HEARING TO RECEIVE TESTIMONY ON BALLISTIC MISSILE DEFENSE PROGRAMS IN REVIEW OF THE DEFENSE AUTHORIZATION REQUEST FOR FISCAL YEAR 2010 AND THE FUTURE YEARS DEFENSE PROGRAM

TUESDAY, JUNE 16, 2009

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The committee met, pursuant to notice, at 9:33 a.m. in room SD–106, Dirksen Senate Office Building, Senator Carl Levin (chairman) presiding.

Committee members present: Senators Levin, Lieberman, Reed, Bill Nelson, Bayh, Udall, Hagan, Begich, McCain, Sessions, Thune, Vitter, and Collins.

Committee staff members present: Richard D. DeBobes, staff director; and Leah C. Brewer, nominations and hearings clerk.

Majority staff members present: Richard W. Fieldhouse, professional staff member; Gerald J. Leeling, counsel; and Peter K. Levine, general counsel.

Minority staff members present: Joseph W. Bowab, Republican staff director; and Daniel A. Lerner, professional staff member.

Staff assistants present: Kevin A. Cronin, Mary C. Holloway, and Paul J. Hubbard.

Committee members' assistants present: Jay Maroney, assistant to Senator Kennedy; James Tuite, assistant to Senator Byrd; Christopher Griffin, assistant to Senator Lieberman; Carolyn A. Chuhta, assistant to Senator Reed; Patrick Hayes, assistant to Senator Bayh; Gordon I. Peterson, assistant to Senator Webb; Jennifer Barrett, assistant to Senator Udall; Roger Pena, assistant to Senator Hagan; Lindsay Young, assistant to Senator Begich; Rob Soofer, assistant to Senator Inhofe; Lenwood Landrum, assistant to Senator Sessions; Jason Van Beek, assistant to Senator Thune; and Chip Kenneth, assistant to Senator Collins.

OPENING STATEMENT OF SENATOR CARL LEVIN, CHAIRMAN

Chairman LEVIN. Good morning, everybody. The committee meets today to consider the ballistic missile defense programs and budget requests of the Department of Defense.

And we're pleased today to have a distinguished panel of witnesses: Bill Lynn, the Deputy Secretary of Defense, General James Cartwright, Vice Chairman of the Joint Chiefs of Staff, Lieutenant

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

We welcome you all. We thank you for your long service to this nation.

On April 6, Secretary of Defense Gates, along with General Cartwright, announced a number of his recommendations for the fiscal year 2010 defense budget. These recommendations included changes to missile defense programs, and all were included in the President's budget request that's now before the Congress. These changes included an increased focus on regional missile defense against existing short- and medium-range ballistic missiles that currently can reach our forward-based forces and allies.

Secretary Gates announced that the Department would add $700 million to field, quote, "more of our most capable theater missile defense systems, specifically the Terminal High-Altitude Area Defense (THAAD), and the Standard Missile-3 (SM–3) programs. Now, that's a welcome and important change of emphasis, and one that is consistent with the actions of this committee and Congress in years past, which have focused on missile defense against short- and medium-range missile threats. It also reflects the analysis of the joint staff that our regional combatant commanders need many more THAAD and SM–3 interceptors to meet our inventory requirements for their operational needs.

For instance, the report of this committee, last year accompanying the National Defense Authorization Act, made the point clearly, quote, "The committee notes that the joint capabilities mix (JCM) study conducted by the Joint Staff included that U.S. combatant commanders need about twice as many SM–3 and THAAD interceptors as currently planned, to meet just their minimum operational requirements for defending against the many hundreds of existing short- and medium-range ballistic missiles. The committee is deeply disappointed," we wrote, "that the Missile Defense Agency has not planned or budgeted to acquire more than a fraction of the SM–3 interceptors needed to meet the warfighters' minimum operational needs," close quote. And the report accompanying last year's National Defense Authorization Act Conference Report had a similar direction to the agency, quote, "We are deeply disappointed that the Department of Defense has not planned or budgeted for even this minimum requirement, and believe that achieving at least this minimum inventory should be the highest priority for the Missile Defense Agency. We expect the Department of Defense to budget accordingly, starting with the budget submission for fiscal year 2010."

While the Department has done exactly that in its budget request, it did what Congress legislated last year. The budget request before us would increase our missile defense capability significantly against the preponderance of the missile threats that we face today.

Secretary Gates has also announced several other changes to the missile defense program. These include a decision—excuse me. Let me repeat this.

Secretary Gates also announced several other changes to the missile defense program. These include a decision to cap the deployment of the Ground-based Midcourse Defense System, the

GMD, in Alaska and California at 30 interceptors and to focus on further development and robust testing to improve the capability of this system to defend against the limited missile threat to our country from nations such as North Korea.

Under the budget request, the Department would continue to buy all 44 interceptors, but with 14 of these planned for testing or for spares.

To illustrate the point about needing to improve GMD capability, the director of Operational Test and Evaluation reported, in December, 4 years after the system was initially deployed, that, quote, "GMD flight testing to date will not support with a high degree of confidence in its limited capabilities."

Secretary Gates's decision on the GMD program is of major significance and of great interest to Congress. I hope our witnesses will explain how the Department came to this decision and their view of how it meets our security needs. I also hope that they'll explain how the Department plans to improve the capability of the system, including through robust and operationally realistic testing, and how it plans to sustain the system throughout its operational life.

This is an important and a complex topic. I believe it would benefit our security if we could be unified on this issue, and I think such unity is possible, since I believe there is common ground on the need to have operationally effective and cost-effective missile defense systems.

I'll put the balance of my statement in the record and call upon Senator McCain.

STATEMENT OF SENATOR JOHN MCCAIN

Senator MCCAIN. Thank you, Mr. Chairman. I thank the witnesses for being here at this very important hearing.

When President Ronald Reagan first introduced his vision of missile defense in March 1983, he asked a fundamental question, which still resonates today. He said, "Isn't it worth every investment necessary to free the world from the threat of nuclear war?" And while he asked that question in quite different circumstances from those that face us now, today, just as then, it's our duty to assess what investments are necessary to ensure our security, and that of our allies.

The threat we face today is certainly different from the one we faced during the cold war. However, the need, today, for robust missile defense is as important to our security as it's ever been. That's why I have some concerns about the President's fiscal year 2010 budget now. For some time now, this committee has urged the Department to increase its focus to rogue-state in-theater threats, and I applaud the decision to increase funding for both THAAD and SM–3. However, I am concerned by the substantial reduction to our ground-based midcourse defense (GMD), the system primarily responsible for the protection of the United States against ballistic missiles from rogue nations and accidental launches.

I look forward to hearing from our witnesses how a more than 30-percent reduction, from 44 interceptors to 30, in ground-based interceptors will affect our ability to protect the United States from

emerging threats. North Korea and Iran are certainly not reducing funding to develop missiles capable of hitting the United States.

So, I look forward to hearing why the administration believes that we should, and what additional security risks to the homeland we may incur, and what has changed to warrant an almost $800-million reduction below what the last administration deemed necessary in fiscal year 2010 to protect the homeland.

GMD aside, I applaud the Missile Defense Agency's decision to explore a new early-intercept, assent-phased strategy. This proposed system steps outside of MDA's past practices of developing brand-new systems, and looks to utilize already proven assets, such as unmanned aerial vehicles, to enhance pre-existing capabilities.

Such an approach represents a fundamental shift for missile defense spending, and it is significant, as it could provide substantial capability at a cost more onerous on our adversaries than the American taxpayer.

We must move forward with a missile defense system that not only provides the necessary security of the United States and our allies, but does so in the more effective and efficient way possible. A system representative of today's threats should not only deter, but impose significant and growing costs on our adversaries.

Undoubtedly, the ultimate responsibility of our missile defenses must be the protection of the United States. As rogue nations, including North Korea and Iran, push the nuclear envelope and work tirelessly to develop delivery vehicles capable of reaching America, we must aggressively develop the systems necessary to counter such belligerent efforts.

I welcome the prospect that this budget represents a concerted effort towards reform. However, I hope that our witnesses will explain why they believe that this reform will not come at increased risk.

Given what former Secretary of State Henry Kissinger recently described as an apparent lack of action and, quote, "de facto acquiescence" towards the North Korean nuclear program, now is not the time to downplay the importance of missile defense as a deterrent, or scale back the planned missile defenses responsible for protecting the United States.

Again, I appreciate each of the witnesses being here today, and I thank each of you for your service.

Thank you, Mr. Chairman.

[The prepared statement of Senator McCain follows:]

[COMMITTEE INSERT]

Chairman LEVIN. Thank you, Senator McCain.

Let me now start by calling on Secretary Lynn.

Welcome.

STATEMENT OF HON. WILLIAM J. LYNN, DEPUTY SECRETARY OF DEFENSE, DEPARTMENT OF DEFENSE

Mr. LYNN. Thank you very much, Mr. Chairman, Senator McCain. I very much appreciate the opportunity to be back before the committee and discussing this important topic.

What I'd like to do is give a brief opening statement and put the full statement in the record.

What I want to discuss is what you've asked, the administration's missile defense policy, and do that in the context of the changing strategic environment in which we expect to field and utilize those defenses; also, talk about some of the programmatic choices and policy implications that they have.

The U.S. faces current and long-term security challenges that require a rebalancing of U.S. defense priorities and strategy. Specific security challenges the U.S. faces range from violent extremist movements to failed and failing states to the spread of weapons of mass destruction and their delivery systems, and ultimately to rising powers with sophisticated weapons.

In particular, as you've both noted, North Korea and Iran pose serious nuclear and missile proliferation concerns to the United States and other nations. In President Obama's April 5th speech in Prague, he reiterated the threat posed by North Korea's missile tests and emphasized the threat from Iranian ballistic missiles, stating, quote, "Iran's nuclear and ballistic missile activity poses a real threat, not just to the United States, but to Iran's neighbors and our allies." In short, the risks and dangers from missile proliferation are growing problems.

The Department recently initiated the ballistic missile defense review, which is closely linked to the Quadrennial Defense Review, as well as two other congressionally mandated reviews of U.S. nuclear posture and its space posture. The BMDR is reviewing all aspects of missile defense plans, programs, operations, and requirements, as well as management and oversight of missile defense in the Department. Several broad principles will guide our efforts. We will focus on defending the U.S. from rogue states and protecting U.S. forces; prepare—we will also prepare for emerging threats; we will ensure our missile defenses are effective; and we will utilize missile defense to pursue international cooperation.

U.S. missile defense plans will focus on defending the United States from rogue states and protecting our deployed forces from theater threats. That is our first priority.

We are committed to continuing effective defense of the U.S. against those rogue threats, including North Korea and, if it continues down its current path, Iran.

We also remain committed to more effective theater missile defenses that include continued and increased cooperation with our allies.

Short-, medium-, and intermediate-range missiles pose a real danger to our forces, as well as to the territory of, and populations of, our friends and allies. To better protect them, we will increase the capabilities available to the warfighter by fielding more of our more capable, shorter-range and mobile missile defense systems. For example, we added an additional $900 million to field more systems, such as THAAD, Aegis BMD ships, and SM–3 interceptors for defense of deployed forces for our friends and allies.

While we focus on the current missile ballistic—the ballistic missile threat, we must also prepare for the emerging ones. To that end, we will continue to invest in upgrades for our National missile defense systems. We will also continue to invest in research and development to pursue new and more effective technologies for theater missile threats.

One such technology, that Senator McCain mentioned we think holds promise as the threat develops, is Early Intercept. This program targets a missile before apogee in order to successfully destroy the missile and allow additional intercept opportunities. This may reduce the number of interceptors ultimately used in the overall defense.

The President has made clear that we will move forward with missile defenses that are affordable, proven, and responsive to the threat. This means a renewed emphasis on robust testing. It is imperative that we demonstrate the maturity, reliability, and effectiveness of our missile defense systems. We also need measures to ensure and demonstrate that missile defense testing is conducted under operationally realistic conditions.

On the international level, two items in particular are the subject of special attention, missile defense in Europe and missile defense cooperation with Russia. For European missile defense, we are in the process of thoroughly analyzing a number of options, including the current plan for placing GBIs in Poland and a radar in the Czech Republic. We are analyzing each alternative for the level of protection it affords both Europe and the United States, its responsiveness to the threat, and its projected cost. No final decisions have been made. We will be closely consulting with our allies as we progress with this analysis. We will also continue to explore cooperative opportunities with Russia for capabilities that could be additive to our missile defense efforts.

The United States is committed to working with Russia on a range of issues, including missile defense. Missile defense cooperation with Russia has been a consistent U.S. goal since the 1990s. Secretary Gates has said that he believes there is real potential for cooperation on missile defense and a genuine interest in it from Russia. The U.S. will work to identify new areas where our two countries could advance our missile defense cooperation. For example, there are Russian radars near Iran that would provide helpful early-warning detection in the case of an Iranian ballistic missile attack. Working with Russia in areas where we have common security concerns is in the interest of both nations.

In conclusion, ballistic missile defense is an important part of our current and future national defense strategy and must be fully integrated into the broader deterrence and alliance considerations that inform that strategy. Missile defenses play a key role in both responding to current threats and hedging against future contingencies. As we move forward with missile defense plans and programs, the Department of Defense will ensure they are affordable, effective, and responsive to the risks and threats that confront the United States, our friends, and our allies.

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Lynn follows:]

Chairman LEVIN. Thank you, Secretary Lynn.

General Cartwright?

STATEMENT OF GENERAL JAMES E. CARTWRIGHT, USMC, VICE CHAIRMAN, JOINT CHIEFS OF STAFF

General CARTWRIGHT. Thank you, Chairman Levin, Senator McCain. And thank you for the opportunity to appear here today.

For many years—actually, now over 15 years, for me—members of this committee have worked with us to keep our forces ahead of the Nation's threats. I thank you for that commitment.

I'd like to submit the balance of my statement for the record, and I stand ready for your questions.

[The prepared statement of General Cartwright follows:]

Chairman LEVIN. Thank you.

All the statements will be made part of the record.

General O'Reilly?

STATEMENT OF LIEUTENANT GENERAL PATRICK J. O'REILLY, USA, DIRECTOR, MISSILE DEFENSE AGENCY

General O'REILLY. Thank you, sir.

Good morning, Mr. Chairman, Senator McCain, and distinguished members of the committee. I appreciate the opportunity to testify on the Missile Defense Agency's, or MDA's, proposed fiscal year 2010 budget to improve the development and deployment of our Nation's missile defenses.

The proposed $7.8-billion fiscal year 2010 MDA budget is focused on three areas of improvement: our current protection against theater and rogue-nation threats, our hedge against future threats, and improving the acquisition of our missile defense capability.

First, we are leveraging our successes to date to address the current theater and emerging rogue-nation missile threat. Today, there are 5,900 ballistic missiles and hundreds of launchers in countries other than NATO, China, Russia, and the United States. Ninety-three percent of those missiles have ranges less than 1,000 kilometers, and 6 percent have ranges between 1,000 and 3,000 kilometers, and less than 1 percent have ranges over 3,000 kilometers.

During fiscal year 2008 and 2009 to date, we demonstrated capability against these threats by achieving four out of five missile intercepts using the Navy Standard Missile–3, or SM–3, the Army's Theater High-Altitude Defense—or THAAD—interceptors, and a ground-based interceptors, or GBI. We delivered 28 additional SM–3 interceptors, the first THAAD unit for testing, six THAAD interceptors, two GBIs, refurbished two other GBIs, and developed a forward- based X-band—and deployed a forward-based X-band radar to Israel. We also continued our significant enhancements to command-and-control communications and sensors to integrate our autonomous missile defenses into a unified Ballistic Missile Defense System that maximizes our combined capability.

In fiscal year 2010, we're proposing 665 million for THAAD research, development, test, and evaluation, and 420 million to procure 26 more THAAD interceptors, 169 million for 26 more SM–3s, and 60 million to begin installing missile defense capability on six more Aegis ships. Equally important, we are expanding our production capacity to procure much larger numbers of these interceptors in the near term. We are also proposing 1.3 billion for command-and-control and sensor development, and 1.4 billion for the rigorous testing of our current capability.

Second, to hedge against future missile-threat growth, we propose 368 million for research and development, and 2.3 billion for long-range missile defense. Iran and North Korea continue to de-

velop intercontinental ballistic missile technology, as evidenced by Iran's successful placement of a satellite on orbit on 2 February and the successful performance of North Korea's first and second stages on their—of their April 5 Taepodong II missile flight. We propose 982 million to continue GBI refurbishment, upgrades, training, models and simulations, fire-control upgrades, and operation of the ground-based midcourse defense system. We have limited the number of operational silos to 30, to more efficiently and effectively manage the long-term health of a fleet of GBIs with sufficient firepower to counter the emerging rogue-nation ICBM threats. We also propose an additional 1.3 billion in sensors, battle management, and testing that improves the performance and reliability of our long-range missile defense. Furthermore, we continue to pursue or propose missile defense of Europe to the maximum extent allowed by last year's appropriation and authorization acts.

Many of our research programs have also showed great promise during the past year as a hedge against future threat growth. Unmanned aerial vehicle operators have tracked missile intercepts, and the airborne laser has fired an atmospheric compensated beam 15 times in flight, including last Saturday's track of a boosting missile, as we prepare for our first shootdown of a missile later this year.

But, the greatest hedge against missile defense threats of all ranges is a persistent missile tracking capability from space. In fiscal year 2009, our near-field infrared experiment satellite collected extremely close data of a boosting missile, and we are preparing the space-tracking and surveillance system demonstration satellites for a launch later this year.

In fiscal year 2010, we are focusing our research on the most cost- and operationally-effective approach to destroying future ballistic missile threats in their early phases of flight. Due to this refocus, I propose terminating the midcourse phased multiple-kill vehicle research program. Additionally, I proposed terminating the kinetic interceptor, or KEI, program, which was focused on countering a highly advanced ICBM threat. Emerging medium- and intermediate-range threats can be more operationally effectively countered early in their flights by utilizing near-term interceptors and leveraging sensors and command- and-control networks. Thus, we propose 368 million in fiscal year 2010 for the development of an early intercept capability that will be available years sooner than KEI and avoids KEI's significant cost, operational, and platform integration issues. We will apply knowledge gained from KEI to our research.

Third, we are committed to improve the acquisition of missile defense to overcome significant flight test delays, target and interceptor failures, cost growth, quality control, and program delays we have encountered in the past.

The Department established the missile defense executive board, chaired by the Under Secretary of Defense of Acquisition, Technology, and Logistics, with the participation of the Joint Chiefs, COCOM commanders, services, director of operational test and evaluation, and other senior OSD and Department of State leadership. The MDEB provides guidance and oversight over resource capability development, prioritization, and acquisition processes. The

fiscal year 2010 missile defense budget reflects the results of the MDEB process. In MDA, we are also instituting milestone reviews to provide clear transparency that we are complying with the Weapon Systems Acquisition Reform Act of 2009.

Finally, with the service operational test agencies and the director of operational test and evaluation, we will soon propose a rigorous and comprehensive test program to enhance the confidence of the United States and allied stakeholders and to deter potential adversaries from acquiring ballistic missiles.

I submit the remainder of my written statement for the record, and I look forward to answering your questions.

Thank you.

[The prepared statement of General O'Reilly follows:]

Chairman LEVIN. Thank you very much, General O'Reilly.

Thank you all. Let's have an 8-minute first round.

The administration's budget request continues the production of the 14 remaining groundbased interceptors that are now on contract for use as testing and spare interceptors. The budget request has $180 million for year- 4 production of those groundbased interceptors. It is part of a 5-year contract. Now, what the budget request also does is cap the deployment of ground-based interceptors, at this time, at 30.

First, let me ask you, General Cartwright, do you support that approach?

General CARTWRIGHT. I do, Mr. Chairman. And the key reason is, when we have worked through the process that General O'Reilly just described, with the combatant commanders, their number-one request is the reliability of these missiles and the assured use of these missiles. In the early missiles that we put in the fields, we have learned much in the testing since putting those missiles into the fields. So, these 14 missiles will go in and replace the earliest missiles. That will give us the highest confidence that what we have in the silos is the best that we can have. It also gives us additional test information. That test information, to date, has given us knowledge that has changed the configuration since we put those initial missiles into the silos.

And so, this allows us to refurbish and bring to the combatant commanders the best missiles that we can bring. In addition, it gives us test assets.

Chairman LEVIN. Okay, thank you.

Now, General O'Reilly, I believe that in your testimony you indicated that that was the proposal of the administration. Do you support that proposal?

General O'REILLY. Yes, sir, I do.

Chairman LEVIN. Now, if Congress mandated the deployment of all 44 ground-based interceptors, what would the cost be?

General O'REILLY. Sir, the cost for the interceptor—

Chairman LEVIN. For those additional 14 interceptors in the ground, what would that cost us to do that?

General O'REILLY. Sir, we have 14 on contract, but we would not have in place, then, a test program and a stockpile reliability program for the next several decades, which we have taken into account when we proposed the 30.

Chairman LEVIN. And would there also be an additional cost to actually deploy those 14 interceptors? A dollar cost? In addition to losing the 14 interceptors for test purposes, but would there also be a actual cost to deploy them, financially?

General O'REILLY. Yes, sir. To procure each one of those additional 14—or, the additional interceptors, is 70 million apiece.

Chairman LEVIN. But, in terms of deploying them, putting them in the ground, is there a cost to that?

General O'REILLY. About 3 million for each installation.

Chairman LEVIN. All right.

Now, the—does the budget request foreclose the option to buy more ground-based interceptors if they are deemed necessary in the future?

General O'REILLY. No, sir.

General CARTWRIGHT. Mr. Chairman?

Chairman LEVIN. Yes?

General CARTWRIGHT. Not only does it not foreclose it, but one of the directions in the ballistic missile review is to understand, one, how many test vehicles we're going to need for the aging process. So, over the life of the missiles, we have not yet bought the interceptors necessary to test the life expectancy, and that's part of deliverable out of this ballistic missile review.

Chairman LEVIN. And, General, let me go back to one of the issues which has been raised, which is the director of operational test and evaluation's assessment that the flight testing of the deployed GMD system and its GBIs, quote, "will not support a high degree of confidence in its limited capabilities." Do you agree with that?

General CARTWRIGHT. I agree with that, and that's part of what we want to understand in the review, is what additional testing is necessary, and then what additional assets are necessary for aging.

Chairman LEVIN. General Cartwright, Admiral Mullen, the Chairman of the Joint Chiefs, has stated that he supports the missile defense program and the 2010 budget request before Congress. Do—and you've reflected your own personal support—do the Joint Chiefs support this request?

General CARTWRIGHT. They do.

Chairman LEVIN. And do the combatant commanders with missile defense responsibility support the missile defense program, as requested by the administration?

General CARTWRIGHT. They do. And they reaffirmed that in the MDEB process.

Chairman LEVIN. And so, they had a role in considering the missile defense program, which was proposed in the budget request?

General CARTWRIGHT. They did, sir, and senior leader decision forums that were convened twice before we made that decision, after the MDEB.

Chairman LEVIN. All right.

General O'Reilly, there's been some concern that the Missile Defense Agency does not have a plan to adequately test and sustain the ground-based midcourse defense system, the GMD system. Can you give us a little more detail on your plan for sustaining the ground-based midcourse system?

And do you believe it's adequate?

General O'REILLY. Sir, we have just completed 6 months' worth of work, as I stated, with the operational test agencies and the director of test and evaluation. We have looked at what is required in order to validate our models and simulations for GMD and our other missile defense systems.

Out of that, we identified 144 tests, 56 flight tests, 35 intercept tests— seven of them are salvo tests—which involve THAAD, Aegis, and GMD. There are 15 GMD tests in that proposal. But, again, sir, the proposal hasn't gone to the MDEB process yet. But, our review indicates that that would be a thorough and comprehensive assessment and validation of our models of the GMD program.

Chairman LEVIN. Thank you.

General O'Reilly, Secretary Lynn made reference to the possibility of cooperation with Russia on missile defense. You've recently been to Azerbaijan. You've turned the—you've toured the Gabala radar, you've been involved in discussions with Russian officials about possibly cooperating on missile defense, including the possibility of Russia sharing early-warning data from the Gabala radar, or—I might say "and/or"—from the new radar at Armavir, in southern Russia. From a technical standpoint, do you believe that such radar data would be useful to have as part of a cooperative effort with Russia? In other words, would that radar data, if it could be incorporated in a overall system, be beneficial to missile defense capability with respect to Iran?

General O'REILLY. Sir, it would be beneficial in regard to collecting data. The location of those radars, in order to observe testing in that region of the world, they're in an excellent position to do that. And the data we would gain from that would significantly help our development of our missile defenses.

There are other options to integrate, but those—those radars into a missile defense system, but those have only been discussed as ideas, and there's—much further discussion remains.

Chairman LEVIN. And, General Cartwright, from your perspective, does it make sense to pursue that possibility of cooperation with Russia on missile defense?

General CARTWRIGHT. It does, from a technical intelligence or the understanding of the test program, it does from an operational perspective, and it does, also, from a diplomatic perspective.

Chairman LEVIN. And is one of the reasons, here, that it is generally advantageous to have a radar closer to a potential launch area so you can get an earlier track on a missile and can try for an earlier intercept? General O'Reilly, why don't you start with that one.

General O'REILLY. Sir, the frequencies of those two radars you referred to are different, but, for the Gabala radar, it would give us an excellent opportunity for surveillance, and that was the reason it was built. And for the Armavir radar, we would have even greater capability for early tracking.

Chairman LEVIN. Secretary Lynn, I'll close just by saying that—how much I appreciate your testimony and the administration's efforts in this regard. The Russian response last week was not closing the door, in my perspective, to this possibility, but from our conversations, a number of us who went there, including Senator Nelson and Senator Collins, who talked to the Russians, the

Czechs, and the Poles, we see this as parallel discussions taking place. Obviously, the Russians have some concerns about our proceeding with a third site in Europe, but they can, it seems to me, very usefully—we can usefully continue discussions with the Russians, with the Czechs, with the Poles, with no preconditions, but just in the hope that someday there might be a possibility of using the information from those two radars, which are in Azerbaijan and Russia, to help a missile defense against Iran, to make a very strong statement to Iran about the willingness of the world to cooperate against their threat, particularly if Russia, the U.S., and NATO are able to work together. The position of the administration on this is, it seems to me, a very positive and important initiative. I hope you continue that initiative. The President, and Secretary of Defense, Secretary of State have all spoken favorably, as have each of you gentlemen again this morning. So, hopefully that will continue apace. And we welcome your testimony in that regard.

Senator McCain?

Senator MCCAIN. Thank you, Mr. Chairman.

Secretary Lynn, one of the focus of a lot of attention is the budget proposal to reduce the—decrease the number of ground-based interceptors from 44 to 30. What analysis was done to arrive at that decision? And maybe you could provide something for the record, if necessary—if you feel necessary.

Mr. LYNN. Well, we'll certainly check and see if there's something we want to provide for the record.

[The information referred to follows:]

[COMMITTEE INSERT]

Mr. LYNN. But, in summary, Senator McCain, the threat we face from Iran and North Korea, at this point, is in the range of a handful of missiles. Thirty interceptors and silos would address that threat; indeed, would more than address that threat. And so, the decision was made that we would be—as both General Cartwright and General O'Reilly explained, we would be better off making—ensuring those 30 silos had operationally-ready missiles rather than expanding the number of silos. So, we've continued—we're buying 44 missiles. We're just planning to put them in 30 silos in order to keep them operationally ready to upgrade the older ones, as General Cartwright indicated, and in order to have test assets to make sure that we understand fully the capability and that we can address any issues that came out of the earlier testing.

Senator MCCAIN. And you and the Secretary have stated a willingness to revisit that decision, depending on Iranian and North Korean behavior?

Mr. LYNN. Oh, absolutely. This is an expandable system. Should that threat expand, we would certainly want to consider expanding it. And, indeed, the ballistic missile defense review will be looking further at this as we look forward into the future. But, at the current time and into the immediate future, we think 30 silos and 44 missiles addresses the threat we face.

Senator MCCAIN. General O'Reilly, on June 11th there was a Reuter's story that said—that quoted you stating that Iran and North Korea are working together to develop ballistic missiles, and have made significant progress, quote, "It really is an international effort going on out there to develop ballistic missile capability be-

tween these countries." That's a pretty alarming statement, or concerning statement, to say the least. What other countries are the North Koreans working with? I think we know they were working with Syria on a facility that the Israelis bombed. Do you know of other countries that they're working with?

General O'REILLY. Sir, I would defer that to a closed session. But, yes, sir, there is an extensive effort going on to sell North Korean products. We also look at each of these countries, sir, and how much are they developing indigenously and how much are they relying on other countries' components for these missiles.

Senator MCCAIN. And they are providing technical expertise, as well as actual hardware.

General O'REILLY. Yes, sir.

Senator MCCAIN. On this issue of the joint missile system in Europe, there is some interpretation of the Russian position. There's also other interpretation, where the foreign ministry and, indeed, the president of Russia have made—and prime minister—have made very strong remarks. On June 12th, the foreign ministry spokesman said, quote, "We cannot partner in the creation of objects whose goal is to oppose the strategic deterrent forces of the Russian Federation. Only the United States rejection of plans to base in Europe, the so-called 'third position of a missile defense shield,' could mark the beginning of a full- fledged dialogue." In other words, the Russians are continuously stating that we have to negate the agreement between Poland and Czechoslovakia—excuse me, the Czech Republic—before there is further negotiations, as far as the Russian siting—radar siting is concerned. Is that your interpretation, Secretary Lynn?

Mr. LYNN. Well, we—I've certainly read the comments that they made. They have been pushing us, on the site in Europe. Our approach has been that the site in Europe—that our focus is on the Iranian threat. We think there are a number of ways to address that threat. One of the options is to deploy the missiles in Poland and the radar in the Czech Republic, and we're certainly evaluating that option, as well as other possible——

Senator MCCAIN. Could I——

Mr. LYNN. —options. And——

Senator MCCAIN. Could I interrupt——

Mr. LYNN. Yes.

Senator MCCAIN. —for a second? I thought it was—certainly the Poles and the Czechs believe that it was a commitment we made. Do you interpret it that way?

Mr. LYNN. We——

Senator MCCAIN. To an agreement to—and places those defenses in both the Czech Republic and Poland.

Mr. LYNN. We are not, at this point—we have not made a decision to go forward with that, at this point. It had certainly been discussed with them, and the President has said that the—he said, I think, in Prague, that we are committed to defending against the Iranian threat, and one of the alternatives is that Polish-Czech option.

Senator MCCAIN. Well, from my discussions with Polish foreign minister and others, their interpretation was a lot—our commitment was a lot stronger than that. But, maybe it requires some

more discussion with both those countries. But, I can certainly understand why they would not want to move forward and get the ratification of their government if we have not made the decision ourselves. This kind of a—like the Russian commitment, it's kind of a chicken-or-egg situation.

General O'Reilly, the budget introduces a new intercept concept during the assent phase of a ballistic missile trajectory. How is it—how is that different from other boost and midcourse intercepts?

General O'REILLY. Sir, the idea is not new; it's been around for about 20 years, sir, and it was endorsed in the 2002 Defense Science Board study that also endorsed putting out—or, deploying an early capability, which we did in Alaska. The next part of the study was—they also recommended—we took a hard look at developing an architecture which has sensors that track missiles early after launch and very quick fire-control-solution architectures so that we can launch the missiles we have today earlier and achieve intercept capabilities earlier in their flight. That part of our architecture has not been invested in, previously, to the extent which we are in this budget.

Senator MCCAIN. Secretary Lynn, just return to North Korea for a second. Do you think the threat of North Korean continued development, weapons and missile technology, has been accelerating and poses, in a relatively short period of time, a threat to the homeland of the United States?

Mr. LYNN. Certainly, their testing program has accelerated with the Taepodong II launches and the nuclear weapons—their nuclear device test. It—we think it ultimately could, if it—taken to its conclusion, it could present a threat to the U.S. homeland, and we think that's a strong reason to maintain the ground-based interceptor system and to upgrade it in the ways that we discussed earlier.

Senator MCCAIN. And obviously it's very difficult to predict North Korean future behavior.

Mr. LYNN. It is entirely difficult to predict North Korean future behavior.

Senator MCCAIN. But, to be on the safe side, we would—we should prepare—we should be prepared to counter at least bad, if not worst-case, scenarios, as far as North Korea is concerned. You would agree?

Mr. LYNN. Yes, I would.

Senator MCCAIN. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator McCain.

Senator Lieberman?

Senator LIEBERMAN. Thanks, Mr. Chairman. Thanks, to all of you for being here, and, really, congratulations to the Missile Defense Agency for the extraordinary progress you've made in giving us the capability to protect our homeland and our allies from ballistic missile attack, which, not so long ago, a lot of people thought was—would be technologically impossible to do. So, let's start with that.

Secretary Lynn, I want to say that I was troubled by your answer to Senator McCain on the question of the European-based ground-based midcourse defense in Poland and the Czech Republic. It sounded much more tentative than I thought our policy was. In

other words, my understanding is that we're going ahead—our plans are, now, to go ahead with the placement of these systems in Poland and the Czech Republic, unless the host countries reject those or we develop an alternative—for instance, with Russia. But, you made it sound like it's just one of a number of alternatives that we're considering, and I was surprised at that. I think it'll actually rattle our allies—and Poland, particularly—and in other places in Eastern Europe, like Ukraine, where they're concerned about Russian muscling into their areas.

Mr. LYNN. Well, Senator, what—we are looking at the alternatives in Europe, including the Polish-Czech option to defend against an Iranian missile threat. We are exploring the cooperation with the Russians in the ways that General O'Reilly detailed is a potential additive to that kind of architecture. And what I was saying is that we haven't made a final decision on how to proceed, there.

Senator LIEBERMAN. Okay. Well, I was surprised at that, because I thought we had made a final decision, unless the decision was changed. That's a—it's a—I know we're—we're beginning to talk to the Russians. I can certainly see the advantages of a partnership on missile defense with the Russians, if they don't ask too much of a price, in terms of our commitment to our allies in Central and Eastern Europe who used to be part of the Soviet Union, and if we can partner with the Russians in a way that does not compromise the capacity of that—those systems to protect both Europe and the United States from a missile fired, particularly from Iran.

Let me ask—follow a line of questions, here, that relate to this.

In February of this year, the Congressional Budget Office released a study called "Options for Deploying Missile Defenses in Europe." This was requested by our Congresswoman Tauscher, in her then-capacity as chair of the House Armed Services Strategic Forces Subcommittee, and it examined the cost and potential defensive capability of the European ground-based midcourse defense system. It also considered alternatives, including—to that—to the Polish-Czech system—including deploying sea-based interceptors around Europe or mobile land-based interceptors in Europe. Consistent with CBO's tradition, the report makes no recommendations, but, as I read it, its findings demonstrate that the GMD deployment in Poland and the Czech Republic promises to be the most effective and affordable option.

And I will say that I was particularly struck that—by the conclusion in the report that going from the proposal, to locate in Poland and the Czech Republic, to the other alternatives they considered—CBO considered—significantly reduces the capacity of that missile defense system to protect from a missile attack from Iran against the United States. Now, I understand they don't have the capacity to do that now, but they're certainly working on it. It also, according to CBO, slightly reduces—less—the capacity of the system to protect Europe from an Iranian attack. But, the—I—you've probably seen it, they've got charts in it, including charts that depict how much the various systems will protect the continental United States. And one of the charts show—well, they—the narrative is, "MDA's proposed system"—that is, the current one, the Polish-Czech system—"would provide redundant defense from a third in-

terceptor site for all of the continental United States. None of the alternatives considered by CBO provide as much additional defense of the United States," end quote.

And then, I can see, from the map, that only one-half or less of the U.S. population will be protected by one of the alternatives CBO considered, which is the proposed SM–3 Block 2A deployment.

So, here's my concern as we go forward to talk about this with the Russians, that one factor we have to figure, at least according to this report, is that if we—that the ground-based interceptor system in Poland, together with radar, Czech Republic, really provides us—not just our European allies, but us—with the best defense against a long-range Iranian ballistic missile attack on our homeland. Do you have a response to that CBO report?

Mr. LYNN. I've actually not seen the CBO report. I'd be happy to get something to you for the record.

[The information referred to follows:]

[COMMITTEE INSERT]

Mr. LYNN. But——

Senator LIEBERMAN. Okay.

Mr. LYNN. —we're in that same process now. We're evaluating the current plan, which you described—deploying in Poland, missiles, and a radar in Czech Republic—against potential other alternatives. And that's part of the ballistic missile defense review. So, we expect to have conclusions out of that.

I don't know whether General O'Reilly has seen the report. I——

General O'REILLY. Yes, sir, I have. The report was correct that, for redundant coverage of the United States, the GBIs provide the greatest redundant coverage of the United States. For coverage of the United States, what we have at Vandenberg and Fort Greely, is best benefited from the—actually, the sensor networks that—all the options we are looking at, and that report looked at. What we need most is early tracking and early——

Senator LIEBERMAN. Right.

General O'REILLY. —sensor data coming out of Iran. That's the biggest——

Senator LIEBERMAN. Right.

General O'REILLY. —assistance to the United States.

Senator LIEBERMAN. I agree with that. Am I right—you tell me—do the ground-based interceptors in Alaska and California protect all of the continental United States?

General O'REILLY. Yes, sir.

Senator LIEBERMAN. So that what we would achieve with the GBI system in Poland and the Czech Republic would be a redundancy of protection.

General O'REILLY. Yes, sir.

Senator LIEBERMAN. But, the alternatives really don't give us the same protection—redundant protection for the U.S.

General O'REILLY. They don't give us the same redundant protection, sir.

Senator LIEBERMAN. Does—do the systems in Alaska and California give us the same—I know they protect us from North Korean attack—do they give us the same coverage for the entire United States for a missile attack from Iran?

General O'REILLY. Yes, sir, they do. There is additional contribution, as I said, from having sensors——

Senator LIEBERMAN. Right.

General O'REILLY. —in Europe, early. But, for the kinematic capability, the actual ability of the interceptors, the ones in Fort Greely, Alaska, do protect all of the United States, sir, against launches, all the launch points out of Iran.

Senator LIEBERMAN. Okay, so, Secretary Lynn, just to close it up, because—I appreciate that you're—my time's up—that you're asking the same questions that the CBO did. I presume that one of the factors that will be considered as we decide whether to go forward with the proposed Polish-Czech site system or do something with the Russians, or some alternative, as we've talked about sea-based or land-based, will be not only how well it protects Europe, but how well it protects the continental United States from a long-range missile attack from a country like Iran.

Mr. LYNN. Senator, we certainly want to evaluate any architecture against the threat, both to Europe and any potential threat we might see to the continental United States.

Senator LIEBERMAN. Thank you.

Thank you all.

Chairman LEVIN. Thank you very much, Senator Lieberman.

Senator Thune?

Senator THUNE. Thank you, Mr. Chairman.

Gentlemen, thank you very much for your great service to our country.

General Cartwright, I want to explore a question or two with you. A few weeks ago, in a speech at the Center for Strategic and International Studies, you stated that, "Missile defense, for me, is part of global strike, meaning that an offensive global strike capability goes hand in hand with fielding credible ballistic missile defenses." I'd particularly like to focus on your comments, in that same speech, concerning conventional bombers in the global strike mission. You're quoted as saying, and I quote, "The reality of the day is, conventional bombers for global strike are probably not creditable. They're too slow, they're too intrusive, they require too many Mother-may-I's to get from point A to point B," end quote. You further state, again, and I quote, "The low end of global strike is probably anyplace on the face of the Earth in an hour," end quote.

Over the past several months, we've had a number of leaders from the Defense Department testify that the proliferation of ballistic missile technology, not only requires improved ballistic missile defense capabilities, but also requires a shift from short-range systems to long- range systems, such as the next-generation bomber. In fact, Secretary Gates himself has made this claim several times in publications, such as the Foreign Affairs Journal.

In light of your statements on conventional bombers, I'd like to get a little bit more deeply into your views on the subject. Do you believe that a new bomber should be developed?

General CARTWRIGHT. We—the Nation needs a new bomber; a "next-generation bomber" is kind of the way we have titled it. My comments are more associated with the speed at which a salvo of shorter intermediate-range ballistic missiles can be salvoed, and

then, for a bomber today, at the speeds, even if we talk about the B–1, which is the fastest of our bombers, it's still 19 to 20 hours to close on the other side of the globe. And so, that's the challenge, is how quickly these assets, the short- and medium-range missiles, can be launched in salvo.

So, missile defense gives you a credible alternative to changing the calculus of the adversary as to whether they're going to do that in a surprise, number one; and number two, gives you, then, the time to close our conventional forces in a way that's appropriate. But, if you have just the conventional offensive capability, without something to change the calculus, much of the conflict is over before the bomber, in this case, as we're discussing, can close. The same with other general-purpose forces; they either are in the right place at the right time or it's difficult to close in the timelines of a short- or an intermediate-range ballistic missile.

Senator THUNE. And I know a lot of the decisions that are being made now, I think probably, regrettably, are being driven by budgetary considerations, but do you believe that prompt global strike capability that you advocate should come at the expense of developing the new bomber?

General CARTWRIGHT. No, they have to be—there has to be a synergy there. We have to understand—the bomber, in comparison to the prompt global strike, is going to bring scale and persistence. The prompt global strike that we are looking at and have explored is for those niche targets. So, it may be a good response in deterrence in—we're talking in the conventional sense right now—to a short- or an intermediate-range ballistic missile attack, to hold it at risk. But, it's going to be those platforms in the general-purpose force that are going to actually have the credible counterstrike.

Senator THUNE. Okay. And I want to come back, because you—in light of your view that the low end of global strike is probably anyplace on the face of the Earth in an hour, I wanted to get your opinion on—there was a Defense Science Board report, published in March of this year, entitled "Time Critical Conventional Strike From Strategic Standoff," which concluded that, "On close examination, there appears to be nothing unique or compelling about 1 hour," end quote. And one of the Board's most significant findings is that the solution for time-critical strike is not necessarily weapon speed; in fact, of the five different scenarios evaluated, none of the scenarios exposed a need for 1-hour global-range delivery.

The Board goes on to say that a "transition to covert loitering strike systems enabled by robust target ISR, ID and tracking, C3, and fire-control capabilities would revolutionize global strike for both the long war and for deterrence of rogue and near-peer nations.

Now, I'm interested in your, sort of, opinion of the Defense Science Board's findings with respect to time- critical conventional strike from a strategic standoff, particular regarding its conclusion that there appears to be nothing unique or unusual about 1 hour. Is that something that—is that a finding that you would agree with?

General CARTWRIGHT. Two qualifiers that I would put on the Defense Science Board. One is the ability to loiter everyplace on the face of the Earth for extended periods of time, has a certainly re-

ality and affordability aspect that we have not been able to crack right now. And so, in lieu of that, we use our long-range prompt-strike capabilities rather than being everyplace. We also have challenges with basing, and we cannot base everyplace on the face of the Earth.

And so, those places with great strategic depth, where we are challenged by the infrastructure to be there, demand systems that can close. The 1 hour has always been an objective. It is essentially the idea that we don't know where the strike is going to occur, so there needs to be a certain amount of that hour that's associated with the ISR to find out where the threat is and to credibly target it. And then, the next part of that hour has got to be something associated with the time-of-flight to close a weapon system on it. If it is important enough to do that from long standoff ranges, then the hour gives you a sense of, okay, I can, one, do the ISR to find and fix the target, and, two, do the launch in the flight to get to it. If you have more time, then there are better systems out there, and more affordable systems, to close.

But, we do have challenges, around the globe, with strategic depth and with the ability to close with a lack of infrastructure and basing, and we've got to have a way to address those credibly for our deterrent postures.

Senator THUNE. The—and do you agree with some of the people, a lot of the leaders, like Secretary Gates, who do recognize the need to transition from short-range to long-range systems?

General CARTWRIGHT. I do. I always agree with my boss.

[Laughter.]

Senator THUNE. Good policy.

General O'Reilly and General Cartwright, Secretary Gates recommends transitioning from the airborne laser program to a research-and-development program and terminating the purchase of a second prototype. I'd like to get your feeling on that, how that change would affect current development plans and testing.

And, General O'Reilly, I'd—I guess I would direct this question to you, but, Is the ABL program still on track for a full-scale test in the next few months?

General O'REILLY. Sir, the ABL program is on track for a test—full-scale test. Again, as I was referring to before, we've just had some first-time engagements of the aircraft's tracking and beam compensation laser, which are critical of a boosting missile. We did it Saturday and we did it on the previous Saturday. That's the first time that's ever been achieved by a laser in flight.

We are completing some optics work and will be using the high-powered laser. The first lasing from it will occur—today, the schedule is early September, with shootdowns later on in the month of September.

Senator THUNE. Secretary Lynn and General Cartwright, if a successful full-scale test is achieved, does that affect the Department's level of support for the program?

General CARTWRIGHT. My sense right now is, one, we need to keep this work going on directed energy. Two, I think that General O'Reilly would tell you that, if he were given the money to build a second ABL, it would look like the current ABL, that we're going to—that we've learned enough, in this first bird, that the design

work needs to be restarted to figure out what an appropriate directed-energy platform, airborne, looks like.

And so, in lieu of that, building the second one, which is designed now to be a clone of the first one, doesn't make a lot of sense to us. We have to keep this work going on directed energy, though. It offers substantial capacity and capability to the Nation that we don't, today, have.

Senator THUNE. Secretary Lynn—and I—and a—follow on to that, but do you—what's your view, in terms of the plan to transition ABL to an R&D program? I mean——

Mr. LYNN. We do want to continue the R&D, but, for the reasons General Cartwright just gave, we wouldn't commit to building a second aircraft at this time. We think it would look very different. We think a lot more work needs to be done, including the tests that you referred to, but there are some tests after that, as well. And we think we also need to do some work—the operational concept that we have right now isn't really workable. It would involve having large, vulnerable aircraft—in the Iranian case, probably over Iranian territory; in the North Korean case, very close. That's—we don't think that's a workable concept.

The power that we need for this aircraft is probably 10 to 30 times what we've demonstrated so far, and the kinds of—going back to the operational concept, the number of aircraft, given three orbits, would probably be close—you'd need a fleet of 20, 25 aircraft, at a billion, billion and a half an aircraft. It's a very expensive capability, under the current construct. So, we think we need to both continue the technology to develop that further and to work on what would come out to be a much more employable operational concept. So, we plan to continue with the program, but not, at this point, with the second aircraft.

Senator THUNE. Okay. Well, it seems like—I hope you will, because there are a couple of attributes about it—boost phase, independent queuing if somebody were to take out some of our satellite capabilities, that it's a—it's a very important, I think, platform, and could be a very useful asset in our missile defense capability. So, I hope that you will continue to pursue it.

Thank you.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Thune.

Senator Bill Nelson?

Senator BILL NELSON. Gentlemen, I've been listening to this testimony about GBI for 9 years, and I want to compliment you. This is the clearest and the most realistically optimistic testimony—and I underscore the word "realistic"—that I've heard. I realize that we've come a long way in our testing, we have a long way to go, but you all have presented it more clearly and concisely, and my compliments to you.

With regard to Senator Lieberman's excellent questions about Eastern Europe, I just want to inject one thing that was omitted in the conversation, which is that the Czechs may well reject having the facilities in their territory. As you know, the government has changed, and, although they've got an election coming up, we fully—the expectations are that the party that will be in power will not approve of the facilities located there. And this was clearly the

message that Senator Collins and Senator—our chairman and I learned while we were there.

The other thing that I would like to underscore about Eastern Europe is that, as the two generals have testified, if we are able to hook in with the Russian radar in Azerbaijan and southern Russia, it gives us all the more early warning for the protection of Europe, as well as early warning on any threat coming out of Iran for the United States. So, I would underscore those points.

General Cartwright, you chair the Joint Requirements Oversight Council. Is there a validated military requirement for deploying 44 ground-based interceptors for the GMD system in Alaska and California?

General CARTWRIGHT. The requirement that exists out there is for the defense against a rogue state of the—not just the continental, but all of what we call the defended area, which includes our territories and Alaska and Hawaii. The number has been the subject of analysis, which we have sharpened, based on testing, to protect against that rogue threat.

The question that we are working our way through in the missile defense review is, At what point does this not manifest itself as a rogue threat, but becomes a sophisticated threat? And that also, then, goes to the inventory question. Right now, as a rogue threat, the idea of—we look in—we're using a CONOPS of "shoot, look, shoot." So, two GBIs per threat. The idea of 15 simultaneous is probably at that balance point, and that's what we're trying to understand. If we're talking about more than 15 simultaneous shots, has that surpassed what we would call a rogue state? And that's what the JROC and the Missile Defense Executive Board are looking at in this ballistic missile review.

Senator BILL NELSON. That's a lot of shots. That's——

General CARTWRIGHT. That's a lot of shots.

Senator BILL NELSON. —15 times two.

General CARTWRIGHT. Simultaneous.

Senator BILL NELSON. "Shoot, look, shoot."

General CARTWRIGHT. That's correct, sir.

Senator BILL NELSON. That's a lot of shots. Well, how was the 44 originally established as the number?

General CARTWRIGHT. It was without a credible, what we called, "boost-phase capability" or "terminal capability." And so, as we have developed, first, the terminal capability, with THAAD, Patriot, and SM–3, it has taken some of the stress off of the midcourse. The addition of the sea-based X-band radar also took some of the stress off of the midcourse. It allowed us to tell—that was the first capability that we had that told us whether we actually hit the missile or not.

So, prior to that time, which is the way we've been working, we've been working with a four-shot salvo against every threat, because we didn't know if we hit. Now we can tell that, so now we're into what I would call a different environment, which is why we're stepping back and taking a look, based on the test data, as to what's the appropriate number of missiles.

Senator BILL NELSON. So, if that rogue threat becomes a more sophisticated threat, we can always pick up the tempo on trying to

strike down at the midcourse phase, as well as the—what you call the "asset phase."

General CARTWRIGHT. Sure. And the Defense Science Board and several other analytic bodies have certainly steered us in the direction that this early intercept and boost phase is where you make—have your greatest leverage. And to the extent that we can use existing missiles, the cost implications are substantially in our favor, rather than in the opposite direction.

Senator BILL NELSON. Now, for the protection of Europe, the capabilities that we have now with Aegis, with Standard Missile–3 on ground, and their enhancements over the foreseeable future, does that look like it would protect Europe?

General CARTWRIGHT. This is the construct of the early intercept, and we're going to take the next 2 to 3 years to prove out what, in the lab and on—test-bench-based systems have demonstrated for us. So, "Can we do this in the real world?" is part of what the Missile Defense Agency will prove out over the next couple of years. If that works, which there's no indication that it won't, then we will be able to provide, at a very reasonable cost, with a very comprehensive coverage, a defense of theater areas, to include the Gulf States, to include Europe, to include the Pacific, a defense that is probably much more affordable, less intrusive than our alternatives have been thus far in the R&D phase. That's why we're looking at it so closely.

Going back to the comments about the third site or the European site, there's no change in requirement. The question is, Can we offer alternatives that may be more palatable to the host nation, in particular, as a way forward? And are they going to be credible, and can we field them in a reasonable period of time? That's what we're trying to understand.

Senator BILL NELSON. And simultaneously, what is critical is this early warning.

General CARTWRIGHT. Yes, sir.

Senator BILL NELSON. And you've talked about, since it's unclassified now, unmanned aerial vehicles.

General CARTWRIGHT. Right.

Senator BILL NELSON. You also—the Secretary talked about this new satellite using infrared technology. Now, are we simultaneously thinking about how we would protect that satellite from what Senator Thune had talked about, antisatellite program or perhaps a—hardening it for a nuclear explosion?

General CARTWRIGHT. We are looking at this—any good warfighter should—more than one way to skin the cat. And so, space gives us a pervasive and persistent global presence. The unmanned UAVs give us augmentation, redundancy, and the ability, if space is not available to us, to have an alternate path for that track file.

Senator BILL NELSON. There's been a suggestion that Congress should mandate a certain minimum number of flight tests. General O'Reilly, what do you think? What's the minimum number?

General O'REILLY. Sir, the minimum number is driven by, not only our ability to assemble the hardware and to make the arrangements with a range and conduct the flight test, but it's also paced on our ability to learn from those tests and conduct

postflight reconstruction, we call it, with our hardware in the loop, and really apply the lessons learned and how we contribute to our models-and-sims accreditation.

Now, it really depends, sir, on the complexity of the test. A THAAD program today, with its maturity, can sustain a rate, about every 6 months, conducting a test, and we're going through the analysis process with the operational test agencies. More complex tests, like GMD—sir, I would propose around about a 9-month center for the time to thoroughly understand and—due to the complexity, the number of other assets that are involved, and the general scope of these tests. So, it really depends on the maturity of the program at the time and how complex the tests are.

So, I would not be in favor of a mandated schedule of testing. Also, that also presumes that we have success in every test. If you have a failure, then you have to take a step back, and that takes more time, to determine exactly what happened.

Senator BILL NELSON. Well, given the earlier testimony of General Cartwright, what about salvo testing?

General O'REILLY. Sir, we do need salvo testing to demonstrate—even though, theoretically, we see there is no interaction between two GBIs, there's a lot of empirical data that you have to collect to validate that. And that is why we brought online our second test silo at Vandenberg this year, so that we can have salvo testing.

Senator BILL NELSON. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator Nelson.

Senator Collins?

Senator COLLINS. Thank you, Mr. Chairman.

Mr. Secretary, as you probably have seen, or figured out at this point, I, too, was on the trip that Senator Levin led to Russia, the Czech Republic, and Poland, to discuss missile defense. When we discussed missile defense with the Russians, the Russians stated over and over again that they considered the third site to be directed at them rather than at the Iranians. If we were able to collaborate with the Russians, wouldn't it alleviate that concern? And second, wouldn't it also send a far stronger message to the Iranians than if the United States proceeded with the third site without any Russian involvement?

Mr. LYNN. Senator, I guess I'd have three comments. One, as long as we see an Iranian missile threat developing, we think we need to develop systems to respond to that threat. So, that's point one.

Point two is, as you've indicated, and as General O'Reilly talked about in detail, we think the involvement of Russian assets, particularly Russian radars, would enhance the capability of that kind of European-based system.

And then, third, I would agree with you that a U.S.- Russian collaboration would have an additional benefit of a diplomatic signaling to the Iranians that this is an unacceptable course for them to pursue and that they will face a concerted international front, should they proceed down that path.

Senator COLLINS. General Cartwright, I see you're nodding.

General CARTWRIGHT. Yeah. Yes. I mean, I agree, the—probably the greatest leverage is the partnership and the message that that would send. That would be very powerful.

Senator COLLINS. Secretary Lynn, I'm very sensitive to the concern that Senator Lieberman raised. We don't want to break our commitments to our allies. But, when we were in Poland, we found that Polish leaders were far more concerned about the goal of having some sort of U.S. presence on Polish soil than they were being the host for the ground- based interceptors. And, in fact, what they said over and over again that they wanted was a Patriot battery installed in Poland. Could you—and I understand that the Poles recently announced that they hoped, or at least expected, to have a Patriot battery deployed on Polish soil by the end of 2009—could you comment on what role a Patriot battery could play in these complicated negotiations on missile defense?

Mr. LYNN. Well, it's certainly been part of the—as you indicated, part of the Polish desire is to have, not—as part of the architecture, a Patriot battery, and that's under discussion. So, that——

Sir, did you want to——

General CARTWRIGHT. Could I——

Senator COLLINS. General?

General CARTWRIGHT. When we did the negotiations with the Poles—and you're exactly right, there is an element of this that is the theater defense or the defense of their territory that is very important to them, and the signal of our commitment to that ideal. The construct that was worked out is that we would, over the first few years, cycle periodically, a number of times during the year, a deployment of Patriot—PAC–3—capability to the country, that we would also rotate the Aegis ships and SM–3, when the Patriots were not there, and increase the presence to be able to give them, now, some theater coverage. They're more comfortable, as anybody would be, with something that's right there in their backyard that they can touch and see, but we're committed to helping them with this theater construct. And it's important to understand that, in the construct of the European site, as it relates to those two countries, there's the element of the theater and the element of our defense of the homeland. Their first priority certainly should be to their country and their theater. Patriot starts to give them a visible capability, which they're looking to invest in, themselves, but they start to get training on it, they start to understand what its capabilities are.

SM–3, for us, gives us a little more standoff. We're not directly on their territory, but we're demonstrating to them the value of the sensors and the value of an integrated regional approach rather than a single-country approach, that it's going to be much more powerful.

Those are the messages that are inside of the discussion about theater versus homeland and the basing constructs. And what we're trying to understand now, in the evaluations, is, What architecture gives them the most comprehensive approach to both their defense and our defense? And how do we approach that in a way that's diplomatically palatable, as well as kinetically functional?

Senator COLLINS. Thank you.

General O'Reilly, the intelligence community has long said that if a rogue state could deploy an intercontinental ballistic missile, it could do so with countermeasures. How does canceling the mul-

tiple-kill vehicle program affect our ability to intercept an incoming warhead threat accompanied by decoys?

General O'REILLY. Ma'am, the MKV program was a research program that was aimed at delivering a capability in the later part of the next decade. As we have spoken earlier today, we believe pursuing or diverting that research towards intercepting earlier also puts pressure on countermeasures. It forces an adversary to either deploy 'em when they wouldn't want to, very early in flight, where they start to drift away over time—it is difficult to make a lightweight object, especially right after boost, and deploy it so that it appears like an RV, a reentry vehicle. And, second of all, it—if you—once you deploy countermeasures, if you maneuver your RV, you either, one, disturb those countermeasures, or, two, you give away the—which one is the real RV. So, the early-intercept capability does put pressure, and puts to the advantage of the defense, our ability to detect and determine which is a countermeasure and which is an RV.

Senator COLLINS. Thank you.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator Collins.

Senator Begich?

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

Thank you all for being here. And you can probably guess where my conversation is going to go, so I want to ask a few questions, if I can, regarding the missile defense system in Alaska, and just some datapoints. And, you know, what I'm looking at is two pieces of the puzzle, here: the risk factor and the costs, or the real costs. I'm trying to understand those better.

First, understanding that we've spent about $20 billion already on this system to get it to where we are and where—the stages in the completion, or how far out we are, which is not too far, to complete this project. The other is the risk. And I was just reviewing a chart that I have—since 1998, the launches from Korea, and where you look at where they have—what the timing has been for their launches, 40 percent of 'em have occurred since we announced the budget preparation in regards to the missile defense system in Alaska; in other words, stopping the missile defense system at the level it is at today. Almost 40 percent of their tests have occurred since that date, which is kind of an interesting. Maybe it's coincidence, but it's—it adds to—to me, at least, an additional risk factor.

Let me ask, if I can, a—just a couple questions on the technical elements. My understanding, there's three fields. There's field one, two, and three. Field one is completed, with six silos. Then there is field three, with 20. And then, the question is field two, which is under different levels of completion.

When you maintain—and let's say, field three, you want to replace some of those missiles—as part of the plan is, you want to replace those. You have to shut the whole system down, the whole 20. So, what happens? What's the risk level at that point, when we're down to just six missiles there in Alaska and, I know, four in California? But, what does that do? I know Senator Nelson brought up utilizing the gross number of 30. But, at any given point, there's maintenance going on up there. I mean, I was up

there with Secretary Gates recently, and there was maintenance going on. And if your plan is to refurbish a sizable amount, 14, based on the replacements, that means some of these are going to be shut down. And my understanding was, the way the three systems—or, the system was to work was, you would have these three fields, for that purpose alone, so you'd have redundancy. Could someone give me a brief comment on it? Whoever wants to do that. I'll look to the two generals.

General O'Reilly? And then I have some very specific costing that doesn't add up yet. So, please.

General O'REILLY. Sir, our approach to the missile field that we have taken is to look at the reliability and the certainty of the missile launches, and the surety that the combatant commanders will have; when they need those missiles, they're available. When you take that approach, you look at the—not only the number of silos, but also the entire population of GBIs and how you have to rotate 'em through.

The missile fields are each distinctive. The first one is a very early testbed, and it has the characteristics of a testbed. And it has the life of a testbed. Missile field two is—or, missile field three, the one that has 20, is a harder missile field, and it has redundant systems in it, and it is designed so you can perform the maintenance you refer to without shutting the missile field down. It has backup systems, it has shielding, it has other things associated with it, so that we can, in fact, do that. On top of that, the missiles themselves were designed that they can have the software completely replaced on 'em while they're sitting in the silo.

So, all of that was taken into account for the lifetime maintenance—lifecycle maintenance of the missile system. So, missile field two can operate—or, missile field three, the one with——

Senator BEGICH. Right.

General O'REILLY. —20 silos, can continue to operate and sustain itself, because of the way it was designed and built, with those redundancies. The first missile field was not. The missile field we are currently working on also has another generation of capability and so forth, and that's why we are finishing up that work.

But, what—the reason we are at six silos, and actually a seventh one we're considering for a spare, is, again, when you take into account the overall fleet management of the GBIs, and how many do you need in silos, how many do you need outside silos that are being refurbished, as you say, and how many are being used for test purposes—when you put all of that together, you can sustain, for several decades, a 30-missile fleet, much more significantly—efficiently and effectively than you could 44 missiles, given the fact that the original missile field was a test field designed for that purpose.

Senator BEGICH. Let me ask you—and I'm going to follow up on—I think Senator McCain was asking—and I know the 30 number is kind of where you folks are at, but how do you judge the risk level, when you don't know what the risk of North Korea is? I mean, I think, Secretary, you made the comment that—or maybe it was General Cartwright, I'm not sure which one—but, made the comment that it's—they're not predictable. And yet, we're making a very stringent decision, here, to make a decision that we're going

to have this many, that's it, and maybe in the future, depending on the conditions, that might change. But, with North Korea it seems, since we've made this announcement, as I said, 40 percent of their testing has occurred, plus an underground nuclear test. I mean, I don't know, that seems risky to me, but——

Mr. LYNN. The—I said to Senator McCain, the actions of North Korea have been unpredictable. Their capabilities for ICBM or longer-range missiles are quite well understood. They are well within the bounds of a 30-missile field, and they're—and we would be able to expand the field far faster than they could expand their capability. So, we're—the risk, in terms of their having some kind of breakout, is not there. We have the ability to respond—to turn, inside anything they could do. That has nothing to do with their predictability. They—that has to do with understanding of their capabilities.

Senator BEGICH. Let me ask you about that, the comment you mentioned about how fast you can move forward, in case we didn't necessarily have all the best information in determining what their capacity is or capabilities are. Help me understand the project, as you have it now, sealing it off at 30. What is the current—and I'm—been trying to figure this out—what is the current cost to close it up? What is the cost for the contractor to close them up, as they are still idle up there right now, or—my understanding is, there is a stop-work order on some of the work. But, we're paying——

General O'REILLY. I have not issued a—that is not correct, sir.

Senator BEGICH. Okay.

General O'REILLY. I have not issued a stop-work.

Senator BEGICH. That's fair, then. But, what is—when we close it off, is there a contractual fee that we have to pay the contractor to finish out the contract? Is there a cost for where these 14 missiles will be stored? Because, obviously, if you don't build the silos, you don't have them stored. So, where do they go? And is that in your budget proposal that you have in front of us that shows the cost of storage and putting these 14 completed missiles somewhere?

General O'REILLY. Sir——

Senator BEGICH. And have you done, kind of, a—you know, because I haven't seen it, and I know we've requested it, internally, but we're—I want to see that—the matchup, which I have not seen yet, and the close-out costs that the contractor may require, which I believe they probably will.

General O'REILLY. Sir, you're describing it as if it's a contract termination, and it is not. We are giving redirection to the contractor, but we are not terminating. So, termination costs and so forth are not part of our estimation.

Also, this is an fiscal year 2010 budget request, so what I described, the fleet management into the future, is going to follow up in future years as we identify the requirements, once the—today, we do not have the missiles deployed that exceed the 30, and we do have storage capability today, at Fort Greely and at Vandenberg, to handle those 14. Plus, when you take into account the idea is refurbishment, some of 'em will be back in the industry base, going through the upgrades, which they'll need.

Senator BEGICH. Thank you very—my time is up, but I have more questions. But, I will probably submit those in writing, then, to you.

Thank you.

[The information referred to follows:]

[COMMITTEE INSERT]

Chairman LEVIN. Thank you, Senator Begich.

Senator Sessions?

Senator SESSIONS. Thank you, Mr. Chairman.

General Cartwright, you mentioned the Patriot batteries in Poland. I see one report, June 12th, that those are not going to be armed. What is that about?

General CARTWRIGHT. We are, in fact, working our way through a challenge of the distribution of Patriot. You know, sir, from our long conversations, that the number of Patriots and the batteries that we have are limited, and therefore, as we deploy them worldwide, matching up the battery with the command-and-control is a bit of a challenge. And so, right now what we had talked to the Poles about was, the first deployment would be a training deployment. What we're trying to understand is, Can we put the battery in there, the equipment, with the command-and- control or without the command-and-control? Do we put the weapons with it if it doesn't have the command-and-control? And so, we're working our way through trying to put the assets together.

The agreement was made after we made agreements with other nations about exercises in 2010. And so, we've got competing requirements right now. It is our intent to give them——

Senator SESSIONS. Well, just—

General CARTWRIGHT. —a usable, trainable asset, and then to start moving towards armed capability. But, we have to get that aligned with our exercise programs and commitments with other nations this year.

Senator SESSIONS. Well, we had a contract, did we not, with the Poles and the Czechs? I mean, the United States signed an intention to go forward with these systems. I know the Polish legislature, and the Czech, has not ratified fully, but we did have an agreement to go forward with that system. Is that correct?

General CARTWRIGHT. An agreement to go forward with the training in the first 2 years, and then with deployment in later years, replaced by their procurement.

Senator SESSIONS. Well, if we can't make up our mind about it, it's not likely that the Poles or Czechs are going to be supportive of this system. And I think that's—undermine that whole process, as came about from the President's own comments, and it undermined the commitment of the United States to the program, and therefore, has undermined the Poles' and the Czechs' willingness to participate.

General CARTWRIGHT. Senator, I——

Senator SESSIONS. That's where we are, and I think that's an unfortunate event.

General CARTWRIGHT. Senator, I agree with you. We are going to work—make every effort to make this work, because I see it the same way you do, from a perception standpoint, that we've got to

put a unit in there that is functional, capable, and can actually be trained on and can defend the area.

Senator SESSIONS. Well, to follow up on Senator Begich's comments, General O'Reilly, this whole budget has taken quite a hit. The budget numbers, as I see it, is a $1.2-billion cut in missile defense, period, which is about 15, maybe more, percent of the missile defense budget, which includes theater, as well as national missile defense. The national missile defense GMD program is taking a $700- million reduction—is that about right?—from previous budget plans?

General O'REILLY. Sir, 500.

Senator SESSIONS. And that—what, a third or 40 percent of the total budget?

General O'REILLY. Sir, 328 million of it was planned to come off the work that was going to be accomplished this year anyway between 2009 and 2010. And 160 million is a reduction due to the work up in Alaska on the missile field silos.

Senator SESSIONS. Well, and then we've eliminated the MKV, the multiple-kill vehicle, we eliminated the kinetic interceptor, the KEI, and have basically put on hold the ABL. So, those programs are—been gone, and now we're taking, from 44 to 30, our missile defense—you know, deployed missile defense system. And I think that's what's—Senator Begich and I are concerned about.

Let me just follow up a little bit on that. The Secretary of Defense told this committee on May 15th that he expected GMD, our National missile defense system, to continue to improve over time. Additionally, in a National Defense University presentation on June 2nd, you said this, quote, "We're not limiting the production of GBIs, and we'll continue to produce, upgrade, and test GBIs to maintain a more operationally-ready capability to defeat long-range missile threats to our homeland," close quote.

And have—you indicated, and, I think, Secretary Lynn, those threats are increasing from the North Koreans. You go—yet, MDA budget justification materials and statements by senior MDA officials seem to contradict your statement and Secretary Gates's explanation. So, I just need to get this straight.

On May 7th, MDA Executive Director Altwegg told reporter that the GBI production line ends circa 2012–2013, after the 44th missile. And MDA's vendor analysis shows most manufacturing lines closing down by fiscal year 2010—2010. The fiscal year 2010 DOD overview, which I suppose you worked on, from your area, for the MDA, clearly states that MDA tends to, quote, "curtail additional GMD development," close quote.

An MDA chart depicting program changes that you've produced shows that GMD program has been descoped. Eliminated activities include GBI three-stage fleet avionics upgrade and obsolescence program, software testing and fielding. That's in your paperwork. MDA's planned test schedule for 2010 calls for a test of the two-stage GBI intended for European deployment. There is no plan to intercept tests for the three-stage GBI deployed in Alaska.

So, I guess this, to me, suggests a disconnect between the Secretary's intention to improve and upgrade the NMD system over time, and what actually seems to be happening. And I'm aware—I think all of us are—that a lot of this is driven by money. And

you're given some choices, and difficult choices, and you have to make choices based on how much money you've been provided. But, I would just note that our budget is over $500 billion. We've invested, you said, 20 in GMD alone. And we're this close to actually deploying a system that we—I thought we'd all agreed on, 44 missiles plus robust testing.

And so, I guess I'm wondering what's happening, here. Can you tell me about this disconnect between the idea that we will continue development and improve the system in what appears to me to be reality of massive budget reductions and elimination of programs?

General O'REILLY. Sir, yes, I can. First of all, of the $1.2-billion reduction, 566 million—I'm restricted, due to the Authorization and Appropriation Act last year on European defensive capability. Most of that was in the GMD effort. So, that accounts for the largest reduction, is complying with last year's appropriation and authorization restrictions on how I can using funding this year. But, I will note that, in another line, we have 182 million for the upgrades of the avionics and the other common components that you're referring to on the two-stage line. They also apply to the three-stage.

Second of all, the comment on GMD curtailment was a phrase lifted out of a sentence that has to do with the missile field and the silos up in Alaska. So, it is consistent, we are curtailing that missile field and some of the work on that missile-field area. That did not apply, as it's been taken out of that sentence, that we are stopping or curtailing overall GMD upgrades. We are, in fact, completing extensive upgrades, as I said, through the fire control, the training, and all of the other requirements.

The two-—you referred to the two-stage test—the original two-stage test was just the booster. And we have high confidence in that booster, because we launch it every time we launch a three-stage. So, we looked at that test, and we looked at the value of the test, and we determined that it would be much more beneficial to the three-stage and the two-stage to put a kill vehicle on it and stress the kill vehicle in a way that it hasn't been before, where you can't do during an intercept test, because you really want to drive it to its performance ends so you have a good understanding.

So, in fact, it may look like there's one two-stage test this year. We have changed that test so that, in fact, we get a significant benefit to the three-stage development also, as well as the two-stage.

And finally, the other developments that are occurring with the GMD system are associated with the sea-based X-band radar, the command-and-control, our other sensors, our ability to use forward-based radars to queue GMD. That all accounts to an additional $1.3 billion that directly improves the capability of our midcourse defense system that is not in the GMD budget line.

And so, it is a significant investment of over $2 billion of improving GMD over fiscal year 2010.

Senator SESSIONS. Well, I don't know. I mean, it seems to me that you've reduced the capability of the system and you've reduced spending quite significantly. The assembly lines are going to be shut down soon. And, with all due respect, General Cartwright, we just can't—if we use our launch systems, and they're—and we're not able to snap our fingers and have a new assembly line start

back up again; it's going to be closed down, and all the subcontractors and suppliers. Seems to me the time to produce the adequate number of missiles is now. And 14 missiles at two tests at year, it would mean 7 years, and we're talking about a 40-year-or-more, I assume, defensive system. So, I—that's not the kind of testing we use for our submarine-based missiles. It's not the kind of testing we use for our ICBMs. They're much more robust than that.

So, the numbers don't add up, to me. I think it's just a question of—somewhere, somebody has decided to cut missile defense substantially. And you're doing the best you can under a difficult circumstance, and I'm concerned about it.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Sessions.

Senator Bayh?

Senator BAYH. Gentlemen, I've been a strong supporter of your efforts, and I want to thank you for them. And I intend to continue to be a strong supporter of your efforts.

What would your answer be to Senator Sessions in his final comments? Is this being budget-driven or is this driven by, you know, your honest assessment about the move from 44 to 30, it does not materially affect our ability to make these intercepts, and the change in the testing regimen does not materially affect our ability to assess the efficacy of the system? Is this being driven by the budget, or is this being driven by—because I'm going to vote to give you all the money you need to have a system that works. But, of course, the taxpayer shouldn't be asked to pay more than they need to for a system that works. So, what's the answer to his last comment?

Mr. LYNN. Senator, maybe I could start and then ask the two generals to join in.

We undertook a review of the missile defense program, and we developed, frankly, a new approach to it, which is more focused—more heavily focused on rogue-state threats and on theater threats. That drove a series of changes. It actually drove about a billion-two in adds and a couple billion in cuts that netted to the number that Senator Sessions mentioned, of about a $1.2-billion reduction. But, those reductions were driven by programs we think that were either too immature, like the MKV; programs that were not—that should be in the R&D phase, but not go into production; like the ABL and programs like the kinetic energy interceptor, which is a troubled program from the start.

Senator BAYH. Well, the troubled program, that's different, but the things that are sort of in the process of development, these changes you've made in the near term, don't affect their longer-term potential to—our ability to assess whether they're ultimately going to work or not?

Mr. LYNN. We think we—in particular, with the airborne laser, we do, indeed, intend to assess whether this has more capability. It's been mentioned at the table. The technology itself is promising. The operational concept that we had for it is not currently the right one. And the technology isn't ready for production. We wouldn't—if we were going forward, we wouldn't go forward with a second version of the current aircraft. So, it's appropriate to step back and to maintain this in R&D to explore exactly that potential, but not

to go forward with the planned second aircraft at this time. At the same time, I ought to mention, as we added substantial resources to programs that are more focused on that theater and rogue-state threat. We added substantially to the THAAD program, to the Aegis ship program, as well as to the SM–3 program.

Senator BAYH. So, Secretary, I don't mean to interrupt; there were some other things I wanted to ask, but I thought he raised—you know, long-time observers of Washington might have, you know, reason to be somewhat skeptical and say, "Well, you know, is this really being driven by the—you know, substantive factors, or has there been a decision made, and now they're trying to justify it by doing this sort of thing?" So——

But, to hear—judging by your answer, I guess I'd just ask our two, you know, generals, if they disagree. What I hear you saying is that this does not affect the efficacy of the system or our ability to assess the efficacy of the system. Is that—that's what I understand your comments to mean. Do the two generals——

Mr. LYNN. Do you agree with——

General CARTWRIGHT. That is correct. Nor does it foreclose the opportunity, because we know we have to go back and assess the aging testing program. We know that we may have to build additional interceptors if, in fact, we make a decision to go forward with the European site. The line will stay hot, as will the vendors. The question that we're taking a pause for right now is, How many more missiles are we going to acquire for that test program? What's an appropriate test program? And when will the decision be made about the third site?

Senator BAYH. One of the reasons for hearings like this is, not only to inform members of the committee and Congress, but to inform the American people. And so, I'd like to ask a series of questions—I hope they're fairly short—about that.

Mr. Secretary, I guess I'll start with you. With the current missile technology the North Koreans have, can they launch a missile that could hit the Hawaiian islands or Alaska?

Mr. LYNN. They've not been completely successful with what they've done, but their systems have the potential to do that, yes.

Senator BAYH. In what timeframe, do you think?

Mr. LYNN. Well, the systems they have now——

Senator BAYH. The potential to hit——

Mr. LYNN. —have the potential, if they were to do a successful——

Senator BAYH. And with——

Mr. LYNN. —launch.

Senator BAYH. To the best of our ability to determine these things, with the kind of path that they're on, when do you think they'd be able to reach the West Coast of the United States?

Mr. LYNN. I think I'd have to take that for the record. I can't give you——

General CARTWRIGHT. Let me help——

Senator BAYH. General Cartwright?

General CARTWRIGHT. —you have—we've had three unsuccessful tests, but progressing in their capability. Even if they are successful in a—in the range aspect of getting to the United States, they

still have to be able to actually deliver an RV that can reenter the atmosphere and find a target.

Generally—and I—you know, this is not scientific, but we're dealing in at least, probably, another 3 to 5 years, minimum, that normal nations would take in the progression of testing to get to that——

Senator BAYH. Minimum——

General CARTWRIGHT. —state.

Senator BAYH. —of 3 to 5 years. That's the missile technology. What about producing a warhead——

General CARTWRIGHT. That's—that——

Senator BAYH. —coupling it to the—that includes that, in your analysis?

General CARTWRIGHT. That is the staging. It does not include how long it takes to build that warhead, but it includes the ability to deliver it.

Senator BAYH. And to miniature it in a way that would—so, you think——

General CARTWRIGHT. All of which are going to be significant challenges. But, realistically, here, the——

Senator BAYH. You think they'll be able to do that within 3 to 5 years.

General CARTWRIGHT. The missile technology, not the warhead technology.

Senator BAYH. Well, what about—one without the other isn't all that meaningful—what about both of them together?

General CARTWRIGHT. There are—that would be a—

Senator BAYH. I'm just—I've been a long-time——

General CARTWRIGHT. —opportunity——

Senator BAYH. —supporter of what you're trying to do——

General CARTWRIGHT. I understand.

Senator BAYH. —and I'm trying to——

General CARTWRIGHT. I just don't——

Senator BAYH. —educate the American people about——

General CARTWRIGHT. —want to mislead——

Senator BAYH. —this.

General CARTWRIGHT. —anybody, either——

Senator BAYH. Of course.

General CARTWRIGHT. —you know, because my crystal ball is not going to be anybody—any better than anyone else's. But, you're dealing in a 5-year activity to be credible in being able to deliver a weapon and a—and an RV to a target at those kind of ranges.

Senator BAYH. And there's——

General CARTWRIGHT. And that assumes a lot of luck on their part in moving forward.

Senator BAYH. And there's an unavoidable element of the unknown, either on the——

General CARTWRIGHT. Yes, sir, there really is.

Senator BAYH. We've been surprised by more aggressive developments in the past, and then sometimes things have taken a little bit longer.

General CARTWRIGHT. One thing I'm sure of is that that number is exactly wrong, but——

[Laughter.]

General CARTWRIGHT. —but, it's in the ballpark.

Senator BAYH. Well, you know, it—you know, in the intelligence world, we've learned, unfortunately, to try and deal with irreducible ambiguity.

General CARTWRIGHT. Yes, sir.

Senator BAYH. General, the collaboration between North Korea and Iran—factoring that in, the Iranians—they currently have missiles that could hit a fair amount of Europe. Is that correct? They can obviously hit Israel. Is that true?

General O'REILLY. Yes, sir, that's true, from what they've demonstrated in their flighting testing. They have a range of about 2,000 kilometers, is what they've stated and what they've demonstrated.

Senator BAYH. And it's a further-out time horizon for them to have the capability of a missile with a warhead that would reach the United States.

General O'REILLY. Oh, that large of a missile? Yes, sir.

Senator BAYH. Very good.

Israel. I know this is not, perhaps, the subject, here, but obviously if they are reachable today—the Iranians have been working to produce fissile material, they have designs, they decided not to go forward with them, but they may have suspended that decision; they may be going forward with the—as we speak. I think observers of the regime would think they probably will do that—the design, the weaponization of the—perfecting the weaponization of the product—the device.

The Israelis, do they have an effective missile defense against that threat?

Mr. LYNN. They have some capability with the Arrow system against that threat. They're working towards a—an upgraded system that they—they would prefer that to be the Arrow–3, which would be a highly capable system. We're supporting 'em in that. We think that they should also have, as a backup, the possibility of land-based SM–3, which is a little bit less capable technology, but more mature. In terms of, kind of, immediate measures, we've moved a—an X-band radar into Israel to assist with their immediate engagement capability. So——

Senator BAYH. I've bumped up against my time limit, here, but there was one final question. Maybe you can give me a brief response.

You're briefing the President of the United States. He asks you, based upon—he's got to, you know, take into his consideration what you're doing, in terms of facing these threats—he asks you, "If there is a rogue launch, what are the percentages that we're going to be able to hit it and bring it down?" What would you tell him?

General CARTWRIGHT. Ninety-percent, plus.

Senator BAYH. Ninety-percent-plus confidence that we could—if there's a rogue launch from North Korea, let's say, we could intercept that target and bring——

General CARTWRIGHT. Yes, sir.

Senator BAYH. —it down. I assume there are a number of assumptions factored into that, about how many launches there are

and, you know, that sort of thing, but a single launch would be—pretty impressive.

A final thing, Mr. Chairman, if I could be allowed, just——

The Russians, when they say they're threatened by this third site in the Czech Republic, they really believe that's aimed at them, or is that just a pretext designed to leverage us for some other things?

Mr. LYNN. Oh, I don't know that I could divine their true meaning, Senator. I—they have certainly said it repeatedly, and we're—we are focused on the Iranian threat, and we are trying to persuade them that the systems that we're proposing are focused on the Iranian threat. And we think, as the conversation earlier indicated, that if we collaborated on the Iranian threat, we could have a more capable system, vis-a-vis—that would protect both us and them, and signal the Iranians, and hopefully reassure the Russians. So, that would—those would be the goals.

Senator BAYH. They keep raising it, so it's obviously something we have to deal with. But, given the nature of what we're talking about, it just strikes me as bizarre that someone could think that that would be—have any sort of material impact on the sort of arsenal that the Russians have. So, we either have, you know, two sets of people looking at the same facts and reaching dramatically different conclusions or, you know, there's something else they have in mind in trying to gain some negotiating advantage on some other things. So, I was just curious in your perspective on that.

So, gentlemen, thank you very much.

Mr. Chairman, thank you.

Chairman LEVIN. Thank you, Senator Bayh.

Let's just try a shorter second round, here, so we can all have a chance. Maybe try a 4-minute second round, and see if we need a third round.

Relative to that Iranian threat and the potential of having access to the information that Russian radars would give us on an early launch from Iran, the distances that we've determined, roughly, are the following, in terms of the distance from a radar to Iran—an outside radar to Iran. Gabala, we estimate, is about 100 kilometers from the Iranian border. Armavir is about 500 kilometers from Iran.

The proposed radar in the Czech Republic, assuming they approved it, is about 3,000 kilometers from the Iranian border. Assuming those numbers are about right, it would mean that it's about a 2500-—excuse me—2500-—yes—-kilometer advantage, in terms of closeness, if we were able to work with the Russians and get that information about any launch from Iran from an Armavir radar in southern Russia.

Let me ask you, General O'Reilly, is that a significant advantage, that 2500-kilometers closer?

General O'REILLY. Sir, it is. And we've always had in our proposal for a defensive Europe, a forward-based radar in the Caucasus region, for that very reason, so that we do have an early observation of a launch that would then queue the forward—the radar in the Czech Republic.

Chairman LEVIN. And is that potential also on a ship?

General O'REILLY. Sir, the frequency of the radar on the ship is not as accurate as an X-band radar would be, or a forward-based, or what've recently seen, even from unattended air vehicles.

Chairman LEVIN. Now—I think you described the advantage, before, in terms of an early warning. One of them was in terms of the queuing, which we could follow even if there were not decoys. But, then you made reference to the possibility of decoys and as to whether or not an earlier warning also helps earlier information about a launch, gives us advantage, in terms of the decoy issue.

General O'REILLY. Sir——

Chairman LEVIN. Did I hear you right? If so, could you just go into that a little bit more?

General O'REILLY. Yes, sir. The proposal for a early intercept capability would require the ability to see and track very early in the launch. And the concept there is to force someone, if they're going to use countermeasures, to deploy 'em as early as possible, because that is to the advantage of us. They tend to drift away, they have other problems with them over time. Ideally, you'd want to deploy 'em very close to an area of their flight where they would think they're about to get intercepted. And so, this has a significant advantage.

So, having sensors forward does give us the ability to help us prosecute an early intercept.

Chairman LEVIN. Now, in terms of the Alaskan site for our intercepts, would having information from those forward radars, if they—we could work out something with Russia—could they be linked to an Alaskan intercept? Could that information——

General O'REILLY. Sir, theoretically, yes, they could, sir. And they would enhance the ability of those missiles in Alaska.

Chairman LEVIN. And would that also be true in California?

General O'REILLY. Yes, sir.

Chairman LEVIN. I just—I know that Senator Begich was being distracted at that moment, but I think this is an important area, where we may be able to find some real common ground, was on a question which I just asked, and that is the possibility that the—if we worked out something with Russia and their information, that that would—could be, theoretically, linked to the launchers in Fort—at Fort Greely, and it could make them—what were your words?—more——

General O'REILLY. They're more effective, sir.

Chairman LEVIN. —more effective, that that would add to the effectiveness of those launchers, if were able to work out something with the Russians. But, technologically, that information, I gather, could be transmitted in a matter maybe even a few seconds——

General O'REILLY. Yes.

Chairman LEVIN. —if not minutes. My time's up, thank you.

Senator Sessions?

Senator SESSIONS. Thank you.

Well, I guess my concern about the missile defense system and the ideas that we're dealing with is that the study that the ballistic missile defense review—I guess it's going on now—is not completed til the end of the year. And I'm not aware that any specific study has been done to alter our plans to go from 44 to 30. And I don't think there has been one. And so, that's a troubling thing to me.

And we'll just have to see how that plays out, but I am concerned about it, Mr. Secretary.

Mr. Secretary, the—Secretary Gates testified that we should not reduce our weapon stockpile—or, made the statement in October of '08, "We should not reduce the number of weapons in our stockpile without either resorting to testing," which we're not planning to do, "or pursuing a modernization program." The Perry-Schlesinger Commission said that, as a part of our—it should be a part of our agenda to modernize our nuclear weapons. And—as part of any reduction of nuclear weapons that might occur. Now, that's the bipartisan commission that's given us a lot of our research and thought into these issues, a really impressive group of thoughtful people on that commission.

So, I guess my question to you is—I don't see anything in the budget to modernize our nuclear weapon system or any request from the administration to do so, yet we will be—I guess you will be asking Congress if the START talks with the Russians go forward, to approve reductions. And so, how can we agree to do that if we don't have a plan to modernize?

Mr. LYNN. We are reviewing, in the Nuclear Posture Review, the kinds of requirements that Secretary Gates mentioned. What changes do we need to make to the nuclear infrastructure? What additional developments do we need to ensure nuclear surety, to ensure that we have reliability of our stockpile? And we are doing—the Nuclear Posture Review is inextricably linked with those START follow-on talks. We are evaluating what our needs are as we go forward. And that will be part of the next year's budget.

Senator SESSIONS. So, you would expect that, by the time any ask for ratification, that we would see a good plan to modernize the stockpile?

Mr. LYNN. We'll be evaluating what plans we have concurrently with the—or, as part of the analysis supporting the negotiations, and we'll be able to talk to that, at that time.

Senator SESSIONS. Well, I just would say to you, I don't think that you'll have a lot of support over here—or, I think there will be a good bit of opposition to any kind of START change if we don't have this proposal done that both the Secretary have said and the Commission itself has stated. And I'm—I would urge you to get serious about that and come up with a plan that we think can work.

Also, I would just observe that it's not necessary that the START talks be completed this year. That can be extended easily for 5 more years. I'm a little concerned that the administration seemed so determined to have an early agreement with the Russians. And I hope we aren't making unwise agreements with the Russians, policy changes in our defense structure, to gain favor with them in order to try to smooth out a rapid START agreement, which is a nuclear—limitation of our nuclear weapons.

So, I don't have any reason to believe that we are facing any immediate threat from the Russians' nuclear weapons; and whether they have 2200 or 1800, not much difference, really. What is a threat to this country is the nuclear weapon system being built in North Korea and in Iran, and we need a defense against that, and we need policies against that, and we need to take some action,

sanctions and other things, to try to bring that to a head, because—to an end—because there is a danger of proliferation. As you know, Mr. Secretary, if the North Koreans or Iranians develop nuclear weapons, a whole host of nations are going to feel obligated to develop their own nuclear weapons, and we could have a proliferation surge of far beyond anything we would want to happen.

So, I think those are big issues. Whether we have— what the exact number is between the United States and Russia is not the most critical issue facing our country, at this time. I would—would you comment on that, briefly?

Mr. LYNN. Sure. Let me say several things. One, in terms of the START talks, we do see an opportunity to potentially gain an agreement with the Russians before the treaty expires, at the end of this year. But, let me assure you that we are not going to agree to anything that we don't think is in our National security interest. So, that's the—that will be the ultimate bottom line on any agreement that we were able to reach, or potentially not reach.

The—with regard to your statements on Iran and North Korea, I agree with you, they, indeed, present a very real threat, and a growing threat. And that, I think, was what—underlying some of our discussion on the missile defense area. We're actually trying to shift more of the programs in that direction. So, that—that's what's behind the changes—much of what's behind the changes that you've seen in the missile defense budget.

I'd go further, I think, along the lines that you said.

It isn't just—the threat isn't just that the North Koreans and the Iranians might possess these; there is a—the second- and third-order threats. The second-order threat is that they might transfer the—either the weapons themselves or the technology behind them. And they've both shown predilections to do that, particularly the North Koreans. And so, that's a very real threat. Even if they do nothing with them, their having them and the ability to proliferate is, indeed, a very unsettling and dangerous prospect.

And then, third, I agree, the signal it sends for the proliferation regime for North Korea and Iran to proceed on this path is something that needs to be countered. And we're looking at the Non-Proliferation Treaty and other larger mechanisms. And indeed, the most immediate past, the U.N. Security Council resolution, vis-a-vis the most recent North Korean actions, are trying to start to demonstrate the unity of the international community against those actions.

Senator SESSIONS. Thank you.

Chairman LEVIN. Thank you very much, Senator Sessions.

Senator Begich?

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

And thank you for that comment regarding Russia and the potential there of some middle ground.

Let me B- to comment with some—just some questions, here. And I'm—again, I can only say this as a new member, here. I've been here, now, 6 months. But, your comments, earlier, that the Fort Greely program has direct impact, obviously, with North Korea, but also has—but limited, to certain extents, if Iran has missile capability to the United States, what our system up there

in Alaska can do, even though it's limited, recognizing—but, it has some impact to it.

General O'REILLY. Sir, it is not limited.

Senator BEGICH. Well, what I——

General O'REILLY. We do have very good coverage of—against Iran from North Korea—or, from Alaska.

Senator BEGICH. I don't want to say I said that on purpose, but I appreciate you saying that now.

[Laughter.]

Senator BEGICH. Because you have just done what exactly my point is, and that is, Fort Greely is not just about North Korea; it's about North Korea and Iran. And we have to keep that in perspective as we all sit here and discuss Alaska. Someone who lives there, now, I can tell you, when I go back home and people see news accounts about North Korea shooting off more missiles, they also get very concerned about Iran shooting off a lot of missiles. And so, you just did exactly what I was hoping. Thank you very much for that. It wasn't a trick question, but I appreciate it.

The issue of almost $20-billion investment that we've made in the system up there, and we're at $160-million issue in front of us, which, in the larger sense—and I've had

to adjust my thinking, here, coming to Washington, D.C., coming from being a mayor of a city; when you talked 160 million, that was real big money; 20 billion is real big money. But, when you look at a system of 20-billion investment, with only 160 million more to finish out, that we've made decisions—or, you've made decisions on this missile defense system when—my understanding from the testimony, the ballistic missile defense review hasn't been completed yet, but you've made decisions So, the review will be completed. My assumption is, these budget decisions all across the board on missile defense will be backed into that, or part of the, answer already. I mean, the answer's already been given, partially, even though the review isn't done. And I'm just kind of—this is how I'm processing all this.

Now, saying all that, we have a $160-million issue in front of us. We will have—and I think you even said, General, that it may be seven completed silos, not just four more. I thought I heard something. I wasn't real clear on that. But, I——

General O'REILLY. There are seven delivered up there, at this time——

Senator BEGICH. So, it's possible those will be—that gets you to 33. And I'm trying to do my math——

General O'REILLY. No, sir. The—well, yes, sir. But—

Senator BEGICH. I mean, then it gives you 33 silos.

General O'REILLY. This discussion is more, sir, not just about individual silos.

Senator BEGICH. I understand that.

General O'REILLY. When you look at the overall—the impact of life cycle for the next 20 years would be several billion dollars, not 160 million. And I believe the readiness would be lower. I believe we have higher readiness and higher surety, when you select a specific missile to launch, that it will launch in the way we anticipate it to with the program we're putting forward in this budget, just the first year, because it's a 1-year budget.

Senator BEGICH. Can you do this? And again, because of time, there's only 4 minutes here that—can—what I want——

Chairman LEVIN. You can take additional time, Senator Begich. It's fine. We're good on time.

Senator BEGICH. Okay. I was—need to—this is what I what I want to get, is the side-by-side. And I—you know, I'm looking at a 2010, because I don't have a 5- year budget in front of me, I don't have the QDR, I don't have the ballistic missile defense review. What I'm dealing with is what I have in front of me today, and that's what I have to work with. And so, what I want to compare it to is, What's the cost to cap it? What's the cost to store? What's the cost to demobilize? What's the cost to remobilize? What's the timeframe on that?—understanding that Alaska's not your year-round construction season, even though missile defense has done a very good job, because they've timed it right, that they can do concrete work and so forth in the summer and then have the fieldwork and additional work as the winter goes forward, even though it's 30, 40 below. I want to see that comparison. And I guess that—that, to me, helps me understand how you make, on a $20-billion system installation, a $160-million reduction which—and I understand your long-term playout, but I don't have those tools in front of me, because those aren't completed. In other words, your review of the Ballistic Missile Defense System is in process, but you've made decisions that will determine what that review will say.

So, I'm trying to figure this—you—and, again, take it from someone who's only been here 6 months—your careers span many, many years, but I—that's why I have to look at this. So, I need a side-by-side, now or in the future—near—very near future, obviously. But, again, to the earlier point, the system is not just about North Korea; it's a broader system. And we've had some great discussions, you and I have. And the one other piece is, today I've noted that you made a comment that testing on this would be possibly every 9 months; that's different than what we've talked about and, I know, Senator Murkowski and I have talked about. My understanding was, it was twice a year, every–6-months capacity, to launch, analyze, readjust, launch. Is it now 9 months? And is that driven by budget or is it driven because that really is the capability of the system?

General O'REILLY. Sir, the 9 months was driven as a result of the study we've just completed, for the last 6 months, and looking at our—one is, as we move on—as we move forward with each one of our ground-based midcourse defense tests, they get much more complicated, and the goals and the objectives get much more aggressive. And when we look at our analytical capability, the complexity of all the contributing systems that are involved, and the size of the test, it is much more reasonable to us that a 9-month center is executable than doing it every 6 months, just because of the sheer magnitude. And as a good benchmark, mature systems that are much smaller, working autonomously, they launch, typically, every 6 months. So, 9 months is still being aggressive, in our mind.

Senator BEGICH. Thank you.

And I'll just end on this question. And I think it was to Senator Bayh's comment on the system reliability, missile defense reli-

ability. And I'm not saying, necessarily, GMD, but missile defense was 90 percent. If you had a question from the President, you would all say 90 percent reliability to hit something. Now, I'm assuming—and why I'm asking this—that's the whole system, including the GMD—and the reason I ask this, the debate, years back—not as much today anymore—is its reliability. And it seems that testing has proven to help it advance, and future testing will obviously get even more. But, 90 percent is not bad. Is that—am I reading this right? The GMD is part of that percent that you and—I think, General Cartwright, you had——

General CARTWRIGHT. Right. It's a combination of the sensors that we've fielded since the early days, the command-and-control, the weapon system improvements because of the test programs, and the fact that we now have terminal- and soon intend to have something that will look at the early-launch phases.

So, absent the early launch, with what we have today, I'd be very comfortable saying 90 percent.

Senator BEGICH. Very good.

Thank you very much. And again, if you could provide, at least to me, kind of that side-by-side cost, that would be very helpful. And again, I'm dealing with a 2010, recognizing there's a 5-year schedule, too.

General O'REILLY. Yes, sir.

Chairman LEVIN. If you could provide that for the record, that would be helpful.

Also, General, you made a statement about lifecycle costs—I think, comparing—deploying 44 to 30, and using a figure, I believe, of a difference of billions, I think was your comment, in terms of lifecycle cost. If you could, for the record, explain or expand on how you——

General CARTWRIGHT. Yes, sir.

Chairman LEVIN. —arrived at that difference between the two deployments.

Chairman LEVIN. And what is the difference between the Office of Test and Evaluation's statement that I quoted before about—that the flight testing of deployed GMD systems and its GBIs, quote, "will not support a high degree of confidence in its limited capabilities," which you, I believe, said you agreed with the OT&E assessment.

General CARTWRIGHT. Right, that's——

Chairman LEVIN. Is that consistent with your 90- percent figure?

General CARTWRIGHT. It is—obviously, in my mind, it is. What they're referring to, or at least the way I interpret it in talking to them, is, the body of test data that has been produced to date gets them to a point where they are comfortable with the missile itself, but not comfortable across the entire range of the missiles' capacity. In other words, the entire envelope. Okay?

And, Pat, I'll let you jump in.

The question here is—the rest of the test program will then expand that envelope out. The threat that we face today does not expand to that entire envelope. And so, the question here is—the rest of the testing has got to be done. These are salvo issues, these are high-energy issues that, today, probably are not necessary for the threat that we're facing over the next 2 to 5 years, but, if this sys-

tem stays around, as it should, for the next 20, we need to have the full envelope.

And then, I'll turn that over to General O'Reilly.

General O'REILLY. Yes, sir. And again, we just completed a 6-month review with the operational test agencies, and we identified 101 actual critical parameters which need to be—data that needs to be collected across the entire Ballistic Missile Defense System in a comprehensive test program, which will take 5 to 6 years to complete. And, at that time, as General Cartwright just said, we will have covered all of the different scenarios, and measured the performance of the system against the predicted performance of our models and simulations in all of the different areas that the missile defense system could see over the next several decades.

Chairman LEVIN. And is this the entire missile defense system, or is this just the National Missile Defense System?

General O'REILLY. Sir, it's the entire missile—it's Aegis, THAAD, our sensors, command-and-control, and the GMD system.

Chairman LEVIN. Gotcha.

Any other questions before we excuse our witnesses?

[No response.]

Chairman LEVIN. Thank you. It's been a very informative hearing. We very much appreciate your being here, your information, what you can give us for the record.

We obviously would appreciate if you can get it to us this week.

Thank you very much.

We stand adjourned.

[Whereupon, at 11:48 a.m., the hearing was adjourned.]