet our MEADS MOU funding obligations for FY 2013 could negatively affect our allies' implementation of current transatlantic projects and multinational cooperation—as well as their willingness to join future cooperative endeavors with the United States—that are strongly supported by the Administration and Congress. In fact, the ramifications of failing to provide funds for this program which is so near completion could impact our relationship with our allies on a much broader basis than just future cooperative projects.

Mr. HEINRICH. With MEADS no longer planned as the replacement for Patriot in the 2017 timeframe, what actions and investments are required by the Army, and when, to operate and sustain the legacy Patriot system beyond 2017? Are any of these funded in the FY12 request?

Mr. AHERN. Patriot is deployed to protect U.S. forces and key assets from Tactical Ballistic Missile, Air and Cruise Missile threats. The Army's Patriot modernization strategy is critical given U.S. plans not to procure the MEADS system. Modernization includes upgraded Patriot launchers and radars, the PAC–3 Missile Segment Enhancement (MSE) missile, net-centric communication and software upgrades. Modernization also hinges on integration with the Integrated Battle Command System (IBCS). IBCS will connect Patriot with the Joint Integrated Air and Missile Defense Network, enabling inter-service connectivity and visibility for multiple Air and Missile Defense platforms. IBCS will field to U.S. Patriot battalions beginning in Fiscal Year (FY) 2016. All Patriot battalions are now equipped with PAC–3 missile hit-to-kill capability. The MSE missile will provide a larger engagement envelope and increased probability of kill against Tactical Ballistic Missiles, Air Breathing Threats and Cruise Missiles. The Army has 15 Patriot PAC–3 battalions, currently 50% deployed, forward stationed or on Prepare to Deploy Orders. This includes two battalions funded through the Grow the Army effort. The current program plan is to procure 84 PAC–3 missiles in FY 2013 and transition to MSE procurement beginning in FY 2014, with a first year procurement of 56 MSE missiles. The Army also plans to procure 38 Electronic Launcher Enhanced Systems (ELES) upgrades in FY 2013, increasing the PAC–3 hit-to-kill capability within Patriot battalions.

The Army has programmed significant modernization initiatives across FY 2013–2017, which are even more important in light of the plan to end U.S. participation in MEADS. The Preplanned Patriot Product Improvement Program provides for the upgrade of the Patriot System through individual materiel changes. It upgrades the Patriot system to address operational lessons learned, enhancements to joint force interoperability, and other system performance improvements to provide overmatch capability with the emerging threat. Efforts will be made to expedite Patriot materiel solutions (e.g. Radar Digital Processor, Communications Upgrades, Radars on the IBCS Net) to both enhance capability and facilitate integration into the IAMD architecture. Table 1 below provides the Project Justification for Preplanned Patriot Product Improvements and missile procurement from the Army's 2013 budget.

Table 1. Patriot Product Improvements

Cost ($) million	FY13	FY14	FY15	FY16	FY17
PE 0607865A: *Preplanned Patriot Product Improvement;* C50700: *Patriot MODS;* CA0267: *MOD Spares;* PE 0605456A: *PAC3/MSE RDTE*	385.4	395.1	395.9	406.5	408.0
C53101: *MSE Procurement*	12.9	538.6	505.1	596.4	566.8

The Post-Deployment Software Build (PDB) 7 (with Modernized Adjunct Processor) Initial Operating Capability (IOC) is planned for the first quarter of FY 2013. Radar Digital Processor (RDP) development will continue through FY 2014, with PDB 8 (with RDP) IOC in the first quarter of FY 2016. The Department will continue to refine the Patriot evolutionary development based on information gained from the MEADS Proof of Concept and results of ongoing Army, Joint Staff, and OSD reviews and studies of air and missile defense requirements.

Mr. HEINRICH. Does the Army see a need to improve or upgrade Patriot's capabilities? If so, what is the estimated cost of such improvements or upgrades as compared to the cost to complete MEADS development and production?

Mr. AHERN. The Army has programmed significant modernization initiatives across Fiscal Years (FY) 2013–2017, which are even more important in light of the U.S. plan not to participate in MEADS production. The Preplanned Patriot Product Improvement Program provides for the upgrade of the Patriot System through individual materiel changes. It upgrades the Patriot system to address operational lessons learned, enhancements to joint force interoperability, and other system performance improvements to provide overmatch capability with the emerging threat. Efforts will be made to expedite Patriot materiel solutions (e.g. Radar Digital Processor, Communications Upgrades, Radars on the Integrated Battle Command System Net) to both enhance capability and facilitate integration into the Integrated Air and Missile Defense (IAMD) architecture. Table 1 below provides the Project Justification for Preplanned Patriot Product Improvements and missile procurement from the Army's 2013 budget.

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The Department has requested $401 million in FY 2013 to complete the MEADS development effort and our international obligations under the MEADS Memorandum of Understanding. The DOD and the other MEADS Participants seek the results of the final two years of the Proof of Concept effort, the completed design and testing of the MEADS elements, the capability demonstrations, and the data archival and performance reporting in order to assess fully which elements or technologies would be available to transition to existing air and missile defense architectures. Until this critical design and performance data is available, no firm or final decisions can be made, but multiple MEADS technologies/capabilities/data might be harvested to benefit U.S. air and missile defense if the restructured MEADS D&D contract is completed. The MEADS Proof of Concept facilitates demonstration of the

advanced, rotating multi-function fire control radar and the lightweight/360-degree launcher; and the design and limited demonstration of an advanced surveillance radar, all of which would be considered in follow-on efforts to enhance air and missile defense once MEADS is completed. The system demonstrations in 2012 and 2013 would prove the maturity of design and set the stage for potential European follow-on efforts and U.S. harvesting decisions. Given the decision to not procure MEADS systems, the DOD has not conducted a formal cost estimate for the production of MEADS, but as reported in the December 31, 2011 Select Acquisition Report on MEADS, the baseline Program Acquisition Unit Cost for a MEADS Fire Unit was estimated at $345 million (base year 2004 dollars) and the baseline program called for 48 fire units to be procured for a total cost of $16.5 billion.

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