

**HEARING TO RECEIVE TESTIMONY ON BAL-
LISTIC MISSILE DEFENSE PROGRAMS IN
REVIEW OF THE DEFENSE AUTHORIZATION
REQUEST FOR FISCAL YEAR 2009 AND THE
FUTURE YEARS DEFENSE PROGRAM**

Tuesday, April 1, 2008

U.S. SENATE
SUBCOMMITTEE ON STRATEGIC FORCES
COMMITTEE ON ARMED SERVICES
Washington, DC.

The subcommittee met, pursuant to notice, at 2:46 p.m. in Room SR-232A, Russell Senate Office Building, Hon. Bill Nelson, chairman of the subcommittee, presiding.

Committee Members Present: Senators Bill Nelson [presiding], Levin, Pryor, Inhofe, and Sessions.

Committee staff members present: None.

Majority staff members present: Madelyn R. Creedon, Counsel, Richard W. Fieldhouse, Professional Staff Member, and Peter K. Levine, General Counsel.

Minority staff members present: Robert M. Soofer, Professional Staff Member.

Staff assistants present: Kevin A. Cronin and Jessica L. Kingston.

Committee members' assistants present: Christopher Caple, assistant to Senator Bill Nelson, Caroline Tess, assistant to Senator Bill Nelson, Jon Davey, assistant to Senator Bayh, M. Bradford Foley, assistant to Senator Pryor, and Todd Stiefler, assistant to Senator Sessions.

**OPENING STATEMENT OF HON. BILL NELSON, U.S. SENATOR
FROM FLORIDA**

Senator BILL NELSON. Good afternoon.

Mr. Young: Good afternoon.

Senator BILL NELSON. Each of your written statements will be put in the record, and I am dispensing with, and so is Senator Sessions, the opening statement so we can get right to the questions. [The prepared statement of Senator Bill Nelson follows:] [SUBCOMMITTEE INSERT]

STATEMENT OF HON. JEFF SESSIONS, U.S. SENATOR FROM ALABAMA [The prepared statement of Senator Sessions follows:] [SUBCOMMITTEE INSERT]

STATEMENT OF HON. JOHN J. YOUNG, JR., UNDER SECRETARY OF DEFENSE, ACQUISITION, TECHNOLOGY, AND LOGISTICS, DEPARTMENT OF DEFENSE [The prepared statement of Mr. Young follows:]

**STATEMENT OF LIEUTENANT GENERAL HENRY A. OBERING
SENATOR INHOFE, USAF, DIRECTOR, MISSILE DEFENSE AGENCY
[The prepared statement of General Obering follows:]**

STATEMENT OF LIEUTENANT GENERAL KEVIN T. CAMPBELL, USA, COMMANDING GENERAL, UNITED STATES ARMY SPACE AND MISSILE DEFENSE COMMAND [The prepared statement of General Campbell follows:]

STATEMENT OF HON. CHARLES E. MCQUEARY, DIRECTOR, OPERATIONAL TEST AND EVALUATION, DEPARTMENT OF DEFENSE [The prepared statement of Dr. McQueary follows:]

STATEMENT OF PAUL L. FRANCIS, DIRECTOR, ACQUISITION AND SOURCING MANAGEMENT, GOVERNMENT ACCOUNTABILITY OFFICE [The prepared statement of Mr. Francis follows:]

Senator BILL NELSON. And as a courtesy, I want to call on my colleague, the Ranking Member, Senator Sessions.

Senator SESSIONS. Thank you. Thank you, Senator Nelson. That is nice of you, as always. And I guess we would thank each of you for your service to our country.

I know in some ways it sounds like a lot of money we are spending on missile defense. But at \$10 billion out of a \$500 billion defense budget, that is not really very much, and it does provide, both at the tactical level and strategic level, protections that are exceedingly important to us as a Nation.

So I guess I won't make much more statement than that and to say that the budget is tight. I believe that we can accomplish our goals with the President's budget, but it is not a fat budget, that is for sure. There are a lot of things we are not going to be able to do that we would like to do if we had more money.

Secretary Young, MDA has been granted integrated decision authority over requirements, acquisition, and budget for the missile defense program. This authority was necessary in order to begin deployment of our missile defense capabilities by 2004, and it appears to have been successful. It was a system, spiral system, spiral development—whatever we want to call it—that gave a certain amount of flexibility.

It is likely that had we not had that flexibility, personally, I am inclined to believe that we would not be as far along as we are. Have you had a chance to look at that or form an opinion about this different type of development program, and do you think it has any benefit as a model in any other acquisition situations?

Mr. Young: Senator, I certainly do. I have looked at it, to some degree, and I believe elements of it are highly relevant to our other

programs. In particular, across the board, I am already advocating that program managers take greater responsibility for engaging the requirements community when the requirements bar gets put much higher than the money available or the schedule available because we can't promise to deliver to those kinds of schedules.

And so, I think MDA has, especially in the confines you outlined of an urgent need to get capability out there, had the ability to make those trades efficiently and get capability fielded. And across the board, we need better ability to make some of those trades to get the best value for the taxpayer.

Senator SESSIONS. General Obering, just briefly, based on your tenure now in this position and previous experience, how do you evaluate this acquisition process that we established, I guess, 8 or 10 years ago for the MDA program?

General Obering: Well, Senator, I would say it is—it has been very, very successful for us. There has been this approach in which, first of all, we are able to trade off requirements and funding and acquisition options to be able to maximize the fielding and to be able to react to real-world situations like we have experienced in the past. So I am a very strong advocate for this type of approach.

And when you combine that with the single color of money that we have enjoyed over the years in RDT&E, that gives you a very quick reaction capability to be able to meet those emerging situations. And I think that has been one of the reasons why we have been able to produce, almost at an unmatched fashion within the department, on the scale that we have been able to do.

Senator SESSIONS. Well, it presents some risk, and it has some dangers. But I think with regard to this immature situation we started with, it has allowed us to move along rapidly.

Secretary Young, today's Washington Post reports that GAO has found 95 major DOD systems that have exceeded their original budgets by a total of \$295 billion and are delivered almost 2 years late on average. Is this correct?

And Mr. Francis of GAO testifies today that MDA has increased costs by about—has increased cost over projections by \$1 billion, as some overran their '07 budgets. How would you compare, if you are able, MDA's performance on major acquisitions with the other areas of the Department of Defense, and what is your fundamental response to this disturbing report?

Mr. Young: I certainly agree with the concerns. I haven't had a chance to review all the details of the report. I think the report documents some of the things that we have been through before I came into the office. There were six programs that went through the Nunn-McCurdy process and had cost growth, and there were programs before that.

And we still—I recently decided a program that is probably a part of that list, the C-5, where we actually made a decision instead of spending \$14 billion and recognizing the cost growth, we scaled back the program, made sure we met the requirements, and saved the taxpayer about \$10 billion.

So we are going through and attacking these programs individually, try to put more discipline in the process. I need to become more familiar with the details of the report, so I can't yet say the

numbers are accurate. But there have certainly been a number of programs that have exceeded their schedule.

In regards to MDA, it highlights the issue you asked about, where many of these programs have these problems because they had very strenuous requirements, and in some cases, probably amazingly, we actually changed and increased the requirements as we went into the execution of the program. MDA has had the benefit of not making those in general, in my view, bad choices and trying to be pragmatic about fielding an incremental capability as fast as possible and then working to upgrade that capability as money and time and technology support such upgrades.

Senator SESSIONS. General Obering, do you want to briefly comment on your perception on what this report indicates?

General Obering: Well, sir, I—yes, sir. I think that, again, echoing what Secretary Young says, the flexibilities that we have allowed and the way that we are able to really, really scrub down the requirements and also to make the trades has allowed us to stay in fairly reasonable good shape with respect to our cost variances.

Senator SESSIONS. Well, looking at this, maybe you can correct me, I guess, but it is your figure is less than some of the other major procurement agencies at least being over. Would you say that is true?

General Obering: Yes, sir. We are—overall in our portfolio, by our calculations, we are about 5 percent to 6 percent variance, and that reflects, by the way, a combination of increases in scope. For example, if you recall when the North Koreans went on alert in the summer of 2006, one of the lessons learned from that is there was an additional missile field that was requested at Fort Greely, Alaska, and also an additional interceptor to be placed on alert, an operational silo at Vandenberg Air Force Base.

So we get scope changes as part of that—those cost calculations. And so, that is not only just cost growth, per se, it is also increased capability. So I feel like we are very much, I think, on the good side of that equation.

Senator SESSIONS. Mr. Francis, thank you for your analysis. Do you have anything to add in addition or summary without repeating your written testimony or any thoughts you have on that subject?

Mr. Francis: Yes, Mr. Sessions. The report that you had referred to is something that we do every year. We look at 50, 60 programs, and we keep that data year in and year out.

So, as I was saying to Mr. Young before the hearing, I think one of the main findings out of that is the programs that get in trouble, which is a lot of them, are ones that are not abiding by the types of policies that I think Mr. Young is trying to get enforced.

It is hard to compare the cost figures on missile defense with other programs because the other programs are baselined against a total, and they generally run 10 to 15 years out. So missile defense, in a number of ways, is a level of effort program, and scope can move in and out, as General Obering said. So some scope can increase, and some scope can decrease.

But just taking that \$1 billion, that is 5 percent over 2 years, or 2.5 percent a year. But Mr. Young will be certifying programs with

a 25 percent cost breach, but that is because they last 10 years. So it is a little hard to get it apples-to-apples, but I think the billion dollars is something to be concerned about.

Senator SESSIONS. So you feel like some of the goals he has for procurement represent progress and could help eliminate some of these overruns?

Mr. Francis: Yes, I think one of the fundamental things we have found is that many programs get started before they are ready, and a lot of that analysis that we have done has been at the behest of this Committee, benchmarking best practices. And in discussions with Mr. Young's office, I know there are a lot of things he is trying to do to get programs on a much sounder footing before they hit that first big milestone, which is the Milestone B decision.

Senator SESSIONS. Well, Mr. Young, I would take that as pretty good compliment from GAO because they are a tough watchdog. They don't mind being critical when it is necessary. But that is my impression that you are seeking to have a tough, strong approach to cost to keep us within our budgets.

Mr. Young: I think they were—I do appreciate the kind comments. It is still results that I have got to put on the table. One of those, I think one we would highlight that I think MDA has tried to take advantage of on their own is prototyping and make sure you do initial prototyping and develop your technology readiness before you move forward with a product.

Now, if you are urgently fielding, you may move that prototype more quickly to the field. But across the board in the department, one thing we have to do, which does, I think, that GAO has rightly pointed out, is better mature technology through prototyping. And the Congress has actually helped here because you have given me law. You know, I would rather be running my business, but where necessary if you all tell us things that are useful, it probably helps.

And you have directed that we not move things through Milestone B without them being at technology readiness level 6. I think that is a helpful comment for the Congress—standard for the Congress to ask us to hold to.

Senator SESSIONS. All right.

Senator BILL NELSON. Senator Inhofe?

Senator INHOFE. Thank you, Mr. Chairman.

I will make this brief. I had three questions to ask, and one has already been answered, and I was just told I have someone in my office.

General, I think that one of my favorite charts is this chart. We talk about where we are, and we constantly update this. We are still naked in the boost phase. Now I would like to have you tell us, so we can keep that alive, I know there are a lot of people that are saying this isn't going to be necessary. Then, of course, the big target is the airborne laser.

And I would like to have you say, first of all, why this boost-phase capability is significant and then, second, why it is necessary to go ahead and continue with the funding of the airborne laser through next year?

General Obering: Yes, Senator—

Senator INHOFE. Through the shoot-down that will be next year?

General Obering: Yes, sir. Well, first of all, the boost phase is—in a layered defense is extremely important because, first of all, if you stop and think about it, when you are waiting until the terminal phase, you are only able to defend a fairly small footprint from a threat missile. In the mid-course phase, that defended area expands.

But if you can shoot a missile down in the boost phase, you are basically defending the entire world from that missile, number one. Number two, you are forcing the shoot-down relatively close to the origin of the launch of that missile. So, oftentimes, it is over the country's territory that actually launched the missile. And number three, it really helps in dealing with the complex countermeasure or decoy issue that comes up once you get into the mid-course phase and then into the terminal phase. So, for those reasons, it is a very advantageous capability.

Now to your point with respect to airborne laser, first of all, we have two programs in the boost phase. The airborne laser continues to be our primary boost-phase defense capability, and the kinetic energy interceptor was a backup to that in case the airborne laser did not prove to be successful.

Where we are on the airborne laser is we have completed the low-power systems flight testing. We did that last year. It was very successful. So between that and the high-energy laser firings that we accomplished over 70 of in a 747 fuselage at Edwards, we have now demonstrated all of the key technical capabilities to be able to shoot down the missile.

We have now put the six laser modules onboard the aircraft, the high-energy laser modules. We are in the process of completing the installations for the three lasers that are on that aircraft—the tracking laser, the atmospheric compensation, and then the big megawatt-class high-energy laser. We will be—at the end of this year, we should be firing out of the aircraft on the ground, and we should be going through our checks and our fire control loops and that type of thing, get back in the air early next year for the shoot-down.

Senator INHOFE. And when next year?

General Obering: In the summer is what we are shooting for right now for the shoot-down. And we think it is important to do that because, number one, we have learned a tremendous amount throughout this. It is the largest directed-energy weapon in the department, and we have really focused the entire directed-energy community in this country on this program.

Senator INHOFE. Okay. That is a very good explanation, and I would encourage you to talk about this because that program is being attacked by even a lot of people who are very strong supporters because there is just a lack of an understanding of it.

Now, lastly, let me just mention to you that on December 2nd of this past year, I had a chance to meet with the leaders and the negotiators in Poland as well as the Czech president, Vaclav Klaus, who is one of my favorite presidents anywhere in the world. And then yesterday, yesterday afternoon, I was in Stuttgart with EUCOM, and they had their whole—General Catto had all of his people in there.

I am very interested in the progress that is being made right now. You have two things with two countries. Of course, the radar with the Czech Republic and the missiles in Poland. It is—I got the impression yesterday that between December 2nd and yesterday, there hasn't really been anything that I can identify as progress.

Now they aren't opposed to it. I know the president of the Czech Republic isn't. But there is a lot of misinformation floating around that is creating a little bit of a problem. Then I got the impression also, as far as Poland is concerned, that they just want to be sure that there is a lot of money out there for them. Am I wrong?

General Obering: First of all, sir, there has been—you are wrong in one aspect. That is there has been tremendous progress since December. In fact, we have, for the most part, completed negotiations with the Czechs in a positive way. And we have—we are down to some of the final wording in the agreement. So I expect that to conclude here in the very near future in a very successful signing agreement.

With the Polish negotiations, we were set back somewhat when the government—the new government came in. And of course, as any new government has a right to do, they wanted to assess the situation where they were. We have now regained some of the momentum that was lost as a result of the change in government, and we have been back under negotiations with our Polish counterparts.

Senator INHOFE. Do you think you are in the position now that you were before the change took place in Poland?

General Obering: I think we are close, sir. And I think that we have now gotten down to the specifics on what are the steps ahead with respect to help with the modernization of their defenses and what kind of help that may mean and in a discussion with that, and try to separate that somewhat from the missile defense agreement that we think is so critically important from a timing perspective as well.

Senator INHOFE. My thinking was this that, yes, I understand that a lot of progress has been made in the Czech Republic. But until you get both of them, it doesn't do any good to reach an agreement with one without the other. You can't—you have got to—

General Obering: Well, sir. Actually, we fully intend to get agreements with both nations. But if—the radar itself is a tremendous capability in terms of the ability of that radar to feed data into any missile defense system. That could be a NATO-deployed capability—

Senator INHOFE. In the location.

General Obering:—sea-based capabilities. That would be a tremendous benefit to the overall NATO missile defense architecture. So while we certainly are on track to get both agreements, even just the radar, it would be a tremendous progress.

Senator INHOFE. Okay. Well, that is good to hear because that is not—I didn't hear that yesterday in Stuttgart. It was kind of the impression that you have got to get them both in order to make this thing work. But it does make sense if that radar could be used to deploy other systems, then that is better than not having anything.

General Obering: Yes, sir. But just to make it crystal clear, we need both the interceptors and the radar—

Senator INHOFE. Yes, I understand.

General Obering:—to provide the long-range coverage for the protection of Europe. What I was referring to is any future shorter-range coverages that NATO may deploy.

Senator INHOFE. I understand. Thank you very much.

Senator BILL NELSON. All right. The big Chairman has just come in.

I am—as a courtesy to my colleagues, Senator Levin, I am deferring to you all before I get into my questions. So let me call on you.

Senator LEVIN. Well, thank you, Mr. Chairman.

I just had a few questions that I don't know whether our witnesses had opening statements or not. I think—

Senator BILL NELSON. No, we went straight to questions.

Senator LEVIN. Straight to questions.

Senator BILL NELSON. Everything has been entered into the record.

Senator LEVIN. Let me just—I appreciate your yielding to me, Mr. Chairman. Let me just ask a few questions.

First, Secretary Young, you are supposed to be our acquisition czar for the entire Department of Defense. Do you have final acquisition authority over the programs of the Missile Defense Agency? And if not, is that because of law, or is that because of administrative decision?

Mr. Young: Under the current—I would have authority, as you rightly said, over the programs. Under the current construct, the service acquisition executive exercises authority over programs that have been delegated to them at certain levels, and in this case, most of the milestone and contracting decisions, MDA is currently exercising to move forward with the capability, the urgent capability deployment.

Senator LEVIN. Well, do you have the same acquisition authority over the MDA as you do over the other components?

Mr. Young: I think, theoretically, I do. But right now, we are not exercising MDA programs with milestones, whereas with the other services for the largest programs, I personally approve the milestones. But there are also many programs in the services that are not of such a size that I approve the milestones or service level.

Senator LEVIN. Do you treat acquisition in the MDA differently than other acquisition in the Defense Department?

Mr. Young: Yes, we definitely treat that program differently.

Senator LEVIN. And why is that? Is that law, or is that administrative decision?

Mr. Young: I don't think it is law. I think I would say it is an administrative decision made some years, a few years ago to try to urgently deploy capability and let that program be managed, if you will, as a portfolio in effort to expeditiously field capability. Some of those authorities were delegated to the MDA organization and the director.

Senator LEVIN. Has there been any discussion about changing that so they are treated like other acquisition programs?

Mr. Young: I think there have been discussions before my time, and even now, I wouldn't say that specific issue is being discussed

yet. More so we are looking to improve the department as a whole as oversight. Because as more capabilities are delivered by MDA, the services have growing roles in operating those capabilities.

So we established a Missile Defense Executive Board that has met five times in my tenure to begin to discuss MDA programs, their status, their execution, and then the transition of those capabilities. So we are taking at least a first step in better visibility and collaboration on the MDA programs execution.

Senator LEVIN. Will you review the relationship of your office to MDA for this Subcommittee?

Mr. Young: Yes, sir.

Senator LEVIN. Get back to us with any recommendations to change that so that you deal with them on the acquisition end the same way you do with all other acquisition programs?

Mr. Young: I would be happy to do that. [INFORMATION]

Senator LEVIN. Of course, you would involve the other folks who are at the table in that. You are not going to do that unilaterally. But would you set that in motion?

Mr. Young: Yes, sir.

Senator LEVIN. And just on the question of the new block structure that you have, you are going to be reporting variances, as I understand it, from the eventual schedule, cost, and performance baselines in reports that are classified. That is your current plan for your new block structure. And I am wondering whether or not you cannot make it possible to report those also in an unclassified form?

I have asked you, General Obering. Both of you—

General Obering: Sir, we would not have any trouble reporting any schedule and cost variances unclassified. Performance variances, depending on the level of the performance, reporting may be classified.

Senator LEVIN. Can you then include that in your block structure planning?

General Obering: Yes, sir.

Senator LEVIN. You will give us all of the cost, schedule, and as many performance variables as you can?

General Obering: Yes, sir.

Senator LEVIN. Now, one other question. You have not yet set the schedule, cost, and performance baselines, as I understand it. Is that correct? I am not sure. I guess, General, I will look at you for that.

General Obering: Yes, sir. We have set—we had cost, schedule, and performance that we were tracking in our old block structure. What we have gone to now with the new block structure is we have set the cost—we have allocated the budget. We are in the process of doing integrated baseline reviews for each one of these blocks. So that will be forthcoming.

Senator LEVIN. And then when do you expect those baselines would be available?

General Obering: This year.

Senator LEVIN. This year? So it could be many months before those are available?

General Obering: We want to make sure that we do it correctly.

Senator LEVIN. Would you agree, General, and I will ask also Secretary Young this question—and I think both of you have testified before to this—but I want to make sure that you understand that for many of us this is a very significant point. Would you agree that our missile defense systems need to be operationally effective, suitable, survivable, and affordable? Secretary Young?

Mr. Young: I certainly would.

Senator LEVIN. General Obering?

General Obering: Yes, sir.

Senator LEVIN. Thank you. Thank you, Mr. Chairman.

Senator BILL NELSON. Okay. Senator Sessions?

Senator SESSIONS. I would follow up on the—Senator Inhofe's question about the situation with regard to Poland and the Czech Republic. In the course of our deliberations and any bills that we pass—General Obering, I know you have met with the Czechs and know you have met with the Poles on many occasions—is it important that what this Congress passes demonstrates that we are committed to this program if and when they approve it?

In other words, can we afford just to say, well, they haven't completed all the negotiations with them yet, so we are going to put no money up? Would that have an adverse effect on the willingness of our allies to make their commitments that we need from them?

General Obering: Sir, in my opinion, when the Congress last year indicated that they were going to withhold the \$85 million of the \$310 million request pending the agreements with these nations, that sent the message, I think, to our partners and our allies that as an incentive to try to move on with getting these agreements.

If we do not fund the program this year, I think that sends a different message, which is lack of support, and that is a very different—and I don't think we want to send that message because I think, as I said, there is an urgency about this with respect to the threat, and there has also been such great progress with respect to our allies on this and in the NATO context as well. I think that would send a very, very wrong signal to not only our seriousness in this, but also the role of U.S. leadership in the overall missile defense area.

Senator SESSIONS. And this week, the President is meeting the NATO leaders. What is the message we are hearing from NATO with regard to their view of sites, the radar and ballistic missile site in Europe?

General Obering: Sir, I think that there is a couple of facets to that. Number one, I believe that there is a recognition that the threat is there, and it has to be addressed, and it is growing and maturing. Number two, I think that—and there will be, I am sure, more details coming this week. But I think that there is a growing recognition that NATO needs to do something about this within the NATO context, within their active-layer theater missile defense plan and move on with that program.

And I think that there is a growing recognition that the U.S. proposal could be integrated as we move ahead in the future with NATO. So I don't know the specific wording that will come out, but I think it will be along those lines.

Senator SESSIONS. But overall, the NATO leadership seemed to understand and made quite clear and Mr. Sarkozy of France was

quite clear that there is a threat that Europeans know they need to deal with?

General Obering: Yes, sir. And also Secretary General of NATO has been very vocal and very forceful, I think, in his description of the NATO position in missile defense and very positive about that.

Senator SESSIONS. General Obering, your budget request for '09 includes \$10 million for space test bed to begin a concept analysis in preparation for certain small-scale experiments. As I understand it, the purpose of this is to provide data that could help us make more informed decisions about the utility and feasibility of a space-based interceptor capability. Give us some more insight into your reason for that request and how it would be used.

General Obering: Well, sir, I wish that I could tell you in the next 20 years what the missile threats to the United States will be, and I wish the intel community could see that with a crystal ball, but they can't. And so, I think it is very prudent that out of a \$9.3 billion request, that we allocate at least \$10 million to maintaining our options with respect to the future, and that future, in terms of flexibility of not knowing which axis the threat may come from, is in space.

And there are things that we need to understand about that. There was a lot of work done in a space-based layer back in the 1980s on the Strategic Defense Initiative program. But a lot of that was brought to a halt in the early 1990s. We haven't done anything significantly since then with respect to this. And then if we look out to the future, we need to make sure that we have—keep our options.

We believe that there will be a debate about this, obviously, as the Nation proceeds. But we would like to be able to inform that debate with some type of technical understanding of what is doable and what is not.

It goes back to we use—we like to use knowledge points, as Secretary Young referred to, in a prototyping context, we call them knowledge points. We think it is important to establish some of the knowledge points that we may need in the future for space-based capabilities. As you say, it is a very, very, very modest request, but we think it is important to keep our options open.

And if I may, one last example? Many describe this as we don't need to be spending money for futuristic capabilities. I would look backwards and say if we had made the same statements in the mid 1990s about the ground-based mid-course system that we fielded, beginning in 2004, we would not have had a system to activate when the North Koreans launched their missiles in the summer of 2006, and we would not have been able to give the President an option other than preemption or retaliation had that been a threat.

So I think we have to be very careful about maintaining a balance. We already are fielding and developing for fielding in the near term about 75 percent of our budget. Only about 25 percent is allocated to future capabilities such as the space test bed.

Senator SESSIONS. Well, we have—you are right. We have emphasized actually deploying systems that we have developed in work because we need the THAAD and the PAC-3, and this budget that we talk about is not all ballistic missile defense. It is not all national missile defense. Huge amounts of it are SM-3s on ships,

THAADs, and Patriots that protect our soldiers in theaters that could be hostile and dangerous from missile attack, just essential parts of the Nation's defense.

So I think a \$10 million request is legitimate to explore what options might exist out there and, as you said, help inform us if we were ever to want to move forward with something in that area.

Mr. Chairman, I will turn it back to you.

Senator BILL NELSON. Thank you, Senator Sessions.

Well, speaking of THAAD, General Obering, it is a high priority. You want flexibility. Why did you propose a budget request that would delay the delivery of THAAD interceptors by a year and result in a production gap of 18 months?

General Obering: Well, sir, part of what I do in my job as the acquisition executive for the missile defense programs is to make sure that we are holding contractors accountable and that we are holding our programs accountable. Now in the case of THAAD, we had good performance with respect to our test program. They are now four for four in terms of their intercept testing, but there was cost growth associated with the program that was unacceptable.

We had worked with the contractors to take a look at the cost growth and begin to get those under control because we did not want to have a very successful program that became unaffordable in terms of the per-missile cost. The initial attempts at that by the contractor were not successful. So we zeroed out that portion of what we call the award fee incentive for them in cost management in the program. We got their attention, and they began reducing that cost growth to a very acceptable level.

In the meantime, though, that generated a bill that had to be paid within the portfolio. Now the initial blush at that was they were going to have to delay the delivery of fire units 3 and 4. We went back and scrubbed that very hard and said, wait a minute, do we have to do that? Why don't we go ahead and look at other places that are not as much value added to the program, and they did that. So now we do not have a delay in the delivery of those fire units.

So, to answer your question very directly is I don't want to reward unhelpful behavior, but at the same time, I want to maintain a priority on the program.

Senator BILL NELSON. All right. Can you boil that down then to a simple answer to the question why did you propose the budget request for the delay and a production gap of 18 months?

General Obering: At the time, we were going through, trying to see how we could reduce the cost, and we were—we had not finished that. And so, now we have done that, and we don't believe that there will be a delay in those fire units.

Senator BILL NELSON. Wasn't it that the staff of this Committee objected to the delay in February that you decided to change your plans for the '09 funds to avoid the delay?

General Obering: Sir, we had that in work—we were working that back in November, actually. So we were continually trying to address these cost growths.

Senator BILL NELSON. And so, the fix is now planned for fiscal year '09?

General Obering: Yes, sir.

Senator BILL NELSON. But that is money that we will have to appropriate in the future, a fix for '09.

All right. Secretary Young, are you committed to ensuring that our combatant commanders have sufficient inventory of THAAD and SM-3 interceptors to meet the requirements of their operational plans?

Mr. Young: Certainly, sir. Our job is to at least receive the requirements. Unless there is a cost or a technology issue, we try to meet them. And I know there is a new joint capability mix study, which you are probably aware of, that General Obering's organization is digesting and seeking to address because they have, indeed, indicated they may need greater inventory.

I would tell you MDA is balancing those demands amongst the other demands and also doing a very good thing, and that is making sure we pick the right sets of integrated capability. It may not just be THAAD, but SM-3 and THAAD that they need to address the theater threat.

Senator BILL NELSON. So the answer is yes?

Mr. Young: Yes, sir.

Senator BILL NELSON. General Campbell?

General Campbell: Yes, sir. We are committed to working with the COCOMs to give them what they need, and it is our understanding that MDA is going to adjust their budget submission so that they can meet those demands we have identified in the study. And that study is going to be briefed to your staffs this Friday. It is a classified study.

Senator BILL NELSON. So the answer is yes?

General Campbell: Yes.

Senator BILL NELSON. I can tell you that we hear from the combatant commanders, and they want this system. General Obering?

General Obering: Yes, sir?

Senator BILL NELSON. Same question.

General Obering: Yes, sir. In fact, you know, my initial mission is to do development and initial fielding, and then it is up to the STRATCOM, the COCOMs, working within the department as to what the force structure sizes are that we need to go to address. The joint capability mix number two study outlined the increases in numbers for both THAAD and Aegis SM-3s, and we do intend to address that in our POM-10 submission to be able to get to the numbers that they have recommended.

And that means that we will go in and make adjustments within our development program to be able to meet that, but that is our intent.

Senator BILL NELSON. Okay. Well, speaking of the SM-3 Block 1A interceptors, the authorization for fiscal year '08 required that any funds in the budget for fiscal year '09 for long-lead procurement of additional Standard Missile-3 Block 1A interceptors should be procurement funds. But that is not what happened.

This has been discussed between the Congress and your agency, and the department has not complied with that requirement of procurement funds. Instead, the budget request seeks research and development funds for the long-lead of the additional SM-3 interceptors. So why is your budget at variance with the law?

General Obering: Well, sir, first of all, the law was passed after the budget had been finalized for '09. We did attempt, though—we attempted because we understood the direction it was headed—to try to structure the budget for procurement. But we were not able to do so within the department because of the timing I just talked about.

Now if Congress appropriates, obviously, in the procurement appropriations, we will execute those. But we have to work within the department's context. We don't do this directly with the Congress.

Senator BILL NELSON. Secretary Young, what do you think about this?

Mr. Young: I think we need to comply with the law, where you ask us to, and certainly for POM-10, MDA is committed to looking to comply with the law. I am not sure about the timelines for building the '09 budget and whether we could have made those changes given the timing of the passage of the authorization act.

Senator BILL NELSON. Well, let me ask both of you, do you agree in the '09 funds for the long-lead SM-3 and THAAD interceptors that that should come from procurement funds?

General Obering: Sir, like I said, we will execute whatever is appropriated with respect to those interceptors.

Senator BILL NELSON. Well, what the law says is that it should come from procurement funds.

General Obering: Yes, sir.

Senator BILL NELSON. So you are saying that the appropriations may say something different than the authorization law?

General Obering: Sir, I am saying that we will abide by the law. We will abide by what Congress has asked for us within the direction and the guidance that we get from the department.

Senator BILL NELSON. You know, we are supposed to be oversight, and we have a law. And it is our responsibility to see that the executive branch of Government carries out the law. Anything else you want to say on this issue?

General Obering: No, sir.

Senator BILL NELSON. All right. In the authorization act for '08, it required the MDA to take a number of steps in its acquisition activities to improve transparency, accountability, and oversight. And those things were cost, schedule, performance baselines, and so forth. Have those requirements been fulfilled?

General Obering: Yes, sir. We have—we believe that we have made a great step forward there. We have totally restructured our programs into finite blocks of capability that can be baselined, fielded, and tracked to include the life-cycle costing of those, and we are working with the CAIG, the Cost Analysis Improvement Group, and others to be able to provide those. So we feel that we have taken great steps there.

In addition, as Secretary Young pointed out earlier, we established the Missile Defense Executive Board of which I am the secretary of and Secretary Young chairs. That is made up of principals across the department to aid in the oversight of the program and to make sure that we are complying with the—obviously the wishes of the department and the wishes of the COCOMs as we move forward.

So I think we have done quite a bit there in terms of meeting the intent of that.

Senator BILL NELSON. Okay. The question is with regard to the law and things such as cost, schedule, performance baselines, and unit cost reporting, will you provide the Committee with a specific list of all the specific actions that MDA has taken to comply with this section of the law?

General Obering: I would be happy to, sir.

Senator BILL NELSON. And when would we expect that?

General Obering: We could have that—we could have that this week, if necessary.

Senator BILL NELSON. Okay. And Secretary Young, would you help facilitate this to see that these requirements are implemented?

Mr. Young: Absolutely, sir.

Senator BILL NELSON. Okay. Senator Pryor, what I have been doing is deferring to our colleagues, let them ask the questions first. So I would turn to you.

Senator PRYOR. Thank you. Has Senator Sessions already asked?

Senator BILL NELSON. He has already, and he is going to jump in whenever he wants to again. [Laughter.]

Senator PRYOR. Okay, thank you. Thank you, Mr. Chairman, and thank you, Senator Sessions, as well. I appreciate your all's leadership on this.

Lieutenant General Campbell, let me start with you, if I may follow up on a question, a line of questions I heard Senator Nelson asking when I came into the room—I am sorry for being late—about the THAAD system and the SM-3 system. Let us see, the original inventory objective for the THAAD program was 1,250 missiles. Our current inventory objective is less than 10 percent of that. As I understand it, the people who have looked at it said that we need quite a bit more than what we have in our current inventory, at least that is the concern.

Can you explain how force structure and inventory objectives are determined for these near-term theater systems and how the process could be improved to ensure that our military has the capabilities they need to defend against existing threats?

General Campbell: Yes, Senator. Normally, we do studies. We do modeling and analysis in wartime settings by theaters, taking a look at what the threat has in their order of battle, what blue forces have in their order of battle, and we look at all the forces. We look at offensive forces, defensive forces in combination and make a determination then what is required to defend critical assets within that particular theater.

In most cases, we are never going to get to the point where we will have enough missiles to defend against every ballistic missile that an adversary is going to have. So, therefore, we consider in these protocols offensive capabilities that could reduce their effectiveness, other actions, passive defense measures that a combatant commander could take—perhaps moving critical facilities off of locations further away from the shores of an adversary.

So then we arrive and have to make determinations on risk. Do we have a low-risk situation, a moderate risk, or a high-risk situation? Can we live with those risks, given the operations we expect

to perform in that particular theater? And then that results in a number that then we will pursue for a particular system.

Senator PRYOR. Let me make sure I understand. The 1,250 original figure, was that just picked out of thin air or—

General Campbell: I am not familiar with the analysis that supported the 1,250. I know that was back in the 1990s, that particular study, but I am not familiar with what scenarios they looked at. I am more familiar with what the JCM has looked at. I am familiar with those scenarios, and I understand the numbers and how we arrived at those.

Senator PRYOR. And do you take into consideration what the combatant commanders are saying in terms of their needs?

General Campbell: Absolutely.

Senator PRYOR. Secretary Young, let me ask your thoughts on this. Does this process of determining how many, in this case, THAAD missiles—but determining how many missiles we have, can we improve that process? And does your office play a role in coming out with those numbers? Could you tell the Subcommittee that, please?

Mr. Young: I think this is a good discussion for this Missile Defense Executive Board we talked about. I would tell you that the updated joint capability mix study is a good starting point. As General Campbell rightly pointed out, we may not be able to address every threat. We may not need to because we have other offensive strike capabilities that will hopefully take out some of the threats before they launch.

But I believe we will bring this discussion into an MD—a Missile Defense Executive Board, have the discussion. The nice thing or the benefits of having an MDA organization is that we will look across the full set of missile defense capabilities and trade THAAD, SM-3, and PAC-3 and do it effectively and get a joint capability instead of single-service capability. But we will be looking at this, and we have a good starting point for the discussion with the new mix study.

Senator PRYOR. Thank you.

General Obering, thank you again for your leadership on this, and it is good to see you again. Let me ask about the Multiple Kill Vehicle program. As I understand it, we are trying to develop this MKV program. Could you give us just a quick status report on that?

General Obering: Yes, sir. The—as I have stated and testified in the past, today we have the ability to deal with simple countermeasures, and we have flown against those in our flight test program in the past. When we get to very complex countermeasures, that gives us a problem. So that is a limitation of our system. We are addressing that through a number of ways.

One is to be able to do what we call birth-to-death tracking of the target suite. The second thing is to employ more advanced sensors and algorithms, and we have deployed the radars. Now we are going to be equipping those with the algorithms that will allow us to do the discrimination. And the third piece of that is being able to equip each interceptor with more than a single kill vehicle so it can take out more than one what we call credible object.”

So we believe that is very important to meeting the intent that we have stated all along. It has actually been part of the criticisms of missile defense that you can't handle complex countermeasures. This is the way that we do that.

And so, we have a plan that we have embarked upon to provide a volume kill or multiple kill vehicle capability to our ground-based mid-course interceptors, our kinetic energy interceptors as well, along with the sea-based interceptors, the SM-3 Block 2A, because it will be large enough to be able to handle the volume kill capabilities.

Senator PRYOR. And what impact does that have on Japan? As I understand it, they were the single kill vehicle?

General Obering: There was—well, first of all, we are not walking away from the single kill vehicle. We will have that as a complement, and that is the baseline right now of the co-development with the Japanese. What we wanted to do is have a volume kill capability as a Block B of that and have the SM-3 Block 2A as the unitary kill vehicle and the Block 2B as the multiple kill vehicle.

I have discussed this with our Japanese friends. Initially, the Japanese were reluctant because they did not want to have anything that would perturb the baseline for the unitary kill vehicle. When we had further discussion with them and we assuaged those concerns, they actually sent a letter to me documenting that they were okay with the Multiple Kill Vehicle program, and we think that we are on track with that.

Senator PRYOR. And I assume that Japan, we are counting on them playing a role with our missile defense system? Is that right?

General Obering: Yes, sir. They are our leading ally right now. With respect to their own investments in missile defense, they are approaching about \$1.5 billion a year, as I recall. They are not only procuring capabilities from us, such as the Patriot 3, they are also co-developing their own capabilities like the Standard Missile-3 Block 2A I just talked about and expanding their sea-based capabilities and sensor networks as well.

So we have a very strong and robust partnership with Japan.

Senator PRYOR. And this is my last question, Mr. Chairman. But not to belabor the history on this next question, but I know that in 2002, Secretary Rumsfeld exempted MDA from some requirements that you had. And there was a concern that maybe the warfighters were not having their say in the process. And so, there is a program that you initiated called WIP, Warfighter Involvement Program.

How has that initiative worked? Are you seeing a positive change? Has it been successful?

General Obering: Yes, sir. And I am glad—thank you very much for that question.

There was a misconception when Secretary Rumsfeld exempted us from the operational requirements documents that we were walking away from warfighter requirements, and we never did that. What we were trying to do is actually be able to accelerate to meet the warfighter desires and to be able to adapt to changes in the threat and to changes in those requirements.

The requirements process that he exempted us from was a very tedious and laborious process that was difficult to change. We went

to a different model in which we do much more collaboration with the warfighter as we go through defining what the capabilities are that we will be developing and fielding. And in fact, the warfighter involvement process that you refer to is where STRATCOM, under their unified command plan responsibility as the arbitrator, so to speak, and proponent and advocate for missile defense, works very closely with us.

They gather up all of the combatant commanders' requirements via their integrated prioritized list, and they—when it comes to missile defense, they meld that into a listing for us. Then we work with them to tell them what we think is affordable, what we think is doable from a technical perspective, and when we think we could deliver that.

But I would encourage you also to ask the commander of STRATCOM, General Chilton, about that. I think that they are pleased with that process. In fact, the last discussion I had with him, he actually wants to accelerate that even more than we have done in the past with respect to our POM-10.

Senator PRYOR. Thank you, Mr. Chairman.

Senator BILL NELSON. Several of you have mentioned the Missile Defense Executive Board. So, Mr. Francis, let me ask you, as a part of the leadership of the Government Accountability Office, you have been looking at the oversight of this entire defense program for a number of years. What are your views on the Missile Defense Executive Board?

Mr. Francis: Well, Mr. Chairman, I think the executive board is more substantive than its predecessor. I think the membership is of a higher level. There are four standing committees, each with designated responsibilities that I think are intended to create a better flow of information across different areas in the department and different vested interests.

I think the executive board does have a pretty good charter about making recommendations and particularly looking at business cases for making investment. So I think on that score, the executive board is better than the support group that it preceded. And I think also that Mr. Young has been pretty active in having fairly regular meetings. I think the old support group kind of fell into disuse, and it wasn't meeting anymore.

I don't think that the executive board does carry the full weight, if you will, of a defense acquisition board on other systems, which is set up to inform and help Mr. Young make milestone decisions. So right now, the executive board is not an approval board. So it doesn't approve missile defense decisions. So it stops short of that.

And I would say there is probably some information, we were talking earlier about cost, and I think that might get resolved. But right now, they wouldn't get the full cost information that a DAB would. And to the extent that Dr. McQueary is not able to do a full evaluation of operational effectiveness and suitability, that would be something else that might limit what the executive board could do.

Senator BILL NELSON. All right. I am going to get to Dr. McQueary in a minute.

General Obering, your testimony makes a number of comments about the new block structure. You say, "Our baselines are defined.

Work can be moved from one block to another.” Does that mean before the baselines are defined that work can be transferred?

General Obering: Yes, sir, we were talking in the context of the old 2004, 2006, 2008 block structure, we had the flexibility to move back and forth in terms of the—in terms of the work scope. In terms of the new block structure, our intent is that we will define the fielded baselines. We allocate, as I said, the budget to those, and then we execute to those baselines.

Now there always may be fact-of-life changes that we will have to incur. But again, we would report those as part of our reporting process.

Senator BILL NELSON. Last year’s Defense Authorization Act required that you obtain independent cost estimates for the missile defense systems. Will you also seek independent cost estimates on your block cost estimates?

General Obering: Yes, sir, and by the way, we have been doing independent cost estimates for quite a while. So that may be some misunderstanding. But we have been doing independent cost estimates, working with the department in the past, and we intend to do so with the blocks.

Senator BILL NELSON. Mr. Francis, now you have some comments about the issue of baselines and cost estimates?

Mr. Francis: Yes, Mr. Chairman. I think missile defense intends to do a total cost estimate for each of the blocks and to baseline that. So I think one of the advantages of that is they won’t be moving scope in and out of those blocks and across, and that has made it difficult for us in the past to say, gee, are you getting value for money?

I think what we have to—one of the things, and I think you cleared it up earlier on a question, is the timeline. In other words, when is missile defense going to provide those estimates and those baselines? What criteria will it use to say when something is ready to be baselined, and then how is it going to report variances on, for example, unit costs and what assets?

So I think some of those things are to be determined, and I think that is something that MDA should work out in consultation with the Congress.

Senator BILL NELSON. Now to you, Dr. McQueary. The law requires you to report on the operational effectiveness, suitability, and survivability at the end of each 2-year block. So now with the changing of the block structure so that there are no more 2-year blocks, so would you be able to provide the report on the characterization of the effectiveness, suitability, and survivability on an annual basis in your required annual report?

Dr. McQueary: That would be the proposal that we would make to you, sir, if that serves your needs.

Senator BILL NELSON. Okay. And your organization has produced a report last October outlining the concept for a basic test plan for the proposed European GMD program, and your plan would permit an initial demonstration of whether that proposed system could accomplish its mission. You note significant differences between the GMD system and that already deployed. And your report says, “Simply testing the new two-stage booster in a flight test is inad-

equate to assess the operational effectiveness of the European deployment assets.”

So do we correctly surmise from your report’s recommendation that it represents minimum testing you believe to be necessary to permit the initial level of assessment of the ability of the proposed system to accomplish its goal?

Dr. McQueary: If I could come back to a point that I made last year of the importance of modeling and simulation? One can get by with fewer numbers of actual tests if one has high-fidelity modeling and simulation. And General Obering is expending—has expended a great deal of effort this past year. There is much more to be done in order to reach a point to where we have fully accredited models and simulation for BMD.

Now, with that being said, with high-fidelity accredited models in which we have confidence in those models based upon showing that the models themselves are responsive and duplicate information that we get from actual tests, it is our belief that for the two-stage rocket, the two-stage motor, that we—having one test that is at a what I will call a taped target, not a live target, one test that is against an actual target, and then we—and the MDA has that currently scheduled in their plans, I believe. It is our belief that we need one more such shot that simulates the actual engagement scenarios that one would see in the European theater in order to gain confidence in the modeling and simulation so that one could then explore the battle space in more detail using the modeling and simulation.

Senator BILL NELSON. So one more would be how many?

Dr. McQueary: That would make a total of three.

Senator BILL NELSON. Four? A total of three.

Dr. McQueary: A total of three in our judgment, yes. And these assume successes on each one of those, by the way.

Senator BILL NELSON. I thought there were initial three tests?

Dr. McQueary: I believe that the MDA has two, and we had indicated that we believe we need three, the third one being a test that is in an actual engagement scenario that one would see as in the European theater.

Senator BILL NELSON. Okay, we have got a disconnect on that.

Dr. McQueary: Maybe I have caused it. So I will—

Senator BILL NELSON. All right. MDA, I am told, was planning to do two. Department of Defense says, no, you need to do three?

Dr. McQueary: That is correct.

Senator BILL NELSON. All right.

Dr. McQueary: But to give full credit to MDA, the test plans that they continue to develop evolve with discussions with us over time. So that is—we continue to discuss the issue with them. It is not closed as far as we are concerned.

Senator BILL NELSON. All right. Let us go back to the models and the testing. In your annual report, you said that the system “was hampered by the lack of flight test data and unverified and unvalidated models and simulations.” So it seems that that means until these models and simulations are anchored with enough flight tests verified and validated that you are not going to be able to have confidence in the operational performance. Is that true?

Dr. McQueary: Yes, sir. That is true.

Senator BILL NELSON. All right. Your report also says, "MDA must accomplish more development, integration, and testing before it adequately matures its models and simulations and collects sufficient data to allow for verification, validation, and accreditation." Continuing, "This critical step is required before quantitative evaluation of performance can occur."

So it says that, "These models and simulations are a long way from being ready for accreditation." And that this situation "has severely hampered the efforts to characterize" the performance of the system. So is it likely going to take several more years to get these validated and verified models in place?

Dr. McQueary: Well, I think it will be measured in years. Whether it is several or whether it is a few I am not sure because we don't have a schedule for the complete development yet, and I think that is the important question to be answered. But I think most importantly, the work that MDA did in this past year of looking at the some 33 models that actually represent various elements of MDA and determining whether those models could be accredited or not was a major step forward because one has to know where one is before deciding where they want to go.

So that was done, and there are, I believe, 3 of the 33 that actually received partial accreditation. But that means there are 30 that did not, and many of those models simply do not have sufficient data from actual flight tests in order to be able to help accredit them. Now that is one step. There are a series of steps associated.

There also must be developed what I will call an MDA model that one would use for fully exploring the battle space so you can do what I will call Monte Carlo simulations—these are looking at variabilities and trajectories and so forth—to gain the confidence that this system will work in the battle space in which it is scheduled to be worked. And that applies whether we are talking with the U.S.-based system or the European-based system either.

Senator BILL NELSON. All right. Now, and your report further goes on to talk about some of the problems that have been encountered with the target missiles for flight tests, and you observe failure rates of 20 percent and cost increases of 450 percent. So you want to describe some of your concerns?

Dr. McQueary: Well, in the last 18 months, and General Obering touches upon this same subject in his prepared remarks for the record, and I believe he mentions two complete failures out of the—out of 42 units. We have looked primarily at the last 18 months because that is more near term, and out of that we have had two complete failures, and there were two partial failures in systems. And so, and the targets—

Senator BILL NELSON. Out of how many flights in the last 18 months?

Dr. McQueary: Out of, I believe, 20. I believe the number is 20.

Senator BILL NELSON. So 4 out of 20?

Dr. McQueary: Four out of 20. So you are talking a 20 percent difficulty rate and certainly a 10 percent failure rate and 10 percent more of difficulty with the targets.

The targets have become—of necessity have become more and more complex because, keep in mind, we are trying to simulate

what the threat would be. And so, inherently the targets will become more complex. In fact, they will become more complex over time.

And so, the flexible target approach that General Obering and his folks have undertaken, I think that is an important step. But nevertheless, targets have been, to a degree, a limiting factor in how fast testing could be done because some tests had to be delayed because of target failures, for example, and you have to regroup after that.

Senator BILL NELSON. As a matter of fact, you noted that in your report that a number of the important tests had been delayed or eliminated because of the target problems. Well, what about if targets were available, do you think that the Aegis and the THAAD should conduct four tests per year?

Dr. McQueary: I am an advocate of the test-fix-evaluate-test approach that General Obering and MDA has used, and that has nothing to do with my association with MDA. It has been a view that I have had for a long period of time in my career. And I spent a couple of years on Kwajalein a long time ago before many people in the room were born, and—

Senator BILL NELSON. No wonder you look so cool and collected.

Dr. McQueary: So we—and we ran 31 missions in a 2-year period of time, and I can tell you are having difficulty understanding what the problems are with a given mission before you go on to the next one. So I am a very strong advocate on complex systems to take the time to analyze the data that is collected so we can understand because data tells you, gives you information that isn't always apparent at first look on things.

So I think it is very, very important in developing highly complex systems to have good models and simulations to support it and also to take the time to analyze the data that is associated with those very expensive tests that are conducted.

Senator BILL NELSON. And therefore, you are saying then that just as they did previously, you ought to do four tests a year on Aegis and THAAD?

Dr. McQueary: I don't know whether four is the right number or not. I would tie it to the ability to be able to conduct—to be able to analyze the data and let that be the driving—driving function.

Senator BILL NELSON. What say you, General Obering?

General Obering: Sir, I think we should test to verify, not test to discover. And I believe that you should test based on your objectives and not on a calendar. And as Dr. McQueary stated, if we were going to go out and fly five or six or seven times a year and we are not learning anything different in each flight test, it is a waste of the taxpayers' money, in my mind. And these are expensive tests. They can be \$80 million or more for some of these tests.

So what we want to do is take complete advantage of the opportunity to test and understand what we learned from the previous test, and we collect—and by the way, we work this very closely with the testers. We collect just volumes and volumes of data on these tests. We like to go through and understand all of it. Sometimes it takes us months to go through and reduce that data so that we understand where we want to go for the next one.

So what we like to do is base our testing on the event structure, not on a particular calendar. Now, for planning purposes, what we stated is that we would like to target anywhere from two to four tests per year depending on the system and the maturity. But again, that depends on what stage we are going into.

As we complete the testing on the Block 1A for the SM- 3, for example, we will probably slow that down in anticipation of more Block 1B testing, which is, by the way, a major upgrade to that interceptor, much more dramatic than going from a three-stage to a two-stage on the long-range interceptor. So we like to pace our testing based on our development needs, based on the warfighter objectives, and based on the test team objectives.

Senator BILL NELSON. If you had more targets, would you do more tests?

General Obering: It depends. It all depends. If you are totally success oriented, yes, sir. If we were continuing to fly and we were successful in reducing the data, I would say that even if we were successful on every test, we would probably not be able to fly more than twice a year for the long-range program because of the complexity of those tests, the data reduction timelines, the target complexities, and the distances, et cetera. We probably could do better on the shorter range because of the simpler approach to that in terms of the rate.

But again, if you have a target failure, as Dr. McQueary referred to, we had one target failure for THAAD. We had a target failure for the long-range system as well in terms of our intercept. We only had two target failures in the last 18 months for our intercept test, but we had to go understand what that failure mode was before we could get back in the air with another target.

So it doesn't do us any good to have two targets sitting in the barn—we go out, try to fly one, and it fails and then pull the other one out—because we need to understand why that first one failed before we can pull the second one out to go fly it.

Senator BILL NELSON. Mr. Francis, in your testimony, you make the point that the original estimate for the airborne laser was that it would cost \$1 billion, and it would take until '01, 2001. And now the program has had a 500 percent cost increase, over \$5 billion, and it won't complete—complete its demonstration until 2009.

At the end of that period, we would expect that there would be an attempt to shoot down a boosting short-range missile to demonstrate proof of the ABL system. If that system works, do you believe that the initial shoot-down demonstration will constitute proof that the ABL system will work as operationally effective?

Mr. Francis: Well, Mr. Chairman, I think that the lethality demonstration in '09 is essential, and it has been kind of a difficult path to get here. But it is, I think, good that we are at this point.

I would say that the lethality demonstration by itself wouldn't be proof that ABL is the system that we are going to go full with to field for the boost-phase system because it is a demonstration, and I think what that means is that if it is successful, it says, gee, we can do this.

Then the next thing you want to do is actual testing. You know, this is a demonstration. Testing tells you how repeatable is this

and how reliable. Can we do this consistently? That would give you another data point.

Then you would have to look at and analyze what I would say is the operational practicality, which is if the asset works, can we get it where it needs to be and can we keep it on station so it can do its job? And then I think, finally, you want to say if we can do all of that, can we provide the basing, the maintenance, logistics, the people, and so forth to make that happen?

So I think it is a crucial first question here for ABL to answer, but I think there are other things you want to know before you are absolutely certain that it is the right system.

Senator BILL NELSON. So you are saying not only operationally effective, you are saying affordable, suitable, and survivable?

Mr. Francis: Yes, sir.

General Obering: Sir, may I chime in on that, please?

Senator BILL NELSON. Please.

General Obering: That is a great example of where the flexibilities and what we are approaching in MDA is offering a different solution for the department. The ABL program was an Air Force program before it was transitioned to the Missile Defense Agency. It was being acquired under the normal rules, the normal approaches. What they had done is they had established a major acquisition program. They had built up the army of people to support that, and they were working about maintainability, supportability, all of the "ilities" that everybody wants to have, and they had not even achieved first light out of the laser.

And we said stop. When we took over the program, we said, stop, that doesn't make any sense. You have got to go through and show that you have the knowledge point achieved to take the first flight of the aircraft that has been heavily modified and be able to fire that laser for the first time. Since we did that, and we have seen steady progress by that program going into the lethal shoot-down for next year.

Now I echo what Mr. Francis says. We are not looking just at a technical demonstration. We are looking at what are the lessons learned in this demonstration and what does it mean for affordability and for operational suitability? And that will be—we will collect all of this data from the test series that we will initiate here for the lethal shoot-down in '09 and then make a determination as to what we need to do to the program, not unlike, by the way, what happened on the THAAD program from 2000 until about the 2005 timeframe.

Senator BILL NELSON. Are you satisfied that you haven't sacrificed the development of the kinetic system on the boost phase?

General Obering: Sacrificed that? No, sir. The—

Senator BILL NELSON. By pouring the \$5 billion into the ABL?

General Obering: No, sir. I do not. In fact, we are the ones that initiated the KEI program, and I was a great supporter and have been a great supporter of that program over here on the Hill since I have been the director for the past 3.5 years.

So, no, sir, we were not sacrificing that. We could not get support from the Hill on the Kinetic Energy Interceptor program to get it an adequate start. We now are getting that support, and so I think it is—we do want to have an alternative.

Senator SESSIONS. Mr. Chairman, did—

Senator BILL NELSON. Go ahead, Senator Sessions.

Senator SESSIONS. Did I hear you say that how much money had been spent on ABL before it was transferred to your direction?

General Obering: Sir, I would have to go get you the numbers in terms of what that amount was, but we could do that. And especially what the budget estimates were for it back then, et cetera, we can do that.

Mr. Francis: I think, Mr. Sessions, the original, as I recall—I remember the history of the ABL. I think when it was an Air Force program, it was envisioned to be a billion dollars and about 5 years, I think, to get to lethal shoot-down. And I think right now the estimate is about \$5 billion and I think about 13 years, if that is right.

Senator SESSIONS. The \$5 billion includes the—and the date for its projected test is when?

General Obering: 2009, sir.

Mr. Francis: At that time, I recall the Air Force had the ABL program, and they transitioned it into the acquisition process prematurely because they wanted—they needed to get more money. So they actually got ahead of their own headlights, I would say, there. And as General Obering said, they were proceeding with the full-blown program before they knew, had a good understanding of the basic technologies.

Senator BILL NELSON. Mr. Francis, you recommended last year an independent assessment of the ABL program. Do you still believe that would be useful?

Mr. Francis: Yes, I think a separate pair of eyes on. I think boost phase is something that there has been quite a bit of debate on, and it is something I think that we probably know the least about if you look at the full layer of BMDS. So I still think that that is a reasonable thing to do.

Senator BILL NELSON. Okay.

Senator SESSIONS. On that, because there are real concerns here, I know that Senator Nelson has done a lot of work on it. Are we getting, did I understand that this may be the top directed-energy laser program in the Department of Defense? Is there any other, Secretary, any other programs that are doing study in this area of significance? General Campbell?

General Campbell: Yes, sir. We are doing a study for solid-state lasers not on the same scope of what General Obering is doing. But that is moving along, and we are moving towards a demonstrator over the next about 18 months of a 100-kilowatt class solid-state laser. It may have potential on the counter rockets, artillery, and mortar mission.

Senator SESSIONS. Well, I am a little—on that subject, it seems to me that we have proven that capability to some degree. Is it something we could consider deploying in areas around the globe where our bases may be subject to rockets or smaller rockets or mortar rounds?

General Campbell: We think it has potential. The problem with some of the past developmental systems, they were chemically based lasers, and there is a large logistics footprint, and it is very

difficult to move it around, very difficult in handling the chemicals with—

Senator SESSIONS. Let us talk about that. We have got the green zone and places that are pretty stable, going to be there for some time. You don't have to move a system around a lot, would you, even if it is a fairly substantial thing to move?

General Campbell: No, you wouldn't have to move it around a lot, but the effectiveness of that system against the range of threats they face, in my estimation, is not what we need today, sir. Again, it has been very developmental, limited in scope.

Senator SESSIONS. Do you see a need to accelerate that?

General Campbell: In my view, there is merit in this, and I think we should go after it sooner rather than later.

Senator SESSIONS. That is just a sort of a separate issue. But go ahead.

Senator BILL NELSON. On the high-energy laser systems test facility out at White Sands, General Campbell, in your prepared testimony you asked for "continued support to ensure the vital testing ranges are postured to perform necessary testing." Now, does the Army's budget request for '09 contain sufficient funds to keep this test facility open?

General Campbell: The President's budget for '09, we can keep the facility open. But what we lose is the contracting base that runs the existing chemical laser at White Sands. We are very much customer dependent on keeping that going.

General Obering is committed to doing testing this year, but when we get into '09, we will be in the same condition that we are in this year. The budget was approximately \$2.8 million, which keeps the Government crew on station, and we can educate some of our Government crews on maintaining the chemical laser in a mothball status. But once we go about 6 months or a year after we have lost the contracting crew, it could take us 2 to 3 years to recover the capability and quite a bit more cost to bring it back if we still needed that facility for testing.

Senator BILL NELSON. But you don't have any customers except MDA, do you?

General Campbell: That is correct. Missile Defense Agency is the one customer at the moment.

Senator BILL NELSON. So your funds in your request are just to keep it open, not to operate it and able to fully support MDA's testing plans?

General Campbell: That is correct. The current level of funding would be able to keep it in a mothballed status over the next few years. But we would not be able to conduct tests on behalf of MDA.

Senator BILL NELSON. All right. I want to ask about the Arrow. Israel is seeking an upper-tier missile defense system against the Iranian Shahab-3 missiles. And they are looking at possible nuclear warheads incoming. One of the options that they are considering is the development of, and we—we, the United States pays a big share of this. One of the options is considering the development of a new missile defense interceptor, which would also require the development of a new long-range radar.

Now, isn't this getting duplicative of THAAD and Standard Missile-3 systems?

General Obering: Yes, sir. We believe so. And that is why we have been championing having those as solutions to the concern of the Israelis. We have to work through, obviously, the nondisclosure policy committees to make sure that we can release—even to release the data on the SM-3 and the THAAD's performances to try to assuage the Israelis' concern. And we have been successful partially in being able to do that, and we are continuing to work that process.

Senator BILL NELSON. What about a Standard Missile-3 launch from a ground-based THAAD launcher?

General Obering: Yes, sir. That is one of the options that we also are investigating is taking a look at a land-based version, if you would, of the SM-3 combined with the THAAD radar is a very powerful combination, and we think, by the way, not only is it applicable to Israel but also applicable to other areas for our own defense as well as our other allies.

Senator BILL NELSON. So you think that might be the solution?

General Obering: Well, sir, that is certainly one of the options that we are putting into our analysis of alternatives.

Senator BILL NELSON. How about defending NATO Europe, General Campbell? Could Aegis, BMD, and THAAD have an important role in defending Europe against Iranian threats that exist today?

General Campbell: Yes, sir. They would play a role. In fact, if you look at the planned deployment, there is a requirement for complementary systems to protect the southeastern part of Europe.

Senator BILL NELSON. All right, and that would be true against Iranian missiles before they would get the long-range missiles?

General Campbell: Yes, sir, that is true. They are developing a missile today that can range parts of southeastern Europe.

Senator BILL NELSON. General Obering, one of the success stories is the Aegis BMD system with its Standard Missile-3 interceptor. You may not want to recognize it, but it was a collaborative program with the United States Navy. That is a joke. [Laughter.]

General Obering: I hope so, sir.

Senator BILL NELSON. And you have had impressive results. And the question is are we buying enough of the interceptors to continue to develop the system to its full potential? So can you confirm that this system with the Standard Missile-3 will have a greater capability when it has the improved software and hardware to allow launching and engaging on remote sensor tracks?

General Obering: Yes, sir. We are planning that. But if I may, I feel like a proud father because of all of my children. We have had tremendous success with Aegis. We have also had tremendous success with our long-range system, and we have had tremendous success with THAAD. So I am very pleased with that.

We have had our challenges on all of the programs. We have had our challenges on the long-range. We certainly have had our challenges on the Aegis as well. We had issues with the third-stage rocket motor and with the solid divert and attitude control system. But working together as a team, we were able to solve those and move ahead, and I feel very comfortable there.

Same thing with THAAD. We have had issues with THAAD that we had to work through with respect to qualification of components and that type of thing. But our test program that we have had

going back to 2001, and certainly since 2005, I think is a tribute to that collaboration across the board.

With respect to the sea-based, as I said in the earlier THAAD discussion, and I was asked this—by the way, I was asked this question several years back by Secretary Rumsfeld about do we not need more land-based, silo-based missiles more than the 54 that we are currently producing? And my answer was, no, sir, we don't because that is enough to keep—to provide us the persistent 24/7 coverage that we need for the United States and our allies in the regions, and where we want to go to next is to more mobile capabilities and enhance those capabilities to be able to address the longer-range threats.

And so, that is why we are moving that way as we move into the future because we have been able to secure the homeland and our allies from the initial long-range. Now let us look at what we can do for the future.

Senator BILL NELSON. Well, the joint capability mix study indicates that you need to buy about twice as many SM-3 missiles as currently planned. So—

General Obering: And yes, sir, that is our intent.

Senator BILL NELSON.—is that going to be necessary to have additional procurement?

General Obering: That is our intent. To be able to do that, we would flow that in in our POM is what we would intend. It would not require any significant capitalization to be able to do that with respect to a production rate.

Senator BILL NELSON. Is the Aegis BMD and the Navy, is that program funding going to be restored when they shot down the defense satellite?

General Obering: Sir, that was MDA money that did that, and we have asked—we have been working that within the department to be able to recover that cost.

Senator BILL NELSON. What is the cost?

General Obering: Because we took only one shot, it was roughly about \$70 million total.

Senator BILL NELSON. And you are going to get that money back from whom?

General Obering: Well, we are trying to work it through the supplemental process is what I understood. And by the way, sir, if I may, while you are on the subject, that was a great lesson in integration that was learned by many, many folks. It is something that we have been preaching for a long time.

Senator BILL NELSON. Well, we certainly compliment you on that.

General Obering: The ship could not have done that by itself, and it had to have off-board information to be able to do that, and it took the whole team to be able to do that. Now that has implications for, as you stated in your question, how we integrate land-based radars with the ships, how we integrate the ships with land-based interceptors. It can tremendously extend your detection and engagement zone. So it is a very, very powerful force multiplier.

Senator BILL NELSON. In your proposed Europe two-stage interceptor, is there going to be any difference between the two-stage

booster that you test and the two-stage booster that is proposed to be deployed operationally?

General Obering: No, sir, not at this time. We are - - we are trying to—well, first of all, just to keep it very clear, this is—this is an identical configuration with respect to about 95 percent of that interceptor. We are just removing the third stage. We are doing some modifications to the adaptors, to the software, as you state. So there are minimal changes to that.

In addition, we have other upgrades that we will do across the board to our GMD programs, but they will be factored in as we go. We are always in a state of continuous improvement, if you want to call it that. But right now, the configuration that we plan to fly for the booster verification and the intercept test is the configuration that we would plan to deploy. With—there may be minor improvements, but that is the plans.

Senator BILL NELSON. You have had some quality problems with the hardware in the ground-based interceptors. What has been done to replace that equipment, retrofit it, and how about the flight software?

General Obering: Well, first of all, some of the reliability issues that we have had, both from a qualification standpoint on the ground-based, the long-range system as well as the THAAD system in terms of the qualifications there, we have worked through, and we have been able to again be able to divert funds to do that. That was more than 2 years ago now, and now we are reaping the benefits of those rewards.

We continue to preach that in terms of the next generation of improvements on the long-range system and make sure that we are paying attention to the new configurations and improvements in the kill vehicle along with the software improvements as well. So I feel that we are on track there.

Senator BILL NELSON. Okay. And do you take the interceptors out of their silos, the ones that are there operationally? And do you use them as flight test vehicles?

General Obering: The plan is that we take them out and that we do the refurbishment for those. Some of those will be outfitted with a flight termination system so that we can use those in our flight testing. But we like to be able to test the configurations coming off the line as well.

So we do some improvements. For the most part, we can upgrade the software right through the umbilicals in the silo. We remove them for other things, like we have changed the fuel mixture and some other things to improve its performance. Those are the things that require the interceptors to be removed.

Senator BILL NELSON. Senator Sessions?

Senator SESSIONS. Well, you know, about Europe and French President Sarkozy on March 21st said this in Cherbourg, France. "In order to preserve our freedom of action, missile defense capabilities against a limited strike could be a useful complement to nuclear deterrence"—I guess that is mutually assured destruction—"without being a substitute for it."

And he went on to say, "It is in this spirit that we are taking part in the collective work of the Atlantic alliance. We have solid

technical know-how in this area that could be taken advantage of when the time comes.”

General Obering, that reflects to me a fundamental support for the concept of a missile defense system in Europe. Would you agree with that?

General Obering: Yes, sir. And frankly—I am sorry.

Senator SESSIONS. That is somewhat of a change than we have seen in the past in France?

General Obering: Yes, sir. And by the way, that is reflective. Right now, we have about 18 nations around the world that we have some type of activity on missile defense—everything from, as I stated earlier, the Japanese involvement to basic research and development across the board. And we are seeing a resurgence of this because nations are recognizing the threat. They are recognizing the urgency of this.

Senator SESSIONS. Well, there is an interesting article on the 25th anniversary of the missile defense program by Mr. Hackett. He talked—it fell on Easter Sunday, and he made reference to the fact that this is a—this is a life-saving program. It defends against attack. It doesn't attack somebody else. It defends human beings from dangerous attacks, and hopefully, we can continue to see that improve.

Dr. McQueary, I appreciate your role. It is very important. I respect your ideas about the third test there. I think it is important that we try to accomplish that if we can. But you note in your prepared statement that the hit to kill is no longer a technological uncertainty, “It is a reality being successfully demonstrated many times over the past few years,” and you note that the ground-based mid-course system, the ballistic missile defense system, “has a limited capability to defend against simple ballistic missile threats launched from North Korea toward the United States.”

So I think that represents your analysis a bit detached from the system that we are onto something that is important here.

And Secretary Young, is the Department of Defense committed not only to deploying the system that we have, but making it even more effective against sophisticated countermeasures and other type capabilities we might face in the future.

Mr. Young: Certainly. That is what the budget request seeks to continue that process.

Senator SESSIONS. And—well, I will just say this about the funding that we are in. I think the Congress has an obligation to review where we spend the money and what lower priorities could be sacrificed in favor of higher priorities. But I really think we ought to support at least the President's fundamental budget because we already see things like THAAD we wish we could do more of. We wish we could do more of some of these other systems that I think we need to do.

And finally, Mr. Chairman, I would note that, at least for this hearing, it may be General Obering's last time before us, this kind of hearing. And I have to say that during your leadership and your predecessor's, we have seen our way through some highly challenging technological problems to a day that when the North Koreans rattle their missiles, we feel confident that we can knock it

down, to we have a satellite that endangers life around the world if not undestroyed, we have proven we can knock it out of the sky.

And I do believe that enhances our security. I believe it enhances the ability of our President to make good decisions and not have to worry about being intimidated by even a relatively small nation who may have this technology, and I think, General Obering, you have testified many times. You are a very good advocate for the program and proven to be a good manager. And I wanted to express my appreciation.

We may well see you before you get away from us in November. I understand that is your expected date to depart. But at least for this kind of hearing—

Senator BILL NELSON. We can always call him back. [Laughter.]

Senator SESSIONS. What if we had a test failure, do you think we might call him back?

General Obering: I am sure.

Senator SESSIONS. Even if you have left, we may call you back.

Senator BILL NELSON. Or a success.

Senator SESSIONS. So—or a success.

Senator BILL NELSON. We might have you—when is the next test?

General Obering: Sir, the next—we have a series of tests in June with Aegis and THAAD, and then we have a July planned test now for the long-range system, and then we have another one of the long-range system later in the year, as well as THAAD.

Senator BILL NELSON. Well, why don't we have you back in July, after the July test? And of course, what Senator Sessions said speaks for the Committee as well in thanking you for your public service.

I am curious in this thought that was brought up early in the hearing. How would the Poles and the Czechs treat it if we deployed the radar, but not the launchers?

General Obering: Well, sir, first of all, as I said, they are meant to go together. That is meant to provide the coverage that we need for the longer range. It is certainly the radar provides value. The interceptors have to have the sensors to provide value as well. So we are viewing that as a package, but—and I think that they probably view that as a package as well.

But it is still—the radar, in and of itself, is a tremendous advantage to the shorter- and medium-range defenses.

Senator BILL NELSON. So you don't have a feeling about how each of those countries would feel if there were a decision by the next President just to deploy the radar?

General Obering: No, sir. I would—you would have to ask them.

Senator BILL NELSON. Okay. All right. Well, we will see you in July then.

General Obering: Don't feel compelled, sir. [Laughter.]

Senator BILL NELSON. The meeting is adjourned.

[Whereupon, at 4:26 p.m., the hearing was adjourned.]