HEARING OF THE STRATEGIC FORCES SUBCOMMITTEE OF THE HOUSE ARMED SERVICES COMMITTEE SUBJECT: REPORT ON THE BALLISTIC MISSILE DEFENSE REVIEW AND THE FY2011 NATIONAL DEFENSE AUTHORIZATION BUDGET REQUEST FOR MISSILE DEFENSE PROGRAMS CHAIRED BY: REPRESENTATIVE JAMES LANGEVIN (D-RI) WITNESSES: DEPUTY ASSISTANT DEFENSE SECRETARY FOR NUCLEAR AND MISSILE DEFENSE POLICY BRADLEY ROBERTS; LIEUTENANT GENERAL PATRICK O'REILLY, DIRECTOR, MISSILE DEFENSE AGENCY; J. MICHAEL GILMORE, DIRECTOR OF OPERATIONAL TEST AND EVALUATION, OFFICE OF THE SECRETARY OF DEFENSE LOCATION: HVC-20, U.S. CAPITOL TIME: 2:00 P.M. EDT DATE: THURSDAY, APRIL 15, 2010

REP. LANGEVIN: Good afternoon. This hearing of the Strategic Forces Subcommittee will come to order.

Today we will take testimony on the Ballistic Missile Defense Review for the FY2011 budget request for missile-defense programs. Let me begin the hearing today by welcoming our three distinguished witnesses.

First we have Dr. Bradley Roberts, deputy assistant secretary of Defense for Nuclear and Missile Defense Policy. Dr. Roberts was responsible for coordinating the department's Ballistic Missile Defense Review. Prior to his current duties, Dr. Roberts helped former Secretary Perry and Schlesinger write the report of the bipartisan congressional commission on the strategic posture of the United States. Dr. Roberts holds a bachelor's degree from Stanford University, a master's degree from the London School of Economics and a doctorate from Erasmus University in Rotterdam, Holland.

Next, Lieutenant General O'Reilly, director of the Missile Defense Agency, has agreed to appear before the subcommittee to discuss his agency's programs and budget. General O'Reilly is a graduate of the U.S. Military Academy and has three master's degrees -- one in physics, one in national security and strategic studies, and one in business. As a scientist, and through his skills as a program manager of highly technical projects, he's been instrumental in the success of many of MDA's most important programs, including its directed-energy work, Patriot, THAAD, and ground-based mid-course defense system.

Finally, we'll hear from Dr. Michael Gilmore, director of Operational Test & Evaluation, about the operational status of our ballistic missile defense system. Prior to his confirmation, Dr. Gilmore

served as the assistant director for national security at the Congressional Budget Office.

Dr. Gilmore has worked in the Pentagon before, having served for 11 years in the Office of Program Analysis and Evaluation. Early in his career, Dr. Gilmore worked for the Lawrence Livermore National Laboratory on magnetic fusion energy. He's a graduate of MIT, where he earned a B.S. in physics, and he earned his master's and Ph.D. in nuclear engineering from the University of Wisconsin.

Gentlemen, I want to thank each of you for being with us here today, and we certainly look forward to your testimony.

As ballistic-missile technology proliferates across the globe and increases in capability, the potential threat to our nation and our allies grows as well. Continued developments in both Iran and North Korea are our most urgent concerns.

While recent intelligence estimates have highlighted the growing number of short and medium-range missiles developed by these nations, both of these rogue states continue, as we know, to work on ICBM technology that could lead to missiles which directly threaten our homeland.

This past September, President Obama announced his plan for strengthening missile defenses in Europe through a phased adaptive approach to deploying defenses against the threat of Iranian ballistic missiles. On February 1st, with the release of the budget, the department submitted its first ever Ballistic Missile Defense Review.

The administration's review established six clear objectives to guide ballistic-missile programs.

First, the U.S. will continue to defend the homeland against the threat of limited ballistic-missile attack.

Second, the U.S. 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.

And finally, the U.S. will seek to lead expanded international efforts for missile defense.

The BMDR also endorsed applying the new phased adaptive approach across the board, including for the defense of South Korea, Japan and our

allies in the Middle East. This new approach links missile- defense deployments more directly to the current threat, provides for flexible responses to future threats, and signals to the Russians, the Chinese and the world that we are serious about maintaining strategic stability.

As we all know, ballistic-missile defense is sometimes a controversial subject. But I believe that there is much greater consensus on this matter than meets the eye. In 1999, an overwhelming bipartisan majority of the House of Representatives voted to deploy a national missile-defense system capable of defending the territory of the United States against a limited ballistic-missile attack.

Since that time, Congress has appropriated over $90 billion for missile defenses, and the Pentagon has delivered 30 ground-based interceptors effective against long-range missiles that might be launched by Iran or North Korea, 52 batteries of Patriot short-range missiles, 44 of which are capable of launching the advanced PAC-3 missile, two terminal high-altitude air defenses, or THAAD, batteries and 16 interceptors, and 55 medium-range SM-3 interceptors. The program has also converted 28 Aegis ships to use the SM-3 interceptors. And this year the president's budget provides another $9.9 billion for missile-defense programs, an increase of $670 million over the FY 2010 appropriated level. The consensus that paved the way for these developments is rooted in the basic principles that missile defenses should discourage rogue nations from developing threatening systems and that deployment of U.S. defenses protect us against those threats but should not create strategic instability or increase the risk of nuclear war.

Yet a new strategy alone will not be enough. The administration must convince Congress that it has an effective plan for ensuring our defense systems are thoroughly tested and that sufficient resources will be allocated to make sure that our missile-defense systems are available when we need them.

That said, we're eager to hear from each of you this afternoon. Dr. Roberts, I'm especially interested in your thoughts on how we should balance our efforts to defend the homeland with the challenges of building regional defenses against short- and medium-range missile threats.

General O'Reilly, I'd ask if you would focus on how the BMDR and the phased adaptive approach has modified the MDA's plans for testing and deployment over the past year.

And finally, Dr. Gilmore, we look forward to hearing your assessment of the operational capabilities of each of the components of the ballistic missile defense system.

With that, again, gentlemen, I just want to welcome you here today and look forward to your testimony.

Before I turn the floor over to you, though, I want to turn to the ranking member for any comments he may have.

REP. MICHAEL TURNER (R-OH): Thank you, Mr. Chairman.

I would like to welcome Dr. Roberts, General O'Reilly and Dr. Gilmore. I appreciate you being here today and I appreciate your attention to these important issues.

I also think it might be appropriate if, in the opening of this hearing, that we will recognize the tragedy with Polish President Kaczynski. The Polish government was so accommodating and welcoming of what are our important missile-defense assets. And we certainly are all saddened by the tragedy of his military and civilian leaders who perished in the weekend's airplane accident.

Well, we have a lot of ground to cover today, so let's dive into some of the issues that are of concern to me. First, I am very concerned by recent comments from administration officials that essentially Congress has everything it needs to know about the phased adaptive approach, PAA. As Undersecretary Tauscher said at our hearing yesterday in reference to PAA details, "It's on the Internet."

Well, unfortunately, the Internet does not provide sufficient details on the four phases of the PAA, nor does it provide a description of the options considered by the administration in addition to the PAA and the analysis to support why it was chosen as the preferred approach. Let me share a few examples of information that the committee does not have. Phase one of the PAA calls for the deployment of a forward-based radar in Europe by the end of 2011. We are considering the fiscal year 2011 budget request, yet we don't have where this radar will be located or how long host-nation negotiations might take.

Right now this would appear to be a high-schedule risk item. We do not know the numbers of ships, interceptors and sensors that will be required for each phase, nor do we know the estimated cost or acquisition strategies for each phase. We have minimal information on the technical feasibility, expected performance and cost of the SM-3 block 2A and 2B interceptors, which Senator Lieberman called paper systems just last year. So far I'm a little concerned as to why the administration would be so slow in providing the information.

And lastly, while we have positive statements from the NATO secretary general, we have yet to see details of a NATOization of the PAA, its integration with NATO's missile-defense architecture and any allied contributions.

Now, today, General O'Reilly, you provided a great deal of detail to us that we're going to be digesting from that. You've indicated that we can take, in the review of the information -- the types of information will provide us milestones to look at. We greatly appreciate your providing that to us.

Also today I provided the general with a letter requesting his assistance in focusing on the issue of phase four of PAA being the phase where mainland United States really becomes engaged with the assistance

of missile defense. And I have a copy of that letter, if we can add that into the record, Mr. Chair.

REP. LANGEVIN: Without objection.

REP. TURNER: I appreciate all of your expertise and all of your dedication. I know that you guys have worked diligently to ensure that we have a quality system. And I look forward to the exchange and any additional information you can provide so that we can work even more closely together.

I want to note that this committee had asked similar information of the prior administration on its prior proposed configuration of missile defense. And I think that this is an opportunity to gain bipartisan support for the current PAA plan. But the committee must have confidence that the PAA is the best approach for protecting the United States and our European allies, and then, of course, mainland United States.

Second -- my second concern is the 30 percent increase to the ground-based mid-course defense program is welcome after last year's reductions, as in the department's decision to finish missile field two in Alaska. However, it is unclear whether MDA has planned and budgeted for a sufficient number of ground-based interceptors, GBIs, to support reliability flight testing through 2030 and to accommodate test failures or surge scenarios. The health of the industrial base supporting the GMD program remains a concern, and the last thing any of us want to see are GMD options precluded because -- (inaudible).

In addition, the BMDR states the U.S., quote, "will continue development and assessment of a two-stage ground-based interceptor," closed quote, as a hedging strategy for defense of the homeland. We're interested to see how does MDA plan to make it a viable hedging strategy, particularly when the budget requests removed some two-stage GBI flight tests and delays others. I'm concerned that such delays may preclude the two-stage GBI from being considered as a viable hedge.

Third, the Ballistic Missile Defense Review states that the phased adaptive approach will be tailored to other regions. We know qualitatively that these new regional missile-defense architectures will have significant force-structure and inventory implications. However, without -- (inaudible) -- understanding of these plans, basing locations, inventory requirements and costs, it is difficult to assess whether MDA's budget is sufficient.

One thing is clear. Demand exceeds supply. Despite plans for Aegis and THAAD inventory growth, the bulk of the funding is planned for the out years. This creates near-term production gaps and inefficiencies for industry. An example of shortfall is Aegis asymmetry interceptors.

The administration wants an inventory of 436 interceptors by 2015. It is only buying eight new interceptors in this year's budget. Industry is sized to build 48 interceptors a year. Why were such decisions made?

Fourth, we need to see a long-term commitment towards a robust research-and-development program. I worry that we're giving up on some promised technologies while rushing to pursue others. The airborne infrared, ABR, PTSS and SM-3 block 2B are interesting concepts but still unproven technologies.

Meanwhile, the airborne laser -- I appreciate the briefing that we just had with the general -- recently demonstrated a successful missile shoot-down, yet the budget request appears insufficient to maintain the aircraft, conduct flight experiments and fund further development of innovative directed-energy technology.

Fifth, I remain concerned that Russian linkage between U.S. missile-defense activities and their adherence to the new START treaty may have the potential to self-constrain U.S. missile-defense activities. After all, the U.S. scrapped plans to deploy GBIs in Poland and a radar in the Czech Republic. And there are those who believe that that was to remove an irritant in U.S.-Russian relations. It's important for the administration to clarify its missile-defense plan, not only for Congress, but also for the Russians. Lastly, we know that the threat is changing and our missile defense plans must be flexible to those changes. A year ago, the administration concluded that the long-range threat was not materializing as rapidly as once thought. However, since then, new details are emerging on both North Korean and Iran's long-range missile programs that should be grounds for the administration to revisit the assumptions behind its policy changes.

I am pleased with the restoration of some funds in the budget request after last year's $1.2 billion cut. It is a welcome indication that the administration took note of concerns expressed by many of us that a (top line ?) increase was necessary to accomplish all that was being asked of MDA -- homeland missile defense, PAAA, regional missile defense architectures, expanded inventory, increased testing and continued investments in science and technology.

I'd like to thank our witnesses for their leadership and dedication and for being here today and I look forward to your testimony.

REP. LANGEVIN: Thank you. I thank the ranking member.

We received prepared testimony statements for each of our witnesses -- and these will be entered into the record without objection.

So at this point, if you could please summarize your points, so that we have plenty of time to ask questions and answers.

With that, we'll turn the floor over to Dr. Roberts.

MR. ROBERTS: Thank you, Chairman Langevin; thank you Ranking Member Turner; thank you members of the committee.

I'm pleased to have the opportunity to be here today to share our thinking and address your questions.

My statement for the record touches on two main topics. The first is the contents of the Ballistic Missile Defense Review -- just to review the main elements there and to make the point that that review proceeded in parallel with the Quadrennial Defense Review and the Nuclear Posture Review. These were intended to be integrated looks at the strategic landscape in front of us. You've reviewed the elements of the policy and strategy framework elaborated there. I will not do so. The key question you posed to us in the assignment for the first-ever Ballistic Missile Defense Review was this question on balance on future investment between defense of the homeland and defense of the region.

And it was posed a bit as an either/or question. And of course, as you know, the conclusion of the review was that it's not an either/or question. We need a sound pathway forward for the both the protection of the homeland and protection against regional threats. And because of the inherently unpredictable nature of the threat, the need to be well hedged, to be able to accelerate capability deployment and to be flexible with the capabilities we do deploy to meet unexpected requirements.

The second main part of the prepared statement addresses your questions about implementation about the conclusions of the review. I think we're likely to have three areas of focus. One is on aligning programmatic requests with the policy objectives. And as noted in General O'Reilly's testimony, we've requested increases for homeland defense, for regional defense and for testing, consistent with the results of the review.

The second likely area of focus is the implementation of missile defense in Europe in a phased adaptive approach. I perfectly agree with the proposition. The committee must have confidence in the choices made and the logic behind them. It needs information in order to have that confidence. It does not have all of the information it needs to have that confidence. And part of my purpose in being here today is to better understand the pieces of the puzzle that are missing in order to help fill them in.

I would give more detailed answers to your question, but I'll save that for the Q&A portion.

I think a third focus in my remarks on implementation is about cooperation with Russia. General O'Reilly, Undersecretary Tauscher and others have engaged Russia to further explore areas of cooperation on the basis of shared interest and mutual benefit. We have an ambitious agenda there.

And with that, I'll wrap up and look forward to your question.

REP. LANGEVIN: Thank you, Dr. Roberts.

General O'Reilly, what was yours?

GEN. O'REILLY: Good afternoon, Chairman Langevin, Congressman Turner and other distinguished members of the committee.

It is an honor to testify before you today on the Missile Defense Agency's support to the Ballistic Missile Defense Review and our 8.4 billion (dollars) fiscal year 2011 budget request to continue our mission to develop and field an integrated, layered ballistic missile defense system to defend the United States, its deployed forces, allies and friends against ballistic missiles of all ranges and in all phases of flight.

This budget request reflects the strategy and policy stated in the Ballistic Missile Defense Review Report and the prioritized missile defense needs of our combatant commanders and services, as stated in the latest U.S. Strategic Command's Missile Defense Prioritized Capabilities List.

Under the oversight and direction of the Missile Defense Executive Board, chaired by the undersecretary of Defense for Acquisition, Technology and Logistics, the Missile Defense Agency proposes a FY '11 program that is balanced to achieve the six strategy and policy goals documented in the Ballistic Missile Defense Review Report.

First: Defense of the homeland against limited attack. We continue to upgrade the ground-based midcourse defense system to increase reliability, survivability and expand the ability to leverage new ballistic missile defense sensors, as well as test the GMD system to accredit our models and simulations.

The purchase of five additional ground-based interceptors and limited life components for refurbishment -- and our refurbishment program is very extensive -- will sustain our production capability until 2016 and critical component manufacturing beyond 2020.

Second: The defense against regional threats. We've increased our investment in regional assets and by 2015, we'll procure 436 SM-3 1A and 1B interceptors and 431 THAAD missiles and have available 38 ballistic missile defense-capable ships.

We are developing regional missile defense elements that can be adapted to unique circumstances of each combatant command region. For example, we determined, based on intelligence estimates, that our previous plan for the defense of Europe could simply be overwhelmed by the large number of Iranian MRBMs today and IRBMs in the near the future. Therefore, we plan to deploy a larger number of interceptors in Europe in four phases, as missile defense threats from the Middle East evolve.

Third: Prove that the missile defense system works. We've submitted a comprehensive, integrated master test plan -- signed by the director of Operational Test and Evaluation, Dr. Gilmore -- the services, the operational test agencies, the commander of the U.S. Strategic Command's Joint -- JFCC IMD subcommand to ensure we extensively fly our missiles and test them before we buy them.

The two largest challenges to executing the U.S. missile defense program is acquiring a cost-effective set of reliable targets and improving quality control. Over the past year, we have initiated steps to acquire a new set of targets of all ranges. Our new target acquisition strategy, initiated in 2009, procures targets and production lots to increase competition, quality control, reduce cost and ensures the availability of backup targets starting in 2012.

We have had many successes in improving our prime contractor and supplier quality assurance to meet the precise manufacturing standards required for missile defense components. However, not all companies have sufficiently improved. Until we complete planned competitions -- including the greater use of firm fixed-price contracts -- we will have to motivate greater attention by senior industry management through intensive government inspections, low award fees, the issuance of cure notices, stopping the funding of new contract scope and documenting inadequate quality-control performance to influence future contract awards.

Fourth: We are hedging against threat of uncertainty. In accordance with war-fighter priorities, we are focusing our future technologies in four areas. One, developing more accurate and faster tracking sensors on platforms to enable fire-control solutions and intercepts earlier; two, developing enhanced command-and-control networks to link and rapidly fuse sensor data to handle large raid sizes of missile threats; three, developing a faster, more agile version of our SM-3 interceptor to destroy long-range missiles early in flight; and four, developing discrimination techniques to rapidly resolve reentry vehicles from other nearby objects. And we will continue to develop high-energy laser technologies.

Fifth: Develop new fiscally sustainable capabilities over the long term. The Missile Defense Agency is complying with the Weapons Systems Acquisition Reform Act by establishing six baselines -- cost, schedule, technical, test, contract and operational -- to plan, manage and increase service and war-fighter participation and increasing emphasis on competition at all phases of programs acquisition lifecycle.

Six: Expand international missile defense cooperation.

Six, expand international missile defense cooperation. We are currently engaged in missile defense projects, studies and analysis with over 20 countries, including Japan, Poland, the Czech Republic, Israel, Australia, the United Kingdom, Germany, South Korea, NATO, the United Arab Emirates, Bahrain, Saudi Arabia and Kuwait. Additionally, Poland and Romania have agreed to host our Aegis ashore sites, and we continue cooperative development of the SM-3 2A interceptor with Japan.

We also continue to support expert dialogue with the Russian Federation on missile defense cooperative efforts.

Relative to the recently expired START treaty, the new START treaty actually reduces constraints on the development of the missile defense program. Our targets will no longer be subject to START

constraints which limited our use of air-to-surface and water-born launches of targets which are essential for the cost-effective testing of missile defense interceptors against medium-range and intermediate- range ballistic missiles in the Pacific region.

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

Our 2011 budget funds the war fighter's near-term priorities while building the foundation of a layered defense system with our partners and friends that can provide and adaptive, cost-effective strategy to protect our homelands and counter ballistic missile proliferation in the future.

Thank you, Mr. Chairman. I request my written statement be submitted for the record, and I look forward to answering your questions.

REP. LANGEVIN: General, thank you very much.

Dr. Gilmore, the floor is yours.

MR. GILMORE: Mr. Chairman, Congressman Turner, members of the committee, I will, as you requested, very briefly summarize my written statement. First of all, my characterization of demonstrated BMD performance is contained in the report that we submitted to Congress.

REP. LANGEVIN: Can you bring the microphone up some?

MR. GILMORE: Sorry. Submitted to Congress this past February. I characterized the capability of ballistic missile defense systems using six level of capability with one being the lowest demonstrated level and six being the highest. General speaking, Aegis, THAAD, Patriot performance against SRBMs -- our capabilities against SRBMs is rated at the highest level. There's been fairly extensive testing against those kinds of threats. And, generally, I characterize their performance as levels from four to six.

With regard to Aegis ground-based missile defense and THAAD against medium-range ballistic missiles, intermediate-range missiles and intercontinental-range missiles, I generally characterize their performance at levels one to three or four because there has been lesser testing against those threats, and the capability levels that have actually been demonstrated tend to decrease pretty much in step with the increase in range of the potential threat.

With regard to major events on testing, of course, there was the demonstration of the airborne laser which was a significant technical achievement but, also, there was a significant achievement in planning for tests. And General O'Reilly has already discussed the integrated master test plan which was developed and then revised. It's a rigorous plan for conducting tests and collecting the data needed to rigorously

and independently verify, validate and accredit the models that are going to be critical to assessing the operational effectiveness of missile defense because we will never be able to do enough live-flight tests to span the entire battle space that we are concerned about in demonstrating operational performance of the system.

And then, finally, with regard to challenges moving forward, there are many challenges. These are some of the most complex tests that the Department of Defense attempts. There have been failures, particularly, with regard to targets. And so, as General O'Reilly has already mentioned, target reliability and realism are particular challenges that the agency is going to have to address in the future.

Thank you, and I would be happy to answer your questions.

REP. LANGEVIN: Gentlemen, thank you for your testimony. After myself and the ranking member ask questions, we'll recognize members for five minutes in the order in which they arrived.

Dr. Roberts, let me start with you if I could.

I understand the department thoroughly assessed the previous administration's plan for missile defenses in Europe, the so-called third site plan, during the BMDR. Would you, for the subcommittee, summarize the key shortfalls of the previous administration's European missile defense plan and the reasons for rejecting that approach?

And could you also describe the key reasons that the president adopted the new phased-adaptive approach for defending our allies and deployed forces in Europe?

MR. ROBERTS: Happy to have the opportunity to do so. Thank you.

To begin at the beginning, we did not come first and foremost to the question of what to do about the third site. We came first and foremost to the questions as scripted in the legislation for the missile review, which was to begin with an assessment of the threat, how the threat had evolved, expectations about how it might yet evolve, and then to assess current capability vis-a-vis that threat globally.

And so before we came to the question of what to do about the third site in Europe, we came to a view of the following landscape: That our posture after a decade of investment and active capability development, our posture and protection of the homeland, relatively strong vis-a-vis the threat. If we had been seeking limited protection from the ICBM capabilities of North Korea and Iran, we have that today. We have 30 interceptors on the ground that are operational, and that threat from their ICBMs does not exist today.

We're in a strong posture. But inherent to our understanding our assessment of the threat was that it was unpredictable and, indeed, that we need to be more strongly hedged than we were for possible accelerated developments in the ICBM threat. So you saw, as a result of

the review, a number of actions strengthen our hedge for protection of the homeland.

In the case of our regional defense posture, we were not so well positioned vis-a-vis the threat. The threat had clearly been exploding. We had many capabilities reaching the end of the development pipeline but not yet reaching the field. And the clear need here is to increase -- accelerate the deployment of capabilities to the war fighter in the regions while also being well hedged against possible unexpected developments in the threat.

That pointed to a particular set of capabilities. In other words, to seek capabilities that could be surgeable, adaptive, flexible to go where a crisis required in time.

That's the construct in which we came to our question then, the fourth I think it was on your list, of what to do about missile defense in Europe. And you've read our thinking about this. We've explained it in great length. I've tried to boil it down for myself into a few very short points.

I think there are six criteria that guided our thinking on this topic. The first is for prompt protection. The pathway we were on with the third site would have put initial capabilities in the ground in 2017 or 2018. We have a threat that exists today. We have capability we can put in the ground in 2011. Why wait?

Second criterion: Complete protection. Under the former approach, we had not completely protection of our allies. We have the means to product all of our allies. There had been talk of protecting all of our allies but no plans in place to do so. Why not protect all of our allies when we have the means to do so?

Third criterion: Effective protection. Why deploy a system that's capable against a salvo launch of only five missiles when we need to and can scale it up to deal with the expected increases in missile threats from the Middle East? We have the means to do that. Why shouldn't we do that?

Fourth criterion: Cost effectiveness. If we expect to have to scale up to meet the demands of a growing threat, why rely on ground-based interceptors at roughly $70 million apiece when we can acquire roughly comparable capabilities in the SM-3s but acquiring six or seven for the same price of one?

Fifth criterion: Cooperation with allies. We have the opportunity to work within the NATO framework. NATO's views of missile defense have evolved in recent years. They are eager to join us. We are trying to persuade them of the virtue of declaring this territorial defense as a NATO mission. We see positive indicators that they're interested in so doing. Why not work with allies to share these benefits and burdens?

And lastly, flexibility. Why rely on a system that involves fixed assets that can't be moved when we know we're not going to have enough to deal with the threat globally and we should have some ability to relocate and surge capabilities while they remain scarce in our arsenal?

So beginning with our view of the threat environment, beginning with our -- then with our view of how to balance our future investments across this homeland defense and regional problem space, we looked at the third-site approach to missile defense in Europe and found it wanting on these criteria.

So the president chose an approach that's more flexible, more adaptive, more cost-effective, enables more international cooperation, more sharing of burden.

That would be the five-minute answer, I think, to the question.

REP. LANGEVIN: Thank you, Dr. Roberts.

General O'Reilly, yesterday the subcommittee received a briefing on MDA's integrated master test plan conducted with the Office of Testing and Evaluation.

First of all, I really want to commend you for the excellent job that MDA and OT&E have done, especially, General O'Reilly, for bringing high-quality oversight and a serious testing regime to our missile defense programs. Well done on that front.

Unfortunately, MDA's testing progress has been hindered by target missile failures such as with the THAAD intercept test in December. And I'm sure that even with that failure, though, we have learned a great deal. You can certainly touch on some of those things that we have learned.

But in particular, what was the additional cost incurred from the target failures, and what measures is MDA taking with its contractors to ensure high quality testing is accomplished on schedule?

GEN. O'REILLY: Sir, the -- unfortunately, the THAAD test in December, we did not learn very much. The target itself was about $15 million. It was the first-time use of that particular configuration, so another 15 (million dollars) was invested.

We spent around 12 million (dollars) for the range and the test preparations. And then there's the impact on the program that wasn't able to be tested, the THAAD program where we had (the/to ?) delay and restructure activities. Sir, it was in excess of 50 million (dollars), perhaps even 60 million (dollars), because of the quality control errors we found in the installation of the target into the aircraft.

So that was a significant setback to the program. Because of that, I then made an -- we had a failure review board. And that failure team was very experienced, from both industry and government, and came

back and found that there was a systemic problem with the quality control in the areas of that target.

And therefore, I made the decision not to use air-launch targets until we have reset with our contractors, either expanded the number of contractors which we use so we can induce competition, which I believe is part of the solution to quality control issues.

It's not that these were poorly built systems. The precision required of missile defense systems is very high. And it is achievable, but it requires a specific discipline and experience base and investment in testing, that in-plant testing that's required.

And so to motivate that, I have delayed any new scope to that particular company so that -- until they satisfy that they have made corrective actions in management structure and in approaches to targets and so forth.

And also, at the same time, I have taken the planned work that I was going to use with that company in 2012 and put that scope on another contract that I have with another company, and asked that second company to develop a air-launch capability so that we have true competition, to emphasize the fact that it is an absolute requirement in the missile defense business that you have the highest repeatable quality. It is a condition on which our contracts should be set.

Also, and we have, as I said in my statement, we have other competitions now that we have instituted so that we buy targets in lots, which allow themselves to have quality control issues applied or techniques and procedures on a lot of a buy, rather than buying them individually, which we were in the past, which was much more expensive.

REP. LANGEVIN: Very good, General. Thank you very much.

And finally, Dr. Gilmore, can you describe the key tests and criteria that you believe have to be met before the department can make an informed deployment decision of the first phase of the European PPA (sic) missile defense system?

MR. GILMORE: The testing that's going to be possible between now and the fourth quarter of FY '11 is driven in large part by the availability of targets. But the revised IMTP incorporates four flight tests, two THAAD tests, and then also an operational test involving both THAAD and Aegis. The Aegis test, which is called FTM-15 -- I think it's in the third quarter of FY '11 -- will be key because it will be the first test of an Aegis SM-3 Block 1-A missile and the Aegis fire-controlled system and radar, as well as testing out the launch -- (inaudible) -- capability that might be necessary to engage an MRBM- or an IRBM-class threat fired from Iran. So that test, that operational test, will be key.

Then, of course, there will be additional tests that take place after the end of FY '11, leading up to another large operational test event in FY '12 which will have a number of missiles simultaneously in

flight that will have to be intercepted. And that will be crossing multiple sensors and will challenge the battle management command-and-control system to sort all of that information out, provide firing solutions to the various platforms.

So those are the tests that are scheduled. To some extent, the number of tests is limited by the number of targets, but conducting those tests will be key and the results will be key to informing us on the performance of PAA phase one.

REP. LANGEVIN: Very good. Thank you, Dr. Gilmore. Thank you, gentlemen. Thank you.

And I now turn to the ranking member, who's recognized.

REP. MICHAEL TURNER (R-OH): Dr. Roberts, one of the problems that we have in this whole missile defense discussion and in trying to get bipartisan support is really an issue of credibility. And I'm very, very concerned by the question that our chair asked and your response, and I want to go through the elements of what you gave us as your response.

Because there is an essential, fundamental misrepresentation that's made within your answer, and that is assuming that the third- site -- Poland and Czech Republic sites -- had to be scrapped so that the PAA could be adapted.

When you compare a system of Aegis ships and SM-3s to a system of ground-based interceptors and present it as a false choice that, one, had to be scrapped in order for the pursuit of others -- when everyone in this room who has put any effort into this issue understands that that's not a necessity -- we start a problem of having a difference of being able to evaluate the information that you're providing us.

Now, it may be that when we're finally done with the PAA and it's provided to us, we might have enough information to see that it has benefits too. But there are a number of things in comparing them that are just not very accurate.

You said, first, we wanted to do something prompt. We can do it by 2/11. Why wait? But you know you're not doing the same thing and I know you're not doing the same thing, so why don't we just -- just say that? When you said the ground-based interceptors are not going to be available till 2017 or 2018, we all know, of course, that the original schedule was they would have been completed by 2013. But I'll give you the 2017 and the 2018.

Even if I give it to you, the PAA doesn't provide the same level of protection to the United States till 2020 by your plan, not 2011. So when you say prompt and why wait, mainland United States is not protected by that system, which the ground-based system would have provided in Poland and Czech Republic.

If you're going to do a comparison apples-to-apples, that system versus the other system, you're comparing 2017 and 2018, not 2011.

Now, I know you say, oh, well, we have the 30 other interceptors that provide us our complete coverage. Of course, they were going to be 44 until the administration cut them. And I don't think that the threat itself represents something that we all believe is diminishing, but yet the interceptors that were planned by the administration are diminishing.

Then you go on to say that it's not going to provide -- it would not have provided complete protection to our allies. Well, neither are you, by 2011. If you look at the coverage in the plan and how it's unfolded and what happens with London and Paris, I don't think that you can provide information saying by 2011 we've done it promptly; we now protect our allies.

And the false-choice issue is the one that really falls in your other points of effectiveness -- five launchers versus the shift that we're having in the number of missiles.

They're -- it is not necessary that one be scrapped in order to pursue another, which was all part -- before -- part of the smorgasbord of the availability of technology and assets that we were all pursuing. And the same issue with the cost-effective.

And the cooperation with the allies, the one that I really find amazing there is that -- and mind you, I'm not a big fan of how the Poland and Czech Republic sites were handled with respect to our allies. But you are aware that, of course, NATO did endorse that plan at Bucharest, and we are all aware that Romania was an announcement that occurred without NATO participation. It's one of those ones where, after the fact, this administration, almost in the same vain as we had in Poland and the Czech Republic, made an announcement that then we all have to fall back on trying to clean up how that announcement was handled.

And the flexibility of fixed or moved, again, this was supposed to be a smorgasbord. This was not supposed to be a one-off exclusive that, once we do Poland and the Czech Republic, we're stuck. That's why MDA had so many things that we were developing so, in fact, we could have this multiple use.

But the thing that concerns me -- which I'd really appreciate your thoughts on considering your position -- is that the concern -- especially when we get to the issue the credibility and the dialogue of -- you know, many people were concerned that the Poland and Czech Republic sites were compromised by this administration as a result of their concession to Russia. No secret to anybody that Russia didn't like this.

The president announces his intention to reset. Even a letter went off, I believe, if I'm correct, that said to Russia we'd consider our view of missile defense based upon your participation and assistance with Iran. I think the Poles and the Czechs were very taken by surprise with how the rug was pulled underneath them and the manner in which that

was done. They had been walked out onto world stage and then not really given the appropriate attention as this was diminished.

But the START agreement, the START agreement includes the preamble language that recognizes the relationship between the strategic and the defensive. And Russia has made statements that they might consider withdrawing from START if the United States vigorously pursues missile defense. Now, the phased-adaptive approach is something this administration has announced. We don't have all the details, but it's something certainly that Secretary Tauscher says -- its effect is on the Web. You can look on the Internet and see what the effect is.

Is the administration confident that the phased-adaptive approach doesn't already violate what the Russians' intent is in saying they'll withdrawal from START if we vigorously pursue missile defense? And this new START relationship -- has the administration received assurances that the phased-adaptive approach is not a violation of their concept of the preamble of START?

MR. ROBERTS: Well, it's clear we're going to disagree on the dichotomy of choices. I didn't miss represent to you the choice made by the secretary, which was go forward with third site or go forward with phased-adaptive. This is the unanimous recommendation of the secretary, the chairman and the military leadership to the president was on the basis of this choice. It wasn't a false dichotomy.

The constraints in new START -- our position is very clear that we see no development in our missile defense posture that is threatening to the viability of Russia's strategic deterrent. Russia is not -- Russian experts are not particularly happy with Phase 4 of PAA because they don't fully understand what Phase 4 entails and what it might imply in the way of capability against Russia.

Our view is that, from a technical perspective, there is no capability in Phase 4 that could be jeopardizing to their deterrent. It's a simple matter of physics and geography.

So we -- they have made it clear throughout the negotiating process that they are unhappy about developments in the U.S. strategic posture of multiple kinds -- the development of ballistic missile defenses, the development of non-nuclear strike capabilities -- but their bottom line has been that they will support and implement new START so long as we don't do something we have no intent of doing, which is jeopardizing -- this is a limited defense of the homeland, and there is nothing in the PAA and Europe that can be effective against their strategic deterrent.

REP. TURNER: And thank you for that clarification. I need to ask you the question again with the additional way that you framed it.

The concern is -- you just said that there are some things in Phase 4 that they may have objection with. The concern is that has the administration, when it began the discussion -- the phased- adaptive approach was a policy the administration was already pursuing.

START was something that the administration was already pursuing. The administration concedes to language being in START that includes missile defense. Has the administration received assurances from Russia that Phase 4 of the phased-adaptive approach doesn't violate the now -- as Secretary Tauscher points out -- unilateral statements that Russia is making with respect to their interpretation of the language in START?

Because -- and the concern is this. Because we know that Russia objected to the Poland and Czech Republic sites, and now this administration is not pursuing those, the concern is if the administration is faced with Russia objecting, pursuant to START, to Phase 4, will it weaken the administration's support for Phase 4 as it did the administration's commitment to the Poland and Czech sites?

Your mike is not on.

MR. ROBERTS: The inference of your question was that Russian objections to the third site were a driving factor in the decision. They were not. I've made the case --

REP. TURNER: And then the question? The question being is there that assurance? Is there an administration assurance to Russia -- from Russia -- I mean, has Russia communicated with the administration that Phase 4 is not that violation that Russia believes would occur to its strategic deterrent --

MR. ROBERTS: I have no basis --

REP. TURNER: The administration has not addressed that with Russia then?

MR. ROBERTS: To my knowledge, no.

REP. TURNER: Okay. Thanks.

General O'Reilly, two stage ground-based interceptor -- the ballistic missile defense review states that it will continue to be developed, and we assessed as a hedge strategy -- I believe that's correct, is it not?

Could you please describe to me what that hedge strategy is? I mean a hedge against what? A hedge for what? What would the expectation be in looking at ground-based interceptor as a hedge?

GEN. O'REILLY: Sir, we're going continue to develop the two stage ground-based interceptor. In fact, we'll be flight testing it in June for the first time. That capability -- what it gives us if we deploy it would be additional time and additional opportunities to defend the United States from locations such as Iran or North Korea.

So specifically, when you have a three stage missile, it burns for over four minutes, and it is -- there's a set amount of time it takes

before it's ready for an intercept. A two stage is ready much earlier and, therefore, if you had a failed intercept from a three stage, you have another opportunity with the two stage. REP. TURNER: I mean, currently, there's no plans for its deployment; is that correct?

GEN. O'REILLY: Sir, we current have no request from the combatant commanders for that capability to deploy it in that manner.

REP. TURNER: So the word "hedge" is the one that I keep stumbling over. What scenario -- since that's in the missile defense review -- it's a policy statement. What are the circumstances under which that it would satisfy as a hedge? I'm assuming that means in some form of deployment?

GEN. O'REILLY: Yes, sir. We can actually, with the utilization of a two stage, in some geometries, we have the ability to better utilize our inventory of GBIs. In other words, one of shoot doctrine is to fire multiple GBIs at one target. With the capability of having a later intercept opportunity, then you can actually launch one, determine whether it's successful, launch a second, and, in this case, you would have an additional shot opportunity.

So if what we thought was a larger number of ICBMs than what we see today, another option would be to add additional two stage -- and place two stage GBIs so that, in fact, you have a larger number of missiles you can engage with the 30 that we're deploying.

REP. TURNER: Airborne laser test bed. People are very concerned about the amount of cuts that have occurred as it goes from -- to the test bed -- '09, $384 million; $182 (million) in '10; $98.7 million for this upcoming year.

Could you please describe to us -- and you just gave us a classified briefing previously -- can you describe to us now in an open setting how those budgetary dollars will support the airborne laser as a test bed and as a research project? And one of the things that would be really helpful, I think, because I don't think there's been enough horn-blowing, is if you could do a commercial right now for how great the test was and how accomplished -- what an accomplishment it is that the airborne laser accomplished what it did in its test.

GEN. O'REILLY: Sir, twice this year now we have engaged for the first time the destruction of a ballistic missile early in its flight using a laser on board an aircraft. This is -- the technology of just producing a laser and the fire-control system is a watershed event for military capability.

But the details of how this system worked -- there was a litany of scientific achievements which were accomplished, and they have been accomplished over the last two years in a repeated fashion with the ABL to give us confidence that we certainly understand how to generate this type of laser energy and how to impart it on a target in a very, very quick fashion.

We destroyed the missile in the second launch in half the time that we had calculated. So this also indicates we have a lot to learn from this in the area of beam propagation and in the lethality mechanisms. It is a very, very promising way to destroy a large number of ballistic missiles launched in a short period of time.

However, we do recognize that there is additional engineering and additional research involved, number one, to validate our models. And number two, this aircraft, with the fantastic performance it had, was actually based on designs that were over a decade old. And we have technologies today where we've made progress in our laboratories over the last 10 years that indicate that there is even a greater capability with future airborne systems. And the 747-based airborne laser is a very good platform we have already invested in. It has multiple -- it has the capacity to carry more than one laser system, so that it is a very good research platform. And that is what we have intended it to do. The budget last year was larger than this year's, the FY '10 request, because we were still completing the construction of the optical beam line. We have completed that work. And now, when you're focusing on the research, we believe we have an adequate budget in which to operate the aircraft and to complete the large amount of unknown scientific exploration that is necessary to occur for us to have a very effective military system.

REP. TURNER: One more question, General; the Aegis SM-3. The bulk of the funding comes in out years. It creates a near-term production gap and inefficiencies, perhaps, for industry. An example shortfall is the Aegis SM-3 interceptor. The administration wants an inventory of 436 interceptors by 2015. Yet it's only buying eight interceptors this year. And looking in the forward years, MDA plans to buy 66 in FY '12; 72, I guess, in FY '13.

Is there a better way to manage this ramp-up? And do you have concerns as to how you're going to get to the inventory of 436?

GEN. O'REILLY: Sir, first of all, the SM-3 1B, the newest version, has the same ordnance stack that the current version has. It has a new seeker, a much more capable seeker. That is the particular distinguishing characteristic of this missile. So the production gap which we have is part of a large family of missiles. So we will continue to produce the ordnance stack that we have to propel the SM-3 1B, just like we do the 1A.

In the case of the 1B, though, again it goes back to the Ballistic Missile Defense Review, the tenet that we will fly first before we go into production. And therefore, we have a series working with the operational-test communities and the other test agencies, a series of agreed-upon tests that must occur before I will go to the undersecretary of Defense for Acquisition, Logistics and Technology and request a production decision.

I have procured 30 missiles for research and development at this time. And so those 30 will more than adequately demonstrate the capability and validate the new production lines for the new kill vehicle. But to go beyond that, we will need to complete the testing

which we have planned for the next year and a half. And that does delay the start of a full rate production.

REP. TURNER: Thank you.

Thank you, Mr. Chairman.

REP. LANGEVIN: I thank the ranking member.

Before I go to Mr. Larsen, I just -- on the third site, since we're talking about some of the specifics in your analysis of alternatives, could you just for the committee talk about the cost involved of the physical structure for erecting the sites in both Poland and the Czech Republic? GEN. O'REILLY: On the order of a -- this is preliminary work, sir, as we are working through our cost estimates and the design of the first Aegis Ashore site. Was that the question?

REP. LANGEVIN: The third site --

GEN. O'REILLY: In the budget request --

REP. LANGEVIN: -- in terms of an analysis of alternatives --

GEN. O'REILLY: The budget request that we had made last year was based on a $4.2 billion cost for the third site.

REP. LANGEVIN: Four-point-two (billion dollars) for a third site. And that did not include the cost of the interceptors, right?

GEN. O'REILLY: It did include the cost of the interceptors, of the missile field in Poland and the radar in the Czech Republic, the battle command and control, and the initial startup.

REP. LANGEVIN: So how many of the GBIs?

GEN. O'REILLY: Ten.

REP. LANGEVIN: Ten included in there.

GEN. O'REILLY: Were in there, sir, at a cost of about $70 million apiece.

REP. LANGEVIN: And it's my understanding that if there's an incoming target, you would fire not just one at the target; you'd fire multiple --

GEN. O'REILLY: To achieve our probabilities of protection we try to achieve, our typical shot doctrine, and in a very constrained environment like in Europe, the region, we would need to salvo two for every one. Our preferred approach is to launch one missile, determine if there's an intercept, and if you have enough time, launch a second missile. But in the case of Europe, because of the closing -- the velocities in which we're flying at and the size of the theater, we would need to salvo two as a minimum for every missile coming in.

REP. LANGEVIN: So $140 million for the two shot -- for the two missiles being fired, versus $10 (million) to $15 million a shot for the SM-3.

GEN. O'REILLY: Yes, sir.

REP. TURNER (?): Mr. Chairman, how do those numbers compare to Alaska? Because that would be the comparable. It's not really the SM. It's really GBI to GBI, because, I mean, that -- as you were not disputing in the testimony, they really aren't shot at comparable targets. It really would be Alaska, would it not? I think that's what Dr. Roberts was indicating, that it would have the ability to protect the mainland. Are the costs significantly different between Poland and Alaska?

GEN. O'REILLY: The interceptors would be the same cost, the same design of the intercept. The operations is a little more expensive because it's a remote site. We have missile assembly buildings and other infrastructure in Alaska that we wouldn't have there. And the missile field itself would be slightly less than what we spent in Alaska, because the first time you do a construction, you develop it, it is more expensive. Then we have a learning curve.

GEN. LANGEVIN: Very good. Thank you, General O'Reilly.

The chair now recognizes Mr. Larsen for five minutes.

REP. RICK LARSEN (D-WA): Thank you.

General O'Reilly, the PAA has been presented as a missile-defense architecture, and it's focused mainly on our allies in Europe. Have you -- I think in your testimony you discussed how this approach might be applied to other regions. Can you get into a little more detail for us on that?

GEN. O'REILLY: Yes, sir. There is very attractive attributes of the ballistic -- of the phased adaptive approach. First of all, with our investments and our growth of capability of the Aegis system, you have a mobile system that you can surge into certain regions.

But what it distinguishes in the phase adaptive approach, as we've looked at the different potential weapons systems that could provide defense against missiles, the idea of taking the AEGIS system and putting it on the land, which we already test the -- parts of the AEGIS system at White Sands, New Mexico and at other sites on the East Coast.

So this is not a new feasible -- it's not an infeasible capability. We would make it have a military capability of hardening it and so forth. But that capability would allow us to place in remote sites, high-value areas of the world, where we have a forward basis and so forth, you effectively have a permanent defense equivalent to what AEGIS has. We already have the AEGIS logistic system and training base that's already been established.

It has a -- allows us to manage a larger pool of interceptors for both land-based and sea-base use so the operational commanders have more flexibility, and again for remote sites around the world, it does give you defense. And the defense of the first generation is on the order of 1,000 kilometers protected area. So it is a significant capability and it can be removed in the future if it needed to, and what would remain behind would just be the concrete. We have said in the past that to relocate it would be on the order of about four months.

REP. LARSEN: Thank you. Thank you very much for getting into that. I think that the -- again, getting to the PAA approach, that phase adaptive approach, does provide a little bit more flexibility for us, not just in the -- in European theater but, yeah, in other areas, as you noted. Dr. Gilmore, a few questions about testing. First with regards to the airborne laser test bed and the recent successful tests, in your testimony -- I think was your testimony -- you've outlined some of the issues, though, with the test.

For instance, the detection and tracking system wasn't available for the test, therefore the air crew utilized the aircraft's wide area surveillance system for knowledge of the threat missile launch location timing an aim point. I guess in the end you said if the department should determine at a future time it's appropriate to develop and to field an airborne laser system, an extensive program and additional developmental testing culminating in realistic -- realistic operational testing would be needed.

It's a short way of saying it's not ready but are there things in the testing regiment that would get us closer to that or not? MR. GILMORE: Well, you would -- you would have to do additional tests, but also, as pointed out in my testimony and then I also in January submitted a report on airborne laser to the Congress. I was required by law to assess the operational effectiveness of the airborne laser and the thrust of the report was I can't do that at this point because there's been insufficient testing.

But also the aircraft as it exists is a test bed. It is not an operational camp -- it doesn't compose an operational combat capability for some of the reasons that you just mentioned that were in my testimony. But you would also in addition to (inaudible) capabilities in the aircraft, the additional sensors that would enable you to detect in real time and track large numbers of threat missiles that you might encounter. One of the principle things you would also need is in all likelihood a higher-power laser in order to stand off against modern air defenses, because you can't assume that the aircraft can penetrate in air space and would be able to survive if it did that.

So you would have to demonstrate the capability to engage missiles at substantially larger ranges than we have done at this point. It was -- as General O'Reilly mentioned, this was a real technical achievement, but it was necessary but not sufficient to the demonstration of a combat capability. You would also have to demonstrate that the system had high reliability. There were some problems during the tests.

You have to have a system with high reliability because you don't know when the threat will launch.

You can't have the system go down. You would have to have at least two aircraft per orbit because when the aircraft are turning sometimes they can be in a position where they couldn't engage a threat. So analysis that's been done, that I've seen done, would indicate you would need at least two aircraft per orbit in order to assure that you could intercept launches from a particular area you were interested in intercepting launches. To have those two aircraft on orbit continuously, which you would need to do because you don't want to give the enemy a choice of when to fire their missiles because they might well see when an aircraft had to leave an orbit, you would need another three to five aircraft per orbit.

You might need only one or two orbits in the case of North Korea, but in the case of a larger country like Iran, there would be certainly areas in Iran from which launches could occur that probably couldn't be intercepted by any number of orbits of airborne lasers if they have to stand off outside the border of the country.

So there are all those kinds of issues that would have to be addressed, and adding capability to the aircraft perhaps, for example, as General O'Reilly notes, taking advantage of modern technology to incorporate a higher power laser that, in fact, would have effectiveness at larger ranges, as well as all these other things I've mentioned that would have to be done before you had an operational combat capability.
REP. LARSEN: Thank you. Thank you, Mr. Chairman.

REP. LANGEVIN: Mr. Franks is now recognized for five minutes.

REP. TRENT FRANKS (R-AZ): Well, thank you, Mr. Chairman and thank all of you for being here. Mr. Chairman, I have several questions -- very limited time here. So I can't help but to express some perspective on some comments by our ranking member Mr. Turner related to your testimony, Dr. Roberts. You know, I think that -- I just want to be on record as suggesting that there was indeed a false choice between two cases here. The notion that we could not have continued forth -- forth with the third site, and then that that foreclosed anything else we were doing is just not something that reasonable people can embrace.

And to suggest that our allies were well-served by that, given the reaction by the Polish representatives that came after that announcement and some of the people from the Czech Republic, they felt simply betrayed. So I don't know how that we have served those allies' interests. And I suppose my biggest concern is the discussion related to the timing. I'm fully aware that, you know, we have some raid issues related to only 10 interceptors. But whatever -- whatever capability they represented will be nonexistent perhaps in a critical time in Iran's calculus as they move forward with their -- not only their missile systems but potentially their nuclear system.

And I think that that issue is potentially going to saturate the discussion of this committee in the future because of the seriousness of

it. And any time that -- any time or opportunities or additional margin that we could have purchased with the third site in Europe could prove to be something that we would regret not having in the near future. So with that I just wanted to be on record with that and I want to try to direct some questions to General O'Reilly in the short turn thought I have.

General, thank you for your service to this country. People like you carry freedom on your backs and the rest of us just talk about it. Recent news from the Middle East region has been troubling. I've already mentioned that the Iranian situation, I believe, continues to be a great concern to us given their enrichment of uranium and their -- their active space in missile development and testing program. There are varying estimates on when Iran will develop a nuclear weapon. I'm told, you know, by the Secretary of Defense that that's probably not anything to worry about. It could be one to three years at least.

I'm not sure that that's something that I would celebrate, that it's only two or three years away. But in any case I know that the secretary of State is focused on that as much as -- or secretary of Defense, forgive me -- is focused on that as much as he can be and I think all of us should be. Just yesterday there were news items describing what Syria -- that Syria provided scud missiles to Hezbollah. Now, these scud missiles would be able to range much if not all of Israel with better accuracy than the Katyusha rockets and the Qassam rockets that have been almost an ubiquitous part of Israel's life. Potential adversaries continue to develop and deploy larger numbers of increasingly advanced ballistic missiles, and they are also exercising concepts of operations involving larger raid sizes and multiple launch platforms.

And I guess my question to you, sir, is how is the Missile Defense Agency's Technology Development Program aligned to meet the ballistic missile threat five years from now or even 10 years from now given these concerns?

GEN. O'REILLY: Thank you, sir. First of all, we need to have a greater affectivity of each one of the missiles we launch so our investment program in advanced technologies is designed to use -- have better use of our sensors so we can track missiles early in their flight and pass that information to an interceptor and intercept missiles earlier. When we have large raids of missiles that, as you described, sir, the threat is growing.

I don't know of a technical reason why we won't be facing large raid sizes in the future, of increasingly longer-range threats.

We need to defeat those missiles early in flight, and key to that is having sensor systems and using all of our possible sensors, including unattended air vehicles, and from space have the ability to track and launch interceptors sooner. So we have a significant investment in that area.

Associated with that is a very rapid command and control system which could then pass that information so we could in fact have

intercepts earlier, as soon as immediately after a boost. So that's one investment area we're making, and we're working on that very quickly.

In 2012 we have several demonstrations of intercepting missiles early in flight from an Aegis ship by using one, unattended air vehicles, and a second test which we'll be tracking from space. So that capability will be available based on the success of the work we're doing right now and that test to prove we have that, so that by the middle of this decade we will have an ability to start destroying missiles early in flight.

I have asked for the Defense Science Board to do an independent assessment of what I just said and they have agreed to that, the secretary of Defense has agreed to that, and they'll be studying that this year for an independent report out in the late summer on in fact the capability and when we will have this early intercept capability as I just stated.

REP. FLAKE: Thank you, General, and thank you, Mr. Chairman.

REP. LANGEVIN: Mr. Heinrich is now recognized for five minutes.

REP. MARTIN HEINRICH (D-NM): Thank you, Chairman.

General O'Reilly, I wanted to ask you that if North Korea or Iran were to develop intercontinental-range ballistic missiles capable of delivering a nuclear weapon to our homeland more quickly than what we currently anticipate, what options does MDA have for responding to this kind of a threat?

GEN. O'REILLY: First of all, sir, today as we stated we have 30 in place, or will by the end of this year will have 30 in place GBI interceptors. In the case of North Korea, looking at the geometries of the tests we've already conducted, and the geometries of a launch coming out of North Korea and interceptors coming out of Alaska, we have demonstrated that capability to intercept. I believe the question, though, would be what we could do to enhance our ground-based mid-course defense system is again, structuring our sensor system and linking it together in a way that -- and we are doing this, and we proved it in our flight test in 2008 -- the ability to have very, very accurate sensor data that we could launch and improve the performance of each GBI that we launch so that we could do intercepts as far out and as early as possible, and if we miss then we would launch second interceptors. That in effect would give us greater capability with the 30 that we will have currently in place this year.

REP. HEINRICH: I'm going to shift gears real quick to the airborne laser test bed, and once again, congratulations for the very successful test that we saw recently, and certainly I'm looking forward to the result of some of the upcoming activities. Given what we've learned from the airborne laser program, I wanted to ask if you foresee any near or medium-term applications for directed energy weapons in the ballistic missile defense architecture.

GEN. O'REILLY: First of all, sir, I appreciate your recognition. I would like to recognize the work of the folks from industry and government. In this case for many years what they accomplished, there was a lot of experts that said couldn't be, and they had the persistence. I am very interested in maintaining that knowledge base and those experts that this country has that are unique to us so that we can in fact continue on directed energy research. I think that's extremely important.

For near-term applications, the concern as we have in missile defense is that we need to be with the current powers, we believe we need to be close enough in order to have an effective range that in fact puts us in a disadvantage with what we see as surface-to-air missiles. So therefore, we are actively involved in this next generation of lasers, and looking forward and funding work so that we can in fact significantly increase the power that that aircraft has in an actual smaller package.

REP. HEINRICH: Speaking of maintaining that knowledge, how many -- if you look at the administration's current budget, how many experiments would that fund over the course of the fiscal year?

GEN. O'REILLY: Well, sir, there is a study ongoing under OSD that is looking at all of our directed energy programs --

REP. HEINRICH: This is the one that will be due out in June?

GEN. O'REILLY: Yes, sir. And in that study it's a broad view of all of our work that's going on. And part of that is looking at the testing aspect, what needs to be tested. In the area of ABL I'd say first being propagation. Second would be lethality mechanisms, and third would be other ways to make it more difficult for us to use a laser to destroy a missile. In that regard, if we go down this path of testing that I expect, to answer your question, would be 10 tests over the next year with smaller sounding rockets, because we don't have to do the more expensive larger tests in order to gain valuable data into the areas that I just discussed.

REP. HEINRICH: And the current numbers would support 10 tests over the course of the next year?

GEN. O'REILLY: Against the type of target that I just talked about. Against the larger target sets, which we have been doing in the past and will do next month, no, it wouldn't.

REP. HEINRICH: Okay. I'll yield back the rest of my time, Mr. Chair.

REP. LANGEVIN: Thank the gentleman. Mr. Spratt is now recognized for five minutes.

(Pause.)

REP. JOHN SPRATT (D-SC): Shows you what I know about technology. As we scrape up scarce resources to apply them to the best

outcome, there are some systems we've supported for a long time in alliance with our allies -- the Arrow and the MEIADS. What can those systems do that we couldn't otherwise accomplish using the SM-3 or Aegis ashore, the THAAD, the PAC-3, the Patriot, our existing systems? Couldn't they perform the mission more or less as well as the two systems we're developing, the MEIADS system, and I know that MEIADS' mobility is an issue, but is it necessary to push forward with those systems at the cost of these other systems?

GEN. O'REILLY: Sir, the MEIADS system is a low-altitude interceptor and its purpose is to intercept Cruise missiles, air-breathers, unattended air vehicles, aircraft, and low altitude missile defenses, similar to what a Patriot would do. So that capability is what we call a lower-tier capability. I develop the upper tier, and what we have focused on for defense in Europe and the discussions we've had are upper tier systems that --

REP. SPRATT: The Patriot can't take on that mission then? Because of the altitude?

GEN. O'REILLY: It's a very similar mission to the MEIADS, sir. The THAAD program is much higher altitude of intercept, so MEIADS has -- in its objectives has much greater mobility than what a Patriot system would have, as you pointed out, sir. That's the most significant difference between the two.

And for the Arrow system, sir, it is a fixed system, but it actually intercepts higher than the altitude of a Patriot and literally intercepts up into outer space. So it operates in a different regime than what a Patriot system would be. And Arrow would have an opportunity for at least one intercept, maybe more, before Patriot would then engage it.

REP. SPRATT: So they're worth the buy.

GEN. O'REILLY: They both have attributes, sir. Whether or not they're worth the buy, I'm not in a position -- I don't manage either one of those programs.

REP. SPRATT: Yeah. One of the programs you do manage, I think, still is the SSTS, now to be called PSTS. Before that it was SBIRS low, SBIRS high. Number one, what does PSTS do that SSTS -- how do you distinguish those two programs? And number two, what do they add to the quality and capability of the missile defense that we have for national defense?

GEN. O'REILLY: Sir, the space tracking surveillance system, the STSS, which was an outcome of the old SBIRS low, we launched it this year -- or actually September of last year.

Both satellites are in orbit. They are the first satellites that have the ability to track a missile over it's entire flight. So they're doing groundbreaking work.

Actually, the PTSS is a smaller satellite. It has -- it's focused on certain parts of the Earth and it will stare at certain parts of the Earth at a much simpler system than what the STSS had, because we have found there are regions of the world where we're most worried about in missile defense.

And so one of the problems we have found in building satellites in the past is their complexity. So the PTSS system is actually significantly less complex than the STSS satellites we're flying today. We believe, again, it would be more affordable and it is more -- once you put a constellation up, you can quickly reconstitute it if you ever had a problem with a satellite on orbit. And it is an entire system. STSS is a satellite. The Precision Tracking Space System, PTSS, also incorporates the command and control system and the communications system all the way through a fire-control system such as Aegis or THAAD.

REP. SPRATT: Do you still propose to go forward with deployment of the SSTS?

GEN. O'REILLY: No, sir. The SSTS is a fantastic capability we have today that's providing us design information. But we believe the PTSS, which is a small satellite, can in fact perform the mission that we need in missile defense.

REP. SPRATT: Thank you very much.

REP. LANGEVIN: I thank the gentleman.

We're going to go for a brief second round of questions.

And if I could, General, let me ask you -- since the START treaty was just signed recently. Obviously, there's been a lot of talk about this and its effect on MDA's work.

Can you describe how implementing the treaty would affect MDA's testing?

GEN. O'REILLY: It will allow us to test -- let me start again, sir. In the Pacific, with the greatest concern we have for testing missile defense, is our hazard areas -- the debris that it causes -- and to conduct that safely. So we do a lot of testing in the Pacific. The issue we run into is where to launch the targets from.

In the previous treaty, we were restricted by launching targets from airborne targets, from aircraft or from waterborne targets. So under the new treaty, we do not have those restrictions. And that gives us much greater flexibility in conducting long-range testing in the Pacific.

In the past, we've tested 1,000 kilometers. Now we'll be testing 2,000, 3,000, 4,000-kilometer threats against our system. And the new START treaty allows that without any constraints.

REP. LANGEVIN: Very good. Thank you.

I'd like to turn, if I could, to the issue of radar.

MDA's been an excellent innovator at driving advanced technology -- especially in the sensor arena. And I have two issues of concern, however, related to MDAs radar technology plans -- maybe you can clarify for me.

The first issue was the AN-TPY-2 radars. These are radars are -- could play an important role with the president's phased adaptive approach plan for European missile defense and other regional defense plans for the Middle East and East Asia. They're also radar systems for THAAD by a control unit.

With such high demand for these radars, I'm concerned about potential production schedule shortfalls. How do -- how does your FY 2011 request address the growing need for AN-TPY-2 radars and does MDA have a plan for addressing any production shortfalls?

GEN. O'REILLY: Sir, the plan that we were on when we submitted the budget for the AN/TYP-2 would allow us to have two radars available in their forward-base mode and match the delivery schedule for our THAAD units.

So we will deliver one THAAD unit this year and be able to deliver a THAAD unit per year until we have five total THAAD units. So we had synchronized the delivery of our TYP -- and purchases of our AN/TPY-2S in order to achieve that. We have several radars that are in testing today that we are going to refurbish so that they, in fact, can be used for THAAD radars or forward-based radars. And we took that refurbishment into account.

We have found an opportunity we have right now, because we actually accomplished the testing sooner of the radars and they performed very well. So we are now putting them in refurbishment earlier so that in fact, we'll have an additional radar in the near term available that we hadn't planned on. But we were taking advantage, managing very carefully the success we've had with that radar.

REP. LANGEVIN: Thank you.

Secondly, I wanted to address the issue of investment in optical sensors versus radar sensors. I'm concerned about the lack of funding for next-generation advanced radar technology. And I know we spoke a little bit about this recently, but maybe you can clarify this.

I realize that MDA sensors (directorate ?) funds existing radar such as the previously discussed AN/TPY-2 radar, but there are also -- there are new radar technologies that could significantly increase radar coverage at the same cost as existing systems.

How will MDA continue to encourage development of these new radar technologies?

GEN. O'REILLY: Sir, in our innovative technology area we have invested about 110 million (dollars) a year in small business innovative research and university programs. There is a lot of work going on at that level in the area of substrates and electronics or radars.

We also have several other programs that are looking at advancing the use of the algorithms on the radar. So there's two areas of radar development. One is in the area of the software and the algorithms so we can improve the discrimination capability in particular. And then also in the areas of having a much more robust, more powerful radars in the size of a current radar.

In fact, we recently signed an agreement working with -- between our universities and in the Czech Republic on how to develop greater -- more efficient performing substrates for our radar technology. So we are very interested in continuing on radar development work, but at the same time, we are finding that there is significant contribution also in the infrared.

We need them both. And the reason is because if you're relying on one type of sensor, you're vulnerable for that sensor to be countered in some way. And the more sensors we have and the more different phenomenology we use, the much more difficult it is for an adversary, in order to interfere with our sensor system.

REP. LANGEVIN: Very good. Thank you, General.

The ranking member's now recognized.

REP. TURNER: Last year, when we received the Obama administration's first missile defense budget -- Defense budget, from which we could learn of its missile defense policies -- $1.2 billion was recommended cut in the budget, which this Congress implemented. One of the things that was done in that budget was to cut completion, construction of missile field number two in Alaska. Now, when that -- when our National Defense Authorization Act came forward, I authored an amendment, which I offered, that would have restored the funding for missile field two. Unfortunately, the -- we did not have the support of the Democrat members on the committee and the amendment did not pass. Not one member of the Democrat side voted for it.

Oddly, the administration then reversed its position -- after the NDAA and after Congress did not put the money back -- and decided to complete missile field two. So we're going to go ahead and spend the money that this committee voted not to spend in completing that.

However, we're also learning, though -- and again, I want to digress for just a moment -- that this is the missile field that Dr. Roberts indicates is our primary response for North Korea and Iran and will be continuing our primary response, I believe, until according to 2020 by the phased adaptive approach, because that's when the administration's announced phased adaptive approach plan in 2020 provides alternative or additional coverage to the United States -- for our mainland United States.

I'm concerned, though, of course, that what we learn is that missile field one is now considered to be decommissioned. And considering whether or not this Congress may also want to reconsider that and then wondering whether or not the administration might subsequently reverse its decision on that, it would probably be helpful for us to have information on it.

General O'Reilly, rather than decommissioning Missile Field One at Fort Greely, Alaska, what would it take to upgrade it, including necessary hardening and technology refresh to further leverage it as a hedge capacity, which would take us back to the original plan of 44 interceptors instead of the -- I believe we're going down to 30?

GEN. O'REILLY: Sir, first of all, again, through the assessments that were done through the Ballistic Missile Defense Review, that's when it was determined that in fact it would be beneficial to have a hedge. That was part of the results of the review. We did not have that at the time last year when we submitted the budget. Working closely with combatant commanders, the determination was for the foreseeable future we saw that 30 missiles would be sufficient. And that's why that decision was made. It was made in consultation with the combatant commanders.

However, as part of the result of the Ballistic Missile Defense Review, one of the tenets is that we must be flexible against future intelligence estimates, and because of that, the most straightforward way to gain that flexibility would to have the potential to reconstruct -- complete the construction of the missile field. And due to the number of GBIs that we had, in fact you would have a capability you could reconstitute for the next decade in that missile field.

You asked me about Missile Field Number One. The reason it was decommissioned was -- or it's planned to be decommissioned is that it was designed to be a test bed and it did not have the hardening, as you say, sir. But not only that, it has environmental issues and things that occur when you have a construction, an underground construction like we had in Missile Field One.

So we would need to remediate that. We'd need to actually remove almost all of the active components of that missile field and replace them with newer ones. The time frame with that would be on the order of two years. The costs that we have looked at in the past when we looked at different options would be on the order of -- and this has been done several years ago, sir, so the costs are somewhat approximate -- would be on the order of $200 million.

REP. TURNER: Thank you, General. Dr. Roberts, when you were doing your comparison of the GBI proposal for the two stage in Poland, the third-site, Poland and Czech Republic -- you're putting the radar in the Czech Republic, you indicated, 2011, we need to get everything done faster. One of the things that I understand about the previous proposal is that it would have provided -- and this was well-known figures that were established and discussed -- 75 percent coverage for

Europe and then also the coverage for mainland, the United States. Seventy-five was the number was discussed openly with even our European allies. So there were discussions about what are we going to do with the gap and the discussions with NATO-ization.

Do you have the figures for phase one of the phase adaptive approach of the percentage of Europe that will be covered? I assume if you don't have it for phase one, you don't have it for phase two, phase three or four either?

MR. ROBERTS: Phase four and three are 100 percent.

REP. TURNER: One hundred percent. And what time -- what is the year that you hit that?

MR. ROBERTS: Phase three is roughly 2015.

REP. TURNER: And phase three, you're projecting 100 percent.

MR. ROBERTS: I believe so.

REP. TURNER: And for the United States mainland.

MR. ROBERTS: With the position, with our current position. I mean, that's not changing material as a result of phases one, two or three in Europe.

REP. TURNER: Meaning that there isn't coverage.

MR. ROBERTS: That coverage arrives in 2020 with phase four, correct.

REP. TURNER: But phase one and phase two, you don't have the figures as to what the percentage of coverage for Europe, because obviously that's important for NATO-ization, that's important for us in evaluation. Could you provide those to us for another time?

MR. ROBERTS: I'm happy to do that. I'd like to address a concern of yours I think, and sparked by a comment from Mr. Larsen about phased adaptive being architecture. Phase adaptive is a policy. What we have been doing since the announcement of the policy is turning it into the elements of each of the four steps. We knew in the analytical work conducted in July and August that we were headed toward an adaptive capability that required two locations for shooters, interceptors in Southeastern Europe and somewhere in Northern Europe and to afford based radar capability.

We did not do detailed architectural work. We did not -- well, we did -- we looked in detail at alternative architectures with the support of the Missile Defense Agency, but we did not choose an architecture in September. We chose a policy approach that would be phased and adaptive involving improving technology a s we could acquire it, tested and proven, and into the -- into Europe as quickly a s possible.

We heard immediately from vulnerable allies in the 70 percent equation, 75 percent equation, those left out, that they were looking for protection early because they were the ones who were the most vulnerable early. We wanted to meet their demands for protection and scale the capability as the threat develops and as our capabilities improve.

So the architecture -- we did not have an architecture in September that we did not brief you on. We briefed you on the elements of the policy. We provided materials on notional coverage that would go with the different phases based on assumptions about where things might be deployed. And what we've been doing subsequently is working with our partners to determine both within the multilateral context, within NATO and separately to determine how to bring the pieces together. So we've been bringing forward the details as they have turned into details, but we have not -- we did not choose an architecture in September that we've been privately working on.

REP. TURNER: As you look at the phase adaptive approach and the different phases, are there Aegis and THAAD that are dedicated assets to EUCOM. As part of the -- and then the reason why I'm asking this question is because -- is part of the phase adaptive approach, is it that the assets are dedicated or do they flow in and out. What -- how is that -- how is that going to work with respect to Aegis and THAAD. Are they dedicated or do they at times leave and go do other tasks?

MR. ROBERTS: This is a question for the Joint Staff to determine through its global force management project. When there are too few assets available for the combatant commanders, the Joint Staff is responsible for having a plan for adjudicating competing demands.

REP. TURNER: So when we ask the questions about coverage, and I guess part of the information that we need in coverage is, depending upon what assets are there and depending upon what assets are not. Is that correct? Okay. Thank you, Mr. Chairman.

REP. LANGEVIN: I thank the ranking member.

With that, I just want to thank our panel for their outstanding testimony today and for being here. We're going to obviously continue vigorous oversight in this area obviously as we go forward with ballistic missile defense. It's going to be very important to the nation. And we look forward to being active partners with you in that effort. With that, some of the members may have additional questions that they'll submit for the record, and I would ask the panel to respond expeditiously in writing.

With that, this subcommittee is adjourned. (Sounds gavel.)
END.