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HEARING

ON

NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2008

AND

OVERSIGHT OF PREVIOUSLY AUTHORIZED PROGRAMS

BEFORE THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

AIR AND LAND FORCES SUBCOMMITTEE

MEETING JOINTLY WITH

SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

ON

BUDGET REQUEST ON DEPARTMENT OF DEFENSE AIRCRAFT PROGRAMS

HEARING HELD
MARCH 22, 2007

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FISCAL YEAR 2008 NATIONAL DEFENSE AUTHORIZATION ACT—BUDGET REQUEST ON DEPARTMENT OF DEFENSE AIRCRAFT PROGRAMS

HOUSE OF REPRESENTATIVES, COMMITTEE ON ARMED SERVICES, AIR AND LAND FORCES SUBCOMMITTEE, MEETING JOINTLY WITH SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE, *Washington, DC, Thursday, March 22, 2007.*

The subcommittees met, pursuant to call, at 2:06 p.m., in room 2118, Rayburn House Office Building, Hon. Neil Abercrombie (chairman of the Subcommittee on Air and Land Forces) presiding.

OPENING STATEMENT OF HON. NEIL ABERCROMBIE, A REPRESENTATIVE FROM HAWAII, CHAIRMAN, AIR AND LAND FORCES SUBCOMMITTEE

Mr. ABERCROMBIE. I am going to bring the hearing to an opening. I am very pleased to be here with my good friend, Mr. Taylor, on the Joint Air and Land and Seapower and Expeditionary Forces Subcommittee hearing.

I am going to forego opening statements. We will put those in the record or get to them later. Why don't we get started right away with Mr. Ahern?

Mr. AHERN. Good afternoon.

Mr. ABERCROMBIE. If we could get the summary of your statement right away, maybe we can get this in before the vote starts.

Roscoe, do you have an opening statement that we could postpone? [Laughter.]

Yes, we will put it in the record.

I am sorry. I was discourteous to Mr. Bartlett, which I never want to do, believe me. I have great respect and admiration for him, both personally and collegially. I appreciate that.

Mr. Ahern.

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

Mr. AHERN. Mr. Chairman, yes, sir, I do have a brief opening statement. I have submitted a statement for the record.

Mr. ABERCROMBIE. Please, yes, and that will be entered. Thank you.

Mr. AHERN. I am here this afternoon to give you an overview of the Department of Defense (DOD) Cost Analysis Improvement Group (CAIG) study on the F–35 Joint Strike Fighter (JSF) propulsion system. The Department appreciates the committee's high

level of interest in this issue. I hope you find the results of the CAIG analysis helpful.

Before I turn to the results, I will note that the Department followed the committee's direction in conducting the study, as well as supporting the Institute for Defense Analyses (IDA) and Government Accountability Office (GAO) studies that the Congress requested.

The Department kept the three studies completely independent of each other per the congressional direction. We also arranged for program officials and contractors to provide GAO and IDA extensive amounts of briefings, historical materials, and cost data, and allowed plenty of time for follow-up technical and cost discussions.

We also did not change the acquisition strategy of the engines, moving forward through fiscal year 2007 with the development of the second engine.

Let me turn now to the results of the CAIG study. Generally speaking, I believe the CAIG results support the department's view that we should cancel the F–35 alternative engine program. The CAIG finds an alternative engine for the F–35 will not result in a net cost savings. Instead, their analysis shows a net additional cost in both base year 2002 dollars, and in net present value terms, recognizing a small return on investment in then-year dollars.

In some of the highlights of the study, the CAIG did a historical look at many studies on economics or competition across a variety of defense programs. The results are decidedly mixed. In some cases, the Department of Defense saved money. In some cases the Department did not recoup the investment. The CAIG found that the behavior of defense firms on the competition is very complex.

Even given this uncertainty in the aspects of competition, for this analysis the CAIG made assumptions that are generally favorable to competition. Among these were an immediate five percent discount rate in the price of the particular system, and a steeper cost improvement curve. Annual procurement with a 60/40 split, and savings achieved in the procurement phase would carry over in the sustainment phase for components and spare parts.

The conclusions of the CAIG study are presented in written testimony, and what you see in the final report shows that competition in the case of the F–35 engine does not save the taxpayer money, even given generous assumptions that weigh the study favorably toward competition.

That is not to say that the CAIG did not find other less tangible benefits to competition. While the Department would realize a net loss, it would gain other benefits such as increased contractor responsiveness, better technological innovation, and a more robust industrial base. The CAIG believes there are risks in the JSF program, particularly from a weight perspective, and perhaps from an operational readiness perspective, and that having an alternative engine would hedge those risks.

In its preparation for submittal of the fiscal year 2008 President's budget, the Department as a whole had already reached many of the same conclusions as the CAIG. While the CAIG study did provide more substantial detail and analysis, the Department still finds weighing the costs against the benefits that there is an

acceptable risk in moving forward with an alternate engine program.

The question is not whether or not competition is good. It clearly is. The question is whether the Department at this particular time can afford the competition. We believe in this particular case the Department cannot.

Mr. Chairman, that concludes my remarks. I look forward to questions you may have.

[The prepared statement of Mr. Ahern can be found in the Appendix on page 69.]

Mr. ABERCROMBIE. I appreciate that summary. Thank you very much.

Mr. Woolsey.

STATEMENT OF JAMES P. WOOLSEY, ASSISTANT DIRECTOR, COST ANALYSIS AND RESEARCH DIVISION, INSTITUTE FOR DEFENSE ANALYSES

Mr. WOOLSEY. Thank you.

Chairman Abercrombie, Chairman Taylor and members of the subcommittee, it is a pleasure to appear before you today.

The John Warner National Defense Authorization Act of fiscal year 2007 directed the Secretary of Defense to select a Federally Funded Research & Development Center (FFRDC) to conduct an independent cost analysis of the Joint Strike Fighter engine program. The Office of the Under Secretary of Defense of AT&L [OSD(AT&L)] asked IDA to perform this analysis. I will summarize this work briefly today. We do expect to be providing a more detailed description of the analysis in a briefing to committee staff in the near future.

Our analysis first considered the investments required to execute a competitive engine program. These would occur in all phases of the life-cycle, and include both direct investments such as development costs for the second engine and also opportunity costs, such as the loss of economies inherent in larger production quantities.

We then determined the savings that competition would have to produce in order to recover this investment. We compared these required savings to what has been seen in other competitive programs. And finally, we evaluated potential benefits of competition beyond those price reductions.

We found that the direct investment and opportunity costs required to execute a second program summed to approximately $8.8 billion in constant 2006 terms. About $2 billion of this would be required over the next five budget years. Competition in procurement alone cannot be expected to recover this investment. To have the potential for recovering this investment over the JSF's life-cycle, both procurement and Operation and Support (O&S) services would have to be competed effectively. This competition would have to save about 18 percent of the total procurement and O&S cost.

This is at the upper range of procurement savings we found in our analysis of past programs, but the Department of Defense has little experience integrating both procurement and O&S into competitions, so we have no basis for estimating the plausible savings that would occur in such an arrangement.

Competition can be expected to bring non-financial benefits. A second engine program would decrease the dependence of our force structure on a single engine, reducing risks to fleet readiness. It is generally also agreed that competition for F–16 engines improved contractor responsiveness, which would be another non-price benefit of competition.

And finally, continuation of the F136 program would ensure that General Electric remains in the industrial base for high-performance military aircraft engines. Without the 136, GE's incentive and ability to maintain the skills unique to these types of engines would be uncertain, although General Electric would certainly remain a leading supplier of commercial aircraft engines.

That concludes my remarks. I have provided a more extensive statement that I ask be included in the record. I will be happy to answer your questions.

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

Mr. ABERCROMBIE. Thank you. We will do that.

Mr. Sullivan.

Are you and Mr. Sullivan here in cahoots with one another? [Laughter.]

Mr. WOOLSEY. Not at all, sir.

Mr. SULLIVAN. No, sir.

Mr. ABERCROMBIE. Okay.

Do you agree? Okay, good.

Mr. SULLIVAN. Not one bit.

Mr. ABERCROMBIE. Okay.

STATEMENT OF MICHAEL J. SULLIVAN, DIRECTOR, ACQUISITION AND SOURCING MANAGEMENT, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. SULLIVAN. Thank you, Mr. Chairman. I am pleased to be here today to discuss the engine program. I will make a brief opening statement, as my written statement has been submitted for the record.

My testimony focuses on our cost analysis performed in response to Section 211 of the Defense Authorization Act of fiscal year 2007, and examined sole-source and competitive alternatives for engine development, production and sustainment, the results of past engine programs, and impacts on the industrial base if the alternate engine program is cancelled.

In analyzing the cost for a sole-source acquisition and sustainment strategy, we estimated a remaining cost of $53.4 billion to use Pratt & Whitney as a sole-source provider of the Joint Strike Fighter engine throughout the aircraft's life-cycle, and we base that on current Joint Strike Fighter Program Office data.

In analyzing the potential costs and benefits of competition, we first use the number of U.S. aircraft expected for production, which is 2,443. We then estimated costs under two competitive scenarios: a 50–50 split and a 70–30 split of total engine purchases to either contractor. Without consideration of potential savings, an additional investment of $4.5 billion under the first alternative, and $3.6 billion under the second alternative may be required based on our analysis.

When we assumed savings due to competition, our analysis indicated that recoupment of those investment costs could occur at somewhere between 10 and 13 percent, depending on the number of engine sales awarded to each contractor. We believe it is reasonable to assume at least this much savings in the long run based on analysis of actual data from the F–16 engine competition, which indicates that competitive pressures can generate financial benefits of up to 20 percent during the life-cycle of an engine.

Other than the F–16 engine competition, there have been a number of competitions for modern fighter engines, including the F–15, the FA–18, and the F–22A. For example, the GE F404 engine, which today powers the Navy F–18 and the Air Force F–117A was competed in the mid-1980's and provided some improvements in contractor responsiveness. However, it was not optimal because it did not compete engine designs. It was a build-to-print competition.

Competition may also provide benefits that do not translate directly into financial savings, but may result in reduced costs or other positive outcomes to the program over time. DOD and others have performed studies and have widespread concurrence as to these other benefits, which include better engine performance, enhanced operational readiness, and improved contractor responsiveness.

With regard to the industrial base, the economic stakes in the Joint Strike Fighter engine program are high. While Pratt & Whitney is the sole-source provider right now of the engine for the Air Force F–22A, production is likely to end on that program in 2012. Pratt & Whitney will clearly remain a player in the Joint Strike Fighter program, whether or not the fighter engine team remains a competitor.

General Electric is a significant entity in the market for large commercial engines. However, it faces declining production within its fighter engine programs. While the overall health of the company is very strong, business decisions as to where to invest company resources could favor the commercial side should military business decline substantially.

To summarize, DOD officials noted last year that cancelling the F136 engine program would save DOD about $1.8 billion in development costs over the next 7 years. Today, we estimate that short-run cost at about $1.4 billion and estimate about $2 billion to $3 billion of further investments in production support to ensure competition in the long run.

Our analysis indicates that those investments may be recouped under a competitive approach that can generate savings between 10 and 13 percent, and we believe it is reasonable to assume savings of that much. Recent DOD studies and analyses also suggest that these investments can potentially provide non-financial benefits such as improved reliability and responsiveness.

The challenge now facing DOD is prioritizing its short-term needs within current budget constraints, that is, the need for the $3.6 billion to $4.5 billion to invest, versus potential long-term payoffs that may provide positive returns in the long run. However, they will be years out before you start getting those returns on investment.

Mr. Chairman, this concludes my prepared statement. I will be happy to answer any questions.

[The prepared statement of Mr. Sullivan can be found in the Appendix on page 90.]

Mr. ABERCROMBIE. Thank you very much.

It appears that votes that we anticipated have now been postponed for a while, so we are just going to keep going ahead.

I didn't ask, Mr. Saxton, whether you had a statement to put in? We postponed our other statements, and we will enter it in the record if you do.

STATEMENT OF HON. JIM SAXTON, A REPRESENTATIVE FROM NEW JERSEY, RANKING MEMBER, AIR AND LAND FORCES SUBCOMMITTEE

Mr. SAXTON. Thank you, Mr. Chairman. If you could put it in the record, that will be fine.

Mr. ABERCROMBIE. Fine.

Then let's go right to questions.

We will start with you, Mr. Saxton.

Today, by the way, for members, we are going in reverse order. Before, the newest members got to ask questions first in the last hearing, and now in this hearing we will go back and we will go by seniority, and then in the next hearing we will go back to the newest members.

Mr. SAXTON. Mr. Ahern, would you just be kind enough to expand on your thoughts relative to the cost analysis which your organization did on the matter of the engining?

Mr. AHERN. Yes, sir. We looked, as directed in the authorization and as directed by the Congress, at the cost of developing the 135 as the sole source. We looked at developing the 135 and the 136 as the current acquisition strategy. We looked at it from the standpoint of the acquisition writ large, both the phase currently, the Research & Development (R&D) phase, as swell as the procurement phase out through the outfitting of the three variants of the aircraft, with a projected buy at this point. And then we looked at the O&S costs out through 2064, if I recall correctly.

As we looked at it in the base-year dollars, the delta cost to the government was about $300 million over that sum total of the additional investment, the procurement, and the O&S. That would be in the base-year dollars. In the net present value, the difference was, again it cost the government money of about $1.2 billion. I think the net present value is a typical way to do this sort of analysis, but as you recall, the language asked for it to be done in all three ways.

So I think the CAIG using the historical models that they have, as well as the assumptions that I stated, particularly to weigh competition as favorably as possible in terms of the 60–40 in annual buys, a shift and rotate on the cost curve, and continuing the savings on into the O&S phase, gave the opportunities for competition the most favorable light. But at the end of their analysis, as I indicated in both the 2002 base year as well as in net present value terms, it came out to cost the government money.

Mr. SAXTON. Mr. Woolsey and Mr. Sullivan, any comments relative to Mr. Ahern's comments?

Mr. WOOLSEY. The way that we structure our analysis was similar. The 18 percent I referred to is the net present value number, rather than a constant dollar number. But we also created two situations essentially, one where we are going to build an F135 only; and another where you are going to build two engines at the same time. We structured the analysis so that the first step in that second case was to assume nothing else changed except that we are buying 1,500 engines from two sources rather than 3,000 from one. So there are no competition effects taken into account in the initial stage.

When we talk about investments, we are talking about all the cost differences that happen in that case between the two and the one engine case. Then we go back and look at the savings that would be acquired from competition to make those two cases equal, to recover all those investments, both the direct investments and the opportunity costs that would happen. That is how we got to the result that we did.

The methodology was not entirely different than the CAIG's. We have only had one day to look at their analysis, but if I understand what happened correctly, the differences between us are relatively small.

Mr. SAXTON. So the advantages to having competition is you have two sets of engines in case one set for some reason doesn't work out as we expect. Yes?

Mr. WOOLSEY. Yes, sir. That was one of the non-financial benefits. Our force structure is going to be very dependent on the JSF in future years, as you know. Should there be a problem with an engine, the question is how much of that force structure would be affected. Clearly, with two engines, the problem would only be half as severe. That is the readiness benefit that I referred to.

Mr. SAXTON. And on costs, tell us again what your conclusions were on the cost of proceeding along the two lines.

Mr. WOOLSEY. The conclusion on cost was that if you can save 18 percent on both procurement and O&S through competition, that it becomes a break-even case for finances. That second part about O&S is critical, however. We have never competed O&S in this way where you would tie the support services to a procurement contract in order to maximize competition between two independent engines and two independent support structures. So we can't estimate what savings are possible with that. All we can say is that if you get 18 percent across both parts, procurement and O&S, that you would break even.

Mr. SAXTON. What is the incentive to work toward 18 percent?

Mr. WOOLSEY. In a competition case, if you tie the O&S to the procurement, you can envision an acquisition strategy where in a given year the contractors are faced with the opportunity to bid some number of engines and support for those engines over some number of years at a given price. So then they have an incentive to offer a low price on O&S. We have no idea what the effect of that competition would be, but that is the structure.

Mr. SAXTON. Going into the process, would each of the competitors have reason to expect that there would be an engine buy of some number from their side of the competition?

Mr. WOOLSEY. That would depend on the specifics of the acquisition strategy. My understanding is that what is envisioned now is something like a 30 percent minimum, 70 percent maximum year-by-year arrangement, but that depends on the details of the acquisition strategy.

Mr. SAXTON. This is kind of a new set of issues for me, but it just seems to me that one of the competitors or both of the competitors could certainly factor in as a major component its profit if it is guarantee some buy, and not have to worry so much about what the savings are.

Mr. WOOLSEY. Are you referring to the idea that a competitor could settle-in at the 30 percent rate and charge—clearly, you would have to have an off-ramp in the acquisition strategy so it is not a guarantee of 30 percent in perpetuity. Our job was not to design an acquisition strategy—I want to be clear about that—but that seems like a solvable problem.

Mr. SAXTON. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Thank you.

Mr. Taylor.

Mr. TAYLOR. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. I want to say that we will pursue some of the implications of this as we go along. We are just trying to stay between five and six minutes for purposes of the opening round. Mr. Taylor will be next.

STATEMENT OF HON. GENE TAYLOR, A REPRESENTATIVE FROM MISSISSIPPI, CHAIRMAN, SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

Mr. TAYLOR. I want to thank our panelists. I deeply regret your last words, Mr. Woolsey, when you said your job was not to design an acquisition strategy, because I am going to go straight to that point.

As you know, the Marines are looking at vehicle called the mine resistant ambush protected vehicle (MRAP). They have eight competitors. They are going to down-select to two, and then they are going to select the vehicle they want, but they are going to own the rights to the plans, which means they can turn around and take those plans, put them out on the market, who can build a lot of these in a hurry, and what is your price.

I was wondering, with that in mind, did any of your calculations include the possibility that you compete two engines, that the Nation selects the better of the two engines, but owns the specifications and the plans for that engine, and owns the right to then put it out for bid for the manufacturer of that engine. Was that ever worked into your equation? If it was not, why not? Because that seems to me to get the best value for our Nation.

Mr. WOOLSEY. We did not explicitly work that into our equation. The difficulty in that would be to determine how much the one vendor would charge for the data rights to that.

Mr. TAYLOR. Let's back up. Aren't we paying them to develop this engine? Isn't a substantial amount of the American taxpayers' money being paid to these people to develop an engine?

Mr. WOOLSEY. I am not familiar with the specifics of the contract in this case, but it is not unusual that the data rights are a separate issue that is negotiated in or not.

Mr. TAYLOR. That is not the question. Okay, so what would prohibit us from doing it that way? To your knowledge, is there anything, since we are able to do that with the MRAP, since apparently that is the game plan for the acquisition of the LCS, what would prohibit, if anything, our Nation from doing that in this instance?

Mr. WOOLSEY. I am not aware of anything that would prevent it.

Mr. TAYLOR. Okay. So what you are telling me is that that scenario, you never put a pencil to that scenario.

Mr. WOOLSEY. No, sir.

Mr. SULLIVAN. Sir, if I might. When we were looking at this, the mandate that we were working on here, we did come across, I think the F404 engine, for example, is an engine that GE—

Mr. ABERCROMBIE. Could you put the microphone a little closer to you, Mr. Sullivan, please?

Mr. SULLIVAN. Yes. The F404, which is currently on some F–18s, and I think it is on the F–117A, was GE's engine and it was a sole-source engine at the start of that program. They did exactly what you are talking about. They took the blueprint of that engine and gave it to another contractor to manufacture. And they got improvements in mostly the non-tangibles that we talk about—contractor responsiveness, reliability, things like that that were improvements.

There wasn't a lot of cost improvement, though, because I think in order to really leverage cost improvements into a program, you have to also compete that design, because there is a lot of savings that can be built into a design itself if you have two people competing.

Mr. TAYLOR. Mr. Sullivan, I am not doubting that. I could very much envision where someone can come up with a better engine, a more fuel efficient engine, a more reliable engine, more thrust-per-pound engine. I can see a lot of scenarios where one would be better than the other.

But once you get past that, and once you have blessed one as better than the other, why wouldn't it make sense for our Nation to then turn around and say we own the specifications to this engine; we have paid for its research and development; and now we are going to put it out for bid. And actually you could bid it several ways. You could bid for 3,000 engines. You could also get a price for 1,500 from each of the potential vendors. And then build in an incentive for them to give you a better price on the total buy.

So again, I am asking this in the form of a question. What would be the downside to that? Because I don't see a downside just yet.

Yes, sir. I will open that up to the panel.

Mr. SULLIVAN. Are we talking about for the Joint Strike Fighter Program now?

Mr. TAYLOR. Sure. Yes.

Mr. SULLIVAN. I would just say kind of off the top of my head, I don't think there would necessarily be a downside, but I don't think you would get all of the leverage that you could get if you

had two contractors competing from concept all the way out, because they would compete reliability into the basic design itself.

Mr. TAYLOR. Is it possible that one would have a better design shop and another a better manufacturing capability? Right?

Mr. SULLIVAN. Theoretically, I think yes. Like I said, I don't think there is necessarily a downside.

Mr. TAYLOR. Is there anything in the present contract that would preclude that from happening, that you know of?

Mr. SULLIVAN. I don't know that right now. We can get that information, though.

Mr. TAYLOR. Would you please?

Mr. SULLIVAN. Yes.

Mr. TAYLOR. Thank you very much.

[The information referred to can be found in the Appendix on page 191.]

Mr. ABERCROMBIE. Thanks.

Mr. Bartlett is next.

STATEMENT OF HON. ROSCOE G. BARTLETT, A REPRESENTATIVE FROM MARYLAND, RANKING MEMBER, SEAPOWER AND EXPEDITIONARY FORCES SUBCOMMITTEE

Mr. BARTLETT. Thank you very much.

So that it is clear why we are here today, I have just one very simple request. If you would tell us, please, why this program had originally anticipated a competition between two engines; how we got to where we are today, that there isn't any funding for the second engine; and what risks we have if we don't put funding in so that we do have competition.

Mr. AHERN. Yes, sir. I will try to answer that question. My recollection of the original strategy was that there were three aircraft manufacturers and each of them chose an engine manufacturer in the original competition, and it was a Pratt & Whitney engine, and Lockheed Martin was selected to develop the aircraft, and Pratt & Whitney was selected to develop the engine.

From that point, there was a decision to fund the second alternative engine development about four years after the first engine development started, if I recall correctly. And that second engine continues along, as I said earlier, through 2007. And then finally, your question, as I recall, the risk that we would incur if we don't continue with the second engine.

I think that the intangible values that I presented and that the other panelists presented, are the ones that I would recognize—the responsiveness of the contractor in the face of competition; the technological investment that the contractors will tend to make in competition; and the fact that if there were a catastrophic failure, a discrepancy to an engine that was the only engine on the jets, that that could ground the fleet for some period of time.

So those are the risks, I think, inherent that we are accepting. But as I said earlier, it is an affordability situation with a very mature technology in the F135 engine. I hope that I have answered your question, sir.

Mr. BARTLETT. You indicated risk. Would that be low, moderate or high, if we don't proceed with funding the second engine?

Mr. AHERN. I think, and this is based on my experience, and I was an aviator, as well as maintenance officer in the Navy, I think that the risk of going forward with a single engine will be low. I think that the 135, and this is a generation or more since I flew, the engine technology has advanced significantly. The 135 is derivative of the 119 that is flying on the F–22s now. And though there remains development to be done, I think that the risk in going forward with the 135 only is low.

Mr. BARTLETT. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Mr. Ortiz.

Mr. ORTIZ. Thank you, Mr. Chairman.

Mr. Ahern, in your testimony, you did not address the effect the alternate engine program would have on current and future international participation, including foreign military sales (FMS). I was just thinking maybe you could address this. I think that there are several countries who are involved in this project, when we look at the overall Joint Strike Fighter. I was just wondering if the longer you wait, and of course you have to do your job, but the longer you wait, the more costly it becomes. I know that I read some testimony that it will save 40 percent to 20 percent.

But what is this going to do to foreign military sales and those people that are involved in this project? Maybe you can elaborate a little bit on that.

Mr. AHERN. Yes, sir. I will make an attempt to capture it as I see it. There are, of course, partners in the F–35 development, so it is not really an exact analogy to a foreign military sale. My understanding of the situation is that it is in the U.S. that is looking for and funding the alternative engine. Rolls Royce, as you know, is a part of the industry consortium as it is going forward now. They are a sub to Pratt & Whitney in developing the lift fan. They are teamed with General Electric on developing the F136.

I am not able to address the other international participation in either the 135 or the 136, but I think recognizing that the engine itself, the propulsion system, is perhaps 20 percent of the total content of the jet. I think focusing only on the propulsion system as we are discussing this in terms of foreign involvement, industrial base involvement, would probably miss the total picture.

So I think that the other governments that are involved as partners with the United States in developing the 135 have evinced interest in an alternative engine, but have not evinced so much interest that they want to participate in the funding of it.

That is all, sir.

Mr. ORTIZ. My time is up.

Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Thank you, Mr. Ortiz.

Mr. Miller.

Mr. MILLER OF FLORIDA. Thank you, Mr. Chairman.

Mr. Ahern, have any of the congressional actions dealing with the budget on JSF hurt DOD's working with international partners, either retaining them or acquiring them, all of the machinations that have been taking place?

Mr. AHERN. Not that I am aware of, sir.

Mr. MILLER OF FLORIDA. Could you comment? We have seen a lot in the press about the GAO's report. But can you comment what your thoughts are on the GAO report?

Mr. AHERN. The current GAO report that is the subject of this hearing, sir?

Mr. MILLER OF FLORIDA. Yes.

Mr. AHERN. Frankly, I only became aware of it, of course I knew that they were involved, but I only saw just a little bit of the top surface of it yesterday afternoon. I can't comment too much further. What we saw in doing our analysis, the CAIG analysis, which we looked at, as I said in my written statement, a need to achieve a 21 or so percent savings across the acquisition in order to get to the break-even point, which as was characterized by my colleague to the left, Mr. Woolsey from IDA, he characterized 18 percent as high, and 21 percent as unlikely.

In my preparations for this hearing, I discussed with the CAIG some of their experiences on competition. Again, as I said in my written testimony, there is wide variety from 20 percent more cost to the government, to a savings of 40 percent in competition. So my takeaway from that entire thing is that I think the CAIG and, as I understand, IDA looking at it from the same perspective, that the opportunity to get back the savings is going to require a savings that is not all that likely.

GAO postulates a lower savings number required. Without an opportunity to look carefully at the GAO report, which I think we will probably do, I wouldn't really be able to comment any farther.

Mr. MILLER OF FLORIDA. I would hope that you would look very carefully at the GAO report, and if you would for the record, take that question. I would be interested in knowing what your thoughts are after you have had an opportunity to go further than just the top few pages.

Mr. AHERN. Yes, sir. I will take that for the record.

[The information referred to can be found in the Appendix beginning on page 177.]

Mr. MILLER OF FLORIDA. That is all, Mr. Chairman.

Mr. ABERCROMBIE. Mr. Ahern, for the benefit of the record and for those who may not be familiar with it on the committee, we have new members as well. You are referring to, and others have referred to the Cost Analysis Improvement Group, the CAIG. Can you state for the record what the relationship is of the Cost Analysis Improvement Group? What it is, who it is, in relation to the portfolio systems acquisition, and perhaps to Mr. Woolsey's Institute for Defense Analyses—if he doesn't mind you characterizing it for him.

Mr. AHERN. Yes, sir, Mr. Chairman. The Cost Analysis Improvement Group works for the secretary of defense and is an adviser to Mr. Krieg on matters of cost of the investments. Mr. Krieg, of course, is the under secretary of defense for acquisition, technology and logistics.

I work for Mr. Krieg. Actually, I work for the deputy under secretary of defense, Dr. James Finley, who is the acquisition and technology. Portfolio systems represents the warfare offices, if you will. I am responsible for the oversight on behalf of Mr. Krieg and

Dr. Finley of the major Department of Defense programs in air, land, sea and in strategic weapons.

So I work with the CAIG as we are moving forward programs toward milestone decisions, where as I said earlier, the CAIG advises Mr. Krieg.

Mr. ABERCROMBIE. Do you consult with or stay in touch with or acknowledge in passing Mr. Woolsey and his institute?

Mr. WOOLSEY. Yes. I wanted to clarify two things. First about the savings rates, we didn't characterize it as likely, unlikely or otherwise. We did look at some engine programs in the past and competitions that occurred, and found a range of savings there of 11 percent to 18 percent. Obviously, our number of 18 percent is the upper end of that range. I want to make it clear we are not characterizing it at all, and that the O&S savings and the possibilities there put a lot of uncertainty on the possible savings, but it goes in both directions.

Mr. ABERCROMBIE. Yes, but aside from that, and I appreciate that clarification. For purposes of institutional placement, and again for the benefit of the members and for those observing who may not be familiar, you provide an independent analysis in your institute. Right?

Mr. WOOLSEY. Yes.

Mr. ABERCROMBIE. I merely want to establish for the record institutionally how you fit in.

Mr. WOOLSEY. Yes, sir. We are a federally funded research and development center, which means that we are a nonprofit organization. We work for the Office of the Secretary of Defense and some other Defense agencies. In this case, we worked for Ms. Diane Wright, who was our sponsor, who works in Mr. Ahern's office.

But everyone acknowledges the unusual situation here, while we were doing work directed by Congress, in a discussion that OSD had an interest, the sponsor took a distinctly hands-off approach to our work. They did not inquire as to what our results were, and made no effort to guide the results. So although formally we were sponsored by OSD, they did not try to guide our results in any way.

Mr. ABERCROMBIE. And that was required by the legislation?

Mr. WOOLSEY. Yes.

Mr. ABERCROMBIE. Okay. Is that clear to everybody then? Mr. Sullivan, does that seem like a fair summary to you, speaking as an outside observer?

Mr. SULLIVAN. Of their relationship?

Mr. ABERCROMBIE. Yes.

Mr. SULLIVAN. I really don't have any working knowledge of that. Yes, it seems fair to me.

Mr. ABERCROMBIE. Okay.

Mr. SULLIVAN. As we did this, I think we all pretty much stayed to ourselves.

Mr. ABERCROMBIE. Okay. Excellent. Thank you.

Next would be Mr. Marshall.

Mr. MARSHALL. Thank you, Mr. Chairman.

I want to follow up a little bit on what Mr. Taylor asked about data rights. It sounds as if there had not been a lot of thought given to the question of whether it would be more cost-effective for

us to compete for design, acquire data rights, and then contract for the actual manufacture of the machine, the engine that we own.

That brings up a subject that is fairly near and dear to my heart. Long-term sustainment, maintenance and modernization of engines probably isn't as significant a challenge as platforms themselves. But do you, in competing this for these engines, do you take into account the long term?

Who is going to maintain, modernize—if there is going to be any modernization on an engine—who is going to be sustaining the engine over the long haul? Is that going to be done in-house, by contractors? Do we figure out whether or not we are going to buy this engine fairly inexpensively now, but then pay an awful lot of money over the long haul for it to be upgraded, modernized, sustained? That sort of thing?

Or do we take all of that into account right now in deciding what the purchase price is? Who is offering us the best deal? Any of you gentlemen. This is maybe not quite where you were in the study you were asked to do, but it sure would be helpful to me to hear your thoughts on that.

Mr. SULLIVAN. Yes, if I understand the question we are talking about——

Mr. MARSHALL. It is probably inartfully phrased.

Mr. SULLIVAN. Sustainment costs.

Mr. MARSHALL. Well, we know that if we acquire an asset that we are going to have around for a long period of time, we will have to maintain that asset and will incur costs doing that, and we may decide to upgrade that asset at some point in the future, and we can anticipate that we might do that.

Do we take all of that into account in the contracting process, so that we best posture the taxpayers in the long run cost-wise? Or do we not, and we look for less cost now. Let's acquire it and not worry about we are going to have higher costs on down the line, maybe contractor maintenance and that sort of thing.

Mr. Sullivan.

Mr. SULLIVAN. Well, when we did this study, we made an assumption about the life-cycle of the program, the O&S costs, if you will, that pretty much piggybacked off what the program office strategy is right now. That is to compete on an annual basis, I believe. If they do go to competition, then the competition would be aligned in a way where they would compete the sale of the engine, along with a competing price for the maintenance of the engine as well.

I don't know if the phrase "power by the hour" is appropriate here, or if it is something that you would understand, but on the F–16, for example, that was kind of the way that they did that competition. So that the contractor who is responsible for a set cost will maintain the engines through the life-cycle.

Mr. MARSHALL. Is this the kind of thing you can anticipate, that it is going to need maintenance at 100 hours of 1,000 hours, and it is going to need this kind of maintenance, so it is very easy to expect what is going to occur?

Mr. SULLIVAN. The numbers that we used in making our assumptions was I think the program office looks at 300 flight hours

per year over a 30-year period. So basically, the costs are going to be based on that 300 flight-hour number.

Mr. MARSHALL. And then you just discount to the present what they are saying they will do the maintenance for? I am trying to figure out what is best value.

Mr. SULLIVAN. I am not sure. The program office's acquisition strategy will play all that out, I assume. I don't have a whole lot of information on how they are going to compete those things, but it will be an annual competition throughout the 30 years of the manufacture.

Mr. MARSHALL. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Mr. Davis.

Mr. DAVIS OF KENTUCKY. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Don't feel all alone down there.

Mr. DAVIS OF KENTUCKY. I am just sitting here at seniority OP-forward right now. [Laughter.]

Mr. ABERCROMBIE. You are the point of the spear right now.

Mr. DAVIS OF KENTUCKY. I have felt the point of the spear, too, but with you at my back, Mr. Chairman, I know no fear at the moment, so thank you for your leadership. [Laughter.]

We hope you hold a retreat on this in your home state so we can discuss this issue further out there.

I would like to come at this from two ends, one as a former military aviator, seeing one of my former colleagues out in the audience right now, but also as a manufacturing professional. Coming from both of those worlds, I would really like to highlight Congressman Taylor's comments. The gentleman from Mississippi I think made a very, very valid point, particularly in the diversity of operations.

Having seen a little bit of the inside of the defense contracting world in aerospace and also been at the receiving end of the military, where we watched one entire aircraft fleet go down. Had it not been for the 1957 Chevy of helicopters, the UH–1 HUEY, there wouldn't have been any flying for about a four-month period due to a significant contractor error.

My concern in particular is about this elimination of competition. I really can sense a lack of creativity, a lack of initiative among operating units. In particular, one's design and prototyping function might be quite robust and might be innovative, but their manufacturing might be somewhat antiquated. I have been on the inside of contractors and seen this, having done Lee Manufacturing implementations for many years.

On the other hand, the other contractor that might not be so robust in the development side, could be extremely powerful and strong on value engineering, sustainment, logistical support, the ongoing engineering for parts redesign, improvements in efficiency and upgrades.

That being said, first for Mr. Ahern, do you believe it is really wise and sound from an acquisition policy standpoint to forego competition—considering many of these values that I don't think have been quantified necessarily in the DOD studies—and award Pratt & Whitney a sole-source contract, and effectively put them in a monopolistic position?

Mr. AHERN. Yes, sir. I understand your question. I do think that the department understands, as you have articulated, the tangible-intangible benefits of continuing competition. However, considering the other requirements on the department's resources, the affordability issue, and the good performance on the 135——

Mr. DAVIS OF KENTUCKY. How about if we gave you the money and we take the affordability issue off the table?

Mr. AHERN. Yes, sir. I understand that, but the 135 has done well. It is, as I said, derivative of the 119 that is flying in the F–22 now. I do think that considering the maturity of the engine, the affordability issue, and factoring in the risk, that it is a well-founded decision.

Mr. DAVIS OF KENTUCKY. I would tend to disagree with that. I think from a strategic perspective in the long run, I think cross-pollinating between the manufacturing businesses is more valuable to the Nation than perhaps the shareholders will be. But I think we have some other issues that we have to concentrate on. I just met with the Under Secretary of the Air Force, Dr. Sega, yesterday, talking about the need for math and science specialties.

I think one of the impacts that we are going to have is by going sole source, we also are going to see a lot of engineers leave the aerospace and defense field that we desperately need to compete with emerging powers in Asia and India, other threats as well from a competitive standpoint.

Those skills are somewhat unique and arcane to this business versus the commercial world. I would say I believe this committee would fund a relatively small shortfall like that, particularly knowing what we are doing on throwing money into other things, to get a defense spending bill passed.

In that same vein, I would like to redirect a question to Mr. Woolsey and Mr. Sullivan for one moment on this. Other than cost, just raw dollars based on the criteria that had been used internally to do this, I think there are some hidden long-term costs that emerge by doing sole source. What conclusions did your study reach about the value of competition, if we might take a more macro view of it?

Mr. WOOLSEY. We found three benefits that could come from competition outside of price, and those were the readiness issue that you allude to. Obviously when a large part of your force structure is dependent on one airplane, if there are two different engines, an anomaly is only going to affect half as much of the fleet, whether that is a catastrophic anomaly that requires groundings or a chronic one that requires continued readiness work. That is a benefit that comes from competition outside of price.

The ability to ensure that GE stays in the fighter engine business is another benefit. That brings resources to the DOD problems that may or may not otherwise leave. They are going to have to make a business decision about whether they want to keep the military-unique skills should this program be cancelled. So that is certainly a benefit.

And then from the earlier great engine war, all parties seem to agree that the general way that the contractor worked with the department changed when competition began. If that were to occur again here, that would also be a non-price benefit.

Mr. ABERCROMBIE. Mr. Sullivan, could you give a 30-second answer?

Mr. SULLIVAN. Yes, sir. First of all, the F135 engine has really just begun testing, so I think there is still a lot of concerns about the ability for that engine to get through all the hoops it needs to get through. About half it is ground testing, and it has just begun flight testing.

There are always weight concerns on aircraft programs and the engine has an impact on that. So that is one thing right now that, if you had another engine competing with that, I think, as has just been stated, if you have a single point of failure, you have less trouble.

In addition to that, I think competition will drive innovation and improvements in value engineering, and a lot of the things that you talked about if on an annual basis they have to compete, not only for procurement of the engines, but for maintaining the engines as well. Two people competing for that will tend to drive reliability, and contractor responsiveness historically has gone up if you have competition. The "great engine war" I think is where you really saw that in spades.

Mr. ABERCROMBIE. Thank you, Mr. Sullivan.

Mr. DAVIS OF KENTUCKY. Mr. Chairman, if I could just beg your indulgence for 30 seconds to just make a quick parenthetical statement?

Mr. ABERCROMBIE. Sure.

Mr. DAVIS OF KENTUCKY. I know my bias toward competition is very clear. It is no slight to the high-quality product that Pratt & Whitney has produced, but one thing I would like to make a statement from that I saw first-hand in the late 1980's in the most rapid helicopter-arming program since the early stages of the Vietnam War for a special operations community project that helped this country greatly.

The prime contractor, who happened to be the sole source on the aircraft for principal aircraft components, was so sluggish in its ability to respond that the Defense Department needed to step outside to a series of small, what I might call high-tech, mom-and-pop, homegrown contractors who effectively built a state-of-the-art product in a couple of months in a series of garages.

Having seen that first-hand and how quickly it was able to be flight-tested, certified and taken to the field reiterated to me the importance of competition.

With that, I yield back. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Thank you.

Mr. Courtney. And Mr. Ellsworth will follow.

Mr. COURTNEY. Thank you, Mr. Chairman.

Just to follow up the last line of questioning, there is a suggestion that somehow going sole source is something different or new. The fact of the matter is even with that experience in the 1980's, the Department of Defense has still pursued sole-source purchasing for engines for many programs. In fact, General Electric has benefited from some of those decisions—the F/A–18 and the Blackhawk.

I would just ask Mr. Ahern, the decision to go sole source is not like we are deviating from some pattern that we have been following for some period of time. Isn't that correct?

Mr. AHERN. That is correct. Yes, sir. That is a correct statement. At some point in almost every development or acquisition, we eventually do go sole source.

Mr. ABERCROMBIE. Mr. Ahern, I am sorry. I believe your microphone is not on.

Mr. AHERN. Yes, sir. You have characterized the department's acquisitions in general, that either in the beginning or at some point early on, we tend to go to sole source. As you indicated, the F/A–18 is an example of that, where we have General Electric as a sole source for those engines.

Mr. COURTNEY. Just to follow up on that, Mr. Sullivan in your report, you raise the question of industrial base in terms of GE's future. The fact of the matter is they have got actually a fairly robust schedule of producing engines for the F/A–18 and the Blackhawk into the 2020's. So it really isn't like there is some major decline that they are facing in the immediate future, sitting here in 2007, is there?

Mr. SULLIVAN. GE is a very healthy company, especially on the commercial side, they are extremely healthy right now. On this issue of supplier base, GE, what it would do for GE is I think it might give them a mindset where they may want to reallocate dollars. I don't think it would crush them. As you said, they still do have military engine production. But I think it would give them cause to perhaps reallocate. Long term, I think it could have an impact on the industrial base down the road.

Mr. DAVIS OF KENTUCKY. Would the gentleman yield for just one second?

Mr. COURTNEY. Sure.

Mr. DAVIS OF KENTUCKY. Just on that point, I recognize the great benefits to the state of Connecticut and the affiliated tier one and tier two manufacturer supporting Pratt & Whitney. This is really a bigger issue about manufacturing expertise, agility and adaptability going out in to the future.

Mr. SULLIVAN. I think the thing is, GE knows how to make engines really, really well, and there is an awful lot of commonality between making commercial engines and making military, but there are unique things about making military propulsion systems that GE may decide if they do reallocate their dollars, they may lose some of the learning that they have in those areas.

Mr. COURTNEY. Thank you. I just actually wanted to go back to Mr. Ahern, because you described the 135 as mature, or something that is achieving maturity in terms of its reliability, which obviously is an important concern that we don't have some type of failure. Mr. Sullivan seemed to indicate that maybe it is not that far along. I just wonder if you could just respond to his comment about whether or not we have something here that the taxpayers or pilots can rely on.

Mr. AHERN. Yes, sir. As I indicated earlier, the 135 is derivative, an extension, if you will, of the 119. It has been flying on the first of the conventional takeoff and landing jets. I believe some number of them have been delivered and are in ground test and to my knowledge, progressing through the ground test in a good fashion.

Mr. COURTNEY. And last, Mr. Sullivan, looking again at these break-even numbers here in the three reports, which obviously

there is quite a bit of spectrum here, I just wonder if you could respond to the other report's suggestion that the break-even percentages are going to have to be a lot higher for the taxpayer to see savings.

Mr. SULLIVAN. Yes, thank you for asking. First of all, I think one of the key assumptions that we made is we did not include costs already sunk in the program. I am not sure how much money that eliminates, but if I am not mistaken the other two studies may have included some of those sunk costs, which means there are costs that they included in this that are gone already. We believe that we should just do what is left, what the Congress will have to invest in this. So that is first.

The next thing we did is we took the sole-source scenario and said, what has to happen here if you want to infuse competition into this program from this point forward, not from fiscal year 2007 and back—that is the sunk cost. What has to happen in that scenario is I believe there is another $1.4 billion that have to be invested in systems development and demonstration for the jet engine team's engine. So there is $1.4 billion.

And then the other costs associated with infusing competition is you are going to have under the two scenarios we used, we looked at if one contractor got 70 percent, then another got 30 percent, and then we looked at if each contractor got 50 percent. Those were the two data points that we went after. When you look at that, you have to assume a loss of learning on the part of the sole-source contractor if they now have less engines to learn over, so that the learning curve is going to be less steep.

When you include those, what we call "investment costs," under the 70–30 scenario, I believe it was an additional $2 billion. Under a 50–50 scenario, it would be $3 billion. So in other words, you would have less learning from both of them if you had 50–50. It gets down to the fact that what you have is in order to infuse competition into this program, there is an additional approximately $3.7 billion to $4.5 billion that will have to be kind of up front investment.

Once we did that, we looked at a sensitivity analysis. We basically just said, okay, let's just assume zero percent savings, 10 percent savings. I think we did 15 percent savings and 20 percent savings. And we simply did that linearly across the life-cycle of the program. In our written statement, you guys have the slide that shows the results of that.

If you do that, you get to a break-even point on this at 10.3 percent if you have a 70–30 split. And I believe it is 13.2 percent or something like that if you have a 50–50. That happens I think somewhere out in the late 2020's. That is the point under either one of those scenarios where you would have recouped that $4.5 billion. From that point on, you would be getting a return on your investment.

We then looked at the "great engine war" really as kind of the benchmark for this because it was the only competition we could find that was similar to this. It does share a lot of similarities. When they competed that program, they got a 30 percent cost savings in the acquisition portion, and then they got I believe—it is

in our stuff—but I think it was a 16 percent savings in O&S because they had competition in maintaining the engine.

As a result, overall they had about a 20 percent cost savings after they competed that. The break-even point is somewhere between 10 percent and 13 percent, if you don't include the sunk costs in the program. That led us feel safe in assuming that, having this historical data in hand, that you should be able to achieve those kind of savings.

Mr. ABERCROMBIE. I will have to let it rest with that, which was very thorough.

Mr. WOOLSEY. If I might, he did say something that was incorrect about what we had done, so if I could take a chance on that, I would appreciate it.

Mr. ABERCROMBIE. Sure.

Mr. WOOLSEY. We did not include sunk costs in our analysis, so that is not the difference between our study and GAO's. In my look at what they have done, the key difference is that we had costs associated with the second engine in the O&S portion that they did not include. These are the costs to improve the engine, referred to at CIP or Cost Improvement Program; sustaining engineering; and the cost of spare parts would go up in the two cases. That is what I saw as the difference between our studies.

Mr. ABERCROMBIE. Right. The difference for us, though, Mr. Woolsey at this point, is we have Mr. Sullivan's report in hand and we don't have yours.

Mr. WOOLSEY. We will remedy that very soon, sir.

Mr. ABERCROMBIE. Your summary is as you presented it to us in the material given to us. I appreciate that. Your memory is good. As I say, I know there should be follow up on that, and there will be, but for purposes, before we go to Mr. Ellsworth then, what you are taking into account in that last statement is not just procurement costs, but life-cycle. If I had to summarize it in layperson's terms, you are reflecting on the entire life-cycle and what the possible savings and/or costs are. Right?

Mr. WOOLSEY. Yes, we are. We are relying heavily on a "great engine war" actually.

Mr. ABERCROMBIE. Yes, I understand. You are drawing a parallel there, not necessarily an analogy.

Mr. WOOLSEY. Right.

Mr. ABERCROMBIE. Okay.

Mr. Ellsworth.

Mr. ELLSWORTH. Thank you, Mr. Chairman.

Hearing a couple of my questions already, I would just like to make a brief statement and just say that I concur with Mr. Davis. I have seen programs before where the specs have been written to provide for sole-sourcing, and certainly when I am provided with charts like this that show the competition and what competition can say, we are talking about $100 billion. DOD is one of their biggest projects, and certainly the competition is going to be healthy.

I don't have a question at this time. They have been answered.

Mr. ABERCROMBIE. Thank you. Thank you very much.

And then we will go to Mr. Wilson, who may not be quite ready at this moment. That is all right. Would you like me to go ahead, or are you ready?

Mr. WILSON. I would certainly defer to the chairman.

Mr. ABERCROMBIE. No, no.

Mr. WILSON. No, no. I definitely want to defer to the chairman.

Mr. ABERCROMBIE. Okay. [Laughter.]

Is Mr. Larsen here? Sorry. I didn't see you, Rick. I beg your pardon.

Mr. LARSEN. I have no questions.

Mr. ABERCROMBIE. Okay, no questions.

Then I will take advantage and give Mr. Wilson a chance to catch his breath on this.

I mentioned about the reports. Here is our difficulty, and I do want to make it clear. The legislation last year said that the reports had to be here March 15. Now, you have given us a summary and I am appreciative of that. The staff is appreciative of that, but we are still operating on a little bit of a disadvantage because we have to make a recommendation on a mark, and we do value what you have to say, and are listening very, very closely to it.

And the report, it is there in the legislation. It is not a "let's hope we can do it" or something like that. It should have been here on the 15th. Obviously, you were able to make very effective summaries based on what is clearly a lot of hard work by a lot of people to get to this stage. When is the report going to be here so we can get the same kind of briefing, if you will, that we were able to get from Mr. Sullivan?

Mr. WOOLSEY. In my opening statement, when I referred to the briefing we would offer the staff next week, that will be a report in itself. It will be 50 pages with a lot of detail about what we have done.

Mr. ABERCROMBIE. Is it the report?

Mr. WOOLSEY. Yes, sir.

Mr. ABERCROMBIE. Required by the legislation?

Mr. WOOLSEY. Yes.

Mr. ABERCROMBIE. How about you, Mr. Ahern?

Mr. AHERN. Yes, sir. We are able to offer a briefing to the staffers as early as next week, but when I checked with the CAIG, their report won't be ready next week. But we would like to take the opportunity to meet with your staff.

Mr. ABERCROMBIE. What am I going to do? It says it has to be here by the 15th. Do I have to go over and put people in stocks?

Mr. AHERN. No, sir. The CAIG has worked me through a very extensive overview of exactly what they did, that I then was able to make the written testimony out. There is a difference, in my mind, between all the analysis and data is ready I think for them to work with or show to your professional staff. The bound final report going through that process won't be ready as rapidly. We would like to meet with your professional staff to get all the information on the table.

Mr. ABERCROMBIE. Can I have your assurance, from both of you, that the briefing that you will give the staff next week will be the equivalent of what would have been presented in this report that was due on the 15th?

Mr. AHERN. Yes, sir.

Mr. WOOLSEY. Yes.

Mr. ABERCROMBIE. And that we can make decisions based on that?

Mr. WOOLSEY. Certainly.

Mr. AHERN. Certainly, yes, sir.

Mr. ABERCROMBIE. Okay. Now, I have 10 questions in relation to that report. I don't expect you to give me an answer necessarily today on it. I am going to submit them to you today, and I would appreciate it if you would be prepared in the course of the presentation next week to answer those questions.

In other words, we don't want to surprise you next week when you come in. It is not a contest, all right? I will give you these questions, and some of these questions you have already in effect answered, or you have alluded to in both the summaries and the statements that you submitted today. So I don't think there will be anything particularly surprising to you in this.

I don't know that it is efficacious to necessarily read them all. It includes things like did the analysis consider not just procurement costs, but life-cycle costs. You have already mentioned some of those things already. The time period of the life-cycle 2008 through what year—those kinds of things. I don't think it will be anything but a standard inquiry anyway, but there are 10 things there that I will give you today. Okay?

Mr. AHERN. Yes, sir.

Mr. ABERCROMBIE. And be prepared to deal with that next week.

I think I am prepared to go to Mr. Wilson. No?

I should give the rest of the committee, though, an idea of what we are looking for. We want to know what the time period or life-cycle for the analysis was, 2008 through what year; how many total engines did the analysis assume would be procured over the life-cycle of the Joint Strike Fighter Program; the estimated dollar value of the engines procured over the lifetime of the Joint Strike Fighter program; with and without a competitive procurement, what conclusions did each of the studies reach about the value of competition other than cost.

Again, we have run through a lot of this verbally right now. But I am sure you can appreciate how much more useful that will be if we get it in a structured framework, so that the staff can present back to us the conclusions and recommendations that they reach, and then I can communicate with the other members of the committee what we might want to do on this. Because this is a collaborative effort on our part, I assure you. I don't just come up with recommendations out of the blue.

The last has to do with, if you don't mind, some of the remarks that have been made to this point. The remarks of everybody today makes the point that commercial buyers of engines include engine operations and support cost metrics for their procurement selection criteria. Is it a correct statement that the DOD has less experience in integrating procurement and operations and support costs in competitions?

Mr. WOOLSEY. Certainly.

Mr. ABERCROMBIE. That is a correct statement?

Mr. AHERN. Yes.

Mr. ABERCROMBIE. I wasn't as familiar with it as I am now, after listening to you today. I want to make sure that I am correct in that.

Mr. WOOLSEY. Yes, you are.

Mr. ABERCROMBIE. So when Mr. Courtney was making a point about single source procurements, et cetera, before, that has been more the norm than the competition kind of thing. Right?

Mr. WOOLSEY. Yes.

Mr. ABERCROMBIE. Is silence assent, Mr. Ahern?

Mr. AHERN. No, sir.

Mr. ABERCROMBIE. I thought you were taking the Thomas More approach there.

Mr. AHERN. I want to say, the support structure for the various equipments of the Department of Defense has ranges from organic—we do it ourselves—through the depots and the uniformed services, all the way through performance-based logistics. In the F–35, they are looking at performance-based logistics, but we don't have that much experience in that paradigm over a long period of time.

Mr. ABERCROMBIE. Okay.

Mr. AHERN. Separately, and that is why the CAIG anyway was reluctant, though they used, obviously, the life-cycle cost estimates in the total estimating, estimating the savings from performance-based logistics is not something that they have much experience with.

Mr. ABERCROMBIE. Fair enough.

Mr. AHERN. And so they are very reluctant to go out on that limb.

Mr. ABERCROMBIE. Okay. That is fair. But I do think that we have to, and I will appropriate from Mr. Davis's remarks, I do think though when we make this decision, or at least make this recommendation to the committee, we do have to I think take into account whether we should incorporate operations and support costs in competitions, and the whole idea of operations and support costs—competition or no competition—in trying to make a determination of what direction we should go starting in 2008.

Is that fair?

Mr. AHERN. Yes, sir. That is fair. And we did also, all three of us did include it.

Mr. ABERCROMBIE. We can deal with that next week.

Mr. AHERN. Yes, sir.

Mr. ABERCROMBIE. I am sure we all realize the implications from this go beyond this immediate issue, whether we start talking about competitions.

Mr. AHERN. Yes, sir.

Mr. ABERCROMBIE. Right? For a whole lot of things that might come out of this. I don't think it is going to be isolated around this engine. I think, again I will appropriate from Mr. Davis's remarks that this is not a theoretical discussion. It is, if you will, a philosophical approach that is going to have implications for what we do in terms of recommendations on military platforms. Would you agree?

Mr. AHERN. Yes, sir.

Mr. ABERCROMBIE. So you may be the pioneers here. So if it all works out, you can take credit for it. And if it doesn't, they can all blame you for starting the ball rolling.

I see you are taking the Thomas More approach again. [Laughter.]

Mr. DAVIS OF KENTUCKY. Mr. Ahern, I would just say that he is playing the role of Henry VIII right now, so you better be careful. [Laughter.]

Mr. AHERN. Mr. Chairman, I thought you were talking to your colleague, Representative Davis, not to me.

Mr. ABERCROMBIE. Okay. That is all right.

Mr. AHERN. I understand the implications of competition. I have been involved both in government and the defense industry for a number of years. There is a question of the industrial base. There is a question of competition. There are a number of intangibles. But at the end of the day, it gets down to how many do you intend to buy and the affordability issue. And though we might want to have many purveyors of many of the items that eventually buy, we get down to sole source, as with the F/A–18 as was mentioned earlier, after we have had a competition between a number of vendors.

Mr. ABERCROMBIE. Right. And that goes back to Mr. Taylor's contention, that what happens when you get to where this is the best we can get.

Mr. AHERN. Yes, sir.

Mr. ABERCROMBIE. And we are satisfied with it, then how do we approach it in terms of funding.

Fair enough. Thank you.

Now, Mr. Wilson.

Mr. WILSON. Thank you, Mr. Chairman.

I have been advised that you have truly led an excellent interrogation of our panel. I at this time waive, in the interest of the next panel being presented. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Very good.

Anybody else have another round? Or other questions they want to go to? Then we will submit these to you, okay? And I will give it to you, too, Mr. Sullivan. Why don't you take a look and see if there is something you would care to amplify from that. Okay?

Mr. SULLIVAN. Yes, sir.

Mr. AHERN. And if I may say, thank you very much, Mr. Chairman. I was honored to be here, and don't feel I was interrogated at all. [Laughter.]

Mr. ABERCROMBIE. To think you were inches from a clean getaway. So we will have the reports next week though, right?

Mr. WOOLSEY. Yes.

Mr. ABERCROMBIE. Okay.

Mr. AHERN. Yes, sir. I am committed to having the CAIG meet with your staff, but there is a difference between where it is now and then the report. But they have all the data, all the information, in a form that your staff will find useful.

Mr. ABERCROMBIE. All right. At that point, then, can I get a definitive recommendation from you as to whether the Congress should continue to require the development of the alternative engine?

Mr. AHERN. From the Department of Defense, sir?

Mr. ABERCROMBIE. Yes.

Mr. AHERN. I will take that, I think, sir. Yes.

Mr. ABERCROMBIE. We can get that. In effect, we have it now, but after all, if you are going to do another briefing next week, between now and next week you may have some refinements you want to deal with. Okay?

Mr. AHERN. Yes, sir.

Mr. ABERCROMBIE. Thank you.

Let's go to the next panel, then. I think we will have a few minutes before we get to the vote.

While the panel is getting settled, I will just announce who they are. Why don't we go in reverse order of questions? We will start with Mr. Wilson and work back up, if he is still here.

General Mundt, then we will go to Mr. Balderson, Admiral Clingan, General Castellaw, General Chandler, and then General Hoffman. In that order, okay? If we work expeditiously here, maybe we can get all the statements in and get to the questions or observations from the members.

General Mundt, I don't mean to be precipitous with you folks, but why don't we just move right into your summary? We will accept everybody's statements, of course, in full. If you can summarize for us, then we will go right down the line. I would be very grateful.

General MUNDT. Sir, clearly I can. What I would ask is, I have a written statement here that was summarized from the former written, and I would like to add that because of the ARH developments. It has some words in here that were not in the original statement submitted to you. So I would like to add this piece of paper for the record.

Mr. ABERCROMBIE. Without objection.

STATEMENTS OF BRIG. GEN. STEPHEN D. MUNDT, USA, DIRECTOR OF ARMY AVIATION, OFFICE OF THE DEPUTY CHIEF OF STAFF, G–3/5/7, U.S. ARMY; WILLIAM BALDERSON, DEPUTY ASSISTANT SECRETARY FOR NAVAL AIR PROGRAMS, OFFICE OF THE ASSISTANT SECRETARY OF THE NAVY FOR RESEARCH, DEVELOPMENT, AND ACQUISITION; REAR ADM. BRUCE W. CLINGAN, USN, DIRECTOR, AIR WARFARE DIVISION (OPNAV 88), HEADQUARTERS, U.S. NAVY; LT. GEN. JOHN G. CASTELLAW, USMC, DEPUTY COMMANDANT FOR AVIATION, HEADQUARTERS, U.S. MARINE CORPS; LT. GEN. CARROL H. "HOWIE" CHANDLER, USAF, DEPUTY CHIEF OF STAFF FOR OPERATIONS, PLANS, AND REQUIREMENTS, HEADQUARTERS, U.S. AIR FORCE; LT. GEN. DONALD J. HOFFMAN, USAF, MILITARY DEPUTY, OFFICE OF THE ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION

STATEMENT OF BRIG. GEN. STEPHEN D. MUNDT

General MUNDT. Chairman and Mr. Saxton and Mr. Taylor, one, thank you very much. I am happy to be here today. Our Army today is deployed worldwide and operating——

Mr. ABERCROMBIE. General, I will tell you we have 15 minutes to the vote, so if everybody can get in within that time, I would be grateful.

General MUNDT. Bottom line, let me just go to the one paragraph in the back of the statement that says: The Army reconnaissance helicopter right now, with Bell Helicopters, we have given them notice due to cost, schedule and performance issues, and we have asked them to come back in 30 days and describe a strategy on how they are going to move the cost and the schedule into a positive direction. Our Armed Reconnaissance Helicopter (ARH) is more important today than it has ever been at any time prior to this. It is part of our modernization plan and it is part of the Comanche termination dollars that you have allowed us to keep and reinvest.

Sir, with that, I will defer to my colleagues.

[The prepared statement of General Mundt can be found in the Appendix on page 112.]

Mr. ABERCROMBIE. Mr. Balderson.

STATEMENT OF WILLIAM BALDERSON

Mr. BALDERSON. Yes, sir, Mr. Chairman. Thank you very much.

Out of respect for the time, I will be very brief. I can get through this in about a minute-and-a-half.

I do want to start by thanking the members of the subcommittee for your outstanding support of the Navy and Marine Corps programs. Your Navy-Marine Corps team continues to play a major role in the global war on terror with significant involvement in Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF). These efforts are reflective of the substantial return on your investment in our combat readiness, our people, and our unique maritime warfighting capabilities.

The fiscal year 2008 President's budget request balances continued recapitalization and attaining new capabilities, while simultaneously sustaining the legacy fleet of aircraft that are performing magnificently in current operations. We continue to execute numerous multi-year procurements to achieve significant savings in procurement accounts. The department's fiscal year 2008 budget request continues multi-year procurement arrangements for the F/A–18E/F, KC–130J, and the V–22.

Our proposed plan will procure 117 fixed-wing aircraft, 65 rotary-wing aircraft, and 3 unmanned air vehicles. The plan also continues development of the F–35 Joint Strike Fighter, the E–2D Advanced Hawkeye, the EA–18G Growler, the P–8A Multi-mission Maritime Aircraft, the VH–71 Presidential Helicopter replacement, and the CH–53K Heavylift replacement.

The fiscal year 2008 budget request reflects considerable effort in identifying affordable solutions for the department's aviation programs, and we are striving to address the Navy-Marine Corps warfighting needs in the most cost-effective way possible. The department's aviation acquisition team continues to work aggressively to identify efficiencies in development, testing and subsequent procurement of platforms, components and weapons systems in order to ensure investments made result in quality products and services provided to the fleet.

Mr. Chairman, this concludes my remarks. Thank you again for your outstanding support. I look forward to your questions.

[The prepared statement of Mr. Balderson can be found in the Appendix on page 130.]

Mr. ABERCROMBIE. Thank you very much.

General Castellaw.

Oh, Admiral Clingan. I am sorry, I went down one name.

STATEMENT OF REAR ADM. BRUCE W. CLINGAN

Admiral CLINGAN. Mr. Chairman, thank you, and the distinguished members of the subcommittee. Thank you for the opportunity to appear before you today to testify in regard to tactical aviation.

The fiscal year 2008 President's budget balances conventional and irregular warfare aviation capabilities, reduces excess capacity, and achieves technological superiority through cost-wise investments in recapitalization, sustainment and modernization programs. I have prepared a written statement and request that it be submitted.

Mr. ABERCROMBIE. Without objection, all statements will be in.

Admiral CLINGAN. Thank you, sir.

In the interest of reserving time for questions, I will forego any more opening statements.

[The prepared statement of Admiral Clingan can be found in the Appendix on page 140.]

Mr. ABERCROMBIE. Thank you very much, Admiral.

Now, General Castellaw. Excuse me.

STATEMENT OF LT. GEN. JOHN G. CASTELLAW

General CASTELLAW. Yes, sir. I can understand how you could misidentify the admiral and myself, sir. I am better looking. [Laughter.]

Sir, my statement——

Mr. ABERCROMBIE. I was with you right up until that last comment. [Laughter.]

General CASTELLAW. Again, I appreciate entering the statement in the record. We will defer any additional comments to questions. Thank you.

[The prepared statement of General Castellaw can be found in the Appendix on page 148.]

Mr. ABERCROMBIE. Thank you.

General Hoffman.

General HOFFMAN. Mr. Chairman, I have no opening remarks.

Mr. ABERCROMBIE. And General Chandler.

STATEMENT OF LT. GEN. CARROL H. "HOWIE" CHANDLER

General CHANDLER. Mr. Chairman, thank you also for the opportunity to be here today. I know we have a number of important programs that are important not only to you, but to our Air Force that involve our Air Force fighter fleet, bombers, missile and standup jammer programs.

I would simply like to thank you and the members for the support that you have given to your Air Force. Please be assured the young men and women that are in the field today are doing a great job on behalf of this Nation. I would reserve any other comments pending your questions.

[The joint prepared statement of General Chandler and General Hoffman can be found in the Appendix on page 162.]

Mr. ABERCROMBIE. Thank you very, very much.

I will say there are three programs of particular interest to the Air and Land Forces Subcommittee: the Armed Reconnaissance Helicopter, the CSAR–X in the Air Force—the combat search and rescue helicopter—and the Air Force proposal on the retirement of the B–52s. We will get to that.

We are go and in reverse order, then, from the first panel. That means this is Dr. Gingrey's lucky day. He will be the first to talk, although apparently an impostor is sitting in his seat, because he clearly does not have the same physiogamy that we are used to.

Dr. GINGREY. Mr. Chairman, could I defer?

Mr. ABERCROMBIE. Certainly. Okay.

Then I think we are going back to Mr. Larsen.

Mr. LARSEN. Thank you. Are we under the five-minute rule?

Mr. ABERCROMBIE. No, actually we are going to go like a two-minute rule, because we are going to have the votes. So I am trying to get as many people in. Let's just limit it to one question and an answer, even if you have to go to more than one person.

Mr. LARSEN. Okay, I have 1 question that has 19 parts and I would like to——

[Laughter.]

Mr. ABERCROMBIE. We will come back. I think it is just one vote, and we will come back. Don't worry about that.

Mr. LARSEN. All right.

Representing a district with a couple of Navy bases, one of which, Naval Air Station Whidbey Island, which is home of the Prowlers; and next after that, the E–18Gs; and then the multi-mission aircraft (MMA) being built in Washington state to replace P–3s. I am pretty well up to speed on a lot of our electronic warfare platforms and the technology.

I guess for my one question pre-vote I would just ask the Navy, Admiral Clingan, about this. In somebody's testimony, you were talking about the Navy's coordination with the Air Force on jamming transmitters. Of course, the Air Force has been through discussions on Stand-off Jammers or not Stand-off Jammers, recently deciding not to do a Stand-off Jammer. This testimony here, I think it is under Admiral Clingan's testimony, is that the Navy is working with the Air Force on jamming transmitters.

I guess I would like a straight story—not a straight story. It is not that anyone hasn't given me a straight story, I just hear a lot of things. Is the Air Force continuing to pursue electronic warfare stand-off jamming with the Navy? Is that going to be the Navy's role? I know the Marine Corps is eventually doing to cycle out of their Prowlers and look to the Navy to supply that platform.

Can someone answer that question for me?

General CHANDLER. Sir, if I may, I will start. The Air Force is committed to the department's system of systems electronic attack. You are exactly right. We cancelled the first attempt at the B–52 Stand-Off Jammer primarily for cost-growth reasons. It was a $7 billion program, and frankly it was trying to meet too many needs at the cost of what we really needed it to do.

We have gone back in a program we call the CCJ, which again is based on modifying 30 B–52s with 24 ship-sets of jamming pods.

Mr. ABERCROMBIE. "CCJ" is the core component jammer?

General CHANDLER. I am sorry. Yes, sir, the core component jammer, which basically gives us the capability to get at the low-band, high-powered jamming problem that we think we are faced with. I will be honest and tell you that because of the cancellation of the B–52 program the first time, we are now in a situation where we find ourselves coming up on 2012, when the Navy and the Air Force memorandum of understanding (MOU) regarding jamming with Prowlers is coming to an end.

So we are in a situation where we are going to continue to work with the Navy to fill that gap between 2012 and about 2015, where we think we can bring the core component jammer program into play. We will have an opportunity to do that with a Program Assessment & Evaluation (PA&E) analysis that is due back sometime in May, I believe. And then we have some senior leader talks in April with the Navy where this will be a discussion topic.

Mr. LARSEN. Admiral Clingan.

Admiral CLINGAN. Congressman, the Navy continues to move ahead on its EA–18G program. It is in fact performing on cost and ahead of schedule to deliver the Navy element of that system of systems that my colleague referred to. We will reach full operating capacity or capability in fiscal year 2012 in accordance with that memorandum.

In the technology development realm, we continue to partner with the other services as we look to field that system of systems. So we are leveraging the complementary efforts in that realm.

Mr. ABERCROMBIE. Thank you very much.

Mr. Wilson.

Mr. WILSON. Thank you, Mr. Chairman.

Any of you may answer this, but there was a report today in Inside Defense that the VH–71 Presidential Helicopters could be built overseas instead of in the United States. Is anyone familiar with this issue?

Mr. BALDERSON. Congressman, I will take that one. As you saw from the fiscal year 2008 budget submit that the Navy-Marine Corps submitted, it is incomplete with respect to VH–71. If I could give you a minute's history of why that is true and what the way forward it, I think you will understand where we are with respect to restructuring some decisions we have to make.

We have had discussions with this subcommittee, with GAO and others in the past about the challenge in the VH–71 schedule. The fact is, we recognized in the October–November timeframe that the increment two schedule in our program of record was not executable. We submitted a budget that removed a significant amount of fiscal year 2008 funds because we knew that we could not execute that program.

The problem is we did not have enough information at the time to complete the restructure of the program and vet that through the approval process within the Pentagon. The real problem is, because of our focus on increment one, the increment two design is immature and we are not in the position yet to do the detailed

analysis that we need to do to make a final determination as to what schedule and what cost the increment two could operate to.

The key event that is going to happen in about two weeks is what we call a "systems requirements review." It is very significant because that is the point at which the Navy and Lockheed Martin will sit down and they will make sure that we already understand the requirements. This is when we understand the detailed engineering approach to how the contractor will meet those requirements. Once we have all of that nailed down in the next couple of weeks, we then will go in and evaluate that against the current schedule.

What we do know is that we are not going to be able to execute the schedule that we are on now. The timing of that will be to go through a Defense Acquisition Board review in the fall. We will come over and brief the committee staff on that re-plan and restructure as part of the submittal of the 2009 budget. The fiscal year 2009 budget, then, will reflect the re-plan strategy.

Mr. ABERCROMBIE. Excuse me. Are you answering Mr. Wilson's question?

Mr. BALDERSON. I am getting ready to, sir. Part of the consideration that we have gone through is a consideration of risk. A part of that consideration is the risk of whether or not it would be more risky to build—the current strategy calls for building the first five helicopters in Agusta-Westland, and moving all the remainder helicopters to Bell. That is still our acquisition strategy. That has not changed. We have done an end-to-end review of this program, and that continued assessment will unfold over the next few months.

One of the things we have looked at is whether or not that adds risk to the program, or whether or not bringing the helicopters back to Bell for the first low rate initial production (LRIP) of increment two is still the appropriate thing to do. We are still in the process of that evaluation. Any information that we have changed that acquisition strategy is premature. Once we decide on the approach, we will come over and share all that information.

Mr. ABERCROMBIE. I don't want to take Mr. Wilson's time, but wait a minute. Didn't he just ask you, "Are you going to build this helicopter overseas, out of the country?"

Did I misunderstand your question?

Mr. WILSON. That was the question.

Mr. BALDERSON. Sir, the program of record is to build the first five helicopters overseas at Agusta-Westland. That has always been the program of record. And then it is to bring all of the increment two aircraft back to the United States to be built at Bell. That is still the program of record and that is still the acquisition strategy.

Mr. ABERCROMBIE. That is not the final helicopter?

Mr. BALDERSON. No, sir. The first five that will be built at Agusta-Westland will be operational aircraft. They will be the first increment that the President will fly in. Then we will move to what we call the increment two, which is the much more extensive capability. We will build 18 increment two aircraft.

Mr. ABERCROMBIE. I understand. Wait. Mr. Wilson, can we work this together?

Mr. WILSON. Yes.

Mr. ABERCROMBIE. We did this before.

Mr. WILSON. You are doing good. [Laughter.]

Mr. ABERCROMBIE. You understand, I have a particular interest in this?

Mr. BALDERSON. Yes, sir.

Mr. ABERCROMBIE. You remember that?

Now, we have had a classified briefing about what we are talking about in this second increment.

Mr. BALDERSON. Yes, sir.

Mr. ABERCROMBIE. I didn't like the first one, but that is all right. I don't like a lot of things, but I don't necessarily get my way. But I will tell you this: You are not building any final helicopters for the President of the United States outside this country, not as far as this member is concerned.

Now, I don't know what the hell I have to do to prevail on that, but I will tell you right now you are not building, as far as I am concerned, any helicopters outside of this country for the President of the United States.

Mr. BALDERSON. The current strategy, sir, is——

Mr. ABERCROMBIE. I don't care what your current strategy is. I am telling you what my strategy is. I am not the only one.

Now, how the hell long does it take to get that message into the Pentagon? Am I missing something here, Mr. Wilson?

Mr. WILSON. No, I appreciate your pursuing it.

Mr. BALDERSON. Mr. Chairman, I respect and appreciate that and we need to continue this dialogue. I would only say that we have testified consistently——

Mr. ABERCROMBIE. I know how you have testified, and you guys know how we feel about this. We had this classified briefing and I know what you expect to have in that classified briefing, and if you think for a second that a helicopter that the President of the United States is going to fly in, particularly as a result of the information that we got from that classified briefing, is going to be built overseas, where we can't control the circumstances under which the helicopter is built, you have to be dreaming.

Do you get a clear idea of what happened when we got into this business of ports being owned overseas, by overseas companies and so on? You are not going to build a helicopter for the President of the United States overseas.

Mr. BALDERSON. Mr. Chairman, let me clarify, because I may be mis-communicating. I understand. All of the helicopters' final assembly will be in the United States at Lockheed Martin-Owego. So all 23 of the helicopters' final assembly; all of the missionization and final acceptance will be in the United States.

Mr. ABERCROMBIE. What about all the components that are going into that helicopter?

Mr. BALDERSON. The current strategy is for the helicopters, only the first five, to be built in Yeovil, England. Once we get through building, then the last 18—those first 5 will have to be rebuilt because frankly the difference in configuration in the first increment and second is so great.

Mr. ABERCROMBIE. I understand that. I didn't like it. Mr. Wilson and other people didn't like it, but we are willing to go along with it. But I thought we made it clear. Now, if we didn't—I thought we made it clear.

Am I wrong, Mr. Wilson?

Mr. WILSON. No. I agree.

Mr. ABERCROMBIE. I thought we made it clear that the helicopters after that were going to be built in the United States under our control. I don't understand. It is the President of the United States. Why on Earth would we want to build anything for the President of the United States that anybody else, particularly in this global war on terror, why on Earth would we want to build something outside the United States for the President of the United States to fly in?

I will tell you, when this helicopter gets built, according to what is supposed to be in there from the point of view of the classified briefings that we received on this, that is going to have to built under circumstances where we know explicitly who is going to be working on it.

Again, am I missing anything?

Mr. WILSON. No.

Mr. ABERCROMBIE. It is going to be under circumstances in which the people going in there are going to be vetted, and as far as I am concerned—and I am not the only one—that helicopter has to be built under very strict protocols with regard to who has access to how it is being built and under what circumstances.

Mr. BALDERSON. Yes, sir.

Mr. ABERCROMBIE. Do we have to write this into the language? Because I am not going to go fool around. Believe me, I am not going to go fool around with this and leave it to chance. I will write language that will put a fence around this that you will never get through, if we have to. I don't want to get into this kind of a deal. Come on. Don't fool around with this. Okay?

Mr. BALDERSON. Yes, sir.

Mr. ABERCROMBIE. I am taking too much time, but don't fool around with this Presidential helicopter. Don't play games with the helicopter. I don't care who has what kind of deals made with who about this. The helicopters for the President of the United States are going to be built in this country. They are going to be built under circumstances in which we control exactly and explicitly what goes into those helicopters and under what circumstances they are built.

Now, if we have to go into some kind of particular language to put this together, I will. If people want to go and vote against that, they can be my guest. I can guarantee you right now—guarantee you right now—that at least as far this member is concerned, that is the way it is going to be. If the rest of the Congress wants to vote me down and take chances on who builds the Presidential helicopter and who has access to what goes into it, and how it goes into it, then they can go vote that way. But I don't think you are going to find many members who are going to do that.

Mr. BALDERSON. I understand, Mr. Chairman.

Mr. ABERCROMBIE. Stop fooling around with this. The mere fact that you had to go into three or four minutes of an answer to a very simple question tells me that somebody out there must know.

I am not blaming you, Mr. Balderson. Please don't think this is personal with you. Honest, it isn't. You did a very good job of making a very elliptical approach to this.

And you are saved because I hear the bell going off for the vote. We will come back into the hearing, and I promise I won't arm wrestle with you. Okay?

Mr. BALDERSON. All right.

Mr. ABERCROMBIE. But is that message clear enough, Mr. Wilson? I took your whole time.

Mr. WILSON. Yes. Thank you, Mr. Chairman.

Mr. ABERCROMBIE. We have to go into recess. It is a 15-minute vote on the rule on the supplemental appropriations bill, so it might take a little bit longer because I am sure they will want to let everybody come and vote. And then there are two five-minute votes, which I think probably won't take much more than five minutes each. But that probably means it is going to be a half-hour or 40 minutes, I would guess, before we come back.

I am awfully sorry. Obviously, we haven't even begun to get to all the questions. Is that okay with everybody? We will come back within five minutes after the third vote.

Dr. GINGREY. Mr. Chairman? Do we have time for possibly a quick question?

Mr. ABERCROMBIE. Oh, sure. We can go probably for 10 or 12 minutes more. Yes. In fact, Mr. Ellsworth is next, and that will be followed by Mr. Davis. So can we keep in mind we have about 12 minutes?

Mr. ELLSWORTH. Thank you, Mr. Chairman.

With all due respect to you and the President, I would be a little concerned on any helicopter that any of our warfighters are flying in on their safety as well. I don't think it is any secret that it is very possible to program some of those components that could then feed back into our systems.

Is it not possible—and anybody can take this—that, say, a plane would go down overseas or a foreign entity could get a hold of our equipment and program those computer chips and/or layers deep enough in those layers that when we get that plane back, and they have built it back, that it could then mess up our systems when the programming starts? Is that possible?

Mr. BALDERSON. Congressman, if you are referring to the VH–71—and I can't get into the details in unclassified mode—but the sophistication of the anti-tamper techniques and the control of those parts is unparalleled. So I think it is very unlikely that those parts would get into any other hands. And certainly the control of these parts is such that none of the parts of the VH–71 would ever get into any other U.S. aircraft.

Mr. ELLSWORTH. But if their parts were designed and/or constructed somewhere else in layers, a computer expert with as much expertise as we might have could lay something in a layer of those chips and/or pads that could make it into our airplanes, or even into the system, when we are analyzing the system, through the computers.

Maybe I am not being perfectly clear.

Mr. BALDERSON. No, sir. I understand. I would only say again, we can't go into all the details of the clearance and the protection, but it is a very sophisticated and robust anti-tamper. I will tell you that today on the H–3, a considerable number of those parts are not made in the U.S., but the control is very, very, very tight, and

the types of clearances those people have that are step-functions above anybody else, and the controls all the way from the manufacturing process through incorporation and the maintenance and so on and so forth is extremely robust.

Mr. ELLSWORTH. Okay. Thank you.

Admiral Clingan, during the last panel, we talked a lot about competition and sole sourcing. I notice on page three of your document, as it relates to JSF and F136, that in the second line you are talking about the alternate engine for the JSF is undesirable for a variety of reasons. Could you elaborate on that a little bit? I think you were sitting in the first panel and heard about sole sourcing and the spirit of competition. Could you elaborate on that a bit?

Admiral CLINGAN. Yes, thank you for the opportunity to comment.

There are about three factors at the top level that we consider. One is the nonrecurring developmental costs associated with the second engine in the context as we balance the opportunity costs associated with that investment, versus investing elsewhere across the portfolio with similarly imperative needs. Those costs were discussed at length in the first panel. I won't venture into that realm except to say that there is an opportunity cost.

If you look at the production phase, the cost of standing up two production lines, and then the diminished learning curves as both of the sources make their way through their build and production runs, you lose some savings and efficiencies there that you would get with a single source. And then the dual logistics trains to support the two engines are a concern to us as well.

Historically, it is not uncommon to have a single engine provider for a tactical airplane. Two recent examples are the F–18E&F, which has been alluded to, but the F–22 as well. The F–22 engine is the F119. It has about 18,000 hours on it and it is running very reliably. With respect to modern technology, we see great leaps and bounds from what we did 10 or 15 years ago.

Mr. ABERCROMBIE. We will have to let it go at that point, Admiral. Sorry.

Mr. ELLSWORTH. Thank you, Admiral.

Mr. ABERCROMBIE. We will go to Mr. Davis.

Mr. DAVIS OF KENTUCKY. Thank you, Mr. Chairman.

I think if Chairman Abercrombie wasn't so shy and retiring, he might have made his point more clear on the VH–71s. So I would like to follow on his line of reasoning and also echo that it is not a partisan issue. We feel very strongly in this committee that the President's aircraft will not be constructed overseas. I would ask you, and this is just one more example of some administration shortfalls that have been quite regrettable for lack of advanced political communication with us here on Capitol Hill to talk about how we communicate this back to our citizens, who do have some fairly strong feelings on this.

I agree that on our side, we will help in any way possible to craft the language to assure that that aircraft is not built there. We might as well build it in France—what the heck?—under the circumstances. This is a patriotic issue. I am very well aware of the quality of foreign-constructed aircraft, having flown them myself in

the military, but this is something very visceral with the American psyche.

I think that having the American people told that they are going to be flying on a British aircraft is unacceptable, despite that they are our allies. Although we might have some type of exchange if the prime minister and the queen would like to fly on American aircraft built in the United States, I think we would find a similar response from the British as well.

I would like to actually direct my question to General Mundt. One of the test aircraft of the Armed Reconnaissance Helicopter recently crashed. Contract options starting last December have been allowed to lapse in certain cases. The Army held an acquisition review of the program this week. I was just wondering if you could comment on the status of the program, including what would be at least a quick summary of cost and schedule information.

General MUNDT. Thank you, Mr. Davis. I will comment on it.

The crash on the one System Development and Demonstration (SDD) developmental aircraft is still under investigation by the National Transportation Safety Board (NTSB), so we don't have the final results. What we do know is there was a fuel blockage and that is why the engine shut down, and that is why it landed on the golf course.

Now, in terms of the cost, schedule and performance, what we know at this point is that we went to a competition and were looking for an aircraft that could be developed, because we are going to go commercial off the shelf, add some mission equipment packages, and get it fielded quickly to replace an aging aircraft in terms of the OH–58 Delta. And we expect to be able to buy that at a relatively low cost.

We did have a number of competitors that came in and bid on that. Bell won the competition. Bell's initial going-in position was that this aircraft was going to be built for $5.2 million. They are now indicating that that cost could be as high as $9 million to $10 million. The schedule was that it would be delivered not later than December.

The contract that we wrote, because we were trying to pull this aircraft as far to the left as we could, and that was going to be December of 2009, the contract we wrote was for October of 2008. We right now question whether or not they will make the December 2009 timeline. So now we have lost almost a year of schedule, and we have some cost increases.

Now, whether or not that is all true, that is what Bell has been given 30 days now to come back to the department and explain to us if there is a cost increase, why there is a cost increase, what the schedule implications are, and what Bell and Textron are going to do to mitigate those. In 30 days, we will come back to you with their response and then we will show you our path ahead within the next 45 days.

Mr. DAVIS OF KENTUCKY. Would you mind sharing that information directly with my office as well?

I have just one other question that I will ask you, just for the sake of time, if you could consider responding in writing, too? This is regarding other potential DOD or Army-specific concerns with the contractor's ability to perform on this program, based on some

of the challenges they have had with the UH–1Y and AH–1Z programs.

General MUNDT. Sure. We will take that for the record.

[The information referred to can be found in the Appendix on page 184.]

Mr. DAVIS OF KENTUCKY. Okay. Thank you.

I yield back, Mr. Chairman.

Mr. ABERCROMBIE. Thank you very much.

General Mundt, our problem here is we have about 30 days before we have to come up with recommendations. So we need to talk, okay, about how we deal with this situation to try to make it work out right.

Let's go to Dr. Gingrey. We are down to about five minutes. I understand you have something real quick you need to get in. We will come back after this.

Dr. GINGREY. Mr. Chairman, I thank you for that courtesy. I certainly appreciate it. It is a real quickie.

General Hoffman, the authorization language last year calls for the Secretary of Defense to sign a multi-year contract on the F–22, but of course certification in regard to cost savings. I am just very curious where we are in that process, how close we are being to getting that accomplished. I thank you so much.

General HOFFMAN. Yes, sir. That process is working forward. We are on-contract for lot six, as you know, and we are now in negotiation with the vendor for lot seven and for the multi-year, so that comparison between an individual lot and the first of a multi-year lot can be made. We are tracking to have all that information on time for the Secretary to certify that, with 30 days notice, and then go on-contract by August. That is the timetable we are holding to.

Dr. GINGREY. Did I hear you say "by August"?

General HOFFMAN. August. Yes, sir.

Dr. GINGREY. Thank you, General.

Mr. Chairman, thanks again for your courtesy.

Mr. ABERCROMBIE. You bet.

Thank you in advance for your patience. We will be back as soon as we can. We will just take a recess for these votes.

[Recess.]

Mr. ABERCROMBIE. I am going to take advantage of the stragglers to let Mr. Larsen get in out of sequence, because he has a short question and some other responsibilities to get to. I am sure all of his colleagues will acquiesce to his need.

Mr. LARSEN. All of my colleagues will acquiesce. [Laughter.]

Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Excuse me. We are calling the hearing back into session. I think I should say that.

Mr. Larsen, please.

Mr. LARSEN. Yes.

Unfortunately, part of the question would have included an Air Force answer, but it does include the Navy and the Air Force. It is really the follow-up to the question I asked last time with regard to the electronic warfare capability and the platforms, and that 2012–2015 timeframe for the Air Force. Admiral Clingan, you can get started on this answer.

The MOU with the Navy and Air Force ends in 2012. What are you anticipating happening from a Navy perspective after 2012 with regards to the Air Force? Are you anticipating renegotiating, extending, finding other platforms to help the Air Force fill that need? Or is that something the Air Force has to do basically on their own?

Admiral CLINGAN. When the services are faced with capability gaps, we move forward through a process where we make sure that we understand the gap, and we have a requirements process that helps us move forward coherently to field solutions.

In the case of the electronic attack (EA) realm, the system of systems, the EA–18G has a wonderful capability across the spectrum in terms of radar jamming and com-jamming and those types of things, but it is a tactical airplane and all that that implies. And so the system of systems also includes a long-range, long-dwell persistent required capability.

So we will be partnering with the Air Force and the rest of the joint force to bridge this gap, but the Growler itself is not the perfect solution for that.

Mr. LARSEN. Right. General, I was just asking the question about that 2012–2015 gap for the Air Force, so the likely follow-up to my previous question here, is what the Air Force and Navy anticipates doing to fill that, or is that going to be an Air Force task to fill through 2015, assuming the core component jammer technology matures to the point where you can actually field it in 2015.

General CHANDLER. Sir, we feel like that is an Air Force niche to fill based on the persistence that we talked about, and based on the high-power, low-band jamming requirement for surveillance radars.

Mr. LARSEN. So can you talk about just quickly the steps then? You are obviously thinking about it. When do you actually start taking steps to field something in 2012 through 2015?

General CHANDLER. Sir, what we have done is go back through our system. We have asked for money in our unfunded priority list to start technology maturation to allow us to begin in 2009 to be able to field by 2015. That is our plan right now.

Mr. LARSEN. What about 2012 through 2015?

General CHANDLER. Sir, obviously we are not going to have a core component jammer at that point. We are going to have to rely on the Navy to continue to do what they are doing with the E–6B or the EA–18 Growler. As I indicated, we will have to sit down with them and talk about the MOU which expires this year.

Mr. LARSEN. If I may, Mr. Chairman, then from the Navy's perspective, I am hoping the Growler is flying, but the Initial Operational Capability (IOC) is supposed to be 2009 for the first couple, and then we cycle into 2012 and so on. We are talking about having a persistent presence with the Stand-Off Jammer. As you said, the EA–18G is derivative of the F/A–18, and so it is not necessarily designed to float around silently or quietly and provide that persistent long-range jamming.

So I guess I am still not understanding fully what happens between 2012 and 2015, from a platform-use perspective, to provide an important role for persistent long-range jamming, when we have

capabilities that may be on platforms that are not necessarily designed for that.

Have I defined the problem pretty well?

General CHANDLER. Yes, sir. You have, and you have hit the nail on the head. There is a gap between 2012 and 2015 for a low-band, high-powered jammer.

Mr. LARSEN. And not necessarily a platform as well to provide that? Admiral.

Admiral CLINGAN. Congressman, clearly the Growler has capability across the full spectrum. It can achieve the effects that we need. What you are referring to is the capacity gap, a gap in the long-range persistent realm.

Mr. LARSEN. Right.

Admiral CLINGAN. We have to work through the joint process to determine whether we are going to assume the risk associated with that shortfall in capacity between 2012 and 2015, or whether we are going to come up with some mitigation way forward, which to date has not been determined.

Mr. LARSEN. Okay. I know this is obviously a matter that perhaps warrants further discussion in a different setting, in some respects. I know it is a combination of platforms and capabilities, and the right mix and so on. The reason I am asking this question, one reason obviously I am asking these questions is I want you all to know that there is at least one person on the committee—there are several others—who has an interest in this and interest in helping you move forward and helping define that and get the support necessary to move forward.

To the extent that you can keep me up to speed on that, I would very much appreciate it.

General CHANDLER. Sir, we will take that, if you like, and we can come back and give you our overall look if that would help.

Mr. LARSEN. That would be extremely helpful. Thank you.

Thank you, Mr. Chairman.

Mr. ABERCROMBIE. Thank you, Mr. Larsen.

Mr. Bartlett.

Mr. BARTLETT. Thank you very much.

Gentlemen, thank you very much for your patience. I have a short series of questions. I believe that they should be directed at General Hoffman, but others may wish to respond.

A couple of days ago, Secretary Wynne told the Senate Armed Services Committee (SASC) that the Air Force commits to re-solicit fully revised bids from the three current CSAR–X industry competitors. However, today there are press reports indicating that the USAF intends to issue an amended Request for Proposal (RFP) soon that will only ask the bidders to revise and resubmit their O&S costs. Later, pending a GAO review and ruling on additional protest points, the Air Force might again amend the RFP to incorporate those additional corrective actions.

This seems inconsistent—a broad reevaluation of fully revised bids, versus narrowly amended bids including only revised O&S data. So which is it? Can you clearly explain to this panel the Air Force's intent regarding how it will enact the official recommendation of the GAO to amend the RFP, reopen discussions with the bidders, and request fully revised proposals for CSAR–X?

General HOFFMAN. Thank you. I agree there is a lot of confusion in this process. Just to back up a little bit, we have a source selection process. We picked a winner. The other two vendors protested. The GAO then addressed that protest and they came back with a sustained protest on the one item, and that is how you figure manpower in life-cycle costs, the O&S costs you talked about there. But they did not address the remaining protestations that were on the table.

So the Air Force has gone back to the GAO and said, "Would you please reconsider and give us your decision on the other areas there." So if we work just that one issue, are we done? Or then do we move on to the next protest item and the next protest item and the next protest items in series. So we asked the GAO.

Today, a bunch of letters have gone out to the three vendors announcing our intentions here, also the GAO and to various Members of Congress that have asked us about this over the last week or so, in addition to the press release that you talked about there.

The GAO said they will rule on the remaining issues in an expeditious manner, and they gave us a date of about mid-June that they will rule on that. We intend at that point, if necessary, to send out an amended RFP. Between now and then, we will address that single issue we have with dialogue with the vendors on the single issue that we know has been sustained, and that is the O&S costs, the manpower element of O&S costs, but we don't know if that is the only step we have to take, or if there are additional steps. So when the GAO responds on the additional protest items, then we will have a clearer path ahead.

Mr. BARTLETT. Now, Mr. Chairman, I have a series of short questions. I think they will require only pretty short answers.

Given the evolution of the Seapower 21 doctrine with increased numbers of surface ships and mission requirements, does the current helicopter master plan with just H–60 helicopters have the right quantity and type of rotary-wing lift needed by the Navy?

Admiral CLINGAN. Congressman, I will take that question. We are currently undergoing a helicopter force structure study, which will report out this month, which will take the programs of record that informed the President's budget 2008 and make adjustments to include those demands which you alluded to which were not mature, for example, the helicopter complement required to support the littoral combat ship, some of our growth in Navy special warfare requirements, the support requirements for our Naval Expeditionary Combat Command.

We are reaching the conclusion of that study and it will warrant an adjustment to the program of record for our helicopter procurement of both variants—the 60 Sierra and 60 Romeo.

Mr. BARTLETT. Is it fair to say if you thought the H–60 would meet all of our needs, you wouldn't be doing the study?

Admiral CLINGAN. It is not a matter of whether those two variants are meeting our needs. They do. It is a matter of how many helicopters we need to support the mission. And so it is a number issue, not a capability issue.

Mr. BARTLETT. Types of helicopters are not an issue?

Admiral CLINGAN. No, we are fielding the 60 Romeo and the 60 Sierra. Those two types meet our mission requirements.

Mr. BARTLETT. I understand an Analysis of Alternatives (AoA) to define helicopter lift for airborne resupply of seabasing was completed last year and concluded that a minimum lift helicopter was needed to supplement the capability of the H–60 fleet. What is the Navy doing about obtaining that additional capability?

Admiral CLINGAN. We are currently looking at heavy-lift requirements to replace the H–53s that have been used to support the seabase. That effort is a joint effort as well. Beyond that comment, I will take the question.

[The information referred to can be found in the Appendix beginning on page 176.]

Mr. BARTLETT. I appreciate that. There appear to be several mission areas of the Navy engaged in the global war on terror and rising to the challenges of the new doctrine that could potentially require greater lift capability than that available in the H–60 fleet.

Does the Navy plan to do a comprehensive review of all helicopter lift requirements to determine what is needed? In what quantity will current acquisition plans be adjusted until such a review is completed and the requirements verified?

Admiral CLINGAN. There are two aspects to that. The helicopter force structure study that I referred to previously, which we will complete this March, looks at the non-heavylift slice of that requirement. The heavylift requirement is being pursued through the joint forum.

Mr. BARTLETT. Are current acquisition plans being adjusted consistent with that review?

Admiral CLINGAN. They will be in the future when those reviews are completed, sir.

Mr. BARTLETT. The littoral combat ship (LCS) is identified as a crucial element of the future Navy force structure and mission modules are carried on board to rapidly employ the LCS in a variety of roles. Is the current plan to use the H–60 helicopter for all rotary-wing missions aboard the LCS? And can the H–60 be rerolled between Anti-Submarine Warfare (ASW) detecting and destroying, and Anti-Surface Warfare (ASUW), utility missions, minehunting and destroying and special operations? And is the H–60 capable to perform all rotary-wing missions on LCS?

Admiral CLINGAN. The two variants of the 60 that we are fielding, the Sierra and the Romeo, have different mission sets. The 60 Romeo is our primary anti-submarine warfare variant, and it has some ASUW, or anti-surface capability. The Sierra is a logistics helicopter and it is our primary counter-mine helicopter and our armed helicopter.

So depending on the mission that is anticipated for the littoral combat ship, the appropriate mission modules, the complementary helicopter type will be loaded.

Mr. BARTLETT. But since we can't roll from one helicopter to another these mission packages, that would require then that we had two helicopters on the LCS?

Admiral CLINGAN. We are actually buying approximately, and the study will inform this, approximately 55 helicopters that will resource the littoral combat ship. There is a mix of Romeos and Sierras that are aggregated to account for those 55.

Mr. BARTLETT. Since the LCS is pretty tightly packed and is a relatively small ship with a number of mission packages, is there room on the LCS to carry two helicopters and required flight and maintenance crews?

Admiral CLINGAN. Currently, we imagine that the littoral combat ship will carry one helicopter. It may be augmented with our unmanned vehicle, a vertical takeoff unmanned system.

Mr. BARTLETT. So for another mission, we would have to get another helicopter?

Admiral CLINGAN. Well, we intend to anticipate the mission requirement. If they re-roll the LCS to perform another mission, we can swap helicopters between the ships if necessary, or draw from the shore establishment. Neither of them are immediate, but with proper planning could be accomplished just as if we were changing out the mission modules.

Mr. BARTLETT. Thank you. One last quick question.

It has been reported the H–60S has experienced some structural integrity problems in the airframes. Has the cause of the structural cracks been determined, and are they of a safety nature to put the life of air crews and mission success at risk? Has the Navy slowed the delivery of the H–60S until these structural cracks have been eliminated?

Admiral CLINGAN. The engineering solution to the structural cracks through an itegrative process, the very first solution was not wholly successful. The second solution, called an I-beam or something of that sort, is successful. The aircraft that experienced these cracks is flyable to a certain extent, and then must be grounded. We are in fact rotating the airplanes in for this corrective repair, which is currently being borne the cost of that by the contractor.

Mr. BARTLETT. Thank you, Mr. Chairman.

Again, gentlemen, thank you very much for your patience.

Mr. ABERCROMBIE. Thanks for the thoroughness of your questions, Roscoe. You always do a terrific job. It is a pleasure working with you.

I will now go to Chairman Taylor.

Mr. TAYLOR. Who he, incidentally, has never enjoyed working with, but——

[Laughter.]

Mr. TAYLOR. Mr. Balderson, I want to follow up on what the chairman had to say. We have been here in the course of this war, we have had several shortfalls on equipment. First, to my knowledge, was the Small Arms Protective Inserts (SAPI) plates, followed by up-armored Humvees, followed by electronic jammers, and now with the Mine Resistant Ambush Protected Vehicles (MRAPs).

In every instance, someone in a position of authority, be they in uniform or out of uniform, will bemoan the lack of industrial capacity in this country and cite that as a reason why we are late. Fill in the blank what the issue was, whether they are SAPI plates in the ceramic industry, whether it is ballistic glass on the up-armored Humvee, whether it was high-test steel on the up-armored Humvee and quite possibly the MRAP.

So I really do want to follow up. I find it incredibly inconsistent on the part of this Administration on one day to blame not supply

the troops properly because of a diminished American industrial base, and then on the other making a decision to contribute to the diminishing industrial base by purchasing helicopters overseas.

I do want to follow up on the remarks of the gentleman. We have had a discussion over jurisdiction. Apparently, that helicopter will fall under the jurisdiction of the Seapower Subcommittee. I don't know how my subcommittee will vote, but I can tell you how the mark will be presented to them. For the reasons that I have just outlined, it will call for an American-made helicopter.

Now, again, my committee may shoot it down. The Senate may shoot it down. But this isn't something just to beat you up on. This is serious. Kids died for lack of body armor. Kids died for lack of up-armored Humvees. There was a legitimate beef about the lack of an industrial base, but they go hand-in-glove. We can't on one day bemoan that we don't have, and on the next day order something overseas and act like it doesn't affect the first problem.

To the next question. Part of the presentations I have been given tells us that we are going to have a deficit of about 90 strike aircraft as soon as 2010. Given that I don't see the industry, the Congress, the combination of the two, progressing with the Joint Strike Fighter to the extent that we would like to, to what extent has the Navy come up with a plan to purchase more F–18E&Fs should that need arise, rather than just living with a deficit in fighter aircraft? I will open that up to anyone who chooses to respond.

Admiral CLINGAN. Congressman, I will respond to that question.

The strike fighter shortfall that we share across the Department of the Navy is reflected in our legacy F–18s, the A, B, C, and D variants. The shortfall in that has expressed itself now. We have an existing shortfall in regard to the F–18D and the AV–8B. It peaks in about the 2011 timeframe. The A, B, C models that we take to the carrier, that peak in the shortfall is more in the 2017 or 2018 timeframe.

Our current strategy is two-fold. First, we are working to extend the service life of our legacy Hornets. We have an ongoing service life assessment program which we will complete in December of this year. Concurrently, to the best of our ability, but most of the work will be done subsequently, we will develop the engineering changes that will then be incorporated in these airplanes to get them presumably to 10,000 flight hours for their service life. That is the first step in mitigating the strike fighter shortfall.

The second step is buying the JSF program of record as we had laid it in in the President's budget 2008. In that budget, we have purchased, or we have requested the procurement of 28 additional F–18E&Fs as yet another step toward mitigating the Strike fighter shortfall. So we project using a model that that shortfall will be 50 Strike fighters, again in the 2017 timeframe.

In the work that we have ongoing now to prepare for POM 10, we are going to complete the assessment on what is the best way forward to eliminate or at least mitigate that shortfall to the extent that we can tolerate the operational risk. That work is ongoing. It may include buying additional E and F fighters above what we have in the budget before you, and it may include adjusting the JSF buy-rate. That work is ongoing, sir.

General CASTELLAW. Sir, I would ask to be able to address that.

Mr. TAYLOR. Yes, sir.

General CASTELLAW. Because the Marine Corps right now is experiencing the effects of the bathtub (a shortage of aircraft on a chart of numbers over time), we have not purchased a Tactical Aircraft (TACAIR) jet in 10 years. The six Short Takeoff/Vertical Landing Variants (STOVLs) that are in the budget in 2008 are the first TACAIR that we have purchased in 10 years. We are doing other things to mitigate the loss. We are going to cadre two squadrons this year and reinvest the aircraft into the other squadrons.

In the Marine Corps, there are only three types of squadrons: squadrons that are deployed; squadrons that are getting ready to deploy; and squadrons that are coming back. We are committed to the F–35, particularly the Bravo. I understand about the numbers, but it is also a matter of quality. We believe, and the committee has been very supportive, that we must keep the F–35 STOVL on schedule and bring that aircraft in.

It is not only the numbers, as I said. It is also the capabilities of that fifth generation fighter brings us.

Thank you, sir.

Mr. TAYLOR. Gentlemen, going back to the first panel that came before us, and the question I posed to them: What would be the downside of a competition for design, and the Nation buying that design since we are paying probably the preponderance, if not all of the cost of developing that design; putting that design out for bid, either on a winner-take-all or shared allotment, and seeing who would make the Nation the best deal?

The reason I pose this, it is my understanding that a lot of these changes came about because of Secretary Rumsfeld. Every year, I see very bright young kids walk into my congressional office trying to get an appointment to West Point or a letter of recommendation for Reserve Officer Training Corps (ROTC) programs. Then we as a nation spend a heck of a lot of money to educate them, some of the toughest schools in America.

Then we send them to sea or to go fly, but they get a lifetime of experience on what works and what doesn't work. And then when they get to the twilight of their career, in my opinion, they are the most qualified people in America to tell us what the next generation of ships or planes or helicopters ought to look like, for all of those reasons.

But for some reason, mostly during the Rumsfeld years, that decision has been deferred to the private sector. He may have a pretty good engineering degree, who may have shared some of those experiences, but at the end of the day he is not responsible for the lives of the men and women who are going to use them. You are.

And so my question is, the Coast Guard just in the past week has backed away from their design-build on the smallest of the new cutters they are going to buy. I congratulate that decision. To a certain extent, the Navy, the feeling I am getting from my conversations with the Secretary of the Navy, the Navy is going to move to the greatest extent possible those decisions back in-house when it comes to ships. I applaud that decision.

To what extent have you gentlemen followed about the same thing? Because quite frankly, I think you are the expertise for the Nation. I trust your judgment absolutely, and you don't have a

profit incentive, and quite frankly, you don't have to explain to the shareholders. You have to explain to the moms and dads of the kids who may not have come home. I think that is the greatest incentive of them all.

So what changes, if any, in the aviation community are you contemplating to mirror what is going on in the Coast Guard with shipbuilding and the Navy with shipbuilding?

Mr. BALDERSON. Mr. Chairman, I would offer a couple of comments. First, speaking as a Navy employee, I have had discussions with Secretary Winter also, and I have had discussions with my boss, Dr. Etter. They both view this problem very seriously and it is one of Dr. Etter's priorities. In fact, one of her strategic goals is to upgrade and maintain the proper technical and business acumen within the government, both in terms of numbers and in terms of level of experience.

One of the things that we have done in the aviation industry, and there is no question but that there has been some reduction in the acquisition workforce, mostly going back to the 1980's and 1990's when we went on a procurement holiday and there were people that felt like the technical talent and the number of government employees in the acquisition workforce ought to be commensurate with our total obligation authority and the amount we were buying at the time.

We found ourselves in a position in the mid-1990's when we began to recapitalize within naval aviation at I think we would all agree a pretty high rate, that we might have come down a bit too far. I think we have been in a mode in the last five or six years to not only recognize that problem by trying to build that workforce back up in terms of numbers and experience, but we have done two other things that I would like to mention.

First of all, we have taken every opportunity within naval aviation to try to capitalize on some technologies and efficiencies that would enable us to have what I would call a multiplier effect on our workforce and our people. We have gone very much now, and I will speak to Naval Aviation (NAVAIR) as a large acquisition organization, we have gone to effective use of integrated program teams now, where we bring a wide variety of people in an integrated fashion to bear on our most important programs. We have tried to put our most experienced and qualified and best technical people on our highest priority and our most complex programs.

The other thing we have done in information technology has helped us do this. We have been able to network these organizations and our programs together so that now if we are working a weapon program, we can have an engineer at China Lake or a program manager at China Lake just as effectively support our program offices at Patuxent River, as a Patuxent River engineer.

So we have tried to make sure that we have the right level of people looking at our most difficult problems. In some cases, multiplexing those people so that they not only are looking over our difficult programs, but then also training the next level of workforce down so they will have the experience the next time we go through this.

And then the last thing I would tell you is that we do project within naval aviation between now and fiscal year 2009, we do

project, albeit probably a modest one, but we do project an increase in the acquisition workforce. What we have not done in aviation, I believe, and we have been very careful not to do, is off-load decisions about what we buy and how we buy it to industry. In fact, we have been very careful about this lead-systems integrator approach to make sure that we retain that responsibility and we retain that insight on that decision-making ability on our programs.

Mr. TAYLOR. Let's talk specifically, Mr. Balderson. I understand that there have been a lot of delays in the ARH program. Again, based on what I said—and I am not blowing smoke, this is a sincere compliment—based on all the things I said, I really find it incredulous that between the people who are serving our Nation, that someone can't sit down and design what that helicopter ought to look like, and then among the services that are going to use it and buy it, and say, "this is what we want," present that design to the private sector, give us a price on it, how quickly can you do it, and let's get going with this. Rather than counting on the private sector that is often more responsible to the shareholders than they have been to the Nation.

In that specific instance, why hasn't something like that happened?

Mr. BALDERSON. Mr. Chairman, ARH is not a Navy program, so I wouldn't be able to comment on that.

Mr. TAYLOR. Okay. I will open it up to the panel.

General MUNDT. Sir, ARH is an Army program. It is the Armed Reconnaissance Helicopter. What you ask and what you have said is what I believe we in fact did. We defined the key performance parameters of things that we, the warfighters, required in an armed reconnaissance helicopter, to fight and gain information and be able to know where the enemy is, and to do it in a safe and efficient manner for the sons and daughters of America. We did that.

Mr. TAYLOR. Okay. To that point, General Mundt, for example I have to believe that your guys could easily have said, "I want this engine; I want this transmission; I want my blade to look like this; I want this weapons system on board; I want these countermeasures; I want these types of communications gear." To what extent to you all lay that out, and then say, "Give me a price on it"?

General MUNDT. Yes, sir. The question is a very sound question. What we did is you had a series of risks that you had to look at, and you had to decide whether or not you wanted to take a commercial frame, in this case the 407, which is what Bell bid. There were other people that bid. And whether you wanted to take that commercial frame and then integrate a mission equipment package. We have done that on Little Birds in the Army and the special operations community for a long time. We know how to do that.

We know what we expect the costs to be, and we knew how hard the integration was going to be. And we believe we came in with a program baseline to you and the committee, and said, "We can do this for this cost on this schedule." Now, anytime you are an SDD, you understand that you write a cost-plus contract because you don't know what you are going to discover in some cases. It is just like if I take my car to an auto shop, a guy says $250. Until he gets inside that, I don't know for sure what he is going to charge

me, but I know what he expects to charge me. Then I have to make a decision.

In this case, we knew what I could buy a Bell 407 for. You can buy a Bell 407 airframe right now today for $2 million. I think that somewhere between $3 million and $4 million to put the mission equipment package on and be able to integrate that is a reasonable cost. That is my professional opinion.

So what we have done, the Army, we have gone back to Bell and said, "You have come in and said there is a difference in opinion, and you need to show us that in the next 30 days as to why we at such odds, because we don't believe that that is going to be true."

Mr. TAYLOR. Even though it is the chairman's jurisdiction, I would very much appreciate a follow-up visit with you on how that works, because we are headed for a monumental train wreck in every single department of the DOD. The Nation is $8 trillion, creeping up on $9 trillion in debt.

So I think we have a responsibility to the men and women who serve and the men and women of this country who pay for those who serve, we have to do better. I think you will find a willingness on the part of this committee to do a better job with the taxpayers' money, and we would very much welcome your guidance in how to do that.

General MUNDT. Sir, we will come back to you and do that. I think the other piece, it is important to note. We get in some of these situations because of decisions we made in the past. We as a nation together, both industry, Congress and the department, made decisions that said it is clearly more efficient to take and outsource a lot of the things that we used to do, because our number one driving cost was personnel bills.

And now what we are doing, in all honesty, is we are at war, and industry is not on a war footing, and we are trying to ramp up to that. We are going to live through those mistakes. What I would caution people is as we learn this time, we cannot go back and repeat that again in the future.

Mr. ABERCROMBIE. We will carry on this dialogue. There is a reason that the committees are meeting jointly. Mr. Taylor and I work hand-in-hand on this. We don't necessarily walk down the hallway hand-in-hand, but I can assure you that metaphorically we do.

Now, Admiral Clingan, two years ago about this time, Representative Sestak was sitting in exactly that, maybe not that chair, but sitting in exactly that same place. Now, I don't know if he necessarily now thinks that he has advanced himself any by sitting in the chair he is in right now. He may be having second thoughts after last November.

In any event, it is now his opportunity to address the panel. We are very, very pleased. I can tell you from my own personal point of view, I am very pleased that he is sitting on this side of the room and addressing the panel.

Mr. SESTAK. Thanks, Mr. Chairman.

Good afternoon. I wanted to ask a question to the Navy and the Air Force. We have done a lot of good, you have all done a lot of good work on what may be the last manned tactical aircraft, the JSF, to make it "joint" as much as possible with the Marine Corps.

Why have we walked away from the first unmanned tactical, from my understanding, the Joint Unmanned Combat Aerial Vehicle (UCAV)?

My understanding is that has now become two separate programs—one for the Air Force, one for the Navy. Why as we go into the future, having finally after decades come together on the Joint Strike Fighter, haven't we remained on the joint first unmanned strike vehicle? Yes, sir?

Admiral CLINGAN. Congressman, one of the recommendations out of the Quadrennial Defense Review (QDR) was to take the Joint Unmanned Combat Aerial System (UCAS) program and split it apart into——

Mr. ABERCROMBIE. Can you speak into the mic a little bit more, Admiral?

Admiral CLINGAN. Yes, Mr. Chairman.

Mr. ABERCROMBIE. Thank you.

Admiral CLINGAN. A recommendation out of the QDR was to split the Joint-UCAS program into an Air Force program and a Navy program. Although the program offices were going to become separate entities, that has not stopped the collaboration in terms of the technology maturation and other efforts that are leveraged between the two programs and other programs across the whole joint unmanned portfolio.

From the Navy's perspective, we are moving ahead in response to the QDR to do a couple of things that are funded in the President's budget 2008.

Mr. SESTAK. Admiral, if I could, why was that decision made? I mean, there has been such an effort to make us more joint. Why was that decision made? What was incompatible?

Admiral CLINGAN. I will have to take that question for the record.

[The information referred to can be found in the Appendix beginning on page 177.]

General HOFFMAN. Sir, if I could add a little bit. It is not so much that it was a program and now there are two programs. It was a demonstrator effort, and now there really is no Air Force program. We are pursuing some technologies that were started in that demonstrator effort.

We are looking at automated unmanned aerial refueling because we think that is a valuable capability for even manned aircraft at some point, but certainly for a growing fleet of unmanned aircraft that we see in the future. The Navy has some unique requirements on getting on-off a ship, so what we get on-off a ship——

Mr. SESTAK. So the Air Force has walked away from an unmanned tactical air vehicle?

General HOFFMAN. No, it was not a program. The Air Force did not walk away. This was one of the fiscal realities coming out of the QDR and some budget decisions.

Mr. SESTAK. So it was a budget decision is why the Air Force is——

General HOFFMAN. We have not walked away from unmanned strike aircraft.

Mr. SESTAK. All right.

Mr. BALDERSON. Congressman, could I just add one thing to that?

Mr. SESTAK. Yes, please.

Mr. BALDERSON. As General Hoffman said, my take on it, and I am not going to speak for the QDR, but my take on this in deliberations with OSD and the services is that it was determined that since UCAS was not a program, it was a demonstration, that it was more——

Mr. SESTAK. I am sorry—UCAS. It is UCAS, yes?

Mr. BALDERSON. It is UCAS now.

Mr. SESTAK. Sorry.

Mr. BALDERSON. Aerial systems as opposed to aerial vehicle.

Since what we are all about is maturing and demonstrating technologies to inform a program decision in the future, that it was a more efficient use of funding for the Air Force to take the lead in maturing certain technologies, and for the Navy to take the lead in certain technologies, to include propulsion and of course the all-important thing of getting the vehicle on and off the carrier, which as Admiral Clingan was saying, is our demo.

Those paths between the Air Force and the Navy will go in parallel and there has been great collaboration. When we get to the point in the future, and we mature these technologies and we have done the demos, and we are informing a decision on a future acquisition program, there has been no decision or even any discussion about anything that would preclude joint programs at that point in time.

Mr. SESTAK. So you may still end up with some commonality?

Mr. BALDERSON. I would say we may still end up with some commonality and could end in a joint program.

Mr. SESTAK. General, to understand better what the Air Force is doing, is that a discussion for another time?

General HOFFMAN. I would say yes, sir.

Mr. SESTAK. All right. The Air Force long-range bomber, Andy Marshall, and others have said this is something we really need to go deep. I really wasn't a budget person, but my limited understanding is we really in the 2007 budget had very little when the 2007 came over. As a matter of fact, I don't think there was anything. And now for the 2008 and out, there is just a little bit.

This is supposed to be online in 2018 or something. Where are you going to go for the funding for this, if it is not even in the budget?

General CHANDLER. Sir, if we could, we would like to take that one for the record also. I think that would be more appropriate in another forum.

[The information referred to can be found in the Appendix beginning on page 177.]

Mr. SESTAK. All right. The other one I had was for the Navy. In 2007 through 2011, a rough estimate is like $11.5 billion per year averaging for aircraft. When you look out to 2020 to 2024 and you start looking at the Selected Acquisition Reports (SAR)—you know, what is there and making some assumptions—it appears as though you are down to about $7 billion or $7.5 billion per year.

You have taken 145 aircraft out of your program and just came across here, as compared to similar years when the 2007 program

came across. You placed 45 in the emergency defense budget Quinlan-size submarine Hi-Low, but it is still not the 100 others potentially.

Your budget is going to go down in fiscal year 2010. And yet you have already taken 100 aircraft out in this year, and you are going to drop over 40 percent, it appears, in what is being planned for your aircraft recapitalization. How will you address that issue, particularly in view of the desire of the Navy to recapitalize its fleet up to 308 ships?

Admiral CLINGAN. Congressman, the analytic work and the planning that went into the budget submission that is before you took a look at the challenge that we faced with concurrent recapitalization across almost the entire aviation portfolio, and made an effort to reduce the total cost of that concurrent recapitalization by expanding the timeframe over which we were going to field the replacement aircraft. We called that suppressing the procurement bow wave. We took out of the Navy portfolio a bow wave of about $4.2 billion.

Underpinning those adjustments was campaign analysis and other studies which allowed us to understand the combatant commanders' demand signal for the various capabilities, both today and in the future, in the next decade. And we have laid in a procurement profile that is certainly lean, but meets the resourcing requirements for capability that we expect our combatant commanders to levy against our capability.

Mr. SESTAK. So the aircraft that had been removed, the 145, that wasn't for fiscal reasons. That meets your capability. They are not being moved down the path to be procured later.

Admiral CLINGAN. They are in fact being moved out. The programs of record and the inventory objectives for the——

Mr. SESTAK. If I could, Admiral, if it is going outside the Fiscal Years Defense Plan (FYDP), why do we drop 40 percent in our recapitalization plans after the FYDP for aircraft? Or has that not been factored in quite yet?

Admiral CLINGAN. We will be making adjustments to continue the recapitalization effort.

Mr. SESTAK. Your ships, to get the number you want, is based upon no increase in price or cost of them. If these aircraft have not been factored in, then what does that say about the ship remodernization plan?

Admiral CLINGAN. Two points, one, the work that we are doing in preparation for POM 10 is doing an assessment in regard to the warfighting requirement, the cost to keep the modernization of our fielded aircraft relevant, and it will be balanced against the equally competing imperatives in the ships.

Mr. SESTAK. All right. The number of ships and aircraft, an input or an output of that?

Admiral CLINGAN. Could you repeat the question?

Mr. SESTAK. The question is—and I am probably going over—if I could, one other one. The Navy-Marine Corps——

Mr. ABERCROMBIE. That is all right.

Mr. SESTAK. You have done great work in TACAIR integration. Could you address the flight hour issue? I believe both services approach it a little differently. Admiral.

Admiral CLINGAN. Our flight hour program is designed to achieve certain levels of readiness, depending on when a squadron and its air wing, where they are in our fleet response plan.

Mr. SESTAK. So if you are back here at home, and you don't deploy for a year-and-a-half, your flight hour pay is lower.

Admiral CLINGAN. Correct.

Mr. SESTAK. You do less, and you ramp up as you deploy.

Admiral CLINGAN. Correct.

Mr. SESTAK. General, how does the Marine Corps do it?

General CASTELLAW. Sir, as I indicated before, there are three types of squadrons: those that are deployed; those that are coming back; and those that are getting ready to go. We have all our squadrons level-loaded so that we are prepared to deploy as needed. Our op tempo right now supports that philosophy.

Mr. SESTAK. So when the Marine Corps comes back, even if it was peacetime, your flight hours are constant across the whole continuum?

General CASTELLAW. Yes, sir. We try to achieve a 2.0.

Mr. SESTAK. Should the Navy and the Marines do it the same way? Why is there a difference? You both go forward to fight our Nation's wars.

General CASTELLAW. Sir, in our view, we are a ready force prepared to go, and so it is our mission——

Mr. SESTAK. So it is a different operational ethos? You are ready 100 percent of the time. The Navy is periodic for readiness. Correct, Admiral?

Admiral CLINGAN. We have a variety—not a variety—a sequence of phases that characterize our fleet response plan: a maintenance phase, a training phase, a surge phase prior to deployment, a deployment phase, and a post-deployment sustained phase. In the surge deployment and post-deployment sustained phases, we have achieved the readiness necessary to deliver the effects expected of the maritime forces.

Mr. SESTAK. General, beyond reconnaissance, and I think that has already been addressed before I got here, correct?

Well, one more then, since I had a couple of questions that have probably already been asked. Have we learned anything differently from Iraq about the utilization of our helicopters and reliance upon them? It has been a challenging environment.

General MUNDT. The short answer is "yes." It is one of the most harsh environments that any of us has experienced, not just because of the enemy, but also because of the environment itself. Part two is we are finding ourselves flying at three to five times the op tempo that we had ever anticipated as we built the force and designed the aircraft. So we understand that.

A lot of lessons are learned on reliability, maintainability, what do you have to do to reduce the burden on the soldier in the fight. We are applying those lessons to the aircraft that we are purchasing now. So yes, sir, I think we are learning a lot of lessons in those helicopters and taking those back and putting them in the designs as we can.

Mr. SESTAK. In the defense of them?

General MUNDT. Sir?

Mr. SESTAK. In the defense of them?

General MUNDT. Well, in the defense, of course, the aircraft survivability equipment, we are dealing with a thinking enemy, so I will tell you right now that the best available aviation survivability equipment are on our aircraft, but each and every day we learn. The enemy, as he changes his tactics, techniques and procedures (TTPs), some of those things we will change in the way that we fly—speeds, altitudes, varying routes. Other pieces are hardware pieces.

We will come back to you about a fifth sensor, and that is because we are changing the way that we fly and we want to make sure we provide the best protection for those aircraft we can.

Mr. ABERCROMBIE. I think we will have to bring it to a conclusion with that.

Mr. SESTAK. Thank you very much.

Mr. ABERCROMBIE. I just have a couple that I would like to go through, and we will send some others on to you, if that is all right. It is late in the day. Again, I personally thank you for your patience in letting us go.

Just a quick follow-up. There are classified dollars with the long-range strike aircraft. Isn't that correct?

General CHANDLER. Yes, sir.

Mr. ABERCROMBIE. Right? Maybe we can follow up separately with you on that, and provide a little bit more in the way of perspective for Representative Sestak. Okay? And for ourselves.

General CHANDLER. Yes, sir.

Mr. ABERCROMBIE. Because I am not quite clear myself where that fits into what the requests are right now. Okay?

General CHANDLER. Yes, sir. We will take that for the record.

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

Mr. ABERCROMBIE. Okay. And just give brief answers, not that you wouldn't anyway, but I meant you need not elaborate for this because we going to hand these questions on to you for more elaboration, but in order to get something on the record now.

I am discerning from your commentary today, General Mundt, that there might have been other Department of Defense concerns with the contractor's ability to perform where the armed reconnaissance helicopter was concerned, given the problems with the program. Is that a fair deduction?

General MUNDT. Sir, I would have to let the department, the secretary's office, answer their concerns, but I would say it is fair to say that many of us share concerns about the processes and how they approach putting aircraft together right now. That is a concern. Yes, sir.

Mr. ABERCROMBIE. Okay. Then Mr. Balderson, you have borne the brunt mostly of a lot of inquiry today that wasn't easy to answer, so I might as well give you one more. Does the Department of Defense, from your perspective, have a view with the alternate engine program for the Joint Strike Fighter?

Mr. BALDERSON. Yes, sir. Just a couple of quick points, Congressman. We agree that we believe it is unlikely that we could recoup the $1.6 billion investment during the life of the program. That attributes largely to some things that have been said. When you split the procurement, the cost is going to go up and frankly the other

thing, Mr. Chairman, in my experience. I draw back to my Tomahawk experience. Very often in these programs you get to a point after a few years where you have a clear leader and a clear follower. At that point, I think one of the reports—I can't remember which one——

Mr. ABERCROMBIE. Do you think we are at that point with this?

Mr. BALDERSON. No, sir. I am saying that that usually happens when we try to carry. We very seldom try to carry dual sources. That makes it more difficult to get competitive pricing.

Mr. ABERCROMBIE. But that comes a little bit further down the line, right? If you are having the competition.

Mr. BALDERSON. It is further down the line, but the whole issue, as I read these three reports and other cost reports, the whole issue is how are the contractors going to react in a competitive environment, how are they going to behave in a competitive environment, and will they behave such that you would recoup that $1.6 billion investment. My opinion is that they would not and we would not recoup the investment.

Mr. ABERCROMBIE. Okay. Again, I say, we don't have to get into an extended dialogue today, but I think you all heard from some of the members here, whether there is more expenses or not is not necessarily our issue. The issue for us is can we get a manufacturing industrial base that we can count on in the future; and can we put together an industrial and manufacturing base that will continue to try to look for innovation and making the best engine possible.

That doesn't necessarily mean we are going to save money. We may spend more money as a result, but we may get a better engine. I realize that that can be a conundrum in some respects, not easily resolved. I wanted to go to Admiral Clingan to make sure that I understand. The Navy now plans, is it 84 EA–18Gs?

Admiral CLINGAN. Yes, Mr. Chairman, it is.

Mr. ABERCROMBIE. That is a decrease.

Admiral CLINGAN. That is.

Mr. ABERCROMBIE. Why is there a decrease? This maybe goes along with my questions about competitiveness and all the rest of it. One of the things I can't come to grips with, even after all this time on the committee, is that one year the decline and fall of Western civilization is at stake with 84, and then the next year apparently we are not going to decline quite as fast even if we have six less. Is it a procurement problem? Is it a competition with other platforms? How can you get along with six less this year?

Admiral CLINGAN. The procurement objective for the Growler, the EA–18G, is the result of campaign analysis that was done to inform the President's budget 2008.

Mr. ABERCROMBIE. Were you being driven by the budget numbers you were given? Or were you program-oriented and mission-oriented, and then came up with the six less?

Admiral CLINGAN. We were completely driven by the capability and capacity required to fight and win.

Mr. ABERCROMBIE. So how come it is different this year than last year, that you would come up with six less?

Admiral CLINGAN. The process involved a decision that said we have 10 carrier air wings and each would be equipped with five

Growlers. However, as a squadron makes its way through that fleet response plan (FRP), the entitlement for the squadrons is not the same. They are fully outfitted when they are in the pre-deployment surge, when they are deployed, and when they are in the post-deployment sustained phases.

Prior to that, in the maintenance and training phases, their entitlement for aircraft is less than the full complement. This is a way for us——

Mr. ABERCROMBIE. You didn't know that a year ago?

Admiral CLINGAN. Not to my knowledge.

Mr. ABERCROMBIE. It sounds like a pretty standard analysis to me.

Admiral CLINGAN. That is one aspect of it, sir. We also are continually working to lean our force structure requirement as we become more efficient.

Mr. ABERCROMBIE. Weren't you doing that last year?

Admiral CLINGAN. Yes, sir, but we get better.

Mr. ABERCROMBIE. So you got better at it this year?

Admiral CLINGAN. Yes, sir.

Mr. ABERCROMBIE. Six planes better?

Admiral CLINGAN. Yes.

Mr. ABERCROMBIE. Are you talking to the Air Force about this? Representative Sestak has focused in on the joint aspect of this, and other members have today. Does the Air Force agree? Does the Air Force have an opinion on this?

General CHANDLER. Sir, we have many of the same lean processes that the Navy does, quite truthfully. And we look at things the same way in terms of aircraft procurement.

Mr. ABERCROMBIE. What do you think about this decrease of six?

General CHANDLER. Sir, I can't speak for the Navy and the EF–186.

Mr. ABERCROMBIE. I know you can't. Do you have any needs in this area?

General CHANDLER. Yes, sir, in terms of fighters. We are looking at the same issues that the Navy is looking at in terms of an aging fleet. As you know, our planning number for the F–22EA is 381. The programming number is 183. We feel like we need 381——

Mr. ABERCROMBIE. What was the number last year?

General CHANDLER. The same number, sir.

Mr. ABERCROMBIE. The same number this year?

General CHANDLER. Yes, sir.

Mr. ABERCROMBIE. You didn't get any leaner this year?

General CHANDLER. Not in terms of F–22s, no sir.

Mr. ABERCROMBIE. All right. Thank you very much.

Maybe this will help me, General Castellaw. Last year, I have already referred to the Yankee Zulu program. They submitted a budget request, program request for procurement of 18 helicopters. Right? The contractor produced 11. This year the budget request includes $519 million for helicopters, and what is referred to as the global war on terror request includes $123 million for 6 helicopters.

Now, my best guess is this is a ramp up of 11 to 26. Now, if the contractor was only capable of producing 11, even though last year you thought they could produce 18, am I misconstruing that you

are thinking that they can go from 11 to 26 this year? And if so, what makes you think they can do that?

General CASTELLAW. Sir, I think you know that Bell has had leadership changes within the last several months. The new leadership has come in and provided us with a reschedule. Right now, from the information that they have provided us, we feel that they can get back on schedule.

Mr. ABERCROMBIE. Does that put you at odds with what the Army's perception is of what they are capable of?

General CASTELLAW. That is what our perception is.

Mr. ABERCROMBIE. Has it put you at odds with what you have heard even today from what the Army's conception is?

General CASTELLAW. That is what my perception is, sir, is that Bell is going to be able to get back on schedule.

Mr. ABERCROMBIE. And that is what your answer is to my question? Would you say you are being responsive to my question? Or would you prefer not to? If you say you prefer not to answer the question, it is okay with me. You are not going to hurt my feelings.

General CASTELLAW. Sir, that is my best answer.

Mr. ABERCROMBIE. Okay. That is good. That was sharp. But you see my difficulty here, when we are trying to make decisions on this. It is very difficult for me to make a recommendation to the subcommittee or on to the rest of the committee about funding like this if we see the numbers change.

We will go from 84, and all of a sudden we have gotten leaner by 6. Well, maybe we should have been leaner in what we proposed to fund, procure, and recommendations we should make to the appropriations committee. Same here. Can you understand, General, I won't say my reluctance, but my standing back a little to say: Do we really want to make a recommendation to go to 26 helicopters?

General CASTELLAW. Sir——

Mr. ABERCROMBIE. I am not trying to get in a contest with you. You understand. I am trying to be as open and honest as I can with you about the dilemma we face in trying to figure out just exactly what do we recommend when we are competing for dollars.

General CASTELLAW. Right now, sir, I have units that are deploying that are deployed for seven months, and they are back for five months. And one of the reasons that we are doing that is because we are being asked to do that. What we need is to increase our capabilities.

Mr. ABERCROMBIE. But that takes us back to whether we are serious in this country about going to war.

General CASTELLAW. Yes, sir. And I think we are. We are going to 202,000 in the Marine Corps. We are going to grow it, and part of that growing is——

Mr. ABERCROMBIE. I am talking about the manufacturing capabilities, the industrial base of the country.

General CASTELLAW. Yes, sir. I understand that. In order to do that, then we are asking, and I looked at the president of Bell, Mr. Miller, and I looked him in the eye and told him that what I was depending on him to do was straighten out the mess at Bell and produce helicopters because young men and women Marines and sailors are depending on that company to get their stuff together and produce the equipment.

Right now, that is the fastest way I can get my forces with the equipment they need, is for Bell to do it. Bell has come back to me and said they will. I am right now——

Mr. ABERCROMBIE. Let's take that as a premise that we can both agree on. Can they do it on their present manufacturing schedule? Let me tell you why I am asking that. I am going to draw a parallel. When we were down at the depots in Corpus Christi and Anniston, and saw the work being done down there, which I think is first-rate, by the way.

It is very clear to me, and I don't know if you have had an opportunity to visit those depots, but to the degree depots anywhere in the country are reflected in what they are doing down there, you have very, very dedicated people, highly professional, very focused, and now they are working 22 hours a day, as much as they can.

Now, do we need to increase the shifts? Do we need to put money in and say to Bell, okay, we expect you to work double shifts, or two-and-a-half shifts or three shifts to get this done? Do we need to go to the country and say to them, look, if you are going to do this and you expect the armed services, no matter what the service is in the armed services, to do this, setting aside arguments about whether we should or should not, or what the course of events should or should not be militarily speaking.

Do we need to then say to the country, look, we are going to put money in to get this to go to double shifts or triple shifts, and tell people they have to do it because otherwise we can't sustain the support for the armed forces that they deserve?

General CASTELLAW. Sir, I am looking for the aircraft. I am depending on others to make sure that the resources are there to provide the aircraft.

Mr. ABERCROMBIE. Okay. You understand where I am going with this? It is serious. The longer I sit here and the more I talk with my colleagues, and the more I see out there now, the less I believe that we are on a war footing in terms of our industrial capacity. Industrial capacity might be there, but in terms of our industrial output.

Well, let me put it this way. Would you object to me going to the Bell people to see whether they can produce the 26—convince me? I would be hesitant to argue with you. If you came and told me I needed 26 helicopters, I doubt that I would tell you, "Hell, no, I don't think I can do it." I wouldn't want to be on the other side of your wrath on that.

But I think it might be a good idea for us maybe to get these folks in here. What do you think?

General CASTELLAW. Sir, I think that would probably be a good idea.

Mr. ABERCROMBIE. Okay.

General CASTELLAW. By the way, sir, I was in KB the other day flying 53–Ds out around Diamond Head and down Waikiki, and Hawaii is still in good shape.

Mr. ABERCROMBIE. Yes.

Let me ask you this, then, in that context. Are you happy with the housing that we have put up at Kaneohe Bay?

General CASTELLAW. Sir, more importantly, the Marines and sailors who are living in them are happy with them. Thank you.

Mr. ABERCROMBIE. Good. That has changed considerably. I remember speaking with General Krulak when he was commander at Kaneohe Bay at one point, on his way to ultimately being commandant. I remember when he went back to see it after I had told him what we would do with the housing out there. I know he was very pleased with the result.

General CASTELLAW. It was good to see all that mess cleared out, bulldozed down, going out the back gate toward Kailua and the new stuff there.

Mr. ABERCROMBIE. Thank you very much.

General Chandler, I have a couple of things here. On the B–2 radar frequency, and you have to help me out here because I am new to this. I understand that the B–2 is undergoing a $1.4 billion or $1.5 billion upgrade as they relocate the B–2 radar frequency because it is not the primary user of that frequency. How the hell did that happen?

General HOFFMAN. Sir, if I could take this. It is more of an acquisition question here. It points out the importance of spectrum and the value of spectrum. The DOD does not own all the spectrum that we need.

Mr. ABERCROMBIE. Then how was it chosen in the first place? I am a lay person in this. When I was told this, when I was being briefed by the staff, I thought, how could that happen?

General HOFFMAN. Because there is not enough spectrum for the DOD to do all the needs that it has. We are secondary users.

Mr. ABERCROMBIE. Did people know that when they did this?

General HOFFMAN. They did.

Mr. ABERCROMBIE. Then how did it happen?

General HOFFMAN. Because they didn't have a spectrum they could become a primary user on. We do not own the spectrum. We have to compete with all the other users of the spectrum area, and it is allocated by a process outside the DOD control.

Mr. ABERCROMBIE. It is difficult for me, when you say "outside the DOD," but then if that was the case, why wasn't it brought to our attention? I don't do this every day. I am not down there with those guys in the spinner. Why wasn't it brought to our attention in the first place, that they said, "Look, this isn't under our control; we have to compete with these other spectrum users or would-be users; and it is going to cause us a real problem unless we can get a dedicated section of it."

Then we could have either drafted legislation to make that happen or whatever else we needed to do. I am not saying you did it, but somebody did it.

General HOFFMAN. Well, there is more of this going on. We can give you a list of where we are not primary users.

Mr. ABERCROMBIE. Okay. Would you?

General HOFFMAN. Sure.

[The information referred to can be found in the Appendix beginning on page 175.]

Mr. ABERCROMBIE. Yes, because are we going to run into this again?

General HOFFMAN. Especially domestically here. It varies country by country because even though we may control spectrum with-

in this Nation, there are other countries that control their spectrum.

Mr. ABERCROMBIE. How do I know that this upgrade and relocation is going to not put us right back in the same position?

General HOFFMAN. In this case, we are primary users, at least from the perspective of the U.S. we have primary status.

Mr. ABERCROMBIE. What happens when you leave the U.S.?

General HOFFMAN. Just like we conquer air space, as we go into some place, we also conquer spectrum.

Mr. ABERCROMBIE. Well, you are going to have to tell me a lot more about this. My staff couldn't give me answers that I could——

Let me ask you this, if we do this, is this the last time I will hear about this?

General HOFFMAN. This will not be the last time you hear about a spectrum challenge. I can't guarantee that the B–2 will have to move in 40 years somewhere else. We are comfortable that we are moving to the right frequency here, but spectrum is a challenge across the entire commercial and military enterprise.

Mr. ABERCROMBIE. What do we have to do to make it not a challenge?

General HOFFMAN. Technology is helping. You can share spectrum if you do certain technologies like managing your power, managing the range of this.

Mr. ABERCROMBIE. Why can't we dedicate a portion of the spectrum for defense purposes and tell everybody else to get in line afterwards?

General HOFFMAN. I am all for that as a defense member, but I don't think the Department of Commerce would be with you.

Mr. ABERCROMBIE. What do I care what the Department of Commerce thinks?

Okay. You are answering my question. In other words, you have had this need and the Department of Commerce has told the Department of Defense that it has to take second place to commercial interests?

General HOFFMAN. They are the ones that control the selling of the spectrum. There are other agencies that also have a role.

Mr. ABERCROMBIE. Okay. Does it take legislation to change that?

General HOFFMAN. I think it probably would. I am not a spectrum expert.

Mr. ABERCROMBIE. I am not going to ask you any more questions because I figure you are already thinking, oh, boy, I am sliding right into a real deep well.

General HOFFMAN. No, sir. I would be glad to have further discussion on this. This is a challenging problem.

Mr. ABERCROMBIE. Okay. I am going to tell you right now——

General HOFFMAN. I am looking at unmanned vehicles, which use a lot of spectrum to command and control them and to get the value of their sensors off-board. There are some countries we can't operate certain vehicles in.

Mr. ABERCROMBIE. Well, then poor Mr. Balderson has already gone through here about what I think the country will put up with or not put up with, and the same here. I cannot believe that there is any citizen of the United States that is going to say to the Department of Defense with respect to occupation of spectrum for pur-

poses of the defense of this country, needs to take second place or have to compete with or argue with or arm wrestle with the Department of Commerce over spectrum.

General HOFFMAN. Sir, it is the citizens of this country that use spectrum—garage door openers, cell phones, HDTV.

Mr. ABERCROMBIE. People flying the B–2 or anything else, they will want to have that spectrum used by you for purposes of defending the Nation's strategic interests. I am sure of that. And those who don't want to do that, I would be happy to hear from them and we will see how many of them there are, but I bet they are going to be few and far between.

So my offer to you is please give us some enlightenment as to what the difficulties are with the use of spectrum for purposes of defense of the Nation, and we will see what we can do to be helpful to you.

General HOFFMAN. Yes, sir.

Mr. ABERCROMBIE. Or anybody else, for that matter.

Do you have a follow-up on that, Mr. Sestak?

Mr. SESTAK. I just had one follow-on question, sir, if you don't mind.

Mr. ABERCROMBIE. Sure.

Mr. SESTAK. I just have to go to somewhere else.

Mr. ABERCROMBIE. Sure. Go ahead.

Mr. SESTAK. Thank you.

Admiral, I wanted to follow up on the question the chairman had. In this campaign that made you re-look at the number of Growlers, if I caught the conversation correctly, the Growlers are such import out there. What was it in that campaign analysis—a different scenario—that made you say that eight less, or whatever it was, is needed?

Admiral CLINGAN. The basis for the change was not just resident in the campaign analysis. We also look at the other aspects that make up the inventory.

Mr. SESTAK. Maintenance and attrition rate and all of that?

Admiral CLINGAN. Yes, sir.

Mr. SESTAK. Is that what you are saying?

Admiral CLINGAN. Yes, sir.

Mr. SESTAK. So it was all embedded in that. I thought I had heard that. So was it at all, do you know, part of the scenarios, part of how warfare is to be done? Or was it purely more the pipeline and the maintenance as you have done your lean six and all that? Was it the latter or the former?

Admiral CLINGAN. The latter was the predominant. The campaign analysis confirmed that we need five per air wing. In terms of the number of aircraft allocated through the FRP——

Mr. SESTAK. That is good. The reason I am asking is to the Air Force's answer on the UCAV. Are we still pursuing this joint approach with the Navy and the Air Force, of the combination of the Growler, the UCAV, the B–52 all being the spectrum in future warfare of jointness as we head into what has up until now fairly been placed within the Growler—not the Growler—the Prowler?

General CHANDLER. Yes, sir.

Mr. SESTAK. Can you describe it? Is it funded for the B–52? I may have missed it in the budget.

General CHANDLER. Sir, that is a $35 million unfunded priority for us to get at funding the core component jammer, but as you know, that is all part of the system of systems. That is the piece that does the high-powered low-band jamming. Compass Call does communications jamming, all the way down through stand-in jamming and then all the way into the Miniature Air Launched Decoy (MALD) system.

Mr. SESTAK. And it is unfunded?

General CHANDLER. At this point, there is some funding for it, but there is a $35 million unfunded.

Mr. SESTAK. But isn't your portion of this dependent somewhat upon their having these elements in the system of systems from the UCAV? At least the last time I looked at it, there was a timeframe here, as you lose your Prowlers. I have forgotten all this. But there is a system of where these pieces are supposed to be coming together for the joint family to be out there.

Admiral CLINGAN. You are correct, Congressman. But there is a bit of a separation, sir. UCAV, and I appreciate the correction by my colleagues that we have ongoing demonstrations. In the case of the Navy, the carrier suitability demonstration will plan far more than form our decision to go forward with it in UCAS, as we are calling it.

Mr. SESTAK. Sorry.

Admiral CLINGAN. But the primary role of that platform in the Navy's view will be persistent penetrating——

Mr. SESTAK. Correct. SFers (Special Operations Forces) will have the jammer. Correct?

Admiral CLINGAN. Well, in the Airborne Electronic Attack (AEA), electronic attack system of systems, there are about four or so phases. One is stand-off, long-dwell persistent. That one——

Mr. SESTAK. And that is not funded?

Admiral CLINGAN. Correct, sir.

Mr. SESTAK. So system of systems has a portion not funded.

Admiral CLINGAN. Correct. The Growler fits the escort part of the system. Then there is the penetrating slice of the system which actually goes into the denied area.

Mr. SESTAK. That is the UCAS, correct?

General CHANDLER. Sir, the actual stand-in portion of that is the launch decoy. And then as you move outward through the penetrating escort, typically——

Mr. SESTAK. Does the UCAS still have a role in this AEA system?

General HOFFMAN. That was just going to be a technology demonstration for that system. That was never designed to be a force structure element that hears so many——

Mr. SESTAK. So it is not the penetrator?

General HOFFMAN. It could penetrate if we would choose to build a force structure around it, but we were just using it as a demonstrator vehicle.

Mr. SESTAK. And UCAS will not be what for the Air Force?

General HOFFMAN. Well, there is none, as I said before——

Mr. SESTAK. Oh, that is right. There is none.

General HOFFMAN. Yes. We are taking some of the technologies there and we are trying to harvest those technologies and mature them for future force structures.

Mr. SESTAK. To the AEA, if I have it right, that has been modified and is not fully funded.

Admiral CLINGAN. Well, there is a difference, Congressman, between the concept and the material solutions that are filling the elements of the concept. So currently the, if you will, the penetrating, there are unmanned solutions, expendable solutions being considered to penetrate deep into the denied areas. We have fielded the slice of the systems of systems that the Growler fills. We are bringing strike fighter capabilities along in our F–22s, JSF, and the F–18E&F block two with AESA. So that slice of it.

Mr. SESTAK. If I could, I would be very interested in seeing what the Air Force program is. If I have to come over there or something, I would be happy to.

General CHANDLER. Sir, we can bring that to you. We will take that for the record.

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

Mr. SESTAK. And also the AEA. I have forgotten what the system of systems and the jamming was called. AEA?

General CHANDLER. Airborne electronic attack.

Mr. SESTAK. Yes. I would be curious. Thanks for the time very much.

Mr. Chairman, thank you.

Mr. ABERCROMBIE. Yes, thank you.

What I still don't quite grasp, though $35 million in this context is nothing. Why is that unfunded? When we generally say the word "unfunded," it means that Congress has denied you the money.

General CHANDLER. No, sir. I wouldn't say it that way. I would be honest to say that last year in terms of trying to put the program together, we didn't meet the budgeteers' timing. We need to get our program in in 2009 to be able to field something in 2015.

Mr. ABERCROMBIE. But $35 million—how much is expended right now? You have to help me, because I am a lay person in this and you are all much more familiar with it. How can you put all this together if you have that unfunded component?

General CHANDLER. As we said earlier, sir, there is a gap between 2012 and 2015 before we can bring this on line.

Mr. ABERCROMBIE. Is the $35 million preventing that?

General CHANDLER. No, sir. That is simply technical maturation to get us started with the program. Obviously, the program is going to cost somewhere between $3 billion and $4 billion.

Mr. ABERCROMBIE. Am I missing something here? Why would $35 million then be in the way? I can't imagine if you are talking about a multi-billion dollar program that you would let $35 million get in the way.

General HOFFMAN. Well, the multi-billions aren't there either.

Mr. ABERCROMBIE. Well, there are not apparently going to be if you don't get your $35 million. That is what I am driving at.

General HOFFMAN. This is the leading edge of what we need to develop the program.

Mr. ABERCROMBIE. I feel like I am going into the spectrum argument again. I don't understand. You have to help me with this. I don't understand. Did you ask for the $35 million and it was denied?

General HOFFMAN. Not from Congress, no, but it fell below the prioritization process that occurs within the service and the Department of Defense.

Mr. ABERCROMBIE. Within the service, the $35 million was denied?

General HOFFMAN. It was below the priority line.

Mr. SESTAK. Mr. Chairman, would you yield for a moment?

Mr. ABERCROMBIE. Sure.

Mr. SESTAK. Let me make sure I understand, because this $35 million, are you saying that there is this gap—I have forgotten the figures—but there is some gap that is emerging, whether it the 2012 to 2015 gap, where your Prowlers, if I have it right, would go away. Correct?

Am I still here? And is that the capability gap? You are talking about a capability gap here—correct?—of jamming that we have had for quite some time, ever since the Air Force and the Navy came together in a joint way to some degree to have the Prowlers be one force.

I think the chairman's question is, if for want of $35 million—and I know it is not a simple answer—but we have an impending capability gap for a number of years. Is that correct? And it isn't just the $35 million. It is also something else that is not coming on line, isn't it?

General HOFFMAN. The gap starts to manifest itself when the Navy's Prowlers age out in 2012. Up to this point, when we did away with the EF–111s, that used to be in the Air Force force structure, the Navy through this MOU said that we would assume the joint responsibilities for stand-in jamming.

Mr. SESTAK. But the agreement was that by 2010, the Air Force would have picked up this capability gap again. Is that correct, Admiral?

Admiral CLINGAN. In 2012.

Mr. SESTAK. In 2012. But now we have a capability gap between 2012 and 2015, because of—I know it is not all—some because of the $35 million, but there is something else missing in this piece. What is it? Or is it only the $35 million?

General HOFFMAN. No, it is $3 billion to $5 billion.

Mr. SESTAK. Which is which capability? What you are going to put on the B–52?

General HOFFMAN. That would be for the B–52 core component.

Mr. SESTAK. So what is the military going to do with this capability gap?

General HOFFMAN. Like all other capability gaps, we will use the other elements of AEA. Maybe it takes more model J's. Maybe it takes more risk to the crews that have to operate in this environment. Maybe it is a different Concept of Operations (CONOPS) and strategy.

Mr. SESTAK. But if it is not that significant, why did we bother thinking of filling it for some time up until now? Admiral, are you concerned? This gap is okay?

Admiral CLINGAN. We are concerned about the gap, so we have a concept that meets the warfighters' needs in the out-years as we look forward to the threat and the effects we are required to generate to deal with the threat. We have an MOU that we have been——

Mr. SESTAK. With the Air Force.

Admiral CLINGAN [continuing]. With the Air Force that is coming to its conclusion in fiscal year 2012. So we have really two things: a capacity issue and a capability issue.

Mr. SESTAK. A capability issue.

Admiral CLINGAN. The capability issue is long-range, long-persistent jamming in the standoff-jamming role as part of the system of systems. The capacity is an issue of when we——

Mr. SESTAK. If I could, the only reason I am concerned is I think the tragedy, one of the tragedies of Iraq is the failure to complete what the Air Force and other services wanted to transform toward. You have mentioned the cost and the other things. I asked you about scenarios, particularly the Western Pacific.

And the scenarios often, as you prepare for the future, watch the synergy among the services. This MOU is more than a piece of paper. It really is how we are going to fight in the future. This is, for a certain scenario, a pretty big gap. Am I wrong, Admiral?

Admiral CLINGAN. In that scenario, the capability to achieve the effects is inherent in the Growler. We will have a capacity challenge which we will address through force allocation in the joint arena with the combatant commander.

Mr. ABERCROMBIE. We are moving into a bit more of the policy side, which is important, but again, you have been here for a long time and are patient on it.

Let me go back to see if I can understand correctly. It is less that you didn't have the $35 million or were unwilling to put the $35 million forward, so much as you were saying when it got to $3 billion or $4 billion, you decided that perhaps there was an alternative way of doing it. Is that correct?

General CHANDLER. No, sir. I would say that once it got to $7 billion, when it was the B–52 stand-off jammer, is when the program became unexecutable for us.

Mr. ABERCROMBIE. So you decided that you didn't want to pursue that particular——

General CHANDLER. Once we did not pursue——

Mr. ABERCROMBIE. Okay. It wasn't that you weren't moving forward for lack of the $35 million. It was a decision based on the assessment of the expenditure versus the outcome. You made a decision that you needed to do something else. Is that correct?

General CHANDLER. Yes, sir. That is correct.

Mr. ABERCROMBIE. Okay. That is fair enough. How much got spent up to that point?

General CHANDLER. Sir, I will have to take that for the record and let you know.

[The information referred to can be found in the Appendix beginning on page 176.]

Mr. ABERCROMBIE. I am not upset by it, but it is better to stop if you think that it was getting out of hand.

General CHANDLER. It wasn't a total loss. Some of that is transferable, but I would tell you that the program was not worth the $7 billion it was going to cost us.

Mr. ABERCROMBIE. I wasn't thinking in terms of it being a total loss. I doubt that many of that was. A lot of what you are learning prevents you from going in wrong directions presumably. Right?

General CHANDLER. Yes, sir.

Mr. ABERCROMBIE. Okay. I think that the length of the discussion has resulted in you being freed from further service here this afternoon. We will send some of the questions on, then, and if we could get the answers in a timely way, it will be helpful.

I learned an awful lot today that I hope will manifest itself in good recommendations that will be helpful to you and the men and women that we all serve by way of trying to look out for them and their warfighting capabilities and their safety, to make sure that those who love them and care for them have confidence in us, that we are doing our best on their behalf.

You certainly did your best on their behalf today. Whatever shortcomings there are are on this side of the table, I can assure you, not on yours. I repeat that I learned an awful lot today and will try to put it to very good use on your behalf and on their behalf.

Unless there is any closing thoughts or remarks you would like to make, I will bring the hearing to a close.

And thank you once again for your service to the Nation.

[Whereupon, at 6:00 p.m., the subcommittees were adjourned.]

A P P E N D I X

March 22, 2007

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 22, 2007

FOR OFFICIAL USE ONLY
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HOUSE COMMITTEE
ON ARMED SERVICES

TESTIMONY OF

DAVID G. AHERN

DIRECTOR

PORTFOLIO SYSTEMS ACQUISITION

OFFICE OF THE UNDER SECRETARY OF DEFENSE

(ACQUISITION, TECHNOLOGY & LOGISTICS)

BEFORE THE UNITED STATES HOUSE

COMMITTEE ON ARMED SERVICES

AIR AND LAND FORCES SUBCOMMITTEE

March 22, 2007

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HOUSE COMMITTEE
ON ARMED SERVICES

CAIG Analysis of Joint Strike Fighter Engine Alternatives

Mr. Chairman and distinguished members of the committee, thank you very much for the opportunity to appear before you today to discuss the CAIG analyses of the Joint Strike Fighter engine alternatives, prepared in accordance with Section 211 of the National Defense Authorization Act of 2007.

My testimony today will address several topics examined by the Cost Analysis Improvement Group (CAIG) in accordance with Congressional direction. Specifically, I will address: the ground rules for the analyses developed by the CAIG; the CAIG's review of the history of DoD engine acquisition programs for tactical aircraft; a review of the JSF program and JSF engine alternatives; cost analyses for three different JSF engine acquisition scenarios, as directed in the NDAA; and findings and implications for the future.

Ground Rules for Analyses

Consistent with CAIG practice, the CAIG formed a team composed of DoD government personnel to respond to the tasking directed by Congress. In accordance with normal practice, private contractor personnel were not allowed to participate on the team; nor did they take part in the deliberations or the analyses of the CAIG team. In this particular case, because the Congressional tasking required

independent analyses from three separate organizations, members of the Instituted for Defense Analysis (IDA) and the General Accounting Office (GAO personnel were not participants or advisors to the team. Also, there was no discussion between CAIG and IDA or GAO personnel on this particular topic. The results of the CAIG work were briefed only to Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (OUSD(AT&L)) staff prior to this presentation to the Congress.

Historical Review

In accordance with the statutory requirements, the CAIG reviewed DoD's historical experience with tactical fighter engine acquisition programs. The CAIG reviewed the history of tactical fighter aircraft engines including the F100, F110, F404, and F119. The F100/F110s were procured in competition for form, fit, and function, and the F404 was procured in a build-to-print competition. The F119 engine for the F-22 fighter program was procured as a sole-source acquisition.

In addition to examining tactical fighter engine programs, the CAIG team reviewed the history of ship, missile, and other defense programs to determine the range of cost savings that DoD has achieved as a result of employing competition as part of the acquisition strategy for defense systems.

The CAIG review led to the following findings:

- The range of estimates of savings in acquisition costs from historical competitions for DoD systems reported in previous studies is extremely broad—varying from estimated net savings of approximately 40 percent, to estimated additional net costs of approximately 20 percent. The specific estimates of cost savings or additional costs of these studies are based on actual costs or projections to the end of the program, and the data account only for changes in recurring costs, with no accounting for investment needed to introduce competition. This methodology is consistent with the CAIG breakeven analysis and, as such, the estimates are directly comparable.
- The CAIG found that the strategic behavior of competitors in historical competitions was difficult to forecast either *a priori* or during DoD competitions. This is most markedly demonstrated in the "Great Engine War," the F100/F110 competition, which did not follow a smooth path of cost improvement and savings to the Department that would be predicted by analytic models—the exact same computations accepted by defense economists and used as a matter of course. This suggests that external factors are very influential in determining whether a competition results in

savings, and that the current state of the art for cost estimating does not capture these effects.

- DoD has entered into numerous Performance-Based Logistics (PBL) contracts in the operations and support (O&S) phase of programs (such as the C-17, F/A-18, and many unmanned air vehicle programs) and intends to use PBL extensively in the JSF program. The Department's experience, however, has shown that while operational readiness has generally improved under PBL contracting, there has been little actual return cost data available to the government to support estimates of cost savings.

JSF Program Status

The CAIG team examined the status of the JSF program and the relationship to the F135 and F136 engine programs. Key findings from this portion of the review include:

- Based on a review of weight forecasts for the STOVL aircraft beginning at the time of critical design review in 2006, the CAIG projects that weight growth is likely to remain a concern for the STOVL aircraft in the future. Based on historical weight growth experience for tactical fighter aircraft, the CAIG projects that the JSF STOVL aircraft could exceed the current target weights by about 2,000 pounds within ten years after the planned IOC date.

The CV variant might also experience weight control problems, although it is earlier in the design stage.

- The STOVL variant design is currently projected to meet the Key Performance Parameters (KPPs) associated with Vertical Lift Bring Back (VLBB) and Short Take Off (STO) distance, but with very little margin. Any weight growth above that projected by the program office—specifically, greater than about 3 percent between CDR and IOC—would result in the program's not meeting these STOVL KPPs.
- If this weight growth occurs in the STOVL aircraft, DoD will have to (1) pursue growth in engine/propulsion system capabilities; or (2) pursue additional weight reductions in the STOVL system; or (3) reduce capability and performance parameters for the STOVL variant; or (4) pursue some combination of the above. Because of the maturity of the aircraft design, the cost per pound to pursue dramatic airframe weight reductions is now high. These costs are increased since potential schedule delays for airframe rework would have profound ripple effects across the program. Therefore, the Department would more likely have to pursue propulsion system thrust growth than airframe weight reduction to achieved desired performance levels.

- According to CAIG estimates, the current DoD plan for the JSF development program allocates approximately 16 percent of RDT&E funding to propulsion system development activities and 84 percent of RDT&E funding to the development of the remainder of the aircraft.
- JSF aircraft prime contractor performance, as measured by Earned Value Management indicators provided to the government, has been poor to date. Recent management actions may have slowed the negative trends. However, additional weight reduction challenges to the prime contractor could exacerbate existing cost and schedule variances.

F135 and F136 Engine Alternatives

In reviewing the current status of the F135 and F136 engine alternatives, the CAIG found:

- Due to the F136 program's having started several years after the F135 program, milestones in the F136 development program are currently planned to be achieved three to four years later than the milestones for the F135 program.
- Although the design specifications are the same, the F135 and F136 engine designs are not identical; as a result, the potential thrust growth paths of the two engines are not the same. Due to its late entry in the JSF program, the

F136 is still in the design stage and changes to increase thrust or improve operational reliability are relatively easier to incorporate than in the case of the F135. The F135 is several years past CDR and well into ground testing; hence, additional F135 thrust growth requirements beyond the current specifications would entail considerable effort and cost.

CAIG Cost Analyses for Specified Acquisition Scenarios

The CAIG developed estimates of JSF life-cycle engine costs in accordance with congressional direction, measured in then-year, constant FY 2002 dollars and net present value terms. The analyses are based on the F-35 program of record, and include both U.S. and international engine buys, with a total production engine procurement of 3,089 units plus initial spares. U.S. operating and support costs are forecasted and included through 2065. The O&S costs do not include fuel or military personnel costs, as they are assumed to be neutral requirements for both engines.

The CAIG developed independent estimates of F135 and F136 system design and development costs, procurement costs, and operating and support costs for the acquisition scenarios specified in the NDAA that were determined to be executable. My prepared statement reports the CAIG results in constant FY 2002 dollars for ease of comparison with previous studies on the effects of competition.

The Department typically uses then-year dollar calculations for budgeting purposes and net present value calculations when weighing the pros and cons of investment decisions, such as Analysis of Alternative studies. These results will be provided for the record.

The CAIG considered the three engine acquisition scenarios specified in the NDAA:

- Case 1: F135 engine only, procured on a sole-source basis for the life cycle
- Case 2: F135 and F136 competition
- Case 3: F135 and F135 competition, with FY 2008 downselect

Cost Analysis Results

- For the F135 engine only (Case 1), the CAIG estimated life-cycle JSF engine costs of $60 billion (FY 2002 dollars).
- For the F135/136 competition (Case 2), the CAIG estimated a life-cycle engine cost of $60.3 billion (FY 2002 dollars). This case represents a marginal cost increase of $300 million relative to the sole source case. This is based on the following key assumptions, which generally favor competition:
    - A 5 percent shift and a 5 percent rotation of the cost improvement curve for engine procurement from each

competitor during competition. This behavior would hold for both competitors throughout the competition.

- Procurement competitions held annually, with 60 percent of the procurement quantity awarded to the winner each year, beginning in FY 2014.
- Procurement price savings achieved during the competitive engine acquisition phase are carried forward in the pricing of engine modules and components during the operations and support phase of the program.
- The buys are efficiently split between the two suppliers to minimize mixed fleets and hence reduce O&S costs.
- Cost savings realized in production or operations are included only if they accrue to the U.S. government.

- The CAIG also estimated the "breakeven" procurement cost savings necessary to pay for the up-front cost associated with conducting the engine competition and the reduced early learning relative to the sole-source scenario. Measured in constant FY 2002 dollars, the CAIG found that the procurement unit cost savings necessary from competition to achieve breakeven was 21.1 percent. While 21.1 percent savings is in the realm of plausible outcomes based on historical estimates of savings from

prior competitions, it is not considered likely to occur in this case. (This simple "breakeven" calculation ignores any potential savings in O&S costs.)

- The CAIG examined Case 3 specified in the NDAA and determined that this alternative is not executable because the F135 is currently more mature than the F136 engine. As a result, the only near-term production option consistent with the 2008 date specified for this scenario is the selection of the F135 engine.

The CAIG also found a number of additional benefits of competition other than cost savings. The CAIG did not quantify these benefits in its analysis.

- Competition acts as a hedge, or a form of insurance, against risks that are present in specific aspects of a development, production, or operational phase of a defense program. In the case of the F-35, an alternate engine program could mitigate weight concerns or aircraft grounding associated with a single engine experiencing a significant design flaw.
- Competition results in increased contractor responsiveness to government concerns and in technological innovation, leading to better products even when offsetting direct costs are not realized.

- Competition secures a more robust industrial base and retains U.S. core design skills related to fighter engine development at two companies, reducing the Department's risk for future programs.

Summary

- The CAIG analysis of JSF engine alternatives showed relatively modest additional life-cycle costs or savings associated with the competition scenario relative to a sole-source scenario. Also, the scenario for an early downselect in FY 2008 (as specified in the NDAA) was found to be unexecutable.
- While the engine life-cycle cost estimates alone do not provide a compelling case for or against use of a competitive acquisition strategy, other factors could prove important to the determination of the most appropriate acquisition strategy. For example, the potential for weight growth in the aircraft during the next 15 years is cause for DoD consideration of and development of a plan for growth of JSF propulsion capabilities over time.
- The operating and support costs associated with JSF propulsion are significant over extended time periods. DoD currently has a relatively small experience base with Performance-Based Logistics contracts for large programs such as the JSF, including the propulsion system. PBL contracting strategies should be developed and used to ensure DoD obtains prices during the O&S phase that are consistent with the best available acquisition prices demonstrated during the procurement phase of the program.

I again thank the committee for their time in allowing me to present these findings and would now be pleased to take any questions.

Case 1: F135 Sole Source Life Cycle Cost Analysis

	TY$B	Constant FY02$B	NPV $B
SDD	$7.2	$6.5	$6.7
Sunk*	$5.3	$4.9	$5.2
To Go	$1.9	$1.6	$1.5
Production	$36.4	$24.5	$18.0
O&S (US only)	$66.4	$29.0	$14.2
Total	$110.0	$60.0	$38.9

* Through FY07

Case 2: F135/F136 Competition Life Cycle Cost Analysis

	TY$B		Constant FY02$B		NPV $B	
	Dual Source	Delta From Sole Source	Dual Source	Delta From Sole Source	Dual Source	Delta From Sole Source
SDD	$9.6	+ $2.4	$8.6	+ $2.1	$8.6	+ $1.9
Sunk*	$5.3	--	$4.9	--	$5.2	--
To Go	$4.3	+ $2.4	$3.7	+ $2.1	$3.4	+ $1.9
Production	$34.5	- $1.9	$23.4	- $1.1	$17.4	- $0.6
O&S (US only)	$63.7	- $2.7	$28.3	- $0.7	$14.1	- $0.1
Total	$107.8	- $2.2	$60.3	+ $0.3	$40.1	+ $1.2

* Through FY07

House Armed Services Committee – Air and Land Forces and Seapower and Expeditionary Forces Subcommittees

March 22, 2007

Subject: Institute for Defense Analyses Cost Estimate for the Joint Strike Fighter Engine Program

Statement of Mr. James P. Woolsey
Assistant Director
Cost Analysis and Research Division
Institute for Defense Analyses (IDA)
Alexandria, VA

I. Introduction

Chairman Abercrombie, Chairman Taylor and members of the subcommittees, it is my pleasure to appear before you today.

The John Warner Defense Authorization Act for Fiscal Year 2007 directed the Secretary of Defense to select a Federally Funded Research and Development Center to conduct an independent cost analysis of the Joint Strike Fighter (JSF) engine program. The Office of the Under Secretary of Defense, Acquisition, Technology and Logistics, asked the Institute for Defense Analyses (IDA) to perform this study. I will provide a summary of this work today. We expect to be providing a more detailed description of the analysis in a briefing to committee staff in the near future.

II. JSF Program

To date, the JSF engine program has been structured and executed to allow effective competition between two engines, the F135 (being developed by Pratt & Whitney) and the F136 (being developed by the Fighter Engine Team of General Electric and Rolls Royce). The engines are designed to be physically and functionally interchangeable, giving the Government flexibility in its selections. The planned production quantities are high enough that half of the planned purchase would represent a large production quantity to either contractor team. Based

on past experiences with engine competitions, the two engines can be expected to be price competitive, an important ingredient in a successful competition. These structural qualities are necessary for competition, but are an insufficient basis for a decision about whether a competitive program would benefit the Government. Our analysis examined the costs and potential benefits of these two approaches to providing engines for the JSF program.

III. Approach

We first considered the investments required to execute a competitive engine program. This analysis took account of costs associated with unique elements of the two engine designs and excluded costs associated with propulsion elements common to both engines, such as the lift fan, roll posts, and nozzle. We then determined the savings that would have to be achieved as a result of the competition to recover this investment and compared these savings to what has been seen in other competitive programs. Finally, we evaluated potential benefits of competition beyond price reductions.

IV. Investments Required for a Second Engine Program

Execution of a second engine program would require investments in all phases of the program life cycle. These investments include both direct investments, such as development costs for the second engine, and opportunity costs, such as the loss of economies inherent in larger production quantities. During System Design and Development, the F136 design must be completed; it must go through both ground and flight testing; and it must be managed and integrated into the JSF system by personnel at Lockheed Martin, in the Government, and at Pratt & Whitney. During production, the presence of a second engine would reduce the quantities Pratt & Whitney produces, consequently reducing the economies that would have accompanied a

larger purchase. The cost of initial spare parts and establishing repair depot capabilities would also be increased by introducing a second engine. In the support phase of the system's life cycle, the second engine would increase the costs of depot repair, sustaining engineering, software support, and component improvement programs. Our estimate of the sum of these investments, including opportunity costs, is $8.8 billion in constant fiscal year 2006 dollars, before accounting for the price reductions that competition might produce. Of this investment, we estimate that $2.1 billion would occur in fiscal years 2008–2012.

V. Potential Price Benefits from Competition

We examined the history of two engine competitions—the so-called Great Engine War and the dual sourcing of the F404 engine.

The Great Engine War was the U.S. Air Force-initiated competition in 1984 between Pratt & Whitney and General Electric for 2,000 F-15 and F-16 fighter engines. The F404 engine competition was a competitive dual-sourcing of engines used on U.S. Navy F/A-18 aircraft. In this case, Pratt & Whitney built engines to the General Electric F404 design and competed in four competitive procurement years, 1986 to 1989. The competition was subsequently terminated. We used two different methods to estimate savings for the Great Engine War and one for the F404 case, producing estimated gross savings ranging from 11 percent to 18 percent of engine procurement costs.

We also examined available studies of competitions that the Department of Defense conducted over the past 30 years for a variety of other systems. Unfortunately, we were not able to extract results from them that could be used as a primary means of evaluating the likely savings of a JSF engine competition. There were methodological differences among the studies,

and some studies did not describe clearly how the analyses were performed and what was included in the stated "savings due to competition."

VI. Break-Even Analysis

To break even financially—or, in other words, to offset fully the estimated $8.8 billion investment to establish the alternative JSF engine—would require a savings rate during the production phase of 40 percent on a net present value basis. Savings of this magnitude are implausible considering the 11 to 18 percent savings realized in previous engine competitions. If Operating and Support (O&S) costs were effectively competed in addition to procurement costs, the required savings rate would fall from 40 percent of procurement costs to 18 percent of total costs. Because the Department of Defense has not typically linked procurement and O&S costs in a single competition, we found no historical data with which to estimate plausible O&S savings under such an acquisition strategy.

There is a range of ways in which competition might affect prices for O&S services. Without explicitly competing support services, some O&S savings would flow naturally from the savings in a procurement competition. Spare parts, for example, could be expected to see some savings through this mechanism. Elements of O&S can also be tied to the procurement competition by adding O&S metrics to the procurement selection criteria. To take O&S competition a step further, all elements of O&S services could be packaged into a single acquisition covering design improvements, spare parts, and logistics support. This model is widely used by the commercial airline industry, which routinely bundles support contracts with the initial engine purchases, bringing support services directly into the purchase competition. We understand that the JSF program office intends to use an acquisition strategy that ties some elements of O&S costs to the procurement competition.

VII. Other Benefits of Competition

Competition has the potential to bring benefits in addition to price reductions. One such benefit is fleet readiness. The JSF will dominate the U.S. fighter attack force structure as no previous platform has. Having two independent engine types could minimize the impact of an engine anomaly that could ground or reduce the readiness of large numbers of aircraft.

Also, competition might improve contractor responsiveness. For example, it is generally agreed that the Government received improved contract terms, cooperation, and overall responsiveness from contractors when competition for fighter engines was introduced during the 1980s.

Finally, continuation of the F136 program would ensure that General Electric remains in the industrial base for high-performance military aircraft engines. Without the F136, General Electric's incentive and ability to maintain the skills unique to these types of engines would be uncertain, though General Electric would remain a leading supplier of commercial aircraft engines.

VIII. Conclusion

In summary, creating competition by developing, procuring, and maintaining a second engine would require an investment of about $8.8 billion in constant fiscal year 2006 dollars, about $2 billion of which would be required over the next five budget years. To have the potential for recovering this investment over the JSF's life cycle, both procurement and O&S service would have to be competed effectively, and such a competition would have to save about 18 percent of total procurement and O&S cost. The Department of Defense has little experience in integrating procurement and O&S in competitions, so we have no basis for estimating the plausible savings

under such arrangements. Competition can be expected to bring non-financial benefits in the form of fleet readiness, contractor responsiveness, and industrial base robustness.

That concludes my remarks. I will be happy to answer any questions.

United States Government Accountability Office

GAO

Testimony before the Subcommittees on Air and Land Forces, and Seapower and Expeditionary Forces, Committee on Armed Services, House of Representatives

For Release on Delivery
Expected at 2:00 p.m. EDT
Thursday, March 22, 2007

DEFENSE ACQUISITIONS

Analysis of Costs for the Joint Strike Fighter Engine Program

Statement of Michael Sullivan, Director
Acquisition and Sourcing Management

The web version of this report was reposted on May 8, 2007, to reflect a change to the text in Figure 1 on page 9 since the original version was posted on March 22, 2007. A typographical error was identified wherein the assumed savings rates were depicted as 10, 20, and 30 percent. Those savings rates should instead be 10, 15, and 20 percent. The change does not affect other numbers in Figure 1 or the rest of the report.

GAO-07-656T

March 22, 2007

GAO
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Highlights

Highlights of GAO-07-656T, a testimony before the Subcommittees on Air and Land Forces, and Seapower and Expeditionary Forces, Committee on Armed Services, House of Representatives

DEFENSE ACQUISITIONS

Analysis of Costs for the Joint Strike Fighter Engine Program

Why GAO Did This Study

The Joint Strike Fighter (JSF) is the linchpin of future Department of Defense (DOD) tactical aircraft modernization efforts because of the sheer size of the program and its envisioned role as the replacement for hundreds of aircraft that perform a wide variety of missions in the Air Force, Navy, and Marine Corps. DOD implemented the JSF alternate engine development program in 1996 to provide competition between two engine manufacturers in an effort to achieve cost savings, improve performance, and gain other benefits. This testimony focuses on GAO's cost analysis performed in response to Section 211 of the John Warner National Defense Authorization Act for Fiscal Year 2007. We examined the following areas: (1) sole-source and competitive scenarios for development, production, and sustainment of the JSF engine, (2) results of past engine programs and their related strategies, and (3) impact on the industrial base in the event of the complete cancellation of the JSF alternate engine program. DOD did not provide comments on our findings.

What GAO Found

- Continuing the alternate engine program for the Joint Strike Fighter would cost significantly more than a sole-source program but could, in the long run, reduce costs and bring other benefits. The current estimated life cycle cost for the JSF engine program under a sole-source scenario is $53.4 billion. To ensure competition by continuing to implement the JSF alternate engine program, an additional investment of $3.6 billion to $4.5 billion may be required. However, the associated competitive pressures from this strategy could result in savings equal to or exceeding that amount. The cost analysis we performed suggests that a savings of 10.3 to 12.3 percent would recoup that investment, and actual experience from past engine competitions suggests that it is reasonable to assume that competition on the JSF engine program could yield savings of at least that much. In addition, DOD-commissioned reports and other officials have said that nonfinancial benefits in terms of better engine performance and reliability, improved industrial base stability, and more responsive contractors are more likely outcomes under a competitive environment than under a sole-source strategy.

- DOD experience with other aircraft engine programs, including the F-16 fighter in the 1980s, has shown competitive pressures can generate financial benefits of up to 20 percent during the life cycle of an engine program and/or improved quality and other benefits.

- The potential for cost savings and performance improvements, along with the impact the engine program could have on the industrial base, underscores the importance and long-term implications of DOD decision making with regard to the final acquisition strategy solution.

www.gao.gov/cgi-bin/getrpt?GAO-07-656T.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Mike Sullivan at (202) 512-4841 or sullivanm@gao.gov.

Mr. Chairmen and Members of the Subcommittees:

I am pleased to be here today to discuss the Joint Strike Fighter (JSF) engine program. The JSF is the linchpin of future Department of Defense (DOD) tactical aircraft modernization efforts because of the program's sheer size and envisioned role as the replacement for hundreds of aircraft that provide a wide variety of missions in the Air Force, Navy, and Marine Corps. DOD implemented the JSF alternate engine development program in 1996 to provide competition between two engine manufacturers in an effort to achieve cost savings, improve performance, and gain other benefits. Today, my testimony focuses on our cost analysis performed in response to Section 211 of the John Warner National Defense Authorization Act for Fiscal Year 2007.[1] Specifically, it examines the following areas: (1) sole-source and competitive scenarios for development, production, and sustainment of the JSF engine; (2) results of past engine programs and their related strategies; and (3) impact on the industrial base in the event of the complete cancellation of the JSF alternate engine program. While language in the act instructed GAO to report on additional elements related to a firm-fixed-price acquisition strategy and any other approach that could improve cost or schedule, this statement focuses on the areas above, as we determined those to be the most viable options under consideration. Appendix I contains information about scope and methodology for the cost analysis on which this statement is based. We performed our work from January 2007 to March 2007 in accordance with generally accepted government auditing standards.

Summary

The current estimated remaining life cycle cost for the JSF engine program under a sole-source scenario is $53.4 billion. To ensure competition by continuing the JSF alternate engine program, an additional investment of $3.6 billion to $4.5 billion may be required. However, the associated competitive pressures from this strategy could result in savings equal to or exceeding that amount across the life cycle of the engine. The cost analysis we performed suggests that a savings of 10.3 to 12.3 percent would recoup that investment, and actual experience from past engine competitions suggests that it is reasonable to assume that competition on the JSF engine program could yield savings of at least that much. These results are dependent on how the government decides to run the

[1]Pub. L. No. 109-364, 120 Stat. 2083, 2117-2119 (2006).

competition, the number of aircraft that are ultimately purchased, and the exact ratio of engines awarded to each contractor. In addition, DOD-commissioned reports and other officials have said that non financial benefits in terms of better engine performance and reliability, improved industrial base stability, and more responsive contractors are more likely outcomes under a competitive environment than under a sole-source strategy. DOD experience with other aircraft engine programs, including that for the F-16 fighter, has shown competitive pressures can generate financial benefits of up to 20 percent during the life cycle of an engine program and/or the other benefits mentioned. The potential for cost savings and performance improvements, along with the impact the engine program could have on the industrial base, underscores the importance and long-term implications of DOD decision making with regard to the final acquisition strategy. DOD chose not to provide comments on this statement or the cost analysis on which it is based. The JSF program office reviewed our findings and made technical comments which were incorporated as appropriate.

Background

The Joint Strike Fighter is DOD's most expensive aircraft acquisition program. The number of aircraft engines and spare parts expected to be purchased, along with the lifetime support needed to sustain the engines, mean the future financial investment will be significant. DOD is expected to develop, procure, and maintain 2,443 aircraft at a cost of more than $338 billion over the program's life cycle.[2] The JSF is being developed in three variants for the U.S. military: a conventional takeoff and landing aircraft for the Air Force, a carrier-capable version for the Navy, and a short takeoff and vertical landing variant for the Marine Corps.[3] In addition to its size and cost, the impact of the JSF program is even greater when combined with potential international sales (expected to be between 2,000 and 3,500 additional aircraft) and the current U.S. aircraft that the JSF will either replace or complement to meet mission requirements.

Congress first expressed concern over the lack of engine competition in the JSF program in fiscal year 1996 and in fiscal year 1998 directed DOD to ensure that sufficient funding was committed to develop an alternate engine. Since that time, DOD has initiated multiple studies to determine

[2]Unless otherwise noted, all dollars in this report are fiscal year 2002 dollars.

[3]Eight allied nations are also participating in the JSF program: United Kingdom, Norway, Denmark, the Netherlands, Canada, Italy, Turkey, and Australia.

the advantages and disadvantages of the alternate engine program. DOD program management advisory groups conducted studies in 1998 and again in 2002, both resulting in recommendations to continue with the alternate engine program. The advisory groups determined that developing an alternate JSF engine had significant benefits in the areas of contractor responsiveness, industrial base, aircraft readiness, and international participation. They also reported finding marginal benefits in the areas of cost savings and the ability to add future engine improvements. However, they found no benefit with regard to reducing development risk without restructuring the program. The advisory groups noted that these recommendations were made independent of the services' ability to fund the program—meaning overall affordability should be taken into consideration.

In August 2005, DOD awarded a $2.1 billion contract for alternate engine system development and demonstration, of which $699 million has been appropriated to date.[4] In its fiscal year 2007 budget submission, DOD proposed canceling the alternate engine program and eliminated funding related to this effort. While Congress restored the majority of the funding for that year, DOD again eliminated alternate engine funding in its proposed budget for fiscal year 2008.

DOD decided to cancel the alternate engine program prior to the fiscal year budget submission, stating that (1) no net cost benefits or savings are to be expected from competition and (2) low operational risk exists for the warfighter under a sole-source engine supplier strategy. We reported last year that this decision was made without a new and comprehensive analysis and focused only on the potential up-front savings in engine procurement costs. We stated further that costs already sunk were inappropriately included and long-term savings that might accrue from competition for providing support for maintenance and operations over the life cycle of the engine were excluded from the decision justification. Our position was that DOD's decision to cancel the program was driven by the need to identify sources of funding in order to pay for other, more immediate priorities within the department.

DOD did not change the JSF acquisition strategy to reflect its proposed elimination of the alternate engine program, and it continues a dual engine approach. The 2007 Defense Authorization Act has now placed certain

[4]Prior to this contract, DOD had invested $722 million in the alternate engine program.

restrictions on DOD modification of the dual engine approach. According to current JSF program plans, beginning in fiscal year 2007, the program office will award the first of three annual production contracts to Pratt & Whitney for its F135 engine. In fiscal years 2010 and 2011, noncompetitive contracts will be awarded to both Pratt & Whitney and to the Fighter Engine Team[5] for the F136 engine. Beginning in fiscal year 2012, contracts will be awarded on an annual basis under a competitive approach for quantities beyond each contractor's minimum sustaining rate. Full-rate production for the program begins in fiscal year 2014 and is expected to continue through fiscal year 2034. The JSF program intends to use a combination of competition, performance-based logistics, and contract incentives to achieve goals related to affordability, supportability, and safety. Through this approach, the JSF program office hopes to achieve substantial reductions in engine operating and support costs. Traditionally, operating and support costs have accounted for 72 percent of a program's life cycle costs.

Our Analysis of Alternatives Suggests Competition Benefits Could Outweigh Costs

Without competition, the JSF program office estimates that it will spend $53.4 billion over the remainder of the F135 engine program. This includes cost estimates for the completion of system development, procurement of 2,443 engines, production support, and sustainment. Additional investment of between $3.6 billion and $4.5 billion may be required should the Department decide to continue competition in the JSF engine program. This includes additional development, procurement, support, and stand-up costs for a second engine provider. While Pratt & Whitney design responsibilities and associated costs may be reduced under a sole-source contract, our analysis shows that competitive pressures may yield enough financial savings to offset the costs of competition over the life of the program. These results are dependent on how the government decides to run the competition, the number of aircraft that are ultimately purchased, and the exact ratio of engines awarded to each contractor. Given certain assumptions with regard to these factors, the additional costs of having the alternate engine could be recouped if competition were to generate approximately 10.3 to 12.3 percent savings. According to actual Air Force data from past engine programs, including for the F-16 aircraft, it is reasonable to expect savings of at least that much. Additionally, there are

[5]The Fighter Engine Team is a single company, created in July 2002 by General Electric and Rolls-Royce, and formed for the development, deployment, and support of the F136 engine for the JSF program.

a number of non financial benefits that may result from competition, including better performance, increased reliability, and improved contractor responsiveness.

Sole-Source Alternative Requires Less Short-term Investment

The cost of the Pratt & Whitney F135 engine is estimated to be $53.4 billion over the remainder of the program. This includes cost estimates for the completion of system development, procurement of engines, production support, and sustainment. Table 1 shows the costs remaining to develop, procure, and support the Pratt & Whitney F135 engine on a sole-source basis.

Table 1: Costs to Complete Pratt & Whitney F135 Engine Program (based on 2,443 installed engines and spares)

Cost element	Cost (FY02$B)
System development and demonstration costs	$1.0
Total engine unit recurring flyaway costs	$17.6
Production support costs (including initial spares, training, manpower, and depot stand-up)	$3.2
Sustainment costs of fielded aircraft	$31.6
Total	**$53.4**

Source: JSF program office data; GAO analysis

Costs remaining for the JSF engine program can be broken down into four categories:

- remaining system development and demonstration contract costs;
- engine unit recurring flyaway costs—per unit cost for aircraft, based on rate of learning;
- production support costs related to production spares, training personnel and equipment, manpower, and depot facilities; and
- sustainment costs to maintain fielded aircraft based on engine flight hour costs and usage rates.

Stable requirements and funding, a well-defined acquisition strategy, an appropriately structured contract, and adequate oversight are keys to ensuring the contractor is motivated to perform, especially under a sole-source contract where competitive pressure does not exist. In a sole-

source environment, the primary benefit comes from the improved rate of progress, or "learning," achieved by the contractor based on having all production activity.[6] In other words, the greater volume of business given to a single contactor is expected to translate into efficiency in production in a shorter time, thereby lowering associated costs. Learning curves must be established in a manner so that the contractor is not only intent on meeting that curve, but also incentivized to exceed the curve in order to achieve cost reductions. Through analysis of program information and in conversations with Pratt & Whitney and JSF program office personnel, we found examples of initiatives aimed at improving the F135 learning curve. Pratt & Whitney has ongoing and planned activities in areas such as supply chain optimization, technology development, and manufacturing efficiency that it hopes will reduce unit costs through the first 5 years of F135 production.

Having Pratt & Whitney as the single engine manufacturer may also provide benefits in terms of simpler design and integration responsibilities. Currently, in addition to development of the F135 engine design, Pratt & Whitney has responsibility for design and development of common components that will go on all JSF aircraft, regardless of which contractor provides the engine core. Examples of common components include the lift fan and roll posts for the Marine Corps variant, the exhaust nozzles, and ducts. This responsibility supports the overall F-35 program requirement that the engine be interchangeable—either engine can be used in any aircraft variant, either during initial installation or when replacement is required. In the event that Pratt & Whitney is made the sole-source engine provider, future configuration changes to the aircraft and common components could be optimized for the F135 engine, instead of potentially compromised design solutions or additional costs needed to support both F135 and F136.

JSF Engine Competition Could Result in Future Savings

In testimony last year, the Under Secretary of Defense for Acquisition, Technology, and Logistics reported that DOD preferred a sole-source engine strategy for the JSF program. He noted that maintaining two engine suppliers for the program would cost, at that time, an additional $1.8 billion for the development phase which was not the most efficient use of Department resources. In fact, when considering the costs of

[6]A learning curve represents the relationship between the unit cost of an item and the cumulative production quantity of that item.

competition over the full life cycle of the F136 program, the additional costs are even greater. The government's ability to recoup the additional investments required to support competition depends largely on (1) the number of aircraft produced,[7] (2) the ratio that each contractor wins out of that total, and (3) the savings rate that competitive pressures drive. We estimated costs under two competitive scenarios; one in which contractors are each awarded 50 percent of the total engine purchases (50/50 split) and one in which there is a 70/30 percent award split of total engine purchases to either contractor, beginning in fiscal year 2012. Without consideration of potential savings, the additional costs of competition total $4.5 billion under the first scenario and $3.6 billion under the second scenario. Table 2 shows the additional cost associated with competition under these two scenarios.

Table 2: Additional Costs for Competition in JSF Engine Program (based on 2,443 installed engines and spares)

Additional costs (FY02$B)	50/50 Aircraft award split	70/30 Aircraft award split
System development and demonstration costs	$1.4	$1.4
Total engine unit recurring fly-away costs	$3.0	$2.1
Production support costs (including initial spares, training, manpower, and depot standup)	$.13	$.13
Sustainment costs of fielded aircraft[a]	N/A	N/A
Total	**$4.5**	**$3.6**

Source: JSF program office data, GAO analysis

[a]No additional sustainment costs were considered because the number of aircraft and cost per flight hour would be the same under either scenario.

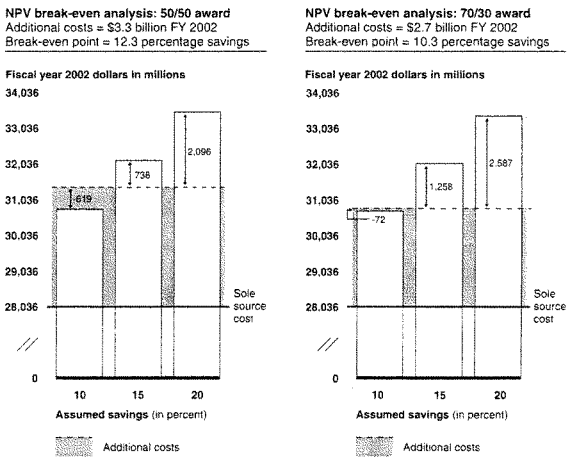
The disparity in costs between the two competitive scenarios reflects the loss of learning resulting from lower production volumes that is accounted for in the projected unit recurring flyaway costs used to construct each estimate. The other costs include approximately $1.4 billion in remaining F136 development costs and $127 million in additional stand-up costs, which would be the same under either competitive scenario.

[7]In conducting our cost analysis of the alternate engine program, we presented the cost of only the U.S. aircraft currently expected for production (2,443). These costs assume the quantity benefits of the 646 aircraft currently anticipated for foreign partner procurement.

DOD implemented the JSF alternate engine development program to provide competition between two engine manufacturers in an effort to achieve cost savings, improve performance, and gain other benefits. For example, competition may incentivize the contractors to achieve more aggressive production learning curves, produce more reliable engines that are less costly to maintain, and invest additional corporate money in technological improvements to remain competitive. To reflect these and other potential factors, we applied a 10 to 20 percent range of potential cost savings to our estimates, where pertinent to a competitive environment.[8] Further, when comparing life cycle costs, it is important to consider that many of the additional investments associated with competition are often made earlier in the program's life cycle, though much of the expected savings do not accrue for decades. Therefore, a net present value calculation (time value of money) must be included in the analysis and, once applied, provides for a better estimate of program rate of return. Figure 1 shows the results of our analysis under different scenarios and accounting for the time value of money.

[8]Our review of DOD data as well as discussions with defense and industry experts, confirmed this as a reasonable range of potential savings to consider.

Figure 1: Net Present Value of JSF Engine Competition



Source: JSF program office data; GAO analysis.

Note: Net present value calculated based on fiscal year 2002.

When we assumed overall savings due to competition, our analysis indicated that recoupment of those initial investment costs would occur at somewhere between 10.3 and 12.3 percent, depending on the number of engines awarded to each contractor. A competitive scenario where one of the contractors receives 70 percent of the annual production aircraft, while the other receives only 30 percent reaches the breakeven point at 10.3 percent savings. A competitive scenario where both contractors receive 50 percent of the production aircraft reaches this point at 12.3 percent savings.[9] We believe it is reasonable to assume at least this much savings in the long run based on analysis of actual data from the F-16 engine competition.

[9]These savings amounts reflect net present value calculations that discount costs and savings for both inflation and the time value of money.

Competition Offers Potential Benefits beyond Financial Savings

Competition may also provide benefits that do not result in immediate financial savings, but may result in reduced costs or other positive outcomes to the program over time. DOD and others have performed studies and have widespread concurrence as to these other benefits, including better engine performance, increased reliability, and improved contractor responsiveness. In fact, in 1998 and 2002, DOD program management advisory groups assessed the JSF alternate engine program and found the potential for significant benefits in these and other areas. Table 3 summarizes the benefits determined by those groups.

Table 3: 1998 and 2002 Program Management Advisory Group Study Findings on the Benefits of an Alternate Engine Program

	Beneficial		Marginal		No value	
Factor assessed	**1998**	**2002**	**1998**	**2002**	**1998**	**2002**
Costs			X	X		
Development risk reduction					X	X
Engine growth potential			X	X		
Fleet readiness	X	X				
Industrial base	X	X				
International implications	X	X				
Other considerations*	X	X				
Overall	**X**	**X**				

Source: DOD data; GAO analysis and presentation.

*Other considerations include contractor responsiveness, improved design solutions, and competition at the engine subsystem level.

While the benefits highlighted may be more difficult to quantify, they are no less important, and ultimately were strongly considered in recommending continuation of the alternate engine program. These studies concluded that the program would

- maintain the industrial base for fighter engine technology,
- enhance readiness,
- instill contractor incentives for better performance,
- ensure an operational alternative if the current engine developed problems, and
- enhance international participation.

We spoke with government officials from various organizations who widely concurred with our analysis of the potential benefits of engine competition. Many of these were important benefits realized by past competitions such as that for the Air Force F-16 aircraft engines. Discussions with the Air Force engine manager who co led both advisory group studies explained that these benefits are valuable when trying to manage significant numbers of fighter-type engines to ensure combat readiness. He told us that problems are magnified when trying to manage a single engine system, which can require substantial manpower and extra hours to keep aircraft flying when engine problems occur. In his opinion, the benefits of a dual-source engine would outweigh the costs. He stated that he had not seen anything that would change this conclusion since the last advisory group study was conducted.

The ability of competition to deliver such benefits is important for the JSF program. In addition to considering engine price, the program office has identified a range of potential criteria for competition during the production and support phases of the program, which could include other costs, reliability, and sustainability. It is reasonable to assume that competition under these criteria may drive better engine performance and reliability over the life of the program. Such improvements can positively affect fleet readiness and schedule outcomes while avoiding costs in various other areas for the JSF program.

Another potential benefit of having an alternate engine program, and one also supported by the program advisory group studies, is to reduce the risk that a single point, systemic failure in the engine design could substantially affect the fighter aircraft fleet. Though current performance data indicate it is unlikely that engine problems would lead to fleet wide groundings in modern aircraft, having two engine sources for the single-engine JSF further reduces this risk as it is more unlikely that such a problem would occur to both engine types at the same time. Because the JSF is expected to be the primary fighter aircraft in the U.S. inventory, and Pratt & Whitney will also be the sole-source provider of F119 engines for the F-22A aircraft,[16] DOD is faced with the potential scenario where almost the entire fleet could be dependent on similar engine cores, produced by the same contractor in a sole-source environment.

[16]The F135 engine is a derivative of the F119 engine, which means many of the same or similar parts and processes are used to manufacture both engines. It also means that the F135 can benefit from lessons learned or be susceptible to any systemic problems associated with the F119.

Past Engine Programs Show Potential Benefits from Competition

Results from past competitions provide evidence of potential financial and non financial savings that can be derived from engine programs. One relevant case study to consider is the "Great Engine War" of the 1980s—the competition between Pratt & Whitney and General Electric to supply military engines for the F-16 and other fighter aircraft programs. At that time all engines for the F-14 and F-15 aircraft were being produced on a sole-source basis by Pratt & Whitney, which was criticized for increased procurement and maintenance costs, along with a general lack of responsiveness with regard to government concerns about those programs. For example, safety issues on the single-engine F-16 aircraft were seen as having greater consequences than the twin-engine F-14 or F-15 aircraft. To address concerns, the Air Force began to fund the development and testing of an alternate engine to be produced by General Electric; the Air Force also supported the advent of an improved derivative of the Pratt & Whitney engine. Beginning in 1983, the Air Force initiated a competition that Air Force documentation suggests resulted in significant cost savings in the program. For example, in the first 4 years of the competition, when actual costs are compared to the program's baseline estimate, results included

- nearly 30 percent cumulative savings for acquisition costs,
- roughly 16 percent cumulative savings for operations and support costs, and
- total savings of about 21 percent in overall life cycle costs.

While sole-source competitions have been the general rule for engine program strategies, evidence shows that when competition was utilized for even part of those programs, positive outcomes were often realized. Other than the Great Engine War, there have been a number of U.S. competitions for modern fighter engines, including those for the F-15, F/A-18, and F-22A fighter aircraft. During the course of this review, government and contractor personnel told us that the difference between these programs and the F-16 was that competition was limited to only one phase of the program (i.e., program initiation or production phase). For example, the General Electric F404 engine, which today powers the Navy F/A-18 aircraft and the Air Force F-117A aircraft, was competed in the mid-1980s. In that case, the Navy had decided to upgrade the A-6 aircraft to the A-6F model with two F404 engines, thereby increasing the number of F404 engines in the fleet. The Navy leadership recommended a second source for that engine, and Pratt & Whitney was awarded a "build-to-print" contract, which meant it would produce additional F404 engines according to the General Electric design. While this competition did provide some improvements in contractor responsiveness, government and contractor

officials told us this was not an optimum competitive environment as it provided no design competition.

The Great Engine War was able to generate significant benefits because competition incentivized contractors to improve designs and reduce costs during production and sustainment. Competitive pressure continues today as the F-15 and F-16 aircraft are still being sold internationally. While the other competitions resulted in some level of benefits, especially with regard to contractor responsiveness, they did not see the same levels of success absent continued competitive pressures.

JSF Program Could Have Long-term Impact on Industrial Base

The economic stakes in the JSF engine program are likely to be high given the size of the program, international participation, and the expected supplier base. Participation in the development, production, and support of the JSF engine program will position Pratt & Whitney, the Fighter Engine Team, and their respective supplier base to compete for future military development and acquisition programs. According to government officials, Pratt & Whitney faces a decline in the area of large commercial engines, which could result in a shift of workforce and overhead costs to military programs. While it is the sole-source provider of the engine for the Air Force F-22A aircraft, production will likely end in 2012 for that program. Pratt & Whitney will at a minimum provide at least some of the engines for the JSF program, the extent to which is to be determined by whether or not the Fighter Engine Team remains a competitor and, if so, the amount of contract awards that company can win. Should the JSF program suffer substantial schedule slips beyond 2011 or 2012, the gap between the end of F-22A production and the onset of JSF production could grow, resulting in workforce disruptions or other negative effects.

General Electric is a significant entity in the market for large commercial engines. However, the company faces declining production within its other fighter engine programs, such as the Navy's F/A-18E/F, which could result in erosion of specialized skills should the company not continue as a participant in the JSF program. While the overall health of the company is very strong, business decisions as to where to invest company resources could favor the commercial side, should military business decline substantially.

Due to the size of the JSF program, the industrial base implications reach far beyond Pratt & Whitney and the Fighter Engine Team. With JSF contracts awarded to suppliers within both the U.S. and international partner countries, JSF propulsion production and support business will

contribute to the global engine industrial base for almost 60 years. While companies that participate are likely to see increased business opportunities, if the JSF comes to dominate the market for tactical aircraft, as DOD expects, companies that are not part of the program could see tactical aircraft business decline.

Concluding Observations

DOD officials noted in 2006 that canceling the F136 engine program would save DOD $1.8 billion in needed investments over the remaining 7 years of development, which could be used to fund higher-priority programs. According to our analysis that figure is now $1.4 billion; and does not include the approximately $2.2 billion to $3.1 billion of additional investments for procurement, production support, and stand-up investments necessary for competition. However, our analysis indicates that this investment may be recouped under a competitive approach if it generates savings of 10.3 to 12.3 percent. Historical data indicate that it is reasonable to assume savings of that much and more. Choices made today will ripple forward and influence additional, and perhaps even more challenging, decisions in the future. The JSF engine acquisition strategy is one such choice facing DOD today. The results of our work indicate that with the proper structure and attention, and the up-front investments, the alternate engine can ultimately recover those investments and potentially provide additional benefits to the program. Prior engine programs and more recent DOD studies and analyses also suggest these outcomes to be reasonable. DOD is now faced with prioritizing its short-term needs against potential long-term payoffs through competition for JSF engine development, procurement, and sustainment.

Mr. Chairmen, this concludes my prepared statement. I will be happy to answer any questions you or other members of the subcommittee may have.

Contacts and Acknowledgments

For future questions regarding this testimony, please contact Michael J. Sullivan, (202) 512-4841. Individuals making key contributions to this testimony include Brian Mullins, Assistant Director; J. Kristopher Keener; Daniel Novillo; Greg Campbell; Charles Perdue; and Adam Vodraska.

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Appendix I: Scope and Methodology

In conducting our analysis of costs for the Joint Strike Fighter (JSF) engine program, we relied primarily on program office data. We did not develop our own source data for development, production, or sustainment costs. In assessing the reliability of data from the program office, we compared that data to contractor data and spoke with agency and other officials and determined that the data were sufficiently reliable for our review.

Other base assumptions for the review are as follows:

- Unit recurring flyaway cost includes the costs associated with procuring one engine and certain nonrecurring production costs; it does not include sunk costs, such as development and test, and other costs to the whole system, including logistical support and construction.
- Engine procurement costs reflect only U.S. costs, but assumes the quantity benefits of the 646 aircraft currently anticipated for foreign partner procurement.
- Competition, and the associated savings anticipated, begins in fiscal year 2012.
- Engine maturity, defined as 200,000 flight hours with at least 50,000 hours in each variant, is reached in fiscal year 2012.
- Two years are needed for delivery of aircraft.
- Aircraft life equals 30 years at 300 flight hours per year.

For the sole-source Pratt & Whitney F135 engine scenario, we calculated costs as follows:

Development

- Relied on JSF program office data on the remaining cost of the Pratt & Whitney development contract. We considered all costs for development through fiscal year 2007 to be sunk costs and did not factor them into analysis.

Production

- For cost of installed engine quantities, we multiplied planned JSF engine quantities for U.S. aircraft by unit recurring flyaway costs specific to each year as derived from cost targets and a learning curve developed by the JSF program office.
- For the cost of production support, we relied on JSF program office cost estimates for initial spares, training, support equipment, depot stand-up, and manpower related to propulsion. Because the JSF program office calculates those numbers to reflect two contractors, we applied a cost reduction factor in the areas of training and manpower to reflect the lower cost to support only one engine type.

Sustainment

- For sustainment costs, we multiplied the planned number of U.S. fielded aircraft by the estimated number of flight hours for each year to arrive at an annual fleet total. We then multiplied this total by JSF program office estimated cost per engine flight hour specific to each aircraft variant.
- Sustainment costs do not include a calculation of the cost of engine reliability or technology improvement programs.

For a competitive scenario between the Pratt & Whitney F135 engine and the Fighter Engine Team (General Electric and Rolls-Royce), we calculated costs as follows:

Development

- We used current JSF program office estimates of remaining development costs for both contractors and considered all costs for development through fiscal year 2007 to be sunk costs.

Production

- We used JSF program office data for engine buy profiles, learning curves, and unit recurring flyaway costs to arrive at a cost for installed engine quantities on U.S. aircraft. We performed calculations for competitive production quantities under 70/30 and 50/50 production quantity award scenarios.
- We used JSF program office cost estimates for production support under two contractors. We assumed no change in support costs based on specific numbers of aircraft awarded under competition, as each contractor would still need to support some number of installed engines and provide some number of initial spares.

Sustainment

- We used the same methodology and assumptions to perform the calculation for sustainment costs in a competition as in the sole-source scenario.

Savings

- We analyzed actual cost information from past aircraft propulsion programs, especially that of the F-16 aircraft engine, in order to derive the expected benefits of competition and determine a reasonable range of potential savings.
- We applied this range of savings to the engine life cycle, including recurring flyaway costs, production support, and sustainment. We assumed costs to the government could decrease in any or all of these areas as a result of competitive pressures.

- We did not apply any savings to the system development and demonstration phase or the first five production lots because they are not fully competitive. However, we recognize that some savings may accrue as contractors prepare for competition.

In response to the request to present our cost analyses in constant dollars, then year dollars, and using net present value, we:

- calculated all costs using constant fiscal year 2002 dollars,
- used separate JSF program office and Office of the Secretary of Defense inflation indices for development, production, production support, and sustainment to derive then year dollars; when necessary for the out years, we extrapolated the growth of escalation factors linearly; and
- utilized accepted GAO methodologies for calculating discount rates in the net present value analysis.

No cost analysis was performed for the scenario where a fixed-price contract would be awarded in fiscal year 2008 for the entire life of the engine program because neither the contractor nor the Department of Defense calculates the necessary cost data. During our discussions with both DOD officials and contractor representatives, it was determined that neither viewed a fixed-price contract as a viable option for which they could quantify a risk premium.

We did not perform cost analyses of alternative strategies, as we determined no other alternative could be implemented without disruption to the JSF program's cost and schedule.

Our analysis of the industrial base does not independently verify the relative health of either contractors' suppliers or workload.

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UNTIL RELEASED BY THE
HOUSE COMMITTEE
ON ARMED SERVICES

STATEMENT BY

BRIGADIER GENERAL STEPHEN D. MUNDT

DIRECTOR OF ARMY AVIATION

OFFICE OF THE DEPUTY CHIEF OF STAFF, G-3/5/7

UNITED STATES ARMY

BEFORE THE

TACTICAL AIR AND LAND FORCES SUBCOMMITTEE

COMMITTEE ON ARMED SERVICES

UNITED STATES HOUSE OF REPRESENTATIVES

ON

ARMY ROTORCRAFT PROGRAMS

MARCH 22, 2007

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STATEMENT BY

BG STEPHEN D. MUNDT
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OFFICE OF THE DEPUTY CHIEF OF STAFF, G-3/5/7
UNITED STATES ARMY

INTRODUCTION

CHAIRMAN ABERCROMBIE, MR. SAXTON AND DISTINGUISHED MEMBERS OF THE SUBCOMMITTEE, I AM PLEASED TO BE HERE TODAY TO DISCUSS ARMY AVIATION. I WELCOME THIS OPPORTUNITY TO TESTIFY BEFORE YOU AND APPRECIATE THE TREMENDOUS AND ONGOING SUPPORT THIS COMMITTEE HAS PROVIDED TO ARMY AVIATION AND OUR SOLDIERS STATIONED AROUND THE WORLD.

ARMY AVIATION, AS IS THE TOTAL ARMY, IS DECISIVELY ENGAGED IN PROSECUTING THE GLOBAL WAR ON TERROR, PRIMARILY IN IRAQ AND AFGHANISTAN. OUR ROTARY WING, FIXED WING, AND UAVS ARE BEING USED BY ARMY AVIATION IN DIRECT SUPPORT OF COMBAT OPERATIONS FROM SQUAD THROUGH JOINT TASK FORCE LEVELS OF WARFARE. WE CANNOT DISCOUNT THE STRATEGIC AND HIGH OPERATIONAL LEVELS OF WARFARE ALTHOUGH AS A NATION FIGHTING THE GLOBAL WAR ON TERROR, IT'S THE TACTICAL AND LOW OPERATIONAL WARFIGHTING THAT IS THE PRIORITY FOR MANNING, TRAINING, EQUIPPING, AND SUPPORTING OUR COMBAT FORCES.

YOUR ARMY IS ACCOMPLISHING THESE TASKS WHILE SIMULTANEOUSLY CONVERTING ALL ARMY AVIATION INTO COMBAT AVIATION BRIGADES,

INCORPORATING THE LATEST AVIATION SURVIVABILITY EQUIPMENT, TRAINING HUNDREDS OF NEW ARMY AVIATORS, SUPPORT PERSONNEL, AND UAV OPERATORS EACH YEAR. WE ARE ALSO MODERNIZING OUR ARMY AVIATION FLEET, CONDUCTING EQUIPMENT RESET AND PRESET, REPLENISHING LOST AIRCRAFT STOCKS, AND ENSURING OUR ARMY AVIATION PERSONNEL ARE BEING SIMULTANEOUSLY TRAINED.

THE ARMY ENJOYS THE STRONG AND CONSISTENT SUPPORT OF THE CONGRESS. WHILE OUR PRIMARY FOCUS IN ON THE ENGAGEMENT, DEPLOYMENT, AND RECONSTITUTION OF OUR FORCES PROSECUTING THE GLOBAL WAR ON TERROR, YOUR ARMY MUST COINCIDENTALLY BE ABLE TO RECRUIT SOLDIERS AND MODERNIZE OUR MANNED AND UNMANNED AVIATION CAPABILITIES. WE APPRECIATE CONGRESS' UNDERSTANDING TO ENABLE THESE TWO KEY MISSIONS OF SATISFYING THE IMMEDIATE WARFIGHTING NEEDS AND MODERNIZE AT THE SAME TIME.

COMBAT OPERATIONS

ARMY AVIATION HAS COMPLETED FIVE YEARS OF CONTINUOUS COMBAT OPERATIONS IN SUPPORT OF THE GLOBAL WAR ON TERROR. DURING THIS TIME, WE HAVE FLOWN OVER 1.5 MILLION FLIGHT HOURS ON OUR MANNED AND UNMANNED AIRCRAFT SYSTEMS WHILE CONSISTENTLY SUSTAINING OPERATIONAL READINESS RATES IN THEATER AT, OR EXCEEDING, DEPARTMENT OF THE ARMY STANDARDS. THIS IS AN INCREDIBLE TESTAMENT TO THE DEDICATED SERVICE PROVIDED TO OUR

NATION BY THE MEN AND WOMEN IN THE ARMY; BOTH SOLDIERS AND GOVERNMENT EMPLOYEES.

BUT THIS HIGH OPTEMPO DOES NOT COME WITHOUT COST TO THE STRUCTURE AND COMPONENTS OF THE AIRCRAFT SYSTEM. AS SUCH, WE HAVE RESET 1,808 OF 2,102 AIRCRAFT; WITH 109 AIRCRAFT IN WORK AND 185 AIRCRAFT SCHEDULED INTO THE RESET LINE. ADDITIONALLY, OUR DEPOT MAINTENANCE PROGRAM HAS REPAIRED 39 CRASH OR BATTLE DAMAGED AIRCRAFT TO MISSION CAPABLE STATUS. WHENEVER POSSIBLE THE PRESET AND RESET REQUIREMENTS ARE COMBINED TO SAVE TIME AND MONEY. WE CANNOT TELL YOU HOW CRITICAL THIS PROCESS IS TO ARMY AVIATION; AND HOW IMPORTANT IT IS THAT WE RESET THESE AIRCRAFT AS RAPIDLY AS POSSIBLE. OUR ACTIVE COMPONENT AVIATION UNITS ARE DEPLOYING TO OEF/OIF APPROXIMATELY EVERY 2 YEARS. EVERYDAY A UNIT IS WITHOUT AN AIRCRAFT THAT IS SITTING ON A RESET PRODUCTION LINE IS ANOTHER DAY OUR AVIATORS ARE DISADVANTAGED IN TRAINING FOR THE NEXT ROTATION. WE ARE WORKING HARD TO COORDINATE THE TURN-IN OF AIRCRAFT FOR INDUCTION INTO THE RESET LINE, THE DISTRIBUTION OF AVAILABLE AIRCRAFT IN THE INVENTORY TO MAXIMIZE TRAINING, AND ENSURE WE ARE READY TO DEPLOY TO ANY CONTINGENCY ASSIGNED. WE NEED YOUR CONTINUED SUPPORT OF THE RESET OF OUR AIRCRAFT. THE CONTINUED PROCUREMENT OF UH-60 BLACKHAWK, CH-47 CHINOOK, AH-64 APACHE, THE UH-72A LAKOTA LIGHT UTILITY HELICOPTER (LUH),AND OUR NEW UH-70A

ARMED RECONNAISSANCE HELICOPTER (ARH) ALL SERVE TO RELIEVE THE PRESSURES ON THE FLEET DESCRIBED ABOVE.

ADDITIONALLY, DURING THESE 5 YEARS OF COMBAT WE HAVE LOST 125 AIRCRAFT IN COMBAT OPERATIONS OR IN PREPARATION FOR DEPLOYMENT TO COMBAT. THROUGH YOUR OUTSTANDING SUPPORT WE HAVE RECEIVED FUNDING TO REPLACE 90 OF THESE AIRCRAFT, A TOTAL OF $2.3 BILLION; 30 OF THE REMAINING AIRCRAFT ARE OH-58D LOSSES AND WILL BE REPLACED WITH FIELDING OF THE ARH. THE OTHER 5 AIRCRAFT ARE THE 2 AH-64, 2 UH-60, AND 1 CH-47 AIRCRAFT LOST IN IRAQ AND AFGHANISTAN IN JANUARY/FEBRUARY 2007.

CONTINUING WITH COMBAT OPERATIONS, IT IS IMPORTANT TO NOTE THE SUCCESS WE HAVE EXPERIENCED IN AIRCRAFT SURVIVABILITY EQUIPMENT. THIS SUCCESS IS DIRECTLY ATTRIBUTABLE TO THE OUTSTANDING RELATIONSHIP BETWEEN CONGRESS, THE ARMY, AND INDUSTRY. WITH THE GUIDANCE OF SENIOR ARMY LEADERSHIP, THE COMMITMENT OF INDUSTRY, AND THE NECESSARY RESOURCES FROM CONGRESS, WE HAVE EXECUTED A PROGRAM THAT HAS INSTALLED THE BEST AVAILABLE AIRCRAFT SURVIVABILITY EQUIPMENT ON EVERY AIRCRAFT FLYING IN OEF/OIF. WE MUST ALWAYS REMEMBER THAT ASE IS ABOUT MORE THAN A MISSILE WARNING SYSTEM, IT INCLUDES CRASHWORTHY SEATS, ARMORED CREW SEATS, LASER DETECTORS, SURVIVAL GEAR, AIR WARRIOR, AND MORE.

THE INCORPORATION OF LESSONS LEARNED FROM 5 YEARS OF COMBAT HAS MADE A DIFFERENCE TO OUR SOLDIERS. WE NOW HAVE COMBAT EXPERIENCED SOLDIERS, IN THE ACTIVE AND RESERVE COMPONENTS, ASSIGNED IN ALL FACETS OF AVIATION OPERATIONS: TRAINING, DOCTRINE, SUSTAINMENT, LOGISTICS, OPERATIONS, AND ANALYSIS. THESE SOLDIERS BRING WITH THEM A TREMENDOUS WEALTH OF KNOWLEDGE AND TALENT THAT IS INCORPORATED INTO OUR INSTITUTIONS AND POLICIES. OUR CHARTER IS TO NOT MAKE THE SAME MISTAKE TWICE IN COMBAT; A MISTAKE THAT COULD COME AT THE COST OF HUMAN LIFE. SIMULTANEOUS WITH CONDUCTING COMBAT OPERATIONS WE ARE TRAINING, TRANSFORMING, AND MODERNIZING OUR AVIATION FORCE.

THE FULL IMPLEMENTATION OF FLIGHT SCHOOL XXI (FSXXI) FOR ALL INITIAL ENTRY ROTARY WING STUDENTS BY THE ARMY TRAINING AND DOCTRINE COMMAND (TRADOC) AND THE UNITED STATES ARMY AVIATION WARFIGHTING CENTER (USAAWC) HAS BEEN A TREMENDOUS SUCCESS STORY. IN ADDITION TO INCLUDING HELICOPTER OVERWATER SURVIVAL TRAINING AND A THREE WEEK SURVIVAL, EVASION, RESISTANCE, AND ESCAPE (SERE) COURSE, FSXXI HAS A SIGNIFICANTLY INCREASED EMPHASIS ON FLIGHT TRAINING IN THE GO-TO-WAR AIRCRAFT. THE NEW AVIATOR NOW GRADUATES WITH BETWEEN 50-80 ADDITIONAL HOURS IN THEIR ACTUAL COMBAT AIRCRAFT THAN THEY RECEIVED BEFORE. MORE SIGNIFICANTLY, THAT PLUS-UP TRANSLATES TO UP TO 16 ADDITIONAL WEEKS OF DIRECT MENTORSHIP FROM THE SAME INSTRUCTOR PILOT. THE COMBINATION OF

THESE FACTORS HAS EXPONENTIALLY POSITIVE RESULTS. THE PRODUCT IS A HIGHLY TRAINED, CONFIDENT AVIATOR WHO REQUIRES MUCH LESS TRAINING UPON ARRIVAL TO HIS/HER UNIT TO PROGRESS TO READINESS LEVEL ONE (THE HIGHEST READINESS LEVEL). EXECUTING THIS QUALITY TRAINING DURING INITIAL QUALIFICATION AND DEVELOPING A LEVEL OF MASTERY, VERSUS PLACING THE BURDEN ON THE UNIT TO PROGRESS THE AVIATOR FROM AIRCRAFT ORIENTATION TO MASTERY HAS BEEN A SIGNIFICANT ACCOMPLISHMENT AND COMBAT MULTIPLIER. UNITS ARE NOW ABLE TO FOCUS THEIR EFFORTS ON COLLECTIVE TRAINING TO ACHIEVE A HIGHER STATE OF READINESS. THESE ASSERTIONS ARE CONTINUOUSLY VALIDATED BY COMMENTS WE RECEIVE FROM OUR FIELD COMMANDERS AT ALL LEVELS.

LAST YEAR THE UNITED STATES ARMY AVIATION WARFIGHTING CENTER STOOD UP A TACTICS DIVISION AND LESSONS LEARNED BRANCH WITHIN THE DIRECTORATE OF TRAINING AND DOCTRINE (DOTD). THIS WAS DONE TO CREATE A BETTER PATH TO PROVIDE AVIATION SOLDIERS THE INFORMATION EXCHANGE CAPABILITY REQUIRED TO SHARE OBSERVATIONS, INSIGHTS, AND LESSONS (OIL) WHILE INTEGRATING NEW LESSONS LEARNED INTO OUR RUBRIC. THE LESSONS LEARNED CELL'S MISSION IS TO COLLECT, ANALYZE, MANAGE, AND DISSEMINATE KNOWLEDGE GAINED THROUGH OPERATIONAL EXPERIENCES, EXERCISES, AND SUPPORTING ACTIVITIES. THEY PROVIDE INFORMATION AND ANALYSIS ON EMERGING ISSUES AND TRENDS IN SUPPORT OF COMMANDERS IN THE FIELD THROUGH VARIOUS MEANS. THIS

PAST YEAR, CONNECTING WITH THE LESSONS LEARNED INTEGRATION (L2I) TEAM VIA SECURE INTERNET HAS BECOME INCREASINGLY POPULAR. TO GIVE A SENSE OF JUST HOW MUCH INTEREST HAS BEEN GENERATED AROUND LESSONS LEARNED INTEGRATION, THE SECURE WEBSITE AVERAGES AROUND 800 HITS PER WEEK. THIS CLEARLY DEMONSTRATES THAT OUR SOLDIERS HAVE A VESTED INTEREST IN L2I, AND THIS INTEREST IS INCREASING AS PEOPLE BECOME MORE FAMILIAR WITH THE TOOLS AND RESOURCES OF THE LESSONS LEARNED BRANCH AND TACTICS DIVISION. WE WILL CONTINUE TO GENERATE AND APPLY CREATIVE SOLUTIONS FASTER AND MORE EFFECTIVELY THAN OUR ENEMIES CAN GENERATE ADAPTIVE DILEMMAS AND CHALLENGES.

ARMY AVIATION SOLDIERS ARE AT THE FOREFRONT OF A LONG STRUGGLE OF CONTINUOUS, EVOLVING CONFLICT. IN IRAQ AND AFGHANISTAN, OUR SOLDIERS ARE MAKING ENORMOUS CONTRIBUTIONS – PROVIDING FORCE PROTECTION FOR OUR SOLDIERS ON THE GROUND AND CONDUCTING ATTACK OPERATIONS IN SUPPORT OF GROUND FORCES. TODAY, MANY ARMY COMMANDERS WOULD TELL YOU THEY DO NOT WANT A CONVOY GOING DOWN THE ROAD, OR COMBAT OPERATIONS TO BE CONDUCTED, THAT DOES NOT HAVE ARMY AVIATION FLYING COVER OVERHEAD OR PROVIDING DEVASTATING FIRES.

TRANSFORMATION AND MODERNIZATION

DRIVEN BY THE NECESSITIES OF WAR TO INCREASE FIGHTING CAPABILITY, TO BE PREPARED FOR WORLDWIDE HUMANITARIAN ASSISTANCE, AND TO RELIEVE STRESS ON SOLDIERS; ARMY AVIATION HAS ALMOST COMPLETED ITS TRANSFORMATION FROM A FORCE DESIGNED FOR THE COLD WAR TO ONE REDESIGNED FOR A CHANGED SECURITY ENVIRONMENT. THIS IS BEING ACCOMPLISHED IN CONCERT WITH THE ARMY CAMPAIGN PLAN. THIS PLAN INCLUDES THESE MAJOR THRUSTS: AVIATION UNITS IN THE ARMY FORCE GENERATION (ARFORGEN) ROTATIONS, COMBAT AVIATION BRIGADE (CAB) TRANSFORMATION, ENHANCING AVIATION CAPABILITIES THROUGH WEAPON SYSTEMS MODERNIZATION, INTEGRATION WITH MANNED AND UNMANNED AVIATION PLATFORMS, MELDING AIRBORNE INTELLIGENCE AND MANEUVER CAPABILITIES, AND THE TRANSITION FROM THE MODULAR FORCE TO THE FUTURE FORCE.

THE ARFORGEN MODEL IS THE MEANS THE ARMY DETERMINES THE SIZE AND COMPOSITION OF FORCES TO MEET THEATER NEEDS. THE SECRETARY OF THE ARMY HAS DIRECTED THE LEAN SIX SIGMA PROCESS TO INCREASE PRECISION IN ARMY DECISION PLANNING WITH THE ARFORGEN AS ONE OF THE MAJOR THRUSTS. ARMY G3 AVIATION USES THE ARFORGEN MODEL TO MATCH FORCES REQUESTED WITH AVAILABLE UNITS. OPERATION IRAQI FREEDOM (OIF) AND OPERATION ENDURING FREEDOM (OEF) FORCE ROTATION REQUIREMENTS ARE COMBINED WITH THE ARFORGEN TOWARD BUILDING OUR CAB FORCE PACKAGES.

THE ARMY SENIOR LEADERS, DIVISION AND CORPS COMMANDERS, AND JOINT STAFF SEE THE CABS AS THE MOST VISIBLE EVIDENCE OF ARMY AVIATION MODULARITY. THE CAB TRANSFORMATION ENCOMPASSES OUR DISPERSED AND OFTEN SMALL DENSITY UNITS INTO COHESIVE AND MUTUALLY SUPPORTIVE UNITS. THESE RESULT IN A COMBAT POWER, TRAINING, LEADERSHIP, AND LOGISTICS EFFICIENCY PREVIOUSLY NOT SEEN EXCEPT WITH OUR NUMBERED AVIATION REGIMENTS.

DIVISION AND JOINT TASK FORCE COMMANDERS NOW HAVE IN THE TACTICAL BATTLESPACE COMBINED GROUND MANEUVER, AIR MANEUVER, FIRES AND LOGISTICS ELEMENTS IN THE MODULAR BRIGADE CONSTRUCT. OUR CABS INCLUDE ATTACK, LIFT, UTILITY, AND SUPPORT BATTALIONS AND BEGINNING IN 2009 THE EXTENDED RANGE/MULTI-PURPOSE (WARRIOR) UNMANNED AIRCRAFT SYSTEMS (UAS) COMPANY. AS OF TODAY, WE HAVE COMPLETED THE TRANSFORMATION OF ALL 19 OF OUR AVIATION BRIGADES, ACTIVE AND RESERVE COMPONENTS, TO THE NEW CAB CONSTRUCT; WITH THE EXCEPTION OF THE UAS COMPANIES. THE ARMY HAS ALSO BEGUN TO PLACE THE BRIGADE AVIATION ELEMENTS WITH THE GROUND MANEUVER BRIGADES TO IMPROVE OUR AIR-GROUND COMBAT SYNCHRONIZATION. DURING FY2007-2008, WE WILL ESTABLISH THEATER AVIATION COMMANDS (TACS) AND EXPAND ARMY SPECIAL OPERATIONS AVIATION (ARSOA). THE PLAN WILL ACHIEVE AN INCREASE IN THE DEPTH AND BREADTH OF OUR OVERALL CAPABILITY AND IMPROVE OUR ABILITY TO EXECUTE AND SUPPORT PROTRACTED CAMPAIGNS.

THE ARMY REMAINS COMMITTED TO THE MODERNIZATION OF THE AVIATION FORCE. THIS AVIATION MODERNIZATION PLAN, INITIATED AT THE TERMINATION OF THE COMANCHE HELICOPTER PROGRAM, IS THE SAME PLAN WE HAVE DISCUSSED WITH YOU OVER THE PAST THREE YEARS AND RESOURCED THROUGH THE REDISTRIBUTION OF COMANCHE FUNDS. THE ONLY DIFFERENCE FROM LAST YEAR IS THAT WE HAVE INCREASED THE REQUIREMENT FOR THE ARH TO 512 AIRCRAFT AND INCREASED THE AH-64D TO 634 AIRCRAFT. THIS REQUIREMENT INCREASE WAS ACCOMPLISHED TO FULLY MODERNIZE THE ARMY NATIONAL GUARD WHICH ALLOWS US TO PURE FLEET WITH THE AH-64D AIRCRAFT ACROSS THE TOTAL ARMY.

WE KNOW THIS MODERNIZATION PLAN REQUIRES AGGRESSIVE ACQUISITION METHODS; BUT WE ARE IN A PERIOD IN OUR NATION'S HISTORY THAT REQUIRES RAPID RESPONSE TO ENSURE OUR AVIATION FORCE IS EQUIPPED, TRAINED, AND PREPARED FOR THE FIGHT TODAY, AND TOMORROW. WE ARE RAPIDLY MOVING FORWARD WITH THE ACQUISITION OF OUR AVIATION PROGRAMS. THIS YEAR WE START THE FIELDING OF THE LUH, CH-47F, UH-60M, AND THE WARRIOR BLOCK 0 (ZERO). THIS WILL BE FOLLOWED IN FY 2009 WITH THE ARH AND JCA, AND IN FY2011 WITH THE AH-64D BLOCK III. ALL OF THESE SYSTEMS ARE CRITICAL TO ARMY AVIATION AND OUR MISSIONS AND ROLES IN NATIONAL DEFENSE, HOMELAND SECURITY, DRUG INTERDICTION, AND HUMANITARIAN AND DISASTER RELIEF OPERATIONS.

WE ARE CONTINUING THE RECAPITALIZING AND REMANUFACTURING OF OUR MODERN FLEET TO EXTEND SYSTEM LIFE CYCLES, REDUCE O&S COSTS, PROVIDE FOR INCREASED COMMONALITY WITH SPECIAL OPERATIONS FORCES (SOF) AVIATION AND ENHANCE JOINT INTEROPERABILITY. THE RECAPITALIZATION AND REMANUFACTURING PROGRAM INCLUDES: AH-64A TO D, AH-64D BLOCK I TO BLOCK II AND III, CH-47D TO D, AND THE UH60A TO A.

FOR OUR RESERVE COMPONENTS WE CONTINUE TO AGGRESSIVELY RETIRE AND REPLACE THE ANTIQUATED SYSTEMS (UH-1, OH-58A/C) WITH THE UH-72A AND ARH-70A AIRCRAFT RESULTING IN A CASCADE OF 23 UH-60 AIRCRAFT TO TABLE OF ORGANIZATION AND EQUIPMENT (TO&E) UNITS IN THE ARMY NATIONAL GUARD.

TODAY, THE ARMY HAS OVER 700 UNMANNED AIRCRAFT DEPLOYED IN OIF AND OEF THAT ACCUMULATE ROUGHLY 10,000 HOURS OF FLIGHT TIME PER MONTH. THE PAST FIVE YEARS OF WAR HAVE ALSO TAUGHT US THAT ARMY UNMANNED AIRCRAFT SYSTEMS (UAS) WILL PLAY AN INCREASINGLY PROMINENT OPERATIONAL ROLE FOR OUR COMBATANT COMMANDERS. AS SUCH, TRAINING AND DOCTRINE COMMAND (TRADOC) AND VARIOUS ARMY STAFFS SPEARHEADED A 13-MONTH LONG STUDY, WHICH CAREFULLY ASSESSED THE ARMY'S UAS CAPABILITIES. THIS UAS MIX ANALYSIS STUDY WAS PRESENTED TO THE CHIEF OF STAFF, ARMY AND HE MADE A DECISION TO REALIGN ARMY UNMANNED AIRCRAFT SYSTEMS. THIS REALIGNMENT CORRESPONDS BETTER WITH FUTURE JOINT-FORCE REQUIREMENTS AS WE STRIVE TO FIND THE RIGHT BALANCES BETWEEN COMPETING PRIORITIES:

THE COSTS OF WAR AND RESET, AND THE NEED TO MODERNIZE THE FORCE. THE REALIGNMENT WILL CONTINUE TO IMPROVE THE RAVEN AND SHADOW UAS, DEVELOP TWO (CLASS I AND IV) OF THE FOUR CLASSES OF FCS UAS, AND FIELD THE EXTENDED RANGE/MULTI-PURPOSE (ER/MP) UAS (WARRIOR). THE CLASS II AND III FCS UAS WILL REMAIN AS OBJECTIVE REQUIREMENTS.

YES, IT IS A BUSY TIME FOR ARMY AVIATION ESPECIALLY WHEN WE ARE DOING ALL THIS IN THE MIDDLE OF A WARFIGHT. FOR THREE YEARS WE HAVE CONTINUED ON A STEADY PATH TO TRANSFORM AND MODERNIZE OUR AVIATION FORCE. THE NEXT TWO YEARS ARE CRITICAL TO THE FULFILLMENT OF THESE PLANS. WE APPRECIATE YOUR CONTINUED SUPPORT OF THESE PROGRAMS AS WE CONTINUE ON OUR AGGRESSIVE ACQUISITION PATH TO PROCURE MODERNIZED AIRCRAFT FOR OUR FIGHTING AVIATION FORCE.

SCIENCE AND TECHNOLOGY

ARMY AVIATION IS ALSO WORKING IN CONCERT WITH OUR SISTER SERVICES TO DEVELOP CONCEPTS THAT WILL SUPPORT THE FUTURE FORCE BY DEVELOPING THE JOINT HEAVY LIFT (JHL) CONCEPT REFINEMENT (CR). THE JHL CR EFFORT WILL BE COMPLETED THIS YEAR. THE PURPOSE OF THE JHL CR IS TO IDENTIFY THE HEAVY LIFT TECHNOLOGICAL "ART OF THE POSSIBLE" AND TO INFORM THE EMERGING JOINT CONCEPTS AND THE JOINT REQUIREMENTS PROCESS. THE GOAL OF JHL CR IS TO PROVIDE INFORMATION THAT WILL ENABLE THE DOD TO MAKE AN INFORMED ACQUISITION DECISION ON THE TECHNICAL FEASIBILITY OF DEVELOPING A

JHL AIRCRAFT. THIS CONCEPT REFINEMENT IS JOINT WITH THE ARMY IN THE LEAD AND AN EXCELLENT EXAMPLE OF WHERE ARMY S&T IS WORKING WITH THE ACQUISITION AND REQUIREMENTS COMMUNITY TO MEET THE WARFIGHTER'S NEEDS.

THE ARMY HAS A UNIQUE RESPONSIBILITY WITHIN THE DEPARTMENT OF DEFENSE (DOD) AS THE LEAD SERVICE FOR ROTORCRAFT S&T INVESTMENT. UNDER PROJECT RELIANCE, THE ARMY ADDRESSES THE ROTORCRAFT S&T REQUIREMENTS OF ALL SERVICES AND THE SPECIAL OPERATIONS COMMAND (SOCOM) IN AREAS THAT ARE NOT SERVICE OR COMMAND UNIQUE. THE DOD AND THE SERVICES RELY ON THE ARMY TO MATURE AND DEMONSTRATE TECHNOLOGIES AND CAPABILITIES FOR THE JOINT ROTORCRAFT FORCE.

THE ARMY AVIATION S&T PROGRAM DEVELOPS, MATURES, AND DEMONSTRATES TECHNOLOGIES FOR BOTH MANNED AND UNMANNED ROTORCRAFT IN SUPPORT OF THE CURRENT AND FUTURE FORCE. BASED ON THE ARMY AVIATION TRANSFORMATION AND THE AVIATION MODERNIZATION STRATEGY, THIS EFFORT FOCUSES ON TWO FRONTS: 1) DEVELOPING AND MATURING COMPONENTS AND SUBSYSTEMS THAT ENABLE INCREASED SYSTEM SURVIVABILITY, PLATFORM LIFT, MANEUVERABILITY, ENDURANCE, AND OPERATIONAL READINESS; AND 2) CONDUCTING REALISTIC AND ROBUST DEMONSTRATIONS OF TECHNOLOGIES FOR BOTH MANNED AND UNMANNED TEAMING IN COMBAT AND COMBAT SUPPORT OPERATIONS FOR ATTACK, RECONNAISSANCE, AIR ASSAULT, SURVIVABILITY, AND COMMAND AND

CONTROL MISSIONS. IN ADDITION, RESEARCH AND DEVELOPMENT ASSETS CONDUCT RAPID ASSESSMENTS AND DEMONSTRATIONS TO ENABLE QUICK IDENTIFICATION OF POTENTIAL SOLUTIONS TO SOLVE NEAR-TERM PROBLEMS BEING ENCOUNTERED BY OPERATIONAL AIRCRAFT.

THE ARMY'S AVIATION S&T PROGRAM INVESTS IN THREE BUDGET AREAS (BA): BASIC RESEARCH; APPLIED RESEARCH; AND ADVANCED TECHNOLOGY DEVELOPMENT. FOR BASIC RESEARCH (BA 6.1), THE ARMY INVESTS IN WORLD-CLASS EXPERTISE IN ACADEMIA, INDUSTRY AND OTHER GOVERNMENT AGENCIES WHO PURSUE AND DEVELOP STATE-OF-THE-ART CONCEPTS AND AVIATION TECHNOLOGY. THE AVIATION APPLIED RESEARCH PROGRAM (BA 6.2) PROVIDES THE ENABLING TECHNOLOGY FOR AVIATION DEVELOPMENT. THIS RESEARCH INCLUDES ENABLING TECHNOLOGIES FOR MANNED AND UNMANNED ROTORCRAFT IN PROPULSION, ROTORS, DRIVE TRAIN, STRUCTURES, SURVIVABILITY, CONTROLS AND PROGNOSTICS AND DIAGNOSTICS. THE AVIATION ADVANCED TECHNOLOGY DEVELOPMENT PROGRAM (BA 6.3) DEMONSTRATES TECHNOLOGIES UP TO A TECHNOLOGY READINESS LEVEL SUFFICIENT FOR SUCCESSFUL TRANSITION INTO SYSTEM DEVELOPMENT AND DEMONSTRATION. THESE EFFORTS ARE CURRENTLY FOCUSED ON DEMONSTRATING MANNED-UNMANNED TEAMING, INCREASED SURVIVABILITY, AND ROBUST ROTOR SYSTEMS, AND MATURING TECHNOLOGIES THAT REDUCE THE COSTS OF OPERATIONS AND SUSTAINMENT SUCH AS REDUCED VIBRATION ROTOR SYSTEMS AND EFFICIENT PROPULSION.

ARMY S&T HAS SIGNIFICANTLY INCREASED ITS INVESTMENT IN AIRCRAFT SURVIVABILITY IN THE PAST THREE YEARS. THIS EFFORT EMPHASIZES AFFORDABLE AND RELIABLE PASSIVE AND ACTIVE TECHNOLOGIES THAT ADDRESS THE FULL-SPECTRUM OF CURRENT AND FUTURE THREATS WITHIN THE CONSTRAINTS OF A ROTORCRAFT SYSTEM. THE TECHNOLOGIES BEING PURSUED HAVE THE POTENTIAL TO SUBSTANTIALLY IMPROVE ROTORCRAFT SURVIVABILITY AND WILL PROVIDE THE DEPARTMENT OF DEFENSE WITH OPPORTUNITIES FOR IMPROVING THE CURRENT FORCE AS WELL AS THE FUTURE FORCE.

THE RONALD W. REAGAN NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2005 DIRECTED DOD TO IDENTIFY FACILITIES MANAGED BY THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA) THAT ARE CRITICAL TO THE ACCOMPLISHMENT OF DEFENSE MISSIONS AND TO THE MAINTENANCE OF U.S. LEADERSHIP IN AERONAUTICS. THIS REPORT WAS COMPLETED AND SUBMITTED TO CONGRESS IN JANUARY 2007. DOD WILL CONTINUE TO WORK WITH NASA IN ASSURING THE MAINTENANCE OF FACILITIES THAT ARE CRITICAL FOR THE DEPARTMENT OF DEFENSE, SUCH AS THE WIND TUNNELS.

THE ARMY'S INVESTMENT IN AVIATION S&T IS GUIDED BY THE REQUIREMENTS FOR THE FUTURE FORCE AND INFLUENCED BY THE NEEDS OF THE CURRENT FORCE. OUR INVESTMENT IN ADVANCED TECHNOLOGY DEVELOPMENT WILL GROW IN THE COMING YEARS TO MEET THE CHALLENGES OF THOSE FUTURE REQUIREMENTS. TO THIS END, THE ARMY

MUST HAVE A DIVERSE AVIATION S&T PORTFOLIO TO BE RESPONSIVE TO CURRENT AND FUTURE COMBAT NEEDS. THE S&T COMMUNITY SEEKS TECHNOLOGICAL SOLUTIONS THAT CAN BE DEMONSTRATED IN THE NEAR-TERM, INVESTIGATES THE FEASIBILITY OF NEW CONCEPTS FOR THE MID-TERM, AND EXPLORES THE IMAGINABLE FOR AN UNCERTAIN FAR-TERM FUTURE. THE ARMY IS CONFIDENT THAT THE CURRENT AVIATION S&T INVESTMENT REPRESENTS A PRUDENT PROGRAM THAT MEETS THE DOD AND ARMY TRANSFORMATIONAL GOALS.

CONCLUSION

IN EXECUTING THESE STRATEGIES, WE ARE MINDFUL OF OUR POSITION AT THE START OF THE LONG STRUGGLE IN WHICH WE ARE NOW DECISIVELY ENGAGED. AFTER A DECADE OF INSUFFICIENT MODERNIZATION INVESTMENTS, MANY OF OUR AVIATION UNITS WERE UNDER-EQUIPPED AND NOT IMMEDIATELY READY FOR DEPLOYMENT, ESPECIALLY IN OUR RESERVE COMPONENTS.

FISCAL YEAR 2008 WILL BE A PIVOTAL YEAR FOR ARMY AVIATION. THE RESOURCES PROVIDED TO THE ARMY TO CONDUCT OPERATIONS WHILE TRANSFORMING AND MODERNIZING THE AVIATION FORCE WILL DETERMINE ARMY AVIATION'S ABILITY TO CONTINUE TO ACCOMPLISH ITS MISSION AND TO BE POSTURED TO MEET FUTURE COMMITMENTS. TO EXECUTE THESE PLANS, WE NEED YOUR CONTINUED LEADERSHIP AND SUPPORT TO PROVIDE FULL,

TIMELY, AND SUSTAINED FUNDING SO WE WILL BE READY FOR CURRENT AND FUTURE CHALLENGES.

IN THE YOUR INVITATION TO THE SECRETARY OF THE ARMY YOU ASKED US TO ADDRESS 3 SPECIFIC QUESTIONS. FIRST, THE ARMY IS POSTURED TO EXECUTE ITS RESPONSIBILITIES WITHIN THE NATIONAL MILITARY STRATEGY. SECOND, OUR INVESTMENT PLAN, THAT RESTRUCTURED FUNDING FROM TERMINATION OF THE COMANCHE HELICOPTER PROGRAM, ALLOWS US TO EXECUTE A MODERNIZATION PLAN AND TRANSFORMATION PLAN THAT PREPARES ARMY AVIATION TO MEET THE THREAT OF TODAY AND INTO THE FUTURE. THE REQUIREMENTS FOR THE FUTURE FORCE (2025 AND BEYOND) IS STILL IN CONCEPTUAL VIEW. LASTLY, WE HAVE RESOURCED THE "FIX TO ARMY AVIATION' FROM THE TERMINATION OF THE COMANCHE PROGRAM, CONGRESSIONAL SUPPORT, AND ASSISTANCE FROM INDUSTRY. CURRENT RESOURCING OF OUR ACQUISTION PROGRAMS IS SUFFICIENT TO ENSURE ARMY AVIATION IS IN THE FIGHT TODAY AND TOMORROW.

I AM READY TO ADDRESS ANY QUESTIONS YOU MAY HAVE.

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HOUSE ARMED SERVICES COMMITTEE
AIR AND LAND FORCES AND SEAPOWER AND
EXPEDITIONARY FORCES SUBCOMMITTEES

STATEMENT OF

MR. WILLIAM BALDERSON
DEPUTY ASSISTANT SECRETARY OF THE NAVY
(AIR PROGRAMS)

BEFORE THE

AIR AND LAND FORCES

AND

SEAPOWER AND EXPEDITIONARY FORCES

SUBCOMMITTEES

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

FISCAL YEAR 2008 NAVY/MARINE CORPS TACAIR PROGRAMS

MARCH 22, 2007

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AIR AND LAND FORCES AND SEAPOWER AND
EXPEDITIONARY FORCES SUBCOMMITTEES

Mr. Chairmen, distinguished members of your Subcommittees, thank you for providing us with this opportunity to appear before you to discuss the Department of the Navy's Fiscal Year 2008 tactical aviation programs.

AVIATION PROGRAMS

The Fiscal Year 2008 President's Budget request balances continued recapitalization in obtaining new capabilities and reducing operating costs while simultaneously sustaining the legacy fleet aircraft that are performing magnificently in current operations. We continue to execute numerous multi-year procurements (MYP) to achieve significant savings in procurement accounts. The Department's Fiscal Year 2008 Budget request continues MYP arrangements for the F/A-18E/F (airframe only), KC-130J, and the V-22. Our proposed plan will procure 51 tactical, fixed wing aircraft (6 F-35B, 24 F/A-18E/F aircraft, 18 EA-18G aircraft, and 3 E-2D aircraft), as well as, 21 MV-22, 4 KC-130Js and 20 UH-1Y/AH-1Z helicopters. This plan also continues the development of the F-35, the E-2D Advanced Hawkeye, the EA-18G, the Presidential Helicopter Replacement Aircraft (VH-71), and the CH-53K Heavy Lift Replacement aircraft.

F/A-18 E/F

The Fiscal Year 2008 Budget requests $2.1B in APN for 24 F/A-18 E/F aircraft for the fourth year of the five-year MYP contract (Fiscal Year 2005 to 2009). The F/A-18E/F continues to transition into the fleet, improving the survivability and strike capability of the carrier air wing. The Super Hornet provides a 40 percent increase in combat radius, 50 percent increase in endurance, and 25 percent increase in weapons payload over our older Hornets. Over 386 F/A-18E/Fs will be procured through Fiscal Year 2007, on track to complete procurement of the program of record 490 aircraft in 2012. The Super Hornet has used a spiral development approach to incorporate new technologies, such as the Joint Helmet Mounted Cueing System, Advanced Targeting FLIR, Shared Reconnaissance Pod System and Multifunctional Information Distribution System data link. The Active Electronically Scanned Array (AESA) radar system has completed operational testing and the full rate production decision is scheduled for spring 2007. The first tactical AESA equipped F/A-18F squadron, (VFA-213), has now received all twelve of its allotted aircraft with full ILS support. The FA-18E/F Fiscal Year 2008 Budget request also includes $114M for the spiral upgrades, as well as enhancements to life limiting components.

F-35 Joint Strike Fighter (JSF)

The Fiscal Year 2008 Budget requests $1.7B RDT&E for continuation of F-35 System Development and Demonstration (SDD) and $1.3B APN (including spares) for the initial DoN low rate production lot (LRIP 2) for 6 STOVL aircraft with $120M for long lead funding for 8 STOVL aircraft as part of LRIP 3. As a 5th generation weapon system, the JSF will enhance precision strike capability with unprecedented stealth, range, sensor fusion, improved radar performance, combat identification and electronic attack capabilities compared to legacy platforms. The carrier variant (CV) JSF complements the F/A-18E/F and EA-18G in providing long-range strike capability and much improved persistence over the battlefield. The short

takeoff and vertical landing (STOVL) JSF combines the multi-role versatility of the F/A-18 and the basing flexibility of the AV-8B. The commonality designed into the JSF program will reduce acquisition and operating costs of Navy and Marine Corps tactical aircraft, and allow enhanced interoperability with our Allies and sister Services.

The JSF is mid-way through the sixth year of SDD, executing to the approved replan that commenced three years ago. The program continues detailed design work for all three variants, with the LRIP 1 contract for 2 CTOL aircraft planned for April 2007. The initial CTOL aircraft (AA-1) successfully completed first flight on December 15, 2006, flew six times in January 2007, and resumed flights in March following a planned maintenance period. AA-1 flights will continue over the next two years. Manufacture and assembly of other flight test aircraft is well underway, with assembly times much less than planned and exceptional quality demonstrated in fabrication, assembly and mate. Eleven development aircraft are now in some phase of assembly. STOVL first flight is projected in May 2008 reflecting a delay to incorporate lessons learned from the manufacture of the first CTOL aircraft.

The JSF program has aggressively addressed earlier performance issues associated with weight and airframe design. Weight control remains a focus and priority of the program and weight reduction trades continue to be investigated. The first test aircraft was completed with unprecedented assembly fit and quality, problem-free power-on, rapid execution of engine and secondary-power tests and actual weight within 0.1% of predicted. While the first test aircraft lacks some design changes, demonstrated manufacturing processes and outcomes justify high confidence in design and weight predictions for all variants due to commonality of design, tools and manufacturing methods. The F135 engine development is on track with performance meeting expectations. Over 7300 hours on 12 engines have been completed through early March 2007. The JSF acquisition strategy, including software development, continues to reflect a block approach. The CTOL/STOVL Air System Critical Design Review was successfully completed in March 2006. The CV Air System Critical Design Review is scheduled for summer 2007, and will evaluate design maturity and performance against requirements. The STOVL and CV variants are projected to meet their respective Key Performance Parameters.

The DoN supports the President's Budget request not to provide funding for a JSF alternate engine (F136) development. The DoN maintains there are higher priority needs in the budget and that the risks associated with a single engine supplier are acceptable. The Fiscal Year 2007 DoD Authorization Act directed three independent analyses of alternatives propulsion strategies including various cost implications. These studies are currently underway by IDA, CAIG and GAO and will re-examine all the costs and benefits of an alternate engine.

E-2D Advanced Hawkeye (AHE)

The Fiscal Year 2008 Budget requests $809.0M in RDT&E for continuation of SDD and three pilot production aircraft. The E-2D Advanced Hawkeye is a critical enabler of transformational intelligence, surveillance and reconnaissance, providing a robust overland capability against current and future cruise missile-type targets. The Advanced Hawkeye program modernizes the E-2 platform by replacing the current radar and other system components to maintain open ocean capability while adding transformational surveillance as well as theater air and missile defense capabilities.

F/A-18 A/B/C/D

The Fiscal Year 2008 Budget requests $442M for the continuation of the systems upgrade programs for F/A-18 platform. As the F/A-18 program transitions to the F/A-18E/F, the existing inventory of over 662 F/A-18A/B/C/Ds will continue to comprise half of the Carrier Strike Group until 2012. Included in this request is the continued procurement of recently fielded systems such as Joint Helmet Mounted Cueing System, Advanced Targeting FLIR, Multi-Function Information Distribution System, and Digital Communications System. The Marine Corps continues to upgrade 61 Lot 7-11 F/A-18A models to Lot 17 F/A-18C avionics aircraft capability with digital communications and tactical data link. The Marine Corps anticipates programmed upgrades to enhance the current capabilities of the F/A-18C/D with digital communications, tactical data link and tactical reconnaissance systems. This upgrade ensures that our F/A-18s remain viable and relevant in support of Tactical Air Integration and Expeditionary Maneuver Warfare. The Marines expect the F/A-18A+ to remain in the active inventory until 2018. The Marines are also employing the LITENING targeting pod on the F/A-18C/D aircraft in expeditionary operations, to include OIF. When combined with data link hardware, the LITENING pod provides real time video to ground forces engaged with the enemy through Rover workstations. Continued analysis on TACAIR inventories will continue throughout 2007 and beyond to determine the health of the legacy fleet as the F/A-18A-D is transitioned to the F-35.

EA-6B

The Fiscal Year 2008 Budget requests $30.6M in APN for procurement of critical AEA products and continuing EA-6B upgrades and readiness improvements that increase the operational availability and reduce operating cost of this high demand aircraft. Upgrades include procuring ten Low Band Transmitters to provide a new jamming capability as well as replace aging transmitters and will be employed on EA-6B and EA-18G aircraft. The budget request also provides for Operational Safety Improvement Program procurements for avionics and structural equipment. The EA-6B is in near continuous use in Iraq and Afghanistan today in support of our troops on the ground as DoD's only tactical electronic attack aircraft performing communications jamming and information operations missions. Program priorities are current readiness, successful continued deployment of ICAP III aircraft, and continued procurement of Low Band Transmitters.

EA-18G

The Fiscal Year 2008 Budget requests $273M in RDT&E for continuation of SDD and $1.32B in APN for 18 LRIP Lot 2 aircraft. The E/A-18G continues development as the Navy's replacement for the EA-6B Airborne Electronic Attack (AEA) aircraft. The EA-18G will replace carrier-based Navy EA-6B aircraft by 2012. The Navy is using the F/A-18E/F MYP contract to buy the Lot 2 aircraft in Fiscal Year 2008. The SDD continues on schedule with the two development aircraft having flown in 2006 and currently in developmental test at NAWC Patuxent River. A total quantity of 26 aircraft will be procured in LRIP with a planned Fiscal Year 2009 IOC and Fiscal Year 2012 FOC.

Integrated Defensive Electronic Countermeasures (IDECM)

The Fiscal Year 2008 Budget requests $131.4M in aircraft procurement for the procurement of 61 ALQ-214 on-board Radio Frequency Countermeasure and $25.0M in Ammunition

Procurement for 581 ALE-55 Fiber Optic Towed Decoys, pending a full rate production decision. The IDECM Block 3/ALE-55 Operational Test and Evaluation identified and a Full Rate Production decision are expected to be completed in Fiscal Year 2008.

Digital Radio Frequency Memory (DRFM) Onboard Jammer
The Fiscal Year 2008 Budget requests $8.2M in RDT&E for development of an on-board jammer that will employ state-of-the-art Digital Radio Frequency Memory devices to replace the ALQ-126B Jammer that was last produced in 1991. This effort will measurably improve the survivability of Naval tactical aircraft by delaying, denying, and defeating threat air-to-air and surface-to-air missile systems operating in the radio frequency spectrum. The lead platform for the DRFM program is the F/A-18C/D, followed by the AV-8B. An Analysis of Alternatives has been initiated to investigate alternative solutions, costs, and schedules. This developmental effort is late-to-need and the capability is required to pace rapidly proliferating threat systems.

Tactical Aircraft Directed Infrared Countermeasures (TADIRCM)
The Fiscal Year 2008 Budget requests $27.6M in RDT&E for development of an improved Missile Warning System (MWS) and Infrared Countermeasure (IRCM) for Navy and Marine Corps Helicopters. This system will provide aircrew protection against current and next generation IR guided MANPADs. The Analysis of Alternatives for TADIRCM has been completed and the program is working towards a Milestone B in Fiscal Year 2008.

V-22
The Fiscal Year 2008 Budget requests $2.0B in APN for procurement of 21 MV-22s and continued development of follow-on block upgrades. Our Acquisition Strategy calls for commencing a MYP in Fiscal Year 2008. Our MYP strategy supports a continued cost reduction and affordability trend, provides a stable basis for industry, and best supports the warfighter. The Advance Acquisition Contract funding associated with the first year of the Multi-Year Procurement and Fiscal Year 2007 Economic Ordering Quantity and Cost Reduction Investments is planned for award in spring 2007. The Air Force and Special Operations Command plan is to procure 5 CV-22 aircraft in Fiscal Year 2008.

The Navy is the lead service in developing, testing, evaluating, procuring, and fielding a tilt rotor, Vertical/Short Takeoff and Landing (V/STOL) aircraft for Joint Service application. The V-22 Program is designed to provide an aircraft to meet the amphibious/vertical assault needs of the Marine Corps, the strike rescue needs of the Navy, and the special operations needs of the Air Force and Special Operations Command. The MV-22 variant will replace the CH-46E and CH-53D in the Marine Corps and supplement the H-60 in the Navy. The CV-22 variant provides a new capability and will augment the MC-130 in the Air Force/Special Operations Command inventory for special operations infiltration, extraction, and re-supply missions. The existing MH-53 fleet will be drawn down commensurate with the fielding of the CV-22.
V-22 capability is being increased and fielded over time via a block upgrade acquisition strategy. MV-22 Block A provides a "Safe and Operational Test and Training Asset" configuration that is supporting developmental flight test, operational flight test and fleet training. Block B provides for correction of previously identified deficiencies and suitability improvements. Block C provides mission enhancements, primarily in the areas of environmental control systems upgrades and mission systems improvements. CV-22 Block 0/10 is a CV-unique configuration

for Special Operations capabilities to include radar and electronic countermeasures upgrades. CV-22 Block 20 provides an enhanced CV-unique configuration with planned communications and aircraft system performance upgrades. Both Osprey variants continue along their prescribed roadmaps for follow-on developmental and operational test.

The V-22 Program has successfully completed Operational Evaluation. Follow-on Test and Evaluation (FOT&E) activities continue on MV-22 aircraft in support of envelope expansion and engineering change incorporation. The MV-22 looks forward to an Initial Operational Capability (IOC) decision in 2007. The CV-22 began Block 0/10 operational testing in the summer of 2006 with an Operational Utility Evaluation (OUE) to allow release of an initial training capability. IOT&E, scheduled to begin in October 2007, will test the balance of the CV-22 capabilities and support an Initial Operational Capability decision (2009) for worldwide operations.

AH-1Z / UH-1Y

The Fiscal Year 2008 Budget requests $518.5M in APN for 20 AH-1Z/UH-1Y aircraft and $3.6M in RDT&E for continuation of H-1 Upgrades Engineering and Manufacturing Development (E&MD). The H-1 Upgrades Program will replace the Marine Corps' AH-1W and UH-1N helicopters with state-of-the-art AH-1Z and UH-1Y models. The program is a key modernization effort designed to resolve existing safety deficiencies, enhance operational effectiveness, and extend the service life of both aircraft. Additionally, the commonality gained between the AH-1Z and UH-1Y (84 percent) will significantly reduce life-cycle costs and logistical footprint, while increasing the maintainability and deployability of both aircraft. The program will remanufacture 180 AH-1W helicopters into AH-1Zs, remanufacture, 10 UH-1N/HH-1N into UH-1Y helicopters and build 90 new UH-1Y models.

The first low rate production aircraft was delivered in January 2007, and the final phase of OPEVAL will be completed in the second quarter of Fiscal Year 2008. The program continues to seek opportunities to reduce unit cost and minimize the negative impact the remanufacture strategy could have on ongoing military operations. We anticipate that some number of AH-1Z airframes will be newly fabricated instead of remanufactured in order to reduce the amount of time aircraft would otherwise be out of service. Funding to establish the capability to build complete AH-1Z aircraft has been requested in the Fiscal Year 2007 GWOT supplemental. The optimum mix of remanufactured and newly fabricated aircraft is being evaluated with the results to be reflected in future budget requests.

AV-8B

The Fiscal Year 2008 Budget requests $17.4M RDT&E funds to support development of the Propulsion System Management Plan (PSMP) /Accelerated Simulated Mission Endurance Testing (ASMET), Tactical Moving Map Display, Litening Pod updates, and Aircraft Handling initiatives (including the Readiness Management Plan). The Fiscal Year 2008 Budget also requests $40.5M procurement funding for Engine Production Line Transition efforts, Open Systems Core Avionics Requirement (OSCAR) installs, PSMP upgrades, engine accessory obsolescence efforts, Day Attack Upgrade/Attrition Recovery efforts, Trainer aircraft upgrade efforts, Litening Pod upgrades, and Litening Pods on the aircraft centerline.

WEAPONS

In an era of uncertainty and shifting global threats, the Department of the Navy is developing and deploying strike weapons to enhance warfighter capabilities in an evolving threat environment. Our proposed budget would provide resources for weapon system enhancements to directly support troops deployed in the field, as well as continue to plan for potential near-peer competitors. Our plans take into account the lessons-learned from on-going combat operations as well as the results of our research and development efforts. The Fiscal Year 2008 weapons budget provides for affordable Strike and Precision Guided Weapons programs to ensure that America is secure at home; sea and air lanes are open for peaceful, productive commerce; and the capability developed and delivered is large enough, agile enough, and lethal enough to deter threats and defeat foes in support of Joint and Coalition Forces.

Tactical Tomahawk Cruise Missiles

The Tactical Tomahawk budget request supports the continued procurement of this combat proven, deep-attack weapon in order to replenish inventories that were diminished during combat operations. Tomahawk cruise missiles are currently being procured in a five-year Firm Fixed Price, Multi-Year Procurement contract that saves the taxpayers approximately 12% over annual procurement contacts. The Fiscal Year 2008 Budget request is $383.0M for an additional 394 Block IV Tomahawk missiles and associated support.

Hellfire Weapons

While the Department of the Navy awaits Department of Defense direction on the development path for a next-generation forward firing precision-guided munition capable of being launched from fixed-wing, rotary-wing, and unmanned platforms, we are requesting continued support for legacy Hellfire weapons. Hellfire continues to be one of the priority weapons in the Global War on Terrorism (GWOT) and provides our Navy/Marine Corps warfighters the ability to attack targets in the caves of Afghanistan as well as the urban canyons of Baghdad. Our Fiscal Year 2008 Budget request is for $45.7M for 439 weapons with a mix of Thermobaric blast/fragmentation and anti-armor warheads that provide operational flexibility to the warfighter.

Direct Attack Moving Target Capability

Based upon feedback from the Combatant Commanders in Iraq and Afghanistan - and subsequently approved as a capability gap documented by the Joint Chiefs of Staff - the Department of the Navy plans to improve our ability to attack and strike moving targets. Our Fiscal Year 2008 Budget request includes resources that leverage off of the highly successful, congressionally-supported procurement of dual-mode weapons. Our plan is to modify the existing inventory of single-mode direct attack weapons to make them dual-mode weapons with enhanced Direct Attack Moving Target Capabilities for delivery in Fiscal Year 2009. This strategy provides the needed warfighting capability while also providing stability to the industrial base and fostering competition. Our Fiscal Year 2008 Budget request is for $29.1M to modify 200 weapons to a dual mode, moving target capability.

Joint Standoff Weapon (JSOW)

The combat proven JSOW family of joint Navy and Air Force air-to-ground weapons continues on cost and schedule to develop a BLK III variant. BLK III will provide a moving target capability to this Standoff Outside Area Defense weapon with the addition of a datalink and guidance software improvements to the highly successful JSOW-C variant. The Fiscal Year 2008 Budget requests

$24.9M to allow for continued BLK III development and $131.3M for continued JSOW-C production totaling 421 All-Up-Rounds to fill inventories that remain below our approved Non-Nuclear Ordnance Requirements. Production of other JSOW variants remains deferred as we continue to work with the Office of the Secretary of Defense and our sister Services to resolve unexploded battlefield ordnance issues that are of a concern to the Department and our Allies.

Advanced Anti-Radiation Guided Missile (AARGM)
The AARGM development program will deliver a multi-spectral targeting capability, with supersonic fly-out, to destroy sophisticated enemy air defenses and time-sensitive strike targets. The program has completed all design reviews and will begin test firings this year. The weapon system will utilize and leverage off of integrated networks, and is scheduled to be deployed in Fiscal Year 2009 on the F/A-18 Hornet. The Fiscal Year 2008 Budget requests $32.8M for development and test program and requests $41.3M for the first Low-Rate Initial Production of tactical and training weapons.

Harpoon Anti-Ship Cruise Missile
The Department of the Navy is requesting upgrade of our surface-launched and air-launched Harpoon cruise missiles to provide the all-weather, anti-surface warfare capability needed to operate with 'improved selectivity' in the cluttered environment of the littoral battlespace. Under the Harpoon BLK III Program, we plan on upgrading this very capable system to improve selectivity and enhance our standoff operations via integration of a two-way data-link for use under stringent Rules of Engagement. The Fiscal-Year 2008 Budget requests $43.5M in RDT&E to develop this capability.

Advanced Medium-Range Air-to-Air Missile (AMRAAM) AIM-120
The Fiscal Year 2008 Budget requests $4.58M in RDT&E to complete development efforts and $87.5M for production of 79 all-up rounds and associated hardware. AMRAAM is a Joint Navy/Air Force (Air Force led) advanced, medium range missile that counters existing aircraft and cruise missile threats with advanced electronic attack capabilities operating at high/low altitudes from both beyond visual range and within visual range. AMRAAM provides an Air-to-Air First Look, First Shot, First Kill capability working within a networked environment in support of Sea Power 21's Theater Air and Missile Defense Mission Area.

Sidewinder AIM-9X Air-to-Air Missile
The Fiscal Year 2008 Budget requests $4.4M RDT&E and $54.9M for production of 184 all-up rounds and associated hardware. The Joint Navy/Air Force (Navy led) Sidewinder missile is the only short-range infrared Air-to-Air missile integrated on USN/USAF strike-fighter aircraft. The AIM-9X is the newest variant in the Sidewinder family. This 5th Generation 9X weapon incorporates high off-bore sight acquisition capability and thrust vectoring to achieve superior maneuverability and provides increased sensitivity through an imaging infrared focal plane array seeker and advanced processing.

OTHER SIGNIFICANT CAPABILITIES

Presidential Helicopter Replacement Aircraft (VH-71)
The Fiscal Year 2008 Budget requests $271M in RDT&E for continuation of SDD for the VH-71 program. The VH-71 program is executing an evolutionary acquisition approach through a two-part incremental development to deliver a safe, survivable and capable Presidential Vertical

Lift aircraft while providing uninterrupted communications with all required agencies. The goal of Increment 1 is to satisfy an urgent need to provide a replacement Presidential helicopter with capability equivalent to or better than the current inventory of aircraft. Increment 2 will provide enhanced performance and state-of-the-art communications capabilities to satisfy long-term needs. During the last year, the program initiated a phased Critical Design Review process for Increment 1 that will be completed later this year. The program has also begun Increment 1 developmental test using two commercial aircraft, and has five additional test aircraft in various stages of production. Increment 2 development will begin this year, and is currently undergoing a reassessment/replan to reduce test and production concurrency risk with Increment 1. The Increment 2 replan will increase time allotted to the Systems Engineering Technical Review cycle prior to CDR, procure/utilize an additional test vehicle, and will reduce design/build concurrency by delaying the first LRIP lot, thereby further reducing risks to the program. The Presidential Helicopter Replacement Program continues to receive executive level oversight and review in an effort to fully evaluate program progress while mitigating risks wherever possible.

KC-130J

The Fiscal Year 2008 Budget requests $256.4M in APN for 4 KC-130J aircraft. These aircraft will be procured under an existing Air Force MYP. The Marine Corps has taken delivery of 25 KC-130J aircraft to date, with 4 more deliveries scheduled during 2007. The planned procurement of 4 aircraft in Fiscal Year 2008 will bring the total number of KC-130J aircraft to 35. The KC-130J provides major enhancements to the current fleet of KC-130s, extending its range, payload, and refueling capabilities. Additionally, we have continued to ensure the tactical capability of our existing KC-130F, R and T series aircraft by installing night vision kits and upgraded aircraft survivability equipment.

Heavy Lift Replacement Program (HLR, CH-53K)

The Fiscal Year 2008 Budget requests $417.2M RDT&E to continue SDD of the CH-53K, which will replace the Marine Corps' current heavy-lift helicopter, the CH-53E "Super Stallion." Built for sustained shipboard operations and first flown in 1974, the CH-53E continues to demonstrate its value as an expeditionary heavy-lift platform. This aging but very relevant helicopter is in high demand, making significant contributions to missions in Iraq, Afghanistan, and the Horn of Africa; non-combatant evacuation operations in Lebanon; and disaster relief operations around the world. Expeditionary heavy-lift capabilities will continue to be critical to successful sea-based operations in future anti-access, area-denial environments, enabling sea basing and the joint operating concepts of force application and focused logistics.

As a design evolution of the CH-53E, the new-build CH-53K will fulfill sea-based, heavy-lift requirements not resident in any of today's platforms, and directly contribute to the increased agility, lethality, and persistent presence of Joint Task Forces and Marine Air-Ground Task Forces. The CH-53K will include significant enhancements to extend range and payload performance; expand survivability and force protection capabilities; improve inter-modal cargo handling and turn-around; and meet interoperability requirements while reducing heavy-lift operations and support costs.

The CH-53K will be capable of transporting 27,000 pounds to austere landing sites at distances of 110 nautical miles under challenging environmental conditions. Task Force commanders of

2015 and beyond will then have the option to rapidly insert, to the far sides of the littorals, a force equipped with armored combat vehicles and heavy weapons at a rate equivalent to two up-armored High Mobility Multi-Wheeled Vehicles (HMMWVs) per sortie. To sustain that force, the CH-53K will be the critical air connector to sea-based logistics, transporting up to three independent loads per sortie, with each load tailored to individual receiving units. This efficient, reliable, cost-effective, heavy-lift capability will also address critical challenges in maintainability, reliability, and affordability found in present-day operations.

EP-3 Sustainment / Replacement

The Navy plans to recapitalize its aging EP-3E fleet with a land-based, manned, airborne Intelligence Surveillance Reconnaissance (ISR) platform to meet maritime requirements. The Fiscal Year 2008 Budget requests $16.6M in RDT&E funds for EP-3E recapitalization studies focused on capabilities, documentation, and technology development. The Fiscal Year 2008 Budget requests $43.7M in RDT&E and $47.0M in APN to address EP-3E SIGINT sensor and communications equipment obsolescence issues that are necessary to keep the EP-3E viable until the replacement platform is fielded. This funding supports LRIP procurement for JMOD Common Configuration (JCC) Spiral 2 data fusion capabilities, and engineering development for JCC Spiral 3.

SUMMARY

The Fiscal Year 2008 Presidential Budget request reflects considerable effort in identifying affordable solutions for the Department's aviation programs through a balance between sustaining fielded capabilities, as they are employed in the Global War on Terrorism and continued forward presence worldwide, and a substantive recapitalization effort that will deliver significantly better capabilities to the war fighter. The Department's aviation acquisition team continues to work aggressively to identify efficiencies in the development, testing and subsequent procurement of platforms, components, and weapons systems in order to ensure investments made result in quality products and services provided to the fleet.

In closing, Mr. Chairmen, thank you for the opportunity to testify before your Subcommittees regarding the Department of Navy's tactical aviation programs.

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THE HOUSE ARMED SERVICES COMMITTEE
AIR AND LAND FORCES SUBCOMMITTEE

STATEMENT OF

BRUCE W. CLINGAN, USN

DIRECTOR, AIR WARFARE

BEFORE THE

SUBCOMMITTEE ON

AIR AND LAND FORCES

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

FY 2008 NAVY TACAIR PROGRAMS

22 MARCH 2007

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AIR AND LAND FORCES SUBCOMMITTEE

SUBCOMMITTEE

Mr. Chairman, distinguished members of the Subcommittee, thank you for this opportunity to appear before you to discuss the Department of the Navy's Fiscal Year 2008 tactical aviation programs. I am delighted to share this time with my colleagues from the Department of the Navy, U.S. Marine Corps, and U.S. Air Force to convey the critical needs of tactical aviation in our Armed Forces.

Naval Aviation continues to play a major role in providing tailored effects in support of Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF), as well as the broader Global War on Terrorism (GWOT). The ability of Naval Aviation to shape strategic, operational and tactical environments is reflective of the substantive return on your investment in our people, our combat readiness, and our refined spectrum of critical warfighting capabilities. These investments – in surveillance, command and control, and persistent strike, among others – ensure our tactical aircraft can operate effectively from aircraft carriers that exploit the vast maneuver space provided by the sea.

The Navy's TACAIR aviation programs, comprised of both platforms and weapons, directly support the Sea Strike, Sea Shield, Sea Basing, and ForceNet pillars that underpin our Navy Strategic Plan and Naval Power 21 strategy. The Fiscal Year 2008 President's Budget balances conventional and irregular warfare aviation capabilities, reduces excess capacity, and achieves technological superiority through cost-wise investments in recapitalization, sustainment and modernization programs. The adjustments reflected in the budget maintain sufficient capacity to meet global presence and warfighting requirements, manage overlap with Joint capabilities, and preserve warfighting relevance through 2024.

From Fiscal Year 2008 to Fiscal Year 2013, the Department's Fiscal Year 2008 budget request procures 1295 aircraft, reduces the average aircraft age from 74% to 61% of expected service life, and concentrates on resourcing capabilities that generate critical maritime and Joint effects. The plan procures 51 fixed wing tactical aircraft in Fiscal Year 2008 (24 F/A-18E/F aircraft, 18 EA-18G Low Rate Initial Production (LRIP) aircraft, 6 STOVL JSF LRIP aircraft, and 3 E-2D aircraft) and is structured to support ongoing and potential multi-year procurement (MYP).

CARRIER BASED AIRCRAFT

Joint Strike Fighter (JSF) - At the core of our TACAIR recapitalization plan is the JSF, a stealthy, multi-role fighter aircraft that will enhance precision strike capability with unprecedented range, sensor fusion, radar performance, combat identification and electronic attack capabilities. The carrier variant (CV) JSF complements the F/A-18E/F Block II and EA-18G in providing long-range strike capability and much improved persistence over the battlefield. The short takeoff and vertical landing (STOVL) JSF combines the multi-role versatility of the F/A-18 and the basing flexibility of the AV-8B with the 5th generation attributes required to be effective against emerging peer rivals. The DoN Fiscal Year 2008 budget requests $1.7B RDT&E to continue JSF System Development and Demonstration (SDD) and $1.3B APN to procure 6 STOVL aircraft in Fiscal Year 2008 and the long lead requirements for 8 STOVL aircraft in Fiscal Year 2009.

The JSF is executing its sixth year of SDD, with 11 SDD aircraft in various stages of assembly. AA-1, the first Conventional Takeoff and Landing (CTOL) production flight test article, is conducting test flights to validate design, fabrication, and flight performance parameters. With over approximately 7300 engine test hours completed through early March 2007, engine performance is meeting expectations. The progress of the CTOL to date, and the significant commonality between the three JSF variants, warrant confidence in the STOVL and CV developmental efforts.

Final detailed design work on the STOVL is nearing completion. STOVL weight has remained within requirements since the Critical Design Review (CDR) last year, and BF-1, the first STOVL test aircraft, is meeting its critical path metrics for a May 2008 first flight. STOVL weight control efforts have been effectively leveraged to manage CV weight growth over the last three months. The bulk of the ongoing engineering effort is now focused on the drawing packages required for the CV JSF Critical Design Review this summer. The JSF program is executing in accordance with the approved replan that commenced two years ago, and the STOVL and CV variants are projected to meet their respective Key Performance Parameters.

JSF F-136 Alternate Engine - The DoN maintains that developing and procuring the F-136 alternate engine for the JSF is undesirable for a variety of reasons – Pratt and Whitney F-135 engine development is progressing satisfactorily, the form/fit/function parity requirement between the F-135 and F-136 engines undermines any competitive incentive to improve engine performance, and the business case indicates the cost of developing the second engine will not be recouped for more than two decades. These factors make the very limited risk associated with a single engine manufacturer, commonplace among tactical aircraft, an appropriate one to take. Within the context of the fiscal constraints and competing investment priorities that characterize the Future Years Defense Plan (FDYP), the considerable resources necessary to develop the F-136 are best applied to the core, essential elements of the JSF program and other critical DoN capabilities.

Super Hornets (F/A-18E/F) - The F/A-18E/F continues to replace retired F-14 and legacy F/A-18A/B/C/D aircraft, measurably improving the strike capability and survivability of the Carrier Air Wing. The Super Hornet provides a 40 percent increase in combat radius, 50 percent increase in endurance, and 25 percent increase in weapons payload over legacy Hornets. The Fiscal Year 2008 budget requests $2.1B to procure 24 F/A-18 E/F aircraft in the fourth year of a five-year MYP contract (Fiscal Year 2005 to 2009). The Super Hornet uses a spiral acquisition approach to develop and incorporate new capabilities, such as the Active Electronically Scanned Array (AESA) radar system. The AESA radar has completed Initial Operational Test and Evaluation and is awaiting a full rate production decision. All critical OT deficiencies are expected to be resolved with the release of software upgrades in Summer 2007. The first F/A-18F squadron with AESA radar is scheduled to deploy Summer 2008.

Legacy Hornets (F/A-18A/B/C/D) - Inventory reductions stemming from USN/USMC TACAIR Integration, F/A-18A/B/C/D service life limits, the JSF program replan, and lowered JSF procurement ramps have combined to create a DoN strike-fighter shortfall that exists today and will extend through the transition to JSF. The shortfall is derived from the projected DoN

TACAIR inventory compared to the USN Carrier Air Wing and USMC expeditionary TACAIR requirements for 35 USN and 19 USMC active strike-fighter squadrons. This lean force structure is essential to meet DoN rotational deployment and major combat operations surge requirements. Fiscal Year 2008 President's Budget based projections show legacy strike-fighter shortfalls ranging from about 50 aircraft to more than 200, depending on the service life extension for F/A-18A/B/C/D aircraft (10K or 9K hours) and the JSF buy rate (50 or 35 per year beginning in Fiscal Year 14). Fully funding the strike-fighter procurement programs of record through full operational capability (FOC) and the legacy aircraft service life extension programs, are critical first steps in managing this shortfall.

To begin mitigating the shortfall, the Fiscal Year 2008 budget procures 28 additional F/A-18E/F above the Fiscal Year 2007 Appropriations Bill in Fiscal Years 2010 through 2012. When the legacy Hornet service life assessment program is completed in December 2007, the F/A-18E/F and JSF procurement plans will be adjusted to ensure DoN recapitalizes the capacity necessary to deliver the effects expected of Naval TACAIR.

The 28 F/A-18E/F aircraft added in the Fiscal Year 2008 budget increase the program of record from 462 to 490. Twelve additional F/A-18E/F's are requested in the 2008 Global War on Terrorism Supplemental to replace 3 F/A-18s and 1 F-14 lost in theater, as well as to offset the aircraft service life expended on the remaining F/A-18 aircraft due to increased deployed utilization since 911. These 12 Super Hornets would increase Boeing production from 42 to 54 aircraft in 2008. Boeing's maximum production capacity is 72 aircraft per year, making Australia's procurement of 12 F/A-18F aircraft per year in 2008 and 2009 easy to accommodate.

Hornet (F/A-18 A-F) Sustainment - The Fiscal Year 2008 budget requests $442M to continue replacing the center barrels on up to 421 legacy Hornets and to procure critical F/A-18 A-F aircraft system upgrades. The center barrel replacements will extend the service life of the F/A-18 A/C/D aircraft seven years and are essential to help mitigate the strike-fighter shortfall through 2022, when the last legacy Hornet is scheduled to retire. Procurement of capability enhancements such as the Joint Helmet Mounted Cueing System, Advanced Targeting FLIR, Multi-Function Information Distribution System, and Digital Communications System are required to ensure that our F/A-18s remain relevant in the rapidly advancing threat environment that will characterize the remainder of their service life.

Airborne Electronic Attack (AEA) - The Navy continues to develop the EA-18G as the replacement for the EA-6B Airborne Electronic Attack (AEA) aircraft. The Fiscal Year 2008 budget requests $273M for RDT&E and $1.319B for the procurement of 18 LRIP aircraft. The Navy is leveraging the F/A-18E/F and EA-18G MYP contract to buy 18 aircraft in Fiscal Year 2008. These aircraft will support EA-18G Fleet Replacement Squadron stand-up and the transition of three EA-6B squadrons to EA-18G, leading to an Initial Operational Capability (IOC) in Fiscal Year 2009 and Full Operational Capability (FOC) in Fiscal Year 2012.

The Office of Naval Research (ONR) is working to develop adaptable, modular, and open architecture hardware, firmware and software for a next generation jamming capability that will be hosted on the EA-18G. In this regard, the Navy is working with the Air Force on jamming transmitters, and has leveraged previous work completed as part of their B-52 Stand-Off Jammer

(SOJ) program that has since been cancelled. The Navy and Air Force technology teams continue to meet quarterly to ensure their efforts are coordinated and duplication does not occur.

The EA-6B, DoD's only tactical electronic attack aircraft with full spectrum jamming capabilities, has been in high demand to provide direct support to counter-IED, Special Operating Force and time-sensitive targeting operations in OIF/OEF. The Fiscal Year 2008 budget requests $24.2M in RDT&E and $30.6M in procurement to field critical EA-6B capability enhancements and readiness improvements required to increase the operational availability of this low density, high demand aircraft. This funding also procures ten Low Band Transmitters that will replace the aging transmitters that are employed nearly continuously today in Iraq and Afghanistan, as well as provide new jamming capability. In addition, the budget procures essential avionics and structural equipment in support of the EA-6B Operational Safety Improvement Program.

E-2D Advanced Hawkeye - The Fiscal Year 2008 budget requests $809M to procure three E-2D Pilot Production aircraft and supporting systems for Operational Test and standup of the first operational squadron in 2011. The E-2D Advanced Hawkeye provides essential Battle Management command and control, and is a key enabler for maritime intelligence, surveillance, and reconnaissance. Its significantly upgraded radar provides unparalleled overland capability against current and future cruise missile targets, in addition to transformational surveillance that meets theater air and missile defense requirements. The E-2D, with its ability to meet the current threat and pace the emerging threat posed by potential peer rivals, is programmed to replace the legacy E-2C fleet over the next decade.

WEAPONS

The Fiscal Year 2008 budget procures and develops a mix of legacy, advanced and next generation weapons that are lethal throughout the entire range of military operations. The demands of irregular warfare and counterinsurgency operations require adaptation of our legacy weapons to a wide variety of tactical environments.

Hellfire missile (AGM-114) improvements are being implemented in response to urban warfare requirements that mandate minimal collateral damage. Thermobaric warhead improvements that contain blast effects were deemed operationally effective in 2006, and will be complemented by trajectory shaping - which allows flight crews to select the missile flight profile most effective for the particular engagement. The Fiscal Year 2008 budget request includes $45.7M to procure 439 weapons and components to address these requirements.

The low-collateral-damage bomb (LCDB), otherwise known as the BLU-126/B, bridges a capability gap identified by CENTCOM. The LCDB is a low cost solution identified by the Naval Aviation Enterprise (NAE) that has been approved for use with the Joint Direct Attack Munitions (JDAM) and Laser Guided Bomb (LGB) precision guidance kits. It will be fielded in March 2007 using General Purpose Bomb funds.

The Navy continues to pursue a Network Enabled Weapon Strategy with Joint Standoff Weapon (JSOW), Standoff Land Attack Missile-Expanded Response (SLAM-ER), Harpoon, and Small Diameter Bomb II (SDB II) capabilities. The Fiscal Year 2008 budget requests technical risk reduction funding for SDB II leading to IOC on JSF in Fiscal Year 2016. SDB II moving target, through-the-weather capability is a key future capability for the JSF.

Direct Attack Moving Target Capability (DAMTC) - The Fiscal Year 2008 budget requests $29.1M in Fiscal Year 2008 and $214.6M across the FDYP for the DAMTC program, which seeks to use JDAM and/or LGB weapons as the foundation for a dual mode weapon that is capable of prosecuting targets moving at speeds up to 70 mph. An open competition will be expeditiously conducted in response to the urgent need for a fixed wing aircraft moving target weapon that will culminate in a fielded solution following operational testing in Fiscal Year 2009. This low cost, rapid integration program adds significant capability while leveraging the existing industrial base to procure 17,720 DAMTC weapons.

Joint Standoff Weapon (JSOW) - The combat proven JSOW family of Navy and Air Force air-to-ground weapons has achieved on-time deliveries for five consecutive years and delivered its 2,000th weapon in 2006. Cost reduction initiatives and Foreign Military Sales have resulted in a 6% reduction in JSOW-C Average Procurement Unit Cost (APUC) compared to the Fiscal Year 2007 Appropriations Bill. The Fiscal Year 2008 budget requests $131.3M to procure 421 JSOW-C's, a highly lethal precision weapon that employs an imaging infrared seeker, GPS/INS, and an augmenting charge with a follow-through penetrator bomb for use against hardened targets. Production of other JSOW variants remains deferred as we continue to work with the Office of the Secretary of Defense and our sister Services to resolve unexploded battlefield ordnance issues that are of concern to the DoN and our Allies. The Fiscal Year 2008 budget also includes $24.9M to continue development of a network enabled weapon, termed JSOW-C-1, in order to fill a critical mission capability gap against moving ships at tactically significant ranges.

Harpoon Block III - The Navy requires an upgrade to the air-launched Harpoon cruise missile to provide an all-weather, over the horizon, anti-surface warfare capability with 'improved selectivity' in the cluttered littoral environment. This initiative is in direct support of the most recent PACOM Integrated Priorities List. The Harpoon BLK III Program will integrate a two-way data-link and GPS to achieve the enhanced selectivity that will facilitate employment under stringent rules of engagement. This program will leverage the Surface Harpoon program's efforts already started with Fiscal Year 2007 RDT&E funds. Data-link development and NSA certification costs are being shared with the Navy JSOW program. The Fiscal Year 2008 budget requests $3.3M in RDT&E to initiate the air launched Harpoon Block III effort. Procurement of 400 Harpoon Block III missile kits and associated systems in the outyears requires $58.0M in Fiscal Year 2011 through Fiscal Year 2013.

Advanced Anti-Radiation Guided Missile (AARGM) – The Fiscal Year 2008 budget requests $32.8M to continue AARGM System Development and Demonstration (SDD), and requests $41.3M for the first increment of LRIP tactical and training weapons. AARGM utilizes legacy High-Speed Anti-Radiation Missile (HARM) weapon components with advanced multi-spectral /multi-sensor technologies to transform the AGM-88 weapon system from a Suppression of Enemy Air Defenses (SEAD) capability to a Destruction of Enemy Air Defenses (DEAD) capability. The program is expected to reach Milestone C and begin Operational Evaluation (OPEVAL) in Fiscal Year 2008.

AARGM's high speed and extended stand-off capability to engage long-range threats with GPS precision; coupled with the geolocation precision resident in the EA-18G or F/A-18E/F with AESA; will provide the Navy a critical time sensitive strike capability. AARGM is scheduled to reach IOC in Fiscal Year 2009 on the F/A-18 C/D Hornet, followed by the F/A-18 E/F Super Hornet and EA-18G Growler in Fiscal Year 2011.

Advanced Medium-Range Air-to-Air Missile (AMRAAM / AIM-120) - AMRAAM is a Joint Navy/Air Force (Air Force led) advanced, medium range missile that counters existing aircraft and cruise missile threats. AMRAAM incorporates advanced electronic attack capabilities and is effective against a broad spectrum of targets operating at high/low altitudes beyond and within visual range. AMRAAM provides an essential air-to-air first look, first shot, first kill capability that exploits the networked environment supporting Sea Power 21's Theater Air and Missile Defense mission area. The AIM-120D missile is currently in SDD with a planned first live shot in June 2007. The Fiscal Year 2008 budget requests $4.6M in RDT&E to complete AIM-120D developmental efforts and $87.5M for production of 79 AIM-120 D all-up rounds and associated hardware. This procurement is critical to begin building an inventory of air-to-air weapons effective against emerging threats.

Sidewinder AIM-9X Air-to-Air Missile - The Joint Navy/Air Force (Navy led) Sidewinder missile is the only short-range infrared air-to-air missile integrated on USN/USAF strike-fighter aircraft. The AIM-9X is the newest variant in the Sidewinder family and is a 5th Generation weapon that incorporates high off-bore sight acquisition capability, thrust vectoring to achieve superior maneuverability, and increased seeker sensitivity through imaging infrared focal plane array technology and advanced processing. The Fiscal Year 2008 budget requests $54.9M for production of 110 all-up round missiles, 74 Captive Air Training Missiles (CATMs), and the associated hardware required to make the capability available to our strike-fighter squadrons.

SELF PROTECTION SYSTEMS

Integrated Defensive Electronic Countermeasures (IDECM) - The Fiscal Year 2008 budget requests $131.4M in aircraft procurement funding for 61 ALQ-214 on-board Radio Frequency Countermeasures systems and $25.0M Ammunition Procurement funding for 581 ALE-55 Fiber Optic Towed Decoys, pending a full rate production decision. IDECM Block 3/ALE-55 Operational Testing and Evaluation identified a number of deficiencies that are being expeditiously corrected. A full rate production decision is expected in Fiscal Year 2008.

Digital Radio Frequency Memory (DRFM) Onboard Jammer - The Fiscal Year 2008 budget requests $8.2M in RDT&E for development of an onboard jammer that will employ state-of-the-art Digital Radio Frequency Memory devices to replace the ALQ-126B Jammer that was last produced in 1991. This effort will measurably improve the survivability of Naval tactical aircraft by delaying, denying, and defeating threat air-to-air and surface-to-air missile systems operating in the radio frequency spectrum. The lead platform for the DRFM program is the F/A-18C/D, followed by the AV-8B. An Analysis of Alternatives has been initiated to investigate alternative solutions, costs, and schedules. This developmental effort and the resulting capability is required to pace rapidly proliferating threat systems.

Tactical Aircraft Directed Infrared Countermeasures (TADIRCM) – The Fiscal Year 2008 budget requests $27.6M in RDT&E for development of an improved Missile Warning System (MWS) and Infrared Countermeasure (IRCM) system for Navy and Marine Corps helicopters. This system will provide aircrew protection against current and next generation IR guided man portable air defense systems (MANPADS). The Analysis of Alternatives for TADIRCM has been completed and the program is working toward a Milestone B in Fiscal Year 2008.

SUMMARY

Mr. Chairman, and distinguished members of this subcommittee, I would like to thank you for your continued support of Naval aviation and Navy TACAIR in particular. This budget submission – balanced with other Naval aviation budget priorities -- ensures our young men and women, who fight daily with courage and commitment, have what it takes to win. Our budget submission makes sound investments in capabilities that make relevant contributions to irregular warfare, pace the threat posed by potential adversaries, and ensure Navy TACAIR remains an effective anti-access force in major combat operations. Thank you again for this opportunity to appear today to speak on behalf of Navy TACAIR.

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HOUSE ARMED SERVICES COMMITTEE
AIR AND LAND FORCES AND SEAPOWER AND
EXPEDITIONARY FORCES SUBCOMMITTEES

STATEMENT OF

LTGEN JOHN G. CASTELLAW
DEPUTY COMMANDANT FOR AVIATION

BEFORE THE

AIR AND LAND FORCES

AND

SEAPOWER AND EXPEDITIONARY FORCES

SUBCOMMITTEES

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

FISCAL YEAR 2008 NAVY/MARINE CORPS TACAIR PROGRAMS

MARCH 22, 2007

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AIR AND LAND FORCES AND SEAPOWER AND
EXPEDITIONARY FORCES SUBCOMMITTEES

Chairman Taylor, Chairman Abercrombie, Congressman Bartlett, Congressman Saxton distinguished members of the Subcommittees, thank you for the opportunity to appear before you to discuss Marine Corps Aviation. Today, over 30 percent of Marine Aviation is deployed overseas afloat and ashore. This past year we have flown over eighty thousand combat hours in both rotary and fixed wing aircraft. This significant achievement is due to the tireless efforts of our Aviation Marines and the consistent support of Marine Aviation by this Subcommittee. Thank you for your dedication and oversight.

The primary focus of Marine Aviation is Grunt Based Operations or "GBO". In the same tradition of Marine aviators that flew over Guadalcanal in World War II and the skies of Korea providing support to Marine and Army infantry units, your Marine Corps is adding to its rich tradition of providing the best aviation support to the infantryman available in the world today. To that end, Marine Aviation has three priorities that guide all of our actions: Sustain the Current Fight, Modernize the Force, and Prepare for the Long War. Execution of any one of these priorities is a formidable challenge. Today, we are executing all three concurrently in order to win the battle while preserving our current warfighting capabilities to ensure we are ready to answer the call of operational commitments. Our goal is not only to preserve but also to expand upon our expeditionary nature so that when called, Marine Aviation can quickly and effectively defend our critical national interests. There is no greater calling and Marine Aviation will always remain "On Call in a Dangerous World".

Sustain the Current Fight

The Fiscal Year (FY) 2008 President's Budget request balances sustainment of legacy aircraft that are performing magnificently in current operations with continued recapitalization for new capabilities and reduced operating costs. USMC Aviation is focused on a capabilities-based approach to provide the Marine Air Ground Task Force (MAGTF) and Joint Force with agility and the ability to conduct full spectrum combat operations.

RESET

The Corps' Reset Combat Sustainment in Theater Program in the past 12 months has repaired over 7,000 aircraft discrepancies and provided the Marine Corps over 126,000 direct maintenance man hours. In CONUS, the Reset Program has funded approximately 1 million direct maintenance man hours. Funding of the Reset Program has allowed this maintenance to be completed, which normally would have been deferred. Additionally, the Reset program in FY 2006 and 2007 has supported depot repair of over 250 Marine aircraft and is intended to support depot repair of approximately 170 aircraft in FY 2008.

Aircraft Survivability Equipment (ASE)

The Marine Corps has lost 7 aircraft to direct enemy action in combat operations since 9/11. We continue to mitigate threats to rotary wing aviation in GWOT theaters through a combination of tactics, centralized command and control, and upgraded Aircraft Survivability Equipment (ASE). To prevent current technology lagging behind the threat, increased DoD Science and Technology (S&T) community focus and funding on developing the next generation helicopter survivability equipment are required to counter emerging threats such as advanced technology Man-Portable Air Defense Systems (MANPADS), and to operate in degraded visibility environments. Marine Aviation has invested $390M on rotary wing ASE development and procurement from 2000 through 2007. We have additionally requested $66.4M in the FY 2007 Supplemental budgets for continued RDT&E and procurement of the latest available ASE technology for our helicopters. For FY 2008 the Department of the Navy has requested $29.7M for continued Directed Infrared Countermeasures (DIRCM) development, a state of the art ASE system that will enable Marine Aviation to pace the threat of advanced anti-aircraft systems proliferation. Your continued support of this critical need for our fleet of aircraft is greatly appreciated as we ensure our pilots and aircrew have the most current survivability technology available to them.

AVIATION TRAINING SYSTEMS

The mission of Aviation Training Systems (ATS) is to plan, execute, and manage Marine Aviation training to achieve individual and unit combat readiness through standardized training across all aviation core competencies. Marine Aviation, through ATS, is pursuing the development of fully integrated training systems for both new and legacy aircraft to greatly enhance operational readiness, to improve safety through greater standardization, and to significantly reduce the life cycle cost of maintaining and sustaining aircraft. ATS will integrate all post-accession Officer and Enlisted training, operational safety programs, and standardize our training curriculums, simulation devices, and evaluation processes through three core elements. These include: training device configuration and standardization; Systems Approach to Training derived curriculum; Standardization and Evaluation of Flight Leadership, Instrument and Naval Air Training and Operating Procedures Standardization (NATOPS) programs, and standardized operating procedures among like units. We have learned valuable lessons from industry as well as the MV-22 and KC-130J programs on how to best accomplish this initiative. Our way forward includes the stand-up of the Marine Aviation Training Systems Squadron (MATSS) sites located at each Marine Corps Air Station (MCAS) beginning this fall. Currently, there is one functional MATSS site located onboard MCAS New River, NC. MATSS New River has been highly successful with its responsive management of training systems for our tilt-rotor and rotary wing assets.

AV-8B

The FY 2008 Budget requests $17.4M RDT&E funds to support development of the Engine Life Management Plan (ELMP)/Accelerated Simulated Mission Endurance Testing, Tactical Moving Map Display, the Readiness Management Plan (RMP), and moving the LITENING targeting pod to the centerline station. This effort will increase the ordnance carriage capability of the Harrier to better support combat operations. The FY 2008 Budget also requests $40.5M procurement funding for procurement of Open Systems Core Avionics Requirement, TAV-8B Upgrade, ELMP upgrades, and the RMP, which addresses aircraft obsolescence and deficiency issues associated with sustaining the current AV-8B fleet. The AV-8B program is additionally transitioning to a Fatigue

Life Experienced Analysis (FLEA) program to more accurately track the useful life remaining on our legacy fleet. This program will commence in FY 2009 and will help to manage our legacy inventory of AV-8Bs until transition to the F-35B.

F/A-18 A+/C/D

The FY 2008 Budget request contains $73.6M for the continuation of the systems upgrade programs for legacy F/A-18 platforms. Included in this request is the continued procurement of recently fielded systems such as Joint Helmet Mounted Cueing System, Multi-Function Information Distribution System, and Digital Communications System. The Marine Corps continues to upgrade 56 Lot 7-9 F/A-18A to Lot 17 F/A-18C aircraft capability with digital communications and tactical data link. The Marine Corps is upgrading the current capabilities of the F/A-18C/D with digital communications, tactical data link and tactical reconnaissance systems. This upgrade ensures that our F/A-18s remain viable and relevant in support of Department of the Navy (DoN) Tactical Air Integration and supports our Expeditionary Maneuver Warfare concept. We are also employing the LITENING targeting pod on the F/A-18A+/C/D aircraft in OIF. When combined with data link hardware and the Rover Ground Station, the LITENING pod provides real time video to ground forces engaged with the enemy, adding a new dimension to precision fires and Intelligence, Surveillance, and Reconnaissance (ISR). Our fleet of legacy F/A-18D's is currently flying at four times their programmed rate. The FY 2008 Budget also requests $112M allowing for procurement of Center Barrel Replacements to extend the service life of F/A-18A+/C/Ds seven years to meet fleet inventory requirements until 2022. This initiative is critical to ensure we have adequate numbers of F/A-18's to meet National Military Strategy requirements until we transition to the F-35B.

EA-6B AND FUTURE MAGTF ELECTRONIC WARFARE

The Marine Corps remains fully committed to flying the EA-6B Prowler through at least 2015 as we look to enhance our legacy capabilities and posture for our future MAGTF Electronic Warfare Network. The FY 2007 Supplemental Budget requests $113.5M for RDT&E and procurement for continuing EA-6B upgrades and readiness

improvements, which increase the operational availability of this low density high demand aircraft and reduce operating costs. These requests include $97.7M for purchase and installation of 7 Improved Capability (ICAP) III aircraft systems for USMC EA-6Bs. Also included in our $113.5M request are Multifunction Information Distribution System (MIDS) kits, which will provide dramatically improved emitter identification and location information, Link-16 connectivity for shared situational awareness, as well as Blue Force Tracker capability. We are also conducting close coordination with the Air Force to leverage joint development of the Next Generation Jammer, The Digital Radio Frequency Memory (DRFM) program, and the Adapted Joint C4ISR Node (AJCN) program.

Beyond the Prowler, the Future Electronic Warfare Network for the Marine Corps will comprise a "system of systems". The constituent components of this network include; the F-35B Joint Strike Fighter, with its embedded array of electronic warfare capabilities; Unmanned Aerial Systems (UAS) capable of carrying scalable and specifically tailored electronic warfare suites; ISR payloads, and ground systems already fielded and under development. This system will possess both offensive and defensive capabilities. A key tenet of our future vision is an array of electronic warfare *capabilities*, not just a single electronic warfare *platform*. The individual pieces of hardware used to conduct future electronic warfare will comprise the tentacles of the distributed network. This network will serve as the backbone for our electronic warfare capability. This is a critical and important distinction for the Corps and is what will make future USMC electronic warfare capabilities so useful to the MAGTF and the Department of Defense.

WEAPONS PROGRAMS

Since 2003, Marine TACAIR have employed 691 Joint Direct Attack Munitions (JDAMs), 2,710 Guided Bomb Units, and 268 Maverick missiles during combat operations. The FY 2008 Budget supports precision-guided munition (PGM) programs that continue to support combat operations.

Dual-Mode Direct Attack Weapons

Based on an Urgent Needs Statement and feedback from the Combatant Commanders in Iraq and Afghanistan, the DoN determined that improved responsiveness and flexibility was required for close air support (CAS) missions in support of Marine and Army ground forces. To address these shortcomings, the Department leveraged congressionally directed funding in the research of dual-mode laser-guided weapons and successfully developed and integrated Global Positioning System and laser guided technologies into a single direct-attack weapon. This capability will be fielded on Marine Corps F/A-18A+/C/D and AV-8B aircraft this summer to reduce the number of sorties needed to destroy intended targets, while providing the warfighter with increased flexibility in adverse weather against all classes of targets. 7000 Dual Mode Direct Attack Weapons were procured and will be delivered by the end of FY 2008. The laser-guided direct attack technology is being extended to include moving targets and will be available in FY 2008. The FY 2008 Budget requests $29M to develop the Direct Attack Moving Target Capability (DMTC). In January, testing was completed on a Low Collateral Damage Bomb (LCDB), in response to a CENTCOM requirement for our legacy aircraft. The LCDB can be used with existing Direct Attack Laser Guided Bomb (DMLGB) or JDAM kits and will be available to our warfighters before June.

Joint Air to Ground Missile (JAGM) (Formerly Joint Common Missile (JCM))

The Marine Corps has expended 1,155 Hellfire and 991 TOW air-to-ground missiles in support of ground forces engaged in combat since 2003. A JROC Memorandum called for a RDT&E effort, beginning in FY 2007, to mitigate JROC-validated capability gaps in precision munitions by developing the next generation Air-to-Ground CAS weapon for fixed-wing, rotary-wing, and UAV aircraft. The Marine Corps is participating, with the Joint Staff, in an OSD led Concept Decision Review. The Concept Decision Review will obtain a Tri-Chair strategic investment decision on JAGM in the first half of this calendar year. A low collateral damage PGM for moving targets is critical for Marine Aviation as a replacement for our aging stockpiles of TOW, Hellfire and Laser Maverick family of weapons. The Services have put $68.5M in the FY 08 budget for JAGM risk reduction and seeker technology RDT&E.

Modernize the Force

F-35B

The F-35B Short Takeoff and Vertical Landing (STOVL) Joint Strike Fighter (JSF) is critical for attaining our vision of an all-STOVL fleet within the Marine Corps. The FY 2008 Budget request contains $2.0B for continuation of System Development and Demonstration (SDD) on the JSF and $764M for six aircraft. Another major program milestone was reached in December of last year when the first Conventional Takeoff and Landing (CTOL) variant completed its maiden flight. The Marine Corps must maintain a 2012 F-35B IOC as we manage our aging AV-8B and F/A-18 aircraft inventories in order to maintain our capability as the most mobile and flexible combat multiplier to the Marine Air Ground Task Force. The mature, thoughtful design of the F-35B and technological advances to replace many individual stovepipe capabilities into a single platform will provide the Marine Corps with a highly advanced, persistent, and enduring tactical aircraft for the next 50 years; the F-35B will act as an integrated flying combat system in support of our ground forces and will aid in providing full spectrum dominance of the battle space. The Short Takeoff / Vertical Landing (STOVL) capability of the F-35B will also ensure we maintain the flexible basing options that our legacy AV-8B Harrier jump jets so ably demonstrated during the march to Baghdad during OIF I. The Marine Corps has expressed our requirements for the F-35B in the Operational Requirements Document originally signed on 13 March 2000. We are managing our current strike fighter shortfall through reinvestment of existing squadrons in the rest of our fleet. If Initial Operational Capability (IOC) of the F-35B is deferred past 2012 and the procurement ramp rate is shallowed out, the Marine Corps will be unable to fill its future operational commitments.

V-22 Osprey

The FY 2008 budget requests $2B of procurement funding for 21 MV-22s, associated spares, aircraft retrofit, and Economic Ordering Quantity investments supporting FY 2008 - 2013 multi-year procurement, and $118M of RDT&E for continued development, testing and evaluation. The V-22 Program will deliver a total of 13 aircraft in FY 2008. Recent contractor performance has met expectations with on time deliveries of block B aircraft and timely contractor support.

To date, 29 Block A and 15 Block B aircraft have been delivered to support developmental testing, Operational Evaluation (OPEVAL), training and initial fleet fielding. The MV-22 completed OPEVAL in 2005 and fielding is underway at MCAS New River, North Carolina. Three squadrons have commenced the transition from the 40 year-old CH-46E to Block B MV-22Bs. The first of these two squadrons will provide an IOC in FY 2007. In full rate production, the aircraft procurement rate will ramp up to 30 aircraft per year. The program of record includes 360 MV-22s for the Marine Corps.

The demands of GWOT and modernization of our Expeditionary Warfare capabilities have increased the urgency to rapidly field the MV-22 Osprey. Its design incorporates advanced technologies in composite materials, survivability, airfoil design, fly-by-wire controls, digital avionics and manufacturing. The MV-22 is capable of carrying 24 combat-equipped Marines or a 10,000-pound external load, and has a strategic self-deployment capability of 2,100 nautical miles with a single aerial refueling. It is vastly superior to the CH-46E it replaces, with twice the speed, three times the payload, five times the range, and six times the survivability. The V-22 Osprey is a joint platform for the Navy, Marine Corps, and Air Force. It is providing significant opportunities for joint training, tactics development, and mission execution.

We expect our first combat deployment of the MV-22 will occur this fall.

KC-130J

The Marine Corps KC-130J is the work horse of Marine Aviation in OIF. Six aircraft have been continuously deployed in support of OIF since IOC and have provided the warfighter state of the art, multi-mission, tactical aerial refueling, and fixed wing assault support assets that have exceeded expectations. This year's deployment of the in-flight refueling capable MV-22 significantly increases the tanking requirement of the KC-130J community. The FY 2008 Budget requests $270M for procurement of four aircraft, associated spares, and advanced procurement. The Marine Corps is currently in a multi-year procurement program with the Air Force to procure a total of 35 aircraft by the end of FY 2008. The program calls for the continued procurement of 2 aircraft per year.

Unmanned Aircraft Systems (UAS)

Marine Aviation has the lead for Tier III of the USMC UAS Family of Systems that is designed primarily to support a MEF or Joint Task Force-level commander. The Pioneer UAS has served us well since 1986 in this role; it has proven its worth in the fight against insurgent forces and terrorists in Iraq. However, due to the Pioneer's age and obsolescence, it has become a logistical challenge for our operational forces. Based on these challenges, the Marine Corps decided it will begin to transition to the Army Shadow UAS during the fourth quarter of FY 2007. The Shadow's capabilities are similar to the Pioneer and have been upgraded over the past few years. It will provide commanders with a day/night ISR and target acquisition capability. This year's Presidential Budget contains a request for $90.3M for procurement for five of 13 required Shadow systems. We envision the Shadow serving as an interim system until a Vertical UAS (VUAS) is developed and fielded in the 2015 timeframe.

The VUAS will provide a capability that can be either land or sea-based. It will provide the future MAGTF with organic, responsive and real-time ISR as well as electronic attack, fires, and command and control capabilities, operating in concert with all MAGTF assets.

CH-53K Program

Marine Corps CH-53E legacy helicopters continue to make significant contributions in the Horn of Africa and Iraq. Vertical heavy-lift capability will continue to be critical to successful global operations in future anti-access, area-denial environments, enabling the joint concepts of Force Application and Focused Logistics within *The Capstone Concept for Joint Operations*. The FY 2008 Budget requests $417M of RDT&E funds to support development of the CH-53K helicopter that will replace the current U.S. Marine Corps' heavy-lift aviation platform, the venerable but aging CH-53E Super Stallion.

The CH-53E, first fielded in 1981, continues to demonstrate its strategic value as a fully marinized, expeditionary, heavy-lift platform. But the CH-53E is reaching service-life and performance limits as the GWOT drives operations from sea level to higher altitudes and into hostile environments and austere operating sites. The CH-53E

cannot support our future operational concepts of Sea Basing and Ship to Objective Maneuver (STOM). To keep Fleet Marine Forces operationally effective well into the future, the Marine Corps is developing the CH-53K, a near-term and cost-effective replacement for the CH-53E that remains within the CH-53E shipboard footprint, and avoids L-class ship alteration or new ship construction costs. Addressing lessons learned from recent operations, the new-build CH-53K helicopter will be capable of externally lifting 27,000 pounds on a Sea-Level Hot day (103 degrees Fahrenheit (F)) to an unrefueled range of 110 Nautical Miles (NM). This capability is more than double the current CH-53E envelope under the same conditions. Additionally, CH-53K helicopters will each be capable of routinely carrying 30 combat-loaded troops. Major systems improvements which will significantly reduce Operations and Support (O&S) costs include: interoperable avionics, improved cargo-handling systems, and expanded survivability and force protection capabilities.

A Service Life Assessment completed in 1999 identified a CH-53E fatigue life limit of 6,120 airframe hours, which a significant number of CH-53E platforms will attain by FY 2011. While the Marine Corps is also seeking short-term solutions to diminish the effects of this and other CH-53E issues in the FY 2007 budget, these solutions will not arrest accelerating attrition, continuing escalation of O&S costs, and the ever-increasing maintenance burden on an aircraft that is 24 years old. In addition, due to the abnormally high GWOT operational tempo, the CH-53E fleet is expending service life at a much faster rate than planned.

Requirements for the CH-53K were developed in consonance with STOM concepts from Expeditionary Maneuver Warfare in *Marine Corps Strategy 21*, the Naval concept of Sea Basing in *Sea Power 21*, and with lessons learned from recent operational experience. The Joint Requirements Oversight Council (JROC) approved the Operational Requirements Document that defines the necessary CH-53K capabilities in December 2004. We intend to achieve IOC with the CH-53K, a heavy-lift helicopter with vastly enhanced performance capability, survivability and reliability, in 2015. The CH-53K will be the most capable, marinized, heavy-lift helicopter in the world, a truly transformational asset.

H-1 Upgrades Program

The light utility and attack helicopter community plays a critical role supporting Marines on the ground. To ensure continued support to the MAGTF our H-1 aircraft are in need of modernization. The UH-1N, for example, has not received any major modifications to its rotor and drive train systems since its delivery to the Marine Corps in 1971. This situation has led to a decline in the aircraft's power available since its introduction. Reduced power margins in the Huey have decreased safety margins for our pilots and aircrew. Our AH-1W attack helicopters have been performing magnificently in combat operations. In order to maintain this high level of performance we need to upgrade the "W" to streamline pilot workload, increase ordnance carriage, and improve sensor capabilities.

The H-1 Upgrades Program will replace the Marine Corps' AH-1W and UH-1N helicopters with state-of-the-art AH-1Z and UH-1Y models. The program is a key modernization effort designed to improve upon existing capabilities, enhance operational effectiveness, and extend the service life of both aircraft. The UH-1Y, for example, expands utility mission capabilities with its improvements in range, speed, endurance, and useful payload. Additionally, the commonality gained between the AH-1Z and UH-1Y (84 percent) will significantly reduce life-cycle costs and logistical footprint, while increasing the maintainability and deployability of both aircraft.

The H-1 Upgrades Program, through a combination of remanufacture and build new, will upgrade our current legacy fleet to 100 UH-1Ys and 180 AH-1Zs. The Defense Acquisition Board will convene in May 2007 to authorize a program restructure, approve a fourth LRIP lot, and lay the foundation to "grow the force" in support of plans for a balanced 202K Marine Corps.

The FY 2008 Budget requests $580M APN funds to procure 20 (15 UH-1Ys and 5 AH-1Zs) aircraft and spares and $3.6M RDT&E funds to complete the H-1 Upgrades Engineering and Manufacturing Development (EMD) phase. Production continues on the first three LRIP lots, awarded to Bell Helicopter. To date, two aircraft (one UH-1Y and one AH-1Z) have been delivered to the Marines. One additional UH-1Y will be delivered by the end of this month. The program completed OPEVAL Phase I successfully in November 06, and will enter Phase II later this year.

The program continues to seek opportunities to reduce unit cost and minimize the impact on current and future operational readiness. In support of maintaining readiness, the optimum mix of remanufactured and newly fabricated aircraft is currently being evaluated; the results will be reflected in future budget requests. We are encouraged by recent steps Bell has taken to arrest recent cost growth to include leadership change and program quality assurance measures. Bell Helicopter needs to continue to meet scheduled aircraft deliveries to ensure we have the best attack and utility helicopters available to our Corps as well as phase out our legacy inventory.

Prepare for the Long War

NAVAL AVIATION ENTERPRISE (NAE)

Marine Aviation's current readiness process is sub-optimized to link and relate the various elements of readiness in a way that enables us to accurately define requirements. Therefore, Marine Aviation is integrating into the NAE and Naval Aviation Readiness Integrated Improvement Program (NAVRIIP) to achieve optimal readiness now, but also to sustain the health of Marine Aviation into the future. The integration strategy has three main phases and stages, and the goals of the integration are: increase in-reporting rates; decrease out-of-reporting rates; improve Depot turn-around times; reduce direct maintenance man hours per flight hour; reduce flight hour costs; extend airframe service life for legacy platforms; achieve programmed service life for new platforms; and increase the core competency of organizational and intermediate-level maintenance departments.

AVIATION SAFETY

The Marine Corps is committed to the continued reduction of our aviation safety mishap rate. We do not accept the loss of Marines or aircraft during any type of flight operations, particularly during training. In FY 2005, the Commandant of the Marine

Corps directed 21 operational safety initiatives to address day-to-day flight and ground operations. We continue to look for new and innovative measures to reduce our aviation mishap rate. We feel confident that our most recent internal initiative, ATS, will continue to arrest our mishap rate as we strive to reach the Secretary of Defense goal of 50% mishap reduction. The Marine Corps FY 2006 Class A flight mishap rate was 1.58 per 100,000 flight hours, a drop from 2.26 and 5.17 from the previous 2 years.

SUMMARY

The Marine Corps has a heritage of fighting battles and winning wars on the sea, on the ground, and in the air. We do so while supporting routine deployment cycles and transforming the force. Today is no different. My pride in the accomplishments of Marine Aviation past and present is only exceeded by my confidence that we are poised to meet our future challenges. Our focus remains on the lance corporal and ensuring that when he calls for Marine Air, we are there. Thank you for your consideration.

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DEPARTMENT OF THE AIR FORCE

PRESENTATION TO HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE AIR AND LAND FORCES
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: Current and Future Department of Defense Aircraft Programs (TACAIR)

COMBINED STATEMENTS OF: Lt Gen Donald Hoffman (SAF/AQ)
Lt Gen Carroll H. Chandler (AF/A3/5)

March 22, 2007

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HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON AIR AND LAND FORCES
U.S. HOUSE OF REPRESENTATIVES

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House Armed Services Committee – Air and Land Forces Subcommittee

March 22, 2007

Subject: TACAIR

Combined Statement of
Lt Gen Carrol H. Chandler (AF/A3/5)
Lt Gen Donald Hoffman (SAF/AQ)

I. Introduction

Mr. Chairman and distinguished members of the subcommittee, thank you for the opportunity to appear before you today to discuss Air Force Tactical Aircraft Programs and other programs that are important to your Air Force and the Nation.

Your Air Force is fully engaged around the world, fighting terrorism and insurgents in the Global War on Terror (GWOT) while fulfilling our roles as Airmen for the joint team. Simultaneously, we stand prepared for rapid response to conflict around the globe as our nation's strategic reserve. Air forces succeed when they anticipate and are allowed to shape the future strategic environment and develop the capabilities for the next fight. Air forces succeed when they remain focused on their primary mission as an independent force that is part of an interdependent joint team. We fly, fight and dominate in three war fighting domains – air, space and cyberspace – giving the United States our nation sovereign options to employ military force like no other nation.

II. We Are At War

The missions your Air Force is flying today are the latest in a string of 16 continuous years of Air Force combat in the Central Command (CENTCOM) Area of Responsibility (AOR), beginning with our initial deployments to Operation DESERT SHIELD in August 1990 through ongoing operations in Iraq and Afghanistan.

Through 12 March 2007 your Air Force has flown over 82% of the coalition's 284,565 sorties in Operation IRAQI FREEDOM and 78% of the coalition's 161,454 sorties in Operation ENDURING FREEDOM. In addition to our daily operations, the Air Force has also seen several surge periods over the past 16 years, resulting in unexpected wear and tear on our people and platforms. And, like each of the other Services, we have suffered combat losses.

On an average day, the Air Force flies more than 430 sorties in support of Operations IRAQI FREEDOM and ENDURING FREEDOM. Of this number, approximately 120 sorties are intelligence, surveillance, and reconnaissance (ISR), and strike. Of the remaining, 275 are airlift sorties (both inter- and intra-theater) and 35 are air refueling sorties.

Supporting CENTCOM is just a small part of what we do for our nation's defense. The Air Force has responded to or has been prepared to respond across the entire spectrum of conflict – from rapid humanitarian aid to major combat operations. We have flown over 46,982 sorties in support of Operation NOBLE EAGLE and over 3,280 counter drug sorties, while also supporting operations in the Horn of Africa (HOA) and the Philippine Islands.

III. Air Force Programs

As requested by the sub-committee, the following is an update on Air Force programs:

F-22A

The F-22A Raptor is the Air Force's primary air superiority fighter, providing unmatched capabilities for operational access, homeland defense, cruise missile defense, and force protection for the Joint Team. The F-22A's combination of speed, stealth, maneuverability and integrated avionics gives this remarkable aircraft the ability to penetrate denied, anti-access environments. Its unparalleled ability to find, fix, track, and target enemy air- and surface-based threats ensures air dominance and freedom of maneuver for all Joint forces. In addition, the F-22A will be the only airborne system in the US military that can conduct network-centric warfare

and provide ISR capability from inside adversary battlespace in the opening moments of any contingency. Currently we have 12 F-22A aircraft deployed to the Western Pacific in support of the PACOM Commander's area of operations.

A world-class production line delivers Raptors at a rate of about two per month delivering unrivaled combat capability that ensures freedom of maneuver for all Joint and Coalition Forces. The Air Force has accepted 89 F-22A aircraft to date and is currently negotiating the Congressionally-approved multiyear contract for delivery of Lots 7, 8, and 9. The Air Force expects to award this contract in 2007.

The OSD-led 2006 QDR Joint Air Dominance study revealed two key points. The first was that our nation has a critical requirement to re-capitalize TACAIR forces. The second was that with sufficient 5th generation fighters, especially the F-22A, joint air forces can win a major combat operation (MCO) with forces remaining to win the next MCO. The study determined attrition would be unacceptably high with a legacy-heavy force and the follow-on win would be in jeopardy. The F-22A force also optimizes capability return on investment. Fewer mobility assets are required with smaller force packaging, and lower combat attrition. The average procurement unit cost is reduced as we build to our requirement.

F-35

The F-35 program will develop and deploy a family of highly common, affordable, next-generation, stealthy, multi-role, strike fighter aircraft meeting operational needs of the Air Force, Navy, Marine Corps, and Allies. Conventional take-off and landing test aircraft, AA-1, successfully conducted its first flight on 15 Dec 06. Since then it has flown eight times and its flying qualities are reported as excellent. The program is on track to meet all Low Rate Initial Production (LRIP) Lot I funding decision criteria and the contract is scheduled to be awarded by May 2007. The FY08 President's Budget did not support the General Electric / Rolls Royce

F136 engine effort because the Defense Department concluded that a single engine supplier provided the best balance of risk and cost. Currently, the Government Accounting Office (GAO), the Cost Analysis Improvement Group (CAIG), and the Institute for Defense Analyses (IDA) are each conducting studies that re-examine the costs and benefits associated with an alternate engine program.

F-117

The F-117 was the first low observable aircraft in the DoD inventory to provide critical "first night, surgical, knock the doors off" capability since its first employment in 1990. However, advances in technology and capabilities have mitigated the need to rely upon this aging and expensive-to-maintain aircraft and the Air Force intends to retire the platform while maintaining an acceptable risk level. Congress approved retiring ten aircraft in FY07. The FY08 PB requests authorization to retire the remaining 42 aircraft of the F-117 fleet. B-2 and Joint Air-to-Surface Standoff Missile (JASSM), as well as F-22 capabilities will fulfill previous F-117 requirements. The Defense Department deems the risk of retiring the F-117A to be acceptable.

AEA and SOJ

The Airborne Electronic Attack (AEA) System of systems (SoS) is designed to enhance the current and future survivability of joint forces against enemy integrated air defense systems (IADS). The AEA SoS will provide a variety of electronic attack (EA) capabilities, from stand-off ranges through stand-in ranges, supporting Joint and Air Force operations. Current efforts include overall systems engineering, network requirements development, component systems requirements allocation, technology risk mitigation demonstrations, and development / maintenance of the AF electronic warfare investment strategy.

A validated requirement for the AEA SoS was established when the Joint Requirements Oversight Council (JROC) approved the Initial Capabilities Document (ICD) on 8 November

2004. The DoD solution, as reported to Congress in March 2004, included *stand-in jamming* with the Joint Miniature Air-Launched Decoy (MALD-J) and the Joint Unmanned Combat Air System (J-UCAS), *modified escort* with the EA-6B and EA-18G, *penetrating escort* using Active Electronically Scanned Array (AESA) radar-equipped aircraft, and *stand-off jamming* using the B-52 Stand-off jammer (SOJ) for radars and the EC-130H Compass Call for communications jamming.

The MALD program is on schedule and on cost with initial fielding expected in FY09. MALD-J begins System Development and Demonstration (SDD) in FY08 with initial fielding in FY11.

The B-52 SOJ program was cancelled due to cost affordability, which was estimated at $6.9B for the entire fleet. The cancellation put into jeopardy the ability of the Air Force to meet stand-off jamming requirements by 2012. The Core Component Jammer (CCJ) refocused the B-52 SOJ program using fewer assets and more tightly focused radio frequency (RF) spectrum receivers and jammers. CCJ was initiated to fulfill the ICD validated requirement for stand-off jammers within budgetary constraints, and the program adjusted the number of aircraft requiring modification while leveraging receiver technology from the ALQ-218 due to development advances in the Navy's EA-18G. The start of the CCJ program depends upon AEA technology maturation, specifically on systems architecture and low-/mid-band jammer technology. Technology maturation can only be met when adequate technology and risk reduction funding can be procured.

CV-22

The Air Force Special Operations Force (SOF) needs modernized and upgraded platforms. The SOF lift gap is exacerbated by the loss of six MH-53 aircraft in OEF and OIF. The CV-22 provides the transformational SOF capability required for the GWOT. SOF forces are critical to

the GWOT. Continued support for CV-22 multiyear procurement and recapitalization of SOF C-130 platforms is essential to fill current shortfalls in capability. The Air Force remains committed to modernizing SOF by fielding the CV-22.

The FY07 National Defense Authorization Act (NDAA) authorized a 5-year contract for the V-22 program beginning in FY08 for the procurement of 185 MV-22 and 26 CV-22 aircraft. The CV-22 Block 10 developmental flight test program will continue through FY07 testing the Terrain Following/Terrain Avoidance (TF/TA) radar, SOF mission avionics, and Electronic Warfare/Infrared (EW/IR) countermeasure systems. The CV-22 is progressing toward an Initial Operational Capability in FY09.

CSAR-X

The Air Force is the only service with dedicated forces organized, trained, and equipped to perform combat search and rescue (CSAR). CSAR forces recover downed aircrew and other isolated personnel and conduct rescue operations across the spectrum of military operations including humanitarian relief, emergency evacuation, disaster relief, and civil support operations. In November 2006, the Air Force awarded a SDD contract to Boeing Integrated Defense Systems. Following this decision, Lockheed-Martin and Sikorsky filed source selection protests with the GAO. On 26 Feb 07 the GAO sustained the protests concerning CSAR-X source selection. The Air Force is currently reviewing the GAO's findings to ensure complete understanding of the conclusions and recommendations, while determining the way ahead. The Air Force remains committed to the timely acquisition of an airframe that best meets the warfighter's requirements.

Bombers

Our strategy for the future bomber fleet includes a three-phased modernization plan. We have no plans to change the current force of B-1 and B-2 aircraft. The first phase of the

modernization strategy includes plans for us to divest 38 B-52s while modernizing the remaining legacy systems. President's Budget FY08 funded a B-52 force structure consisting of 56 B-52s Total Aircraft Inventory (TAI). This inventory included 32 Combat Coded (CC), 11 Training (TF), four Test, and nine backup B-52s. Following submission of the FY08 POM to OSD, Congress mandated that the Air Force "not retire more than 18 B-52s (FY07 retirements) and maintain 44 B-52s as Combat Coded." The Headquarters Air Force, Air Combat Command (ACC), and the Air Force Reserve Center are working together to abide by this restriction while meeting the Air Force need to recapitalize aging aircraft. ACC is staffing a plan to recode 11 TF B-52s and one test B-52 to combat coding which would result in a total of 44 CC B-52s. The 20 B-52s programmed for retirement would remain in the Total Inactive Inventory on XJ status.

The FY08 PB reflects the Air Force position. A fleet of 56 TAI B-52s with 32 coded for combat meets AF requirements while supporting the need to recapitalize. The FY07 NDAA mandated that no funds "be obligated or expended for retiring any of the 93 B-52H bomber aircraft in service in the Air Force as of the date of the enactment of this Act until 45 days after the date on which the Secretary of the Air Force submits a Bomber force structure report prepared by the Institute for Defense Analyses (IDA)." IDA has been contracted for this report and is currently completing the information gathering phase. The Air Force expects the report to be finished by the end of 2007.

The second and third phases of the modernization strategy include fielding a next-generation long range strike (NGLRS) capability in 2018 and fielding an advanced technology system with increased speed, range, precision, connectivity and survivability in 2035.

Health of the Fleet

GWOT duration and operations tempo have accelerated service life consumption for numerous platforms. This sustained high operations tempo has contributed to lowered readiness

levels, which does not allow us to take much risk in operations and maintenance. We must sustain readiness and be able to fight today. GWOT is forcing the Air Force to maintain some legacy systems to meet the current threat.

While our fighter force is the oldest it has ever been, at an average age of more than 18 years, it is generally healthy and able to carry out the missions of today's Air Force. Our five-year trend in mission capable and aircraft availability rates has remained steady. Both the A-10 and F-16 fleets are undergoing significant structural service life extension programs (SLEP) to keep the airframes viable. The F-16 service life is being extended to 8,000 hours and the A-10 service life will extend through 2028.

The recapitalization challenge is to meet the near-term needs of our Nation, while at the same time ensuring that Airmen inherit an Air Force that is relevant, capable and sustainable. The Air Force must recapitalize the aging fleet to ensure our advantage over future adversaries. The need for fifth-generation fighters stems from almost 17 years of continuous operations in Southwest Asia, supporting GWOT, and maintaining our Homeland Defense posture since 9/11.

F-16C/D. The F-16C/D fleet is in the midst of standardizing capabilities through the Common Configuration Implementation Program. This modification program is a combination of several upgrades to F-16 avionics that enable integration of advanced precision weapons, Link-16 communications, improved situational awareness, and off-bore sight cueing of sensors and weapons. It provides for a new modular mission computer, color displays, advanced interrogator/transponder (Block 50/52 only), Link-16 communication capability, and the joint helmet-mounted cueing system. It also enables the Block 40/42 aircraft to use the same operational flight program (OFP) software as the block 50/52 aircraft, which will reduce the sustainment cost of future OFPs. The FY08 PB requests $72.6M in FY08 to continue the modification of Block 40 aircraft. Block 50 modifications are complete.

F-15C/D. We are gradually retiring our oldest F-15s from the Air National Guard, while 178 long-term F-15C/D aircraft begin a complete vertical stabilator replacement program during programmed depot maintenance this year. These aircraft continue to receive legacy upgrades such as GPS/INS, the joint helmet mounted cueing system (JHMCS), and the APG-63v3 AESA radar.

A-10. The A-10 provides lethal, precise, persistent, and responsive firepower for Close Air Support to ground forces including Special Operations Forces. It has performed superbly in operations DESERT STORM, ALLIED FORCE, OEF and OIF. The GWOT high operations tempo has accelerated the service life usage of the A-10 fleet, which has resulted in wing structural problems. In the short-term, the SLEP will keep the A-10 viable towards 16,000 hours. Other upgrade programs in progress include Precision Engagement (PE), ARC-210 Secure Line of Sight (SLOS)/Beyond Line of Sight (BLOS) communications, and the Situational Awareness Data Link (SADL).

JASSM and JASSM-ER

The joint air-to-surface standoff missile (JASSM) and the extended range version, JASSM-ER, is a "kick down the door" weapon to be used to neutralize enemy's defenses and warfighting infrastructure--high value, fixed and re-locatable targets in an anti-access environment.

The program has experienced cost growth in the Average Procurement Unit Cost (APUC) attributable to the addition of the JASSM-ER and a robust reliability improvement program. A reduction in the near-term missile quantities and change in acquisition strategy also contributed to unit cost growth.

IV. Closing

We are building a 21st century Air Force prepared to dominate in the 21st century – strategically, operationally, and tactically. The above capable and lethal fighter, bomber, missile,

and stand-off jammer programs provide us the means to asymmetrically provide Global Vigilance, Global Reach, Global Power, and worldwide expeditionary combat force application. These capabilities are critical today and for the future Joint force. The Air Force is committed to advancing our tactical and strategic aircraft programs, missile programs and jamming capabilities to fully support the Joint and Coalition Team. We appreciate your continued support in turning our vision into an operational reality. Our nation must invest today to ensure tomorrow's air, space and cyberspace dominance.

WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING

MARCH 22, 2007

RESPONSES TO QUESTIONS SUBMITTED BY MR. ABERCROMBIE

General HOFFMAN. Management of the electromagnetic spectrum divides the entire spectrum into frequency bands called allocations. The allocations specify the allowed use of the frequencies in the band. These uses are referred to as radio services (e.g., fixed, mobile, broadcasting, radiolocation, radionavigation, amateur, satellite, radio astronomy, etc.).

In the United States, the electromagnetic spectrum is regulated by the Federal Communications Commission, for commercial and non-Federal government spectrum, and the Department of Commerce, for Federal government spectrum. Frequency bands are allocated primary and secondary services. Users of the primary service have priority over the users of the secondary service. Users of secondary services are usually required to operate with greater restrictions to avoid causing interference and must accept interference from the primary users. Exceptions to allocations may also occur and appear as footnotes. These footnotes allow uses of bands under specific conditions for other services and users than listed as primary.

U.S. frequency allocations are divided further into Federal government and commercial/non-Federal government use. Unique in this allocation is the subdivision of spectrum into designations where the primary use is exclusively for non-Federal government, Federal government, and shared Federal government and commercial/non-Federal usage.

Table 1 contains bands where the Federal government has exclusive primary status. Many of these bands, however, allow non-Federal use of the spectrum either in a secondary status or a primary status through a footnote in the regulations.

Table 1. Frequency bands where government has exclusive primary status

14–19.95 kHz	25.33–25.55 MHz	26.48–26.95 MHz	27.54–28.00 MHz
28.89–29.91 MHz	30–30.56 MHz	32–33 MHz	34–35 MHz
36–37 MHz	38.25–39 MHz	40–42 MHz	46.6–47 MHz
49.6–50 MHz	138–144 MHz	150.05–150.8 MHz	157.0375–157.1875 MHz [1]
162.0125–173.2 MHz [1]	173.4–174 MHz	225–328.6 MHz	335.4–399.9 MHz
410.0–450.0 MHz [1]	902–928 MHz [2]	1.215–1.3 GHz	1.35–1.39 GHz
1.429–1.435 GHz	1.755–1.850 GHz	2.200–2.290 GHz	2.7–2.9 GHz
3.1–3.65 GHz	4.4–4.5 GHz	4.8–4.94 GHz	5.25–5.35 GHz
5.65–5.925 GHz [2]	7.125–8.45 GHz	8.4–8.45 GHz	8.5–9.0 GHz
9.5–10.45 GHz	14.4–15.35 GHz	15.7–17.2 GHz	33.4–36 GHz
43.5–45.5 GHz			

[1] Exceptions in these bands allocate primary use to some non-Federal users.
[2] These bands are also allotted for industrial, scientific, and medical (ISM) use.

The DOD is automatically in a secondary status when it tries to use spectrum in the non-Federal bands. This has relevance when the DOD wants to use its equipment in non-Federal bands.

The DOD currently operates in most government exclusive spectrum bands as well as in many shared spectrum bands. The vast majority of DOD spectrum use is below 6 GHz due to the fact that spectrum in this range is very conducive to supporting terrestrial mobile operations with reliable, moderate capacity communications links and with many bands providing excellent propagation characteristics through dense foliage. The DOD also employs a number of spectrum bands above

6 GHz for critical functions and applications. Figure 1 below provides a graphical depiction of the many spectrum bands where DOD has critical operations.

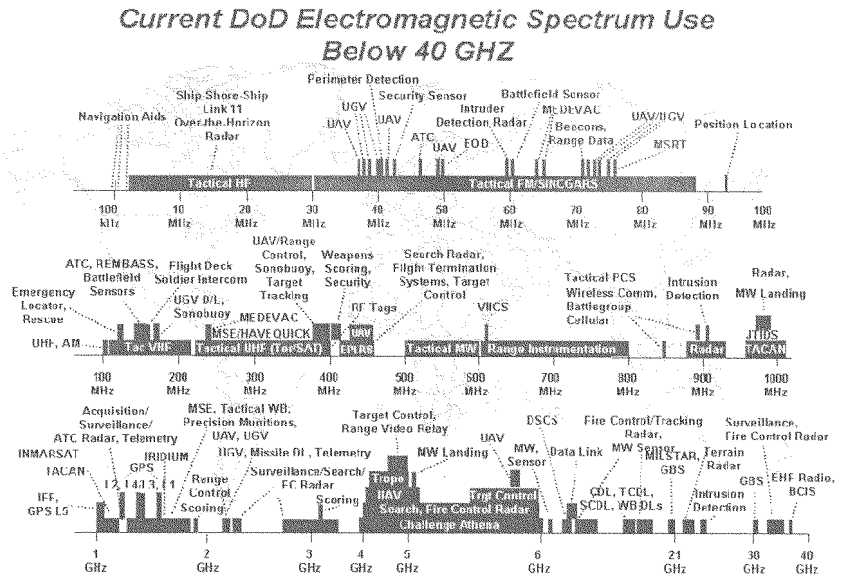

Figure 1: Depiction of DoD operations in spectrum bands below 40 GHz.

The regulatory body for international spectrum use is the United Nations' International Telecommunication Union (ITU). The frequency management administrations of ITU member nations generally develop national frequency allocation policies consistent with the ITU regulations. Use of the electromagnetic spectrum is the sovereign right of each individual nation.

The DOD uses spectrum worldwide. Conditions for use in the United States and Possessions (US&P) only apply to the US&P. The DOD can use spectrum worldwide, only after coordination with applicable countries. DOD equipment must be developed to operate on the spectrum that will be available in applicable countries.

U.S. military forces are stationed in foreign countries around the world. These forces operate their radio systems in accordance with the laws, regulations, and allocations of the host nations. Since no other country maintains a military force on the scale of the U.S. forces, most countries do not maintain an extensive allocation for military uses, and such allocations that exist differ between countries. Combatant commanders are responsible for coordinating the use of spectrum with host nations. [See page 56.]

General CHANDLER. A total of $21M was spent on the B–52 Stand-Off Jammer program before it was terminated. The majority of that funding was spent on technology maturation efforts that will benefit any future stand-off jammer program. [See page 62.]

RESPONSE TO QUESTION SUBMITTED BY MR. BARTLETT

Admiral CLINGAN. Existing heavy lift rotary requirements are being met by the MH–53E. The Airborne Re-Supply/Logistics for the Sea Base (AR/LSB) Analysis of Alternatives (AoA) is currently being finalized. The AoA concluded that the MH–53K was the best option to meet the Heavy Lift/Medium Range requirement in support of the Joint Sea Base. Additionally, the Navy is currently conducting a comprehensive analysis to determine rotary heavy lift requirements for both existing and future mission areas. The information obtained, in conjunction with the AR/LSB AoA, will be used to determine the cost and benefit of procuring a follow-on heavy lift aircraft. Preliminary analytic results will be available to support the upcoming

Fiscal Year Program Objective Memorandum (POM). Therefore, current acquisition plans have not been adjusted. [See page 40.]

RESPONSE TO QUESTION SUBMITTED BY MR. MILLER OF FLORIDA

Mr. AHERN. It appears the GAO did not include the technology and reliability improvement costs required by a two engine program and they assumed sustainment costs per flight hour would be the same for both the sole source and competitive cases. These required costs may explain some of the differences between the CAIG, IDA and GAO reports. It seems likely that each independent team also had other embedded assumptions. [See page 12.]

RESPONSES TO QUESTIONS SUBMITTED BY MR. SESTAK

Admiral CLINGAN. The 2005 Quadrennial Defense Review (QDR) of the future force requirements for the United States military directed reorienting the Joint Unmanned Combat Air Systems (J-UCAS) capability demonstrations program and transitioning those technologies into other programs. The decision was made to transition this program in order to focus on maturing technologies and capabilities not yet demonstrated. The J-UCAS X–45A performed limited demonstrations of precision weapon drops, multi-ship coordinated flight, and collaborative targeting technologies, illustrating the potential for future UCAS developmental programs. UAS currently deployed in the Global War on Terror have provided a significant level of confidence in Concept of Operations development, data dissemination, and reach-back operations. However, there are still capabilities needing demonstration. Accordingly, the Navy will focus on specific areas of the overall joint capabilities portfolio to advance technology and facilitate additional capability for the warfighter. For the initial phase, the Navy will focus on a demonstration of carrier operations suitability of a low-observable Navy Unmanned Combat Air System. These efforts leverage the work, accomplishments and technology of the former J-UCAS program. [See page 47.]

General CHANDLER. The Air Force will leverage all available technology development efforts including F–35, F–22, B–2, Global Hawk, Predator, and other science and technology investments in order to field a new bomber by 2018. The Air Force envisions that the new bomber will be a manned, land based highly survivable, penetrating, long-range strike aircraft. The Air Force will also pursue unmanned technologies and operating concepts to apply to this aircraft.

Currently, funding in the Future Years Defense Program begins in fiscal year 2011. [See page 48.]

QUESTIONS SUBMITTED BY MEMBERS POST HEARING

MARCH 22, 2007

QUESTIONS SUBMITTED BY MR. ABERCROMBIE

Mr. ABERCROMBIE. Given the potential for increased weight in the STOYL aircraft do you think keeping the engine competition is a good strategy for reducing this risk or are there other strategies that should be considered?

Mr. AHERN. The Department believes the cost of competition in this program outweighs the benefits. Further, the Department is satisfied with the program's strategy to control weight.

The CAIG analysis found a potential for STOVL weight growth in the F–35 program, and concluded that having a second engine would mitigate that risk. If there is additional near-term weight growth, the STOVL lift fan (common to the F135 and F136 engines) is the first component that will need to be upgraded, not the engine turbomachinery that would be subject to a competition.

In the long-term, F–35 engine competition would increase technological innovation. However, these benefits do not outweigh the cost of competition in this case.

Mr. ABERCROMBIE. Given your analysis shows the cost difference between competition and sole source is negligible do the other benefits you discuss (industrial base, insurance against risk, contractor responsiveness) provide a sufficient incentive to continue the alternate engine? Did you find any measure of these benefits in your look at competition history?

Mr. AHERN. The Department believes the cost of competition in this program outweighs the benefits. The Department considered all of the intangible benefits and determined that these other benefits were not sufficient to warrant an engine competition for the F–35.

While the CAIG acknowledged the benefits of competition within the industrial base, the CAIG did not find a reliable measure of intangible benefits in their study of competition history.

Mr. ABERCROMBIE. Your statement was silent on international participation and the benefits or negative benefits of the alternate engine program to their current or future participation, this would include future foreign military sales. Would you care to comment on this?

Mr. AHERN. The F–35 international partners support the overall direction the program is headed, as evidenced by all eight partners signing the Production, Sustainment, and Follow-on Development Memorandum of Understanding.

Mr. ABERCROMBIE. Do you have any more detailed thoughts on the impact on the industrial base and the impacts on future jet engine development efforts for DOD if the JSF becomes a sole source contract for just one of the two remaining major engine manufacturers?

Mr. AHERN. The CAIG found that the jet engine industrial base would be improved if there was engine competition in the F–35. However, the CAIG believes that benefits such as an improved industrial base do not outweigh the investment costs.

Pratt and Whitney (P&W) and General Electric (GE) are competitive in both the military and commercial jet engine business. GE has been more dominant on the commercial side since the late 1990s with 2007 production at ~1000, compared to P&W at ~220. P&W's U.S. business is more heavily dependent on military sales (~50% of direct sales in 2006) than General Electric (~15% of direct sales in 2006). The Defense Contracts Management Agency (DCMA) estimates that approximately 350 of the 4500 GE engineering staff would be unable to transfer their skills to the commercial engine business.

The Department's VAATE (Versatile Affordable Advanced Turbine Engines) has more than 20 technology programs in early science and technology that would feed into future engine technologies and help to mitigate industrial base issues.

The goal of the VAATE program is to develop, demonstrate, and transition advanced multi-use, turbine engine technologies that provide a revolutionary improvement in affordable capability to a broad range of legacy, emerging and future military propulsion and power needs. Both General Electric and Pratt Whitney participate in this program. The Department has invested over a billion dollars in the FYDP into developing more advanced engine technologies.

Since VAATE represents a combined effort between government and industry in researching advanced engine technologies, continued Department support could mitigate industrial base concerns over loss of the F136 business base.

Mr. ABERCROMBIE. IDA makes the point that commercial buyers of engines include engine operations and support cost metrics in their original procurement selection criteria. IDA further indicates DOD has little experience in integrating procurement and operations and support costs in competitions. Given the billions of dollars that DOD spends on engine procurement and operations and support, why do you think that is and should OSD and the military services incorporate operations and support costs in competitions?

Mr. AHERN. The Department of Defense and the commercial sector face different conditions when bidding for equipment and services and dramatically different requirements. Uncertainty and variability in engine and platform utilization rates, operating environments, system reliability, and sustainment strategies over the extensive life cycle of a weapon system make it challenging to fully integrate O&S costs into procurement selection decisions for military items. However, OSD and the military services do emphasize the incorporation of O&S costs in program decision making given the significant percentage of life cycle costs incurred after production/delivery of the product.

Most commercial firms get a satisfactory outcome because they specify only one or a small number of performance requirements, which allow engine manufacturers wide latitude in determining an optimum mix of investment for design, manufacturing and support.

On the other hand, the Department's requirements are often more numerous, complex and stringent for aircraft, which reduces contractual flexibility. Additionally, the Department must obtain permission from Congress prior to transferring any funding among appropriations (development, procurement, and operating funds) which does limit contract flexibility compared to the commercial sector.

The CAIG found that in the Department's limited experience with Performance Based Logistics (PBL) contracts, the PBL arrangements resulted in increased operational availability, but no cost savings.

Mr. ABERCROMBIE. The GAO has reported that many of the Department of Defense's current and past programs have experienced significant cost over runs for a variety of reasons. Do you think competition would help diminish the probability of cost over runs in the JSF engine program?

Mr. SULLIVAN. Our testimony on March 22, as well as past studies by others, identifies some non-financial benefits of competition that could reduce the risk of cost over runs. One of these benefits is the ability of the program office to instill contractor incentives for better performance, which could help control cost growth. Another benefit of competition that could diminish the probability of cost overruns is the presence of a viable alternate engine for use in JSF if one engine develops problems that require additional time and funding to correct.

Mr. ABERCROMBIE. In its analysis, the Department of Defense expressed some concern about the F–35B STOVL variant having some weight growth and that improved engine performance may be required to address this situation. Do you believe that a two-engine program would help ensure that the F–35B could meet performance parameters?

Mr. SULLIVAN. Sustaining a two-engine program could help ensure the F–35B meets its performance parameters if the competition results in better engine performance or increased contractor responsiveness, two benefits which could accrue from competition as indicated in our testimony. Better performance could benefit the F–35B by providing the thrust needed to at least partially offset any weight growth. Better contractor responsiveness could ensure that the government is better able to work with contractors to proactively improve engine designs and account for any weight growth prior to potential costly design changes.

Mr. ABERCROMBIE. In your analysis did you consider not only procurement costs but life cycle costs?

Mr. SULLIVAN. Yes, we considered life cycle costs in our analysis by examining the remaining costs to complete system development and demonstration, the production costs of the engines, the costs to support production through activities like the purchase of initial spares and establishment of depots, and the costs to sustain the engines through the lifetime of the aircraft.

Mr. ABERCROMBIE. Did you assume sunk costs in your analysis? If so, why?

Mr. SULLIVAN. We considered all costs for development of both engine designs through 2007 to be sunk costs and did not factor them into our analysis. We have stated previously that it is inappropriate to consider sunk costs in a break even analysis of the benefits of competition as that money has already been expended.

Mr. ABERCROMBIE. What was the time period or life cycle for your analysis, 2008 through what year?

Mr. SULLIVAN. In our analysis, production begins in 2007 and ends with delivery of the last full-rate production engines in 2036. Sustainment of the engines continues through the approximate 30 year lifecycle of the aircraft to 2067.

Mr. ABERCROMBIE. How many total engines did your analysis assume would be procured over the life of the JSF program? What is your estimated dollar values of the engines procured over the lifetime of the U.S. JSF programs in then year dollars with and without a competitive procurement?

Mr. SULLIVAN. We did not calculate the total number of engines used over the life of the JSF program. By using a performance based logistics concept, the JSF program will place responsibility for engine replacement on the contractor, and will include the costs for related parts or modules in the negotiated sustainment price. As such, we calculated the number of installed engine quantities—2,443—to arrive at a cost for production, then calculated a cost for production support which includes the cost to procure initial spares (which equates to about 1 engine per squadron), and a cost per engine flight hour for sustainment which includes the purchase of additional engine parts or modules as needed. For competitive scenarios we then applied a range of potential cost savings of 10 to 20 percent based on savings from past engine programs.

Mr. ABERCROMBIE. What conclusion did your study reach about the value of competition, other than cost?

Mr. SULLIVAN. As stated in our testimony on March 22, and agreed to by both DOD and IDA witnesses, competition may also provide a number of benefits that do not result in immediate financial savings, but may result in reduced costs or other positive outcomes to the program over time. These benefits could include; better engine performance, increased reliability, improved contractor responsiveness, enhanced readiness, enhanced international participation, and a stable industrial base.

Mr. ABERCROMBIE. Given the anticipated increased weight in the F–35B aircraft, do you think the F135 engine will allow the F–35B to meet its key performance parameters? Would the F136 increase the likelihood that the F–35B will meet its key performance parameters?

Mr. SULLIVAN. Our analysis of the JSF engine focused on the costs and benefits of competition and did not investigate the technical parameters or performance specifically associated with either engine design or aircraft variant. If, however, the F–35B aircraft does exceed the current target weights by about 2,000 pounds and requires propulsion system thrust growth, as stated as a possibility by DOD on March 22nd, then we believe competing the engine program could have benefits that help ensure the F–35B meets its performance parameters, as mentioned above.

Mr. ABERCROMBIE. The IDA study makes the point that commercial buyers of engines include engine operations and support cost metrics in their procurement selection criteria. The study, however, further indicates "DOD has little experience in integrating procurement and operations and support costs in competitions." Given the billions of dollars that DOD spends on engine procurement and operations and support, why do you think that is and should DOD incorporate operations and support costs in its competitions?

Mr. SULLIVAN. DOD has not integrated procurement, operations, and support costs for competitions in the past because it has not developed a "single line of accounting" that would provide the needed flexibility to efficiently fund such a contract. DOD has begun initiatives to address "single line of accounting" concerns, and the JSF program hopes to further these efforts to combine the traditional support related procurement, replenishment spares, retrofit, support and flying hour funding lines. According to the program's acquisition strategy, the JSF approach would necessitate both military service acceptance of restructured funding lines and changes in legislation to allow the approach. The JSF program has stated in its acquisition strategy that it intends to award a combined production and performance based logistics contract if possible, and could include criteria such as other costs, reliability, and sustainability in the competition. In the event that the program cannot get approval for such an approach, a performance based logistics contract could still be used with a legacy approach of multiple funding lines which the program considers to be sub-optimal.

Mr. ABERCROMBIE. One of the test aircraft for the Armed Reconnaissance Helicopter program recently crashed, contract options starting last December have been allowed to lapse, and the Army held an acquisition review of the program earlier this week, can you provide us the status of the program, including current cost and schedule information?

General MUNDT. Schedule delays, contract cost growth, and Low-Rate Initial Production pricing disagreements between the contractor and the government resulted in the Army issuing a stop work order on the System Development and Demonstration contract with Bell Helicopter/Textron Inc. (BHTI). Subsequently the stop work order was rescinded allowing Bell and its suppliers to work within the Limitation of Funds on the contract. On April 23 BHTI presented a plan to the Army that maximizes contract performance while minimizing contract cost.

Since testimony, during the ARH Special Army Systems Acquisition Review Council (ASARC) held on May 18, the Army evaluated and considered options in the procurement of the ARH to replace the rapidly aging and depleted fleet of OH–58D Kiowa Warriors. The ASARC, after evaluation of available options, recommended that the Army continue with BHTI as the prime contractor for the Armed Reconnaissance Helicopter.

The recommendation by the ASARC, approved by the Acting Secretary of the Army, maximizes contract performance while minimizing negative cost and schedule impacts to the government. First Unit Equipped is planned for no earlier than April 2010. The Army will report the recommendation to the Defense Acquisition Executive.

Mr. ABERCROMBIE. Were there other Department of Defense concerns with the contractor's ability to perform for the Armed Reconnaissance Helicopter given the problems with the UH–1Y/AH–1Z program?

General MUNDT. Certainly, performance issues with other Bell programs are a concern. The Army wants creditable assurance that issues seen on other Bell programs are not going to be repeated on ARH. [See also question submitted during the hearing by Mr. Davis of Kentucky, beginning on p. 35.]

Mr. ABERCROMBIE. Were these concerns considered in the selection of the contractor for the Armed Reconnaissance Helicopter?

General MUNDT. Contractor Past Performance was considered as part of the source selection process.

Mr. ABERCROMBIE. IDA makes the point that commercial buyers of engines include engine operations and support cost metrics in their original procurement selection criteria. IDA further indicates "DOD has little experience in integrating procurement and operations and support costs in competitions." Given the billions of dollars that DOD spends on engine procurement and operations and support, why do you think that is and should OSD and the military services incorporate operations and support costs in competitions?

General MUNDT. Sustainment cost is a significant consideration during the acquisition selection process by the Army, and the life cycle cost of a major subsystem such as an engine supporting a new aircraft platform is evaluated during the source selection process.

Army Aviation's emphasis on operating cost in contracting for engines can be tracked to the Blackhawk engine upgrade in the mid 1980s. The Operation and Sustainment (O&S) costs of that engine, coupled with the Specific Fuel Consumption (SFC)/performance improvements, were included in the Request for Proposal (RFP) evaluation criteria considered by the Source Selection Evaluation Board and were critical drivers for the selection of the engines. As a function of contractual compliance, the reliability requirements in the engine specifications could be enforced if not met.

The Army's latest competitive procurements have been geared to utilize COTS/NDI aircraft to the maximum extent. These procurements considered both procurement and operations and support cost in the contractor selection process. The cost of engine procurement and support was not a separate entity but was included in the overall operations and support price.

Mr. ABERCROMBIE. From your perspective, do you believe the Department of Defense should proceed with an alternate engine program for the Joint Strike Fighter?

Mr. BALDERSON. The Department's decision to cancel the F–136 program is strictly based on affordability, providing the best balance of risk and cost. Recent experience with engine development indicates there is low operational risk to the warfighter with a single engine supplier. The studies required by the FY 2007 Authorization Act have been completed. The conclusions, while supportive of competition in general, support the Department's initial findings that the expected savings from competition do not outweigh the investment costs. The studies also concluded that other benefits might result from competition. The Department believes the cost of competition outweighs the benefits. The Department considered all of the intangible benefits and determined that the other benefits were not sufficient to warrant an engine competition for the F–35.

Mr. ABERCROMBIE. We noted that the Navy's F/A–18EIF program increased from 462 aircraft to 490 aircraft with an additional 28 F/A–EIFs programmed in 2011

and 2012. Based on the strike fighter shortfall, should the F/A–ISEIE procurement program be further increased in years earlier than 2011 to 2012?

Mr. BALDERSON. No, the peak years for the strike fighter shortfall are expected to be from 2016 to 2020. Delivery of aircraft by 2014 are required to partially mitigate the shortfall. The additional 28 F/A–18E/F aircraft would be delivered in 2012, 2013 and 2014.

Mr. ABERCROMBIE. The budget request includes $217 million for the VH–71 program. Is this amount executable in 2008?

Mr. BALDERSON. Yes, the requested FY 2008 RDT&E amount of $271M for the VH–71 program, vice the cited $217M, is executable in FY 2008. However, the FY 2008 funding level is sufficient only given that all FY 2007 carryover funds remain within program accounts.

Mr. ABERCROMBIE. We understand that the Navy is in the process of revising its government cost estimate. Are VH–71 program costs expected to increase?

Mr. BALDERSON. The program is in the process of reassessing Increment 2 culminating with a Systems Requirements Review and revised government cost estimate. Assessment recommendations will be forwarded to adjust, as required, fiscal years beyond FY 2008 during the FY 2009 budget development process. Preliminary assessments show a minimum two-year slide, to address concurrency issues with Increment 1 development, design, and production, to the Increment 2 Initial Operating Capability (IOC) which will result in increased program costs. The program office is awaiting further contractor data to complete the government cost estimate prior to making any formal assessment recommendations.

Mr. ABERCROMBIE. IDA makes the point that commercial buyers of engines include engine operations and support cost metrics in their original procurement selection criteria. IDA further indicates "DOD has little experience in integrating procurement and operations and support costs in competitions." Given the billions of dollars that DOD spends on engine procurement and operations and support, why do you think that is and should OSD and the military services incorporate operations and support costs in competitions?

Mr. BALDERSON. The Department of Defense does consider operations and support costs in competitions. Specifically, O&S costs are embedded in the source selection process and are included in the weighting of proposals under the cost parameter.

O&S cost considerations, to include reliability/maintainability performance parameters, are always considered in program decision making given the significant percentage of life cycle costs incurred after production/delivery of the product. The difficulty resides in the Department's ability to accurately forecast the life cycle costs of a particular program early in the decision-making process vis a vis source selection. Uncertainty and variability in engine and platform utilization rates, operating environments, inherent system reliability, and sustainment strategies over the extensive life cycle of a weapon system make it difficult for either industry or DOD to fully integrate O&S cost into procurement selection decisions for military items.

It is also important to note that DOD and the commercial sector face dramatically different conditions and requirements when sourcing equipment and services. Most commercial firms get a satisfactory outcome because they specify only one or a small number of performance requirements, which allow engine manufacturers wide latitude in determining an optimum mix of investment for design, manufacturing and support. DOD requirements are often more numerous, complex and stringent for aircraft, which reduces contractual flexibility.

Finally, while supportability is factored into engine procurement competitions, DOD must also address Core/Title-10 and self-sustainment considerations for the selected solution.

Mr. ABERCROMBIE. Under the most optimistic conditions, the Navy will face a strike fighter shortfall of 60 aircraft in 2010. What actions is the Navy taking to mitigate this situation?

Admiral CLINGAN. In 2010, the large majority of the strike fighter shortfall resides in the Marine Corps, in particular with their FA–18D and AV–8B fleets. The USMC TACAIR strategy does not include procurement of the FA–18 Super Hornet, so mitigation of their shortfall rests primarily with recapitalization with Joint Strike Fighter. The PB08 DoN JSF procurement plan minimizes the impacts of this strike fighter shortfall by ensuring the STOVL IOC remains in FY 2012.

Mr. ABERCROMBIE. Could the Navy move up its planned 2013 initial operational capability for the F–35C to help address the strike fighter shortfall?

Admiral CLINGAN. The F–35 procurement profile in the FY 2008 President's Budget request results in delay of Navy Initial Operational Capability (IOC) for the F–35 CV variant from mid-2013 to mid-2015. The IOC slide results from delaying initial F–35 CV procurement from LRIP III in FY09 to LRIP IV in FY10, coupled with reduced planned CV quantities in the early LRIPs. The decision to delay CV pro-

curement was based on assessment of CV design maturity. The reduction in FYDP planned CV procurement quantities was based on increased projected costs and fiscal constraints, and the DoN emphasis on procuring F–35 STOVLs to help address USMC near term strike fighter shortfalls. Returning Navy IOC to 2013 is not possible based on LRIP IV delivering in 2012. Accelerating Navy IOC to 2014 would require LRIP IV and V additional procurement of approximately six CVs, which are not budgeted. The DoN has included the purchase of an additional 28 F/A–18E/Fs in FY 2010–2012 to help mitigate the shortfall.

Mr. ABERCROMBIE. The Navy now plans 84 EA–18Gs, a decrease of 6 from last year. Could the Navy increase its procurement of EA–18Gs to help address Air Force shortfalls in electronic attack? Are you discussing this situation with the Air Force?

Admiral CLINGAN. The Navy is executing its program of record as laid out in POM04 to replace carrier-based EA–6Bs with the EA–18Gs by 2009. The initial aircraft inventory objective was for 90 aircraft. Based on Productive Ratio Aircraft Entitlement and the expectation that Air Force expeditionary Airborne Electronic Attack (AEA) would be funded, the Navy reduced the EA–18G inventory objective from 90 carrier based aircraft to 84 carrier based aircraft.

The Air Force has not indicated a requirement for the Navy to support Air Force expeditionary AEA. Should the Air Force require Navy AEA support for expeditionary AEA, additional funds would be required to procure EA–18Gs since this requirement is above the Navy's current program of record.

The Navy and the Air Force continue to work toward a solution to mitigate AEA risk until the Air Force can field an expeditionary AEA capability.

Mr. ABERCROMBIE. IDA makes the point that commercial buyers of engines include engine operations and support cost metrics in their original procurement selection criteria. IDA further indicates "DOD has little experience in integrating procurement and operations and support costs in competitions." Given the billions of dollars that DOD spends on engine procurement and operations and support, why do you think that is and should OSD and the military services incorporate operations and support costs in competitions?

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It is also important to note that DOD and the commercial sector face dramatically different conditions and requirements when sourcing equipment and services. Most commercial firms get a satisfactory outcome because they specify only one or a small number of performance requirements, which allow engine manufacturers wide latitude in determining an optimum mix of investment for design, manufacturing and support. DOD requirements are often more numerous, complex and stringent for aircraft, which reduces contractual flexibility.

Finally, while supportability is factored into engine procurement competitions, DOD must also address Core/Title-10 and self-sustainment considerations for the selected solution.

Mr. ABERCROMBIE. Last year, the UH–1Y/AI–I–1Z program submitted a budget request for the procurement of 18 helicopters, but the contractor was capable of producing only 11. This year, the budget request includes $519 million for helicopters and the FY 2008 GWOT request includes $123 million for 6 helicopters. That's a ramp from 11 to 26. Is the contractor capable of executing this ramp given the problems with this program and the Army's ARH program?

General CASTELLAW. The H–1 Upgrades PB08 supports 11 aircraft (9 UH–lY/2 AH–1Z) in FY07 and ramp to 20 aircraft (15 UH–1Y/5 AH–1Z) in FY08 at Full Rate Production (FRP) Decision. Both the UH–lY and the AH–1Z production lines are operating under capacity, and would be able to produce the additional aircraft. The program office would recommend a mix that would include additional AH–1Zs to optimize the AH–1Z production line throughput.

Mr. ABERCROMBIE. The Navy's FY 2007 Supplemental request includes $50 million for non-recurring engineering. If that request is disapproved, will the UH–1Y/

AH–1Z program be able to execute the increase in procurement from 11 to 26 helicopters in FY 2008?

General CASTELLAW. If the request is disapproved, UH–1Y/AH–1Z procurement will be unaffected. (The $50M has no impact on the ability to produce UH–1Y and AH–1Z aircraft.) However, the AH–1Z production strategy will be affected. If the request for $50M is disapproved, near-term AH–1Z procurement will be sourced from remanufactured AH–1Ws which will cause a significant drain on the number of attack helicopters currently supporting combat operations. The $50 million will fund non-recurring engineering for an AH–1Z "build new" production strategy, which will mitigate the operational risk of pulling operational AH–1Ws from the Fleet until enough AH–1Zs are available to sustain the full complement of attack helicopters required by the Marine Corps. The "build new" will also provide the ability to replace attrition aircraft over the life of the program and maintain sufficient numbers of aircraft in the fleet squadrons.

Mr. ABERCROMBIE. Does the prime contractor's poor performance on the UH–1Y/AH–1Z program have any affect on their ability to produce V–22 aircraft?

General CASTELLAW. Bell Helicopter and Boeing IDS are a Joint Venture for the V–22 Program. Bell Helicopter's performance on the UH–1Y/AH–1Z program has had minimal affect on their ability to produce V–22 aircraft to date. Recent leadership changes at Bell Helicopter have instilled renewed confidence in the H–1 Upgrades Program. USMC has confidence that Bell has turned the corner with the H–1 Upgrades Program and will be able to maintain satisfactory performance on the V–22 Program.

Mr. ABERCROMBIE. IDA makes the point that commercial buyers of engines include engine operations and support cost metrics in their original procurement selection criteria. IDA further indicates "DOD has little experience in integrating procurement and operations and support costs in competitions." Given the billions of dollars that DOD spends on engine procurement and operations and support, why do you think that is and should OSD and the military services incorporate operations and support costs in competitions?

General CASTELLAW. The Department of Defense and the commercial sector face different conditions and requirements when bidding for equipment and services. Most commercial firms achieve satisfactory outcomes because they specify only one or a small number of performance requirements. This allows engine manufacturers wide latitude in determining an optimum mix of investment for design, manufacturing and support.

Conversely, the Department's requirements are often more numerous, complex and stringent for aircraft, which reduces contractual flexibility. Additionally, the Department lacks flexibility in the budget and appropriations process to transfer or combine "colors of money" between development, procurement, and operations, further limiting contract flexibility.

The CAIG found that in the Department's limited experience with Performance Based Logistics contracts, they resulted in increased operational availability, but no cost savings.

Uncertainty and variability in engine and platform utilization rates, operating environments, inherent system reliability, and sustainment strategies over the extensive life cycle of a weapon system make it difficult for either industry or DOD to fully integrate O&S cost into procurement selection decisions for military items. However, OSD and the military services should, and often do, incorporate O&S costs in program decision making given the significant percentage of life cycle costs incurred after production/delivery of the product.

Mr. ABERCROMBIE. B–2 Radar Frequency—The subcommittee understands that the B–2 is undergoing a $1.4 billion upgrade to relocate the B–2 radar frequency because it is not the primary user of that frequency. Can you provide the subcommittee background of how the original frequency was chosen and what occurred between development and now to require the B–2 to change radar frequencies?

General CHANDLER. Initially, the B–2 radar frequency was allocated due to its infrequent and improbable use by other users. Over the last 20 years growing worldwide demand for radio frequency spectrum bandwidth led the World Radio Conference to a series of more specific user frequency allocations that will populate the band with competing "primary" users. The frequency band used by the B–2 radar has subsequently been re-allocated to a different primary user. This places the B–2 as a secondary user. A secondary user operates on a non-interference basis and is subject to penalties for interfering with primary users. This allocation change eliminates the B–2s ability to operate its current radar frequency in a training environment.

Mr. ABERCROMBIE. How serious is the aft deck cracking of the B–2 and is it still possible to meet its service life of 20,000 hours based on this issue?

General CHANDLER. Cracks are a serious problem as the aft decks are the load-carrying structure of the airframe and critical to maintaining Low Observable (LO) capability. Considerable engineering time and effort is being spent to mitigate and resolve all known deficiencies through a comprehensive three pronged approach, to ensure the B–2 can reach 20,000 hours. First, we are reinforcing the deck and surrounding structure with doublers and stiffeners to slow crack growth. Second, we are redesigning the aft deck assembly to reduce susceptibility to cracking. Finally, we are qualifying new repair technologies and investigating research opportunities for LO-compatible crack repairs.

Mr. ABERCROMBIE. Last year the Air Force wanted to retire 38 B–52s in fiscal year 2007 and fiscal year 2008, but the committee restricted retirement to 18 aircraft based on not being able to meet conventional strike requirements for the regional combatant commanders for 2 simultaneous major combat operations without assuming a high operational risk. Has anything changed within the last year that would permit retirement of more than 18 aircraft until the Next Generation Bomber is fielded in 2018?

General CHANDLER. There has been no significant change to the combatant commanders' conventional strike requirements or the overall security environment within the last year. However, the Air Force has been moving forward to enhance its Long Range Strike capability by implementing a comprehensive three-phased strategy which addresses near-term issues and prepares for future operational needs.

Phase I of this strategy is to modernize the remaining legacy bomber force. The B–1, B–2 and B–52 will undergo upgrades focused on sustainability, lethality, responsiveness, and survivability that enhance their capabilities to provide combat power for the COCOM. For instance, in PB08 (FY08–FY13) the B–52 has the following enhancements programmed: Avionics Midlife Improvement (AMI), Advanced Weapons Integration (AWI), Combat Network Communication Technology (CONECT), Electronic Countermeasures Improvement (ECMI), and Miniature Air Launched Decoys (MALD). These upgrades will allow the B–52 to carry and employ the LITENING II advanced targeting pod, rapidly re-target J-series weapons in-flight, increase communications capability and connectivity, and provide enhanced capability against enemy threat systems. As well, the B–1 and B–2 are programmed to receive similar upgrades that will result in increasingly capable aircraft. In the near-term, the Air Force will present a more capable bomber force to the combatant commanders for their employment.

This modernized legacy bomber force will serve to mitigate the risk until Phase II of our Long Range Strike strategy fields the next generation bomber in 2018. Additionally, the Bomber Force Structure Study directed by Congress to be accomplished by the Institute for Defense Analyses is underway and we expect initial findings to be available by August 2007.

Mr. ABERCROMBIE. The Air Force budget request wants to maintain a fleet of 44 combat coded aircraft using only 56 total aircraft. In the past, the Air Force has needed 76 aircraft to meet a fleet of 44 combat coded, and the Air Force is prohibited maintaining less than 76 aircraft under current law. How does the Air Force plan to meet a requirement of 44 combat coded aircraft with only a fleet of 56 total aircraft in the inventory? What will you do with the other 20 aircraft?

General CHANDLER. The Air Force is requesting to reduce the number of B–52s in order to divest legacy aircraft for the purpose of modernization and recapitalization. The Air Force's Air Combat Command (ACC) has stated that they can provide 44 combat coded aircraft with 56 bombers. There has been no significant change to the combatant commanders' conventional strike requirements or the overall security environment within the last year. With a reduced B–52 force, the Air Force would still retain the ability to meet any COCOM requirement from a total force perspective. The bomber's ability to swing from one AOR to another and the ability to introduce different force structures to provide the same effect will allow the Air Force to provide the forces to the COCOM required to meet their requirements.

The FY08 PB includes the planned retirement of 20 B–52s in FY08. The Fiscal Year 2007 National Defense Authorization Act (NDAA) language limited the AF to retiring not more than 18 B–52s and maintaining 44 B–52s as Combat Coded. To remain in compliance with NDAA 07 language while maintaining 56 aircraft Total Aircraft Inventory (TAI), the Air Force will place the 20 aircraft in XJ Status, which is defined in AFI 21–103 as being excess to requirements and awaiting disposition instructions. Additionally, the Air Force will maintain the aircraft in a serviceable condition.

Mr. ABERCROMBIE. The Navy has informed the committee of a strike fighter shortfall beginning as early as 2010. Does the Air Force have any similar concerns about shortfalls in its strike fighter inventory?

General CHANDLER. The AF has a critical need to recapitalize its fighter/attack forces. Joint analysis from the 2006 QDR reported that demand for AF Fighter/Attack assets will be higher than the force structure produced in our projected resource-constrained plans. The bottom-line: the AF has a concern in FY17 and beyond that we will have insufficient resources to field required capabilities, and be forced to execute costly Service Life Extension Programs (SLEPs) to maintain an aging fighter/attack inventory. The AF is currently conducting that will provide more definitive answers.

Mr. ABERCROMBIE. The Air Force and the Navy have had a long-standing Memorandum of Agreement (MOA) that provides EA–6B assets to the Air Force for training and operational requirements. As the Navy continues with its plans to retire the EA–6B by year 2011, how will this retirement affect the Air Force meeting its electronic attack requirements?

General CHANDLER. The current EA–6B support Memorandum of Agreement (MOA) states that "Navy expeditionary EA–6B squadrons will decommission between FY2009 and FY2012, replaced by indigenous USAF Electronic Attack (EA) capability." The USAF will not be able to provide a Stand-off jamming capability by FY 2012. This situation will be discussed at the 2007 Navy/Air Force Senior Leader Talks. However, EA–6B/EA–18G capabilities will not meet the Air Force's 2012 Airborne Electronic Attack (AEA) requirements.

Mr. ABERCROMBIE. Do you intend to enter into a similar MOA with regard to service sharing the EA–18G? If not, how do you intend to fill the capability gap generated by the EA–6B retirements?

General CHANDLER. Due to the fact that the Air Force will be unable to provide a Stand-off jamming capability by 2012, this situation will be discussed at the 2007 Navy/Air Force Senior Leader Talks in order to mitigate the resulting risks.

Mr. ABERCROMBIE. It is my understanding that the MALD and MALD-Jammer are air-launched, non-recoverable vehicles that are programmed with mission data before launch. Can you reprogram these assets, change jamming frequencies, or turn off the jammer if required after launch? If not, is this a reasonable design approach?

General CHANDLER. MALD-J cannot be reprogrammed after launch; however it encompasses technological characteristics that allow it to effectively accomplish its stated mission. These characteristics include the ability to:

1. Utilize Radio Frequency (RF) signal discrimination in order to only affect prioritized enemy signals.
2. Perform reactive jamming in response to prioritized signals.
3. Employ low power in order to apply "smart" jamming techniques.
4. Operate in lead of friendly forces in the anti-access environment.

This is a reasonable design approach in order to provide an affordable, expendable, stand-in jammer capability.

Mr. ABERCROMBIE. IDA makes the point that commercial buyers of engines include engine operations and support cost metrics in their original procurement selection criteria. IDA further indicates DOD has little experience in integrating procurement and operations and support costs in competitions. Given the billions of dollars that DOD spends on engine procurement and operations and support, why do you think that is and should OSD and the military services incorporate operations and support costs in competitions?

General CHANDLER. The military services incorporate operations and support cost considerations into major acquisitions in accordance with Title 10 USC 2434, and Title 10 USC 2464. However, the accuracy of such estimates is directly dependent on the maturity of the technology involved.

With regard to the consideration for the incorporation of support costs into the procurement process for the purpose of competitions, the following factors are considered:

1) Procurement Management is required to base major decisions on system-wide analyses and the lifecycle of those decisions on system performance and affordability. Examples of these analyses are the business cases and cost estimates that support the acquisition (i.e., affordability assessments, analyses of alternatives, cost-performance trades, and iterative establishment of program cost goals). The refined, detailed, and discrete lifecycle cost estimates used within the program office should support internal, program office decision making such as the evaluation of engineering changes or in competitive source selections. Depot Source of Repair (DSOR) decisions are another major input into Program Management assessments, along with tech data requirements, support equipment, and other factors. DSOR decision con-

siders core workload and the limitations on contractor repair directed in Title 10.

2) A system's ability, regardless of the application of design for sustainment, will suffer varying stresses during the actual operational deployment and use. The latter is especially true in the case of immature systems because the conceived operational environment may dramatically differ from the actual environment/ops tempo initially projected.

3) In the case of engines specifically, the data concerning operations and support cost may not be available or conceived in a military use even though it may be accurate for commercial products operating in a commercial atmosphere. The Air Force uses best available cost estimates when preparing the DSOR package and analyses. Another factor for consideration is the degree that engine specific operation and support cost is considered when that engine is procured as a subcomponent to a larger system, i.e., C–17, or Global Hawk (RQ–4).

Mr. ABERCROMBIE. From your perspective, do you believe the Department of Defense should proceed with an alternate engine program for the Joint Strike Fighter?

General HOFFMAN. The Air Force supports DOD's decision to manage the risk with a single engine supplier as the best use of available resources. Subsequent to the decision, Congress directed three studies. One of these studies determined that 8.8 billion in constant FY06 dollars would be required for a second engine and that offsetting this amount through procurement savings from competition appeared implausible. A combination of savings from procurement and operations and support (O&S) would be necessary to offset the $8.8 billion cost of a second engine supplier. Because the Department of Defense has not typically linked procurement and O&S costs in a single competition, the study found no historical data with which to estimate plausible O&S savings under such an acquisition strategy. The study did assess, however, that competition can be expected to bring non-financial benefits in the form of fleet readiness, contractor responsiveness, and industrial base robustness.

Mr. ABERCROMBIE. How long do you anticipate the CSAR–X program will be delayed to address these GAO concerns?

General HOFFMAN. A schedule impact is anticipated, but we will not know the full extent of it until the Air Force issues an RFP amendment, conducts discussions with the offerors and completes an integrated Best Value assessment of the proposals.

Mr. ABERCROMBIE. Give the long development cycle of most major acquisition programs incorporating new technologies into weapons platforms, will the technology being integrated into the Next Generation Bomber be mature enough to meet an Initial Operational Capability of 2018 . . . only 11 years from now?

General HOFFMAN. Yes. In order to field the Next Generation Bomber in 2018, it is imperative to leverage and incorporate mature technologies. Technology maturity, both in terms of Technology Readiness Levels (TRL) and demonstrated Technology Integration Readiness, was explicitly assessed throughout the concept definition efforts supporting the Next Generation Long Range Strike Analysis of Alternatives. Technology maturity informed the risk ratings assigned to all technologies, the technology development strategy, and the potential future acquisition increments which would incorporate technology deemed not mature enough for 2018 fielding. We only plan to take forward those technologies that are at TRL6 by FY09.

Mr. ABERCROMBIE. Regarding the F–22, what is the schedule for accomplishing the Secretary of Defense certification on cost savings, and signing the F–22 multiyear contract that was authorized in last year's authorization bill?

General HOFFMAN. The Under Secretary of Defense for Acquisition, Technology and Logistics and his staff are working very closely with the Air Force on all of the requirements which must be satisfied before award of the F–22A multiyear procurement (MYP) contracts. We are currently on track to complete contract negotiations and make the certifications, required by Section 134 of the Fiscal Year 2007 National Defense Authorization Act, in July 2007 to permit contract award in August 2007. The Act also requires the Secretary provide for a new federally funded research and development center cost report on the MYP savings to be submitted no later than 30 days prior to contract award. The Department commissioned RAND to complete the required report, which is on schedule to be delivered in July 2007.

Mr. ABERCROMBIE. The B–52 Stand-off Jammer program was cancelled last year when it was deemed unaffordable as cost estimates came in at near $7 billion. In light of this, what are the estimated costs for the Core Component Jammer program? What has changed, other than the name, to insure affordability of this program?

General HOFFMAN. The estimated cost of the Core Component Jammer (CCJ) program is approximately $1.4B–$1.8B within the FYDP and $3.8B overall. There are three main reasons why the CCJ program is more affordable than the B–52 Standoff Jammer (SOJ) program: reduced procurement quantities, narrowing of frequency jamming coverage, and maturing receiver technology. The CCJ program plans to modify 30 aircraft and build 24 jamming shipsets (48 pods), whereas the B–52 SOJ program planned to modify 76 aircraft and build 40 jamming shipsets (80 pods). After the termination of SOJ, we continued to refine the requirements analysis. This allowed us to reduce the number of aircraft modifications and shipsets. B–52 SOJ included a low, mid, and high band jamming capability. CCJ will have room for growth; however, it will initially concentrate on a low and mid band jamming capability. Finally, the B–52 SOJ planned to compete and develop a new receiver while CCJ leverages USN EA–18G development by using a version of the ALQ–218 receiver.

QUESTIONS SUBMITTED BY MR. TAYLOR

Mr. TAYLOR. Is there anything in the present contracts for the Joint Strike Fighter engines that would preclude the government from allowing one contractor to produce another contractor's design?

Mr. SULLIVAN. According to the Office of the Secretary of Defense and the Joint Strike Fighter program office, some of the government's rights to engine technical data are limited and may preclude a strategy where one contractor produces another contractor's design. As both contractors used their own independent research and development funding to support portions of the engine designs, the government is restricted (per the relevant Defense Federal Acquisition Regulation Supplement incorporated into the contracts) in its use, release, or disclosure of some technical data for the Joint Strike Fighter engines. Unless the government is able to negotiate another arrangement, which is likely to be cost prohibitive, the contractors could deny the government the ability to transfer technical data to another source for production.

QUESTIONS SUBMITTED BY MR. LARSEN

Mr. LARSEN. The Navy is the only service that has a clear, long-term plan for joint AEA. The USAF will not have a Stand Off Jammer (SOJ) capability by 2012. The USMC is investing in ICAP III Prowlers for the near-term, but they still haven't decided what their "next-generation" EW platform will be. I expect that there will be a significant capability gap in 2012, and it will significantly impact our ability to execute our mission. If the USAF does not have an SOJ capability, how does that affect the Navy's ALA mission, especially against air defense systems? In other words, how much does the Navy need a next generation SOJ to fulfill mission requirements?

Mr. BALDERSON and Admiral CLINGAN. Cancellation of the B–52 SOJ does not directly impact the Navy's AEA mission. The EA–18G is part of the carrier air wing/carrier strike group. The carrier strike group supports the joint fight. As part of the carrier strike group, the Navy provides its own AEA support with the EA–18G. The Air Force SOJ was intended to support long range global strike requirements. In this role, the B–52 SOJ contributed to its portion of the AEA system of systems. SOJ is complementary to Navy strike AEA.

Mr. LARSEN. Could more EA–18G Growlers fill the capability gap created by the SOJ's demise? Could the right technology, with the right people and the right number of EA–18Gs do the job?

Mr. BALDERSON and Admiral CLINGAN. The EA–18G is planned to replace carrier based EA–6Bs. There are no plans to replace Navy expeditionary EA–6Bs. Any tasking to fill a gap as a result of the B–52 SOJ demise will be above current program of record and planned utilization of the EA–18G force structure. The Air Force is exploring the Core Component Jammer (CCJ) as the alternative to SOJ as it replacement. The Air Force has not requested that the Navy provide support for Air Force expeditionary AEA beyond 2012. Any additional requirements beyond the Navy's current program of record will require coordination with the Air Force, in order to identify all mission requirements, and appropriate increases in funding.

Mr. LARSEN. Hypothetically, what if the Navy is the only service in 2012 with stand-off/support jamming capability? Assuming that the Navy will need more than 90 aircraft, how many will they need, and when does the Navy need to know to ensure enough Growlers are operational in time?

Mr. BALDERSON and Admiral CLINGAN. To replace the three-squadron Navy expeditionary force with EA–18Gs would require 22 aircraft. This would be above the Navy's current program of record and would require additional procurement funds as well as operational and support funding.

Mr. LARSEN. Once the Joint Strike Fighter (JSF) comes on line, will there be a plan to keep the Growler community separate and distinct from the JSF community? Will there be an emphasis on maintaining core, centralized LW expertise at the various service levels?

Mr. BALDERSON and Admiral CLINGAN. The EA–18G Growler community will remain as a distinct community for the foreseeable future. Airborne Electronic Attack will remain a core capability within the Navy that is required to support the strike mission, inclusive of the JSF.

Mr. LARSEN. The Navy requirement of 90 Growlers does not provide for a reserve squadron. The Navy Reserve squadron will be deactivated along with the expeditionary squadrons in 2012. What is the rationale for this decision? Will it negatively affect training or readiness?

Mr. BALDERSON and Admiral CLINGAN. The Navy is completely divesting the EA–6B. To keep a single Navy squadron of EA–6Bs would be cost prohibitive. There is no impact to training or readiness as a result of disestablishing the reserve EA–6B squadron. Each carrier air wing will have an associated EA–18G squadron to meet operational requirements.

Mr. LARSEN. The GAO has expressed some concerns about the Growler vs. the ICAP III Prowler. What is the capability ratio between ICAP III Prowlers and Growlers? 1:1? What is the comparison between the two in terms of Service life and O&M/cost per flight hour?

Mr. BALDERSON and Admiral CLINGAN. The EA–18G platform provides capabilities exceeding those in the EA–6B. The Growler has nine available weapons stations for carriage of ALQ–99 pods, fuel, HARM, and AIM–120 missiles. The EA–6B has no air-to-air capability and only five stations for its stores, requiring a trade-off of electronic attack capability when carrying HARM. The Growler has greater aircraft carrier launch and landing weights than the EA–6B that permit it to carry the additional payload. Airborne, the Growler is faster and more maneuverable. Growler's F/A–18F heritage (i.e. common avionics, sensors, and flight characteristics) enhances integration with the strike force in an escort mission, increasing probability of mission success. The Growler is also more survivable than the EA–6B, as it possesses a lower radar signature, improved defensive countermeasures, and greater agility to evade threats from the air and ground.

In terms of service life the EA–6B is approaching its end and will not be capable of supporting existing AEA force structure by 2015. The EA–18G will IOC in 2009 and will have a full service life ahead of it.

Cost per flight hour on the EA–18G is approximately $5,000 less than that of the Prowler. Finally, the EA–18G is 85% common with the F/A–18F, which provides additional cost savings, as opposed to operating two separate aircraft models.

Mr. LARSEN. Who strategically looks at our EW requirements at the Joint Staff level and pushes the services to maintain joint EW capability? Is there a flag officer tasked with keeping joint ABA together?

Mr. BALDERSON and Admiral CLINGAN. It would be inappropriate for me as the Deputy Assistant Secretary of the Navy for Air Programs, or for RADM Bruce Clingan, Director, Air Warfare, to attempt to articulate Joint Staff requirements process. We recommend that this question for the record should be referred to the Joint Staff Joint Capabilities Division J–8, for a response.

Mr. LARSEN. What role do combatant commanders have on influencing joint AEA within the Joint staff?

Mr. BALDERSON and Admiral CLINGAN. It would be inappropriate for me as the Deputy Assistant Secretary of the Navy for Air Programs, or for RADM Bruce Clingan, Director, Air Warfare, to attempt to articulate COCOM relationships with the Joint Staff. This question for the record should be referred to the Joint Staff's Joint Capabilities Division J–8, for a response. Navy remains informed by the COCOM's demand signal for capabilities inherent within existing designs for AEA procurement.

Mr. LARSEN. The Growler requirement stands at 90 aircraft. Last year, 4 were cut by Congress from the FY07 budget and then the Navy cut 6 more for its program of record which is now down to only 80. Given the alarming joint AEA capability gap 2012 and beyond, how is the Navy going to get back up to its requirement of 90 aircraft across the FYDP?

Mr. BALDERSON. Based on Productive Ratio Aircraft Entitlement and the expectation that Air Force expeditionary Airborne Electronic Attack (AEA) would be funded, the Navy reduced the EA–18G inventory objective from 90 carrier based aircraft

to 84 carrier based aircraft. Congress swapped four EA–18Gs for four F/A–18E/Fs in FY07. As a result of the swap, EA–18G inventory was reduced to 80. The Navy's inventory objective remains 84. The Navy intends to address the four additional aircraft during the PR–09 process.

Mr. LARSEN. How many flight hours have ICAP III Prowlers logged in the GWOT? What is current month estimate?

Admiral CLINGAN. Since reaching Initial Operational Capability (IOC) in December 2005, ICAP III Prowlers have logged 3,740 flight hours in the GWOT. As of April 20, 2007, the current estimate of ICAP III flight hours logged for the month of April 2007 is expected to reach a total 400 for the 10 ICAP III aircraft that are active.

Mr. LARSEN. How does the op tempo of ICAP III Prowlers effect Prowler sustainment in the near-term and long-term (especially if they will be called upon in service until possibly 2019)?

Admiral CLINGAN. Current op tempo of ICAP III Prowlers is sustainable for the near-term. The 10 operational ICAP III Prowlers will be supplemented with 5 additional aircraft by the end of FY08. Those 15 ICAP III systems will be mixed with less capable ICAP II Prowlers unless the FY07 and FY08 supplemental funds are provided to acquire 7 and 10 additional ICAP III installations respectively.

Long term efforts will require additional readiness investment to facilitate cost-wise readiness improvement initiatives. These initiatives have proven very effective at staving off a steady decay in aircraft availability since 2004, yielding a 6% improvement in operational availability. Additionally, as Navy transitions to the EA–18G, they will select "best of breed" aircraft for Marine Corps use; parts from aircraft taken out of the inventory will be introduced into the supply system as part of the long term sustainment strategy.

QUESTIONS SUBMITTED BY MS. GIFFORDS

Ms. GIFFORDS. The Air Force budget submission for FY08 requests $69.2 million for the A–10 Wing Replacement Program. However, the Air Force's Unfunded Priority List includes an additional S37.5 million for Fiscal Year 2008, to purchase six additional wings. Close Air Support is one of the Air Force's most important combat missions in Iraq and Afghanistan. What degree of risk does slowing the rate of A–10 recapitalization create for the readiness of the A–10 fleet and the Close Air Support mission in Iraq and Afghanistan?

General CHANDLER. The FY08 President's Budget leaves as many as 24 aircraft at risk of grounding in FY11. Funds have been requested in FY07 Global War on Terror (GWOT) and FY08 Unfunded Priority List (UPL) to address the A–10 wing modification and repair. This is expected to reduce grounding by approx 50%. The risk of not accelerating the wing replacement (FY07 GWOT + FY08 UPL) could ground an estimated 5% of the fleet; increase hours on flyable aircraft which in turn could accelerate further grounding of a key GWOT asset; limits assets for test and training during AEF reconstitution; and potentially increases Ops Tempo of other units.

Ms. GIFFORDS. Senior Air Force officials have recently proposed the creation of a lead UAV agency within DOD. The proliferation of Army UAVs has given commanders in the field more options and greater flexibility. What would be the overall positive or negative impact on Army UAV programs if such an office were created?

General MUNDT. The impact would be NEGATIVE. Dedicated, responsive availability of Unmanned Aircraft Systems (UAS) to the tactical commander would be reduced. The importance of dedicated UAS for Land Forces cannot be overstated. Today, the Army sees a direct application of UAVs in most combat arms. Army Centers of Excellence in Infantry, Aviation, Artillery, Signal and Intelligence, as the primary benefactors of UAVs, are currently developing detailed tactics, techniques, and procedures (TTPs) for their use. UASs will also be integrated into most other battlefield functions, including logistics missions such as emergency medical resupply and engineering operations. In this decade, the Army will rely on UASs as a cornerstone of network operations to provide the basis for its communications architecture. All of our experiences with UASs to date and analysis of future requirements reinforce the importance of this capability to Army forces of all echelons. All enemy attacks are no conducted by unconventional, insurgent, small units with little or no warning—with their reduced footprint insurgent attacks are very difficult to predict. As such, as a force protection asset, dedicated immediate response, UAS availability must be assured. Because of their critical importance and level of responsiveness demanded by close combat maneuvers, the commander's requirement to directly con-

trol their use is non-negotiable—this is the consistent feedback from the warfighting commanders now.

Ms. GIFFORDS. What are the fundamental similarities and differences between the UAV requirements as defined by the Army and the Air Force?

General MUNDT. The Army's Unmanned Aircraft System (UAS) requirements cannot be fully satisfied by the Air Force alternate proposal. The Air Force would create a single purpose full motion video system using the Predator aircraft which does not meet the Army's concept of operations (CONOPS). The Air Force alternative would transfer the Army's investment in UAS to the Air Force. This organic capability within the division battlespace and the control over future system capabilities such as Weaponization and Communications Relay—are critical requirements for the tactical commander.

Within the division tactical battlespace, the Army's multi-role (Intelligence, Surveillance, Reconnaissance, and Target Acquisition (ISR-TA), Communications Relay, Weapons, and Manned-Unmanned Teaming) UAS CONOPS fully meets the Joint Requirements Oversight Council (JROC) approved requirements. The Air Force alternative stitches together combinations of various systems such as the Predator A and Predator B with complex command and control inversely responsive to the tactical tempo. For example, after launch from local sites the aircraft would then be operated by a central operations command at Nellis AFB and Langley, VA. The Army's UAS provides an integrated capability deliberately linked to common personnel, training, qualifications, sensors, logistics, throughout the division battlespace. Furthermore, each Army UAS is inherently linked to the Army's other UAS (TUAV, SUAV, FCS Systems), manned aviation, ground mounted and dismounted Soldiers.

The Air Force's precept of apportioned and allocated support is fundamentally counter to the Army's responsibility to close with and destroy the enemy. The Air Force definition of interdependence can be summarized as an Air Force owned, operated, allocated and apportioned capability determined by a mathematical model using the factors of priority and resource assignment. This concept is suitable for operational and strategic missions and unsuitable for tactical missions occurring in the close battle at the mounted and dismounted maneuver unit level.

Ms. GIFFORDS. Do you believe that there are sufficient opportunities for joint design and acquisition that justify the creation of a lead UAV agency for all of DOD?

General MUNDT. No. The Department of Defense (DOD) should continue on its present course of developing inclusive, synergistic strategies to exploit the Unmanned Aircraft System (UAS) capabilities of each Service. The Army, the Navy and the Marine Corps fully support the current process to determine the most functional and capable UAS platform to meet their operational and tactical needs. If all services would subscribe to this process, the maximum cost avoidance through shared, redundant collaborative engineering and design can be obtained. We need to preserve discussions regarding our shared objective to maximize combat power at the decisive point and time on the battlefield to ensure our military forces can conduct decisive and lethal operations. The Joint UAS (JUAS) Materiel Review Board and the JUAS Center of Excellence has and will continue to work and achieve the executive agency goals. With full support, these organizations will enable full joint service buy-in and resolution of issues. Additionally, to continue the research and development of UAS and meet the Department of Defense's UAS requirements, we must create an environment of competition within industry. Competition promotes innovation, challenges industry to achieve a higher level of technological achievement, and spurs investment. The Army, USN, USMC, and Special Operations Forces have all benefited from competitively selected solutions and are already sharing UAS training, logistics, and systems development in three formal programs. The Department of Defense should continue on its present course of developing inclusive, synergistic complementary capabilities to fuse the contributions of each Service.

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