

TESTIMONY OF

Christine H. Fox

Director, Cost Assessment and Program Evaluation

Office of the Secretary of Defense

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And

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Mr. Chairman and distinguished members of the committees, thank you for the opportunity to appear before you to discuss the Department's fiscal year 2011 aviation programs—specifically, the analytical basis for restructuring the JSF program. The analysis has been led by analysts and managers in Cost Assessment and Program Evaluation, or CAPE. Today, I will try to give you a sense for how the analysis was conducted, its overall findings, and the implications for the program going forward.

CAPE conducts Independent Cost Estimates (ICE) for major weapons systems. Your Weapon System Acquisition Reform Act recently increased the responsibility and authority of our organization in the conduct of these independent cost estimates. CAPE's analytic reviews support Acquisition Reform – one of DoD's High Priority Performance Goals presented in the Analytic Perspectives volume of the President's FY 2011 Budget. Our work is building on the experience and expertise of the Cost Analysis Improvement Group, CAIG, who has been conducting these reviews since 1972. Independent Cost Estimates are conducted by using a combination of historical precedence, results of extensive site visits for all major components of the program, and the actual performance of that program to date. It is a careful, painstaking analysis that looks at all aspects of a program.

For JSF, we went one step further and built a team of experts from the defense tactical aircraft community. Specifically, the Joint Estimating Team or JET was composed of multifunctional government experts drawn from the Navy, Air Force, and OSD staffs. The members of the team provided technical expertise across the areas of air vehicle and mission systems engineering, testing, and cost estimation.

The JET conducted two reviews. The first, JET I, was conducted in 2008. The full cost of development in FY 2010 as predicted by JET I was submitted in the FY 2010 President's budget. To inform the 2011 program review and budget submission, the Deputy Secretary of Defense asked CAPE to lead an update of the original JET report last

summer. This team, JET II, began its review in July 2009. Given that the aircraft is still in the early stages of flight testing, the group focused its efforts on examining the resources required by, and the planned schedule for completing, the System Development and Demonstration (SDD) phase of the program. Additionally, the team updated the previous JET estimates of JSF production, fielding, and support costs. Consistent with the methodologies used in independent cost estimation, the JET II conducted comprehensive on-site reviews with the prime contractor and each of the major subcontractors in the JSF program and then benchmarked this information against past programs. They used that combined information to forecast the likely path of events going forward.

It is difficult to mathematically calculate the precise confidence levels associated with independent cost estimates prepared for major acquisition programs. Based on the rigor of the methods used in building CAPE estimates, the strong adherence to the collection and use of historical cost information, and the review of applied assumptions, we project that it is about equally likely that the JET II estimate will prove too low or too high for execution of the restructured program as described.

The restructuring led by CAPE also considered results of the Independent Manufacturing Review Team, commissioned by Dr. Carter and discussed in his testimony. In summary, the Independent Manufacturing Review Team assessed that the rate of production of F-35s should be slower than originally planned, and that fewer aircraft should be acquired in the early years until specific manufacturing processes and management tools are put in place and demonstrated in the program. Like the JET estimate, the IMRT ramp is an estimate and we would like the contractor to exceed that ramp if possible.

Given the results of both JET I and JET II as well as the IMRT, we found it necessary to significantly restructure the program in the preparation of the FY 2011 President's Budget request. Specifically, we:

1. Extended the development phase through completion of developmental testing to March 2015.

This is a 13 month extension over the contractor's development schedule plans from Summer, 2009. We included the acquisition of one additional developmental carrier-based JSF test aircraft, allocated three additional production aircraft to the JSF development program to accelerate completion of developmental flight testing, and provided funding for an additional software development and testing line in the program. These actions are all necessary to achieve the new March 2015 date for completion of the development testing. The additional cost to this development phase of the program is \$2.8B. The contractor will incur a portion of these additional costs as Dr. Carter described.

2. Delayed an increase in the production ramp.

In accordance with the IMRT recommendations, we reduced the planned procurement of JSFs by 122 aircraft in the FY 2011-15 Future Years Defense Program (FYDP). Given the additional time necessary for the development program, this reduction in aircraft procurement quantities in the FYDP reduces the number of aircraft delivered prior to completion of testing. The contractor team will be given the opportunity to exceed this prediction and produce more aircraft than planned in the restructured program based on demonstrated progress in implementing and maturing manufacturing processes, and a demonstrated ability to produce and deliver JSF aircraft to the government at lower cost.

3. Will declare a critical Nunn-McCurdy breach.

The program restructuring, based on the JET II cost estimate and the production rates recommended by the IMRT, will result in a critical Nunn-McCurdy breach of greater than fifty percent when measured from the original acquisition program baseline (APB) established for the JSF program in 2001. We have been preparing for this breach ever since the JET II results became available in October, 2009. The formal declaration of the breach to Congress is anticipated within days, and the Department plans to complete certification review of the restructured JSF program by June, 2010.

In 2001, at the time of Milestone B approval for the program, the JSF Average Procurement Unit Cost (APUC) was projected to be \$50.2 million in constant, base-year 2002 dollars. This figure was based on a total anticipated US procurement of 2,852 JSF aircraft, including all three variants—for Air Force, Marine Corps, and Navy. The number of aircraft to be procured was revised in August, 2002 to 2,443. This revision was in response to plans for Navy/Marine Corps TACAIR integration. The latest JSF Acquisition Program Baseline (APB), dated March, 2007, projected an average procurement unit cost figure of \$69.2 million (BY 2002 \$).

We currently anticipate that the average procurement unit cost for the restructured JSF program in the FY 2011 President's Budget, based on a total planned US procurement of 2,443 JSFs, including all variants, will fall in the range of \$80-\$95 million (BY 2002 \$). The Department is in the process of determining the specific unit cost figure to be included in the restructured JSF program baseline based on the Nunn-McCurdy review process that has already been initiated in DoD. The specific APUC figure will be determined based on review of the latest program plans and cost information for those aspects of the program that primarily affect the years beyond 2015—including requirements for full-rate production tooling, support equipment, sparing of critical subsystems, and the effects of high annual procurement and production rates on efficiencies and costs. The specific unit cost figure will be included

in the final JSF Nunn-McCurdy certification package to be delivered to Congress in early June, 2010.

I would like to focus a minute on the perceptions of the JSF program that result from the restructuring. The projected delay in completion of the developmental flight test program should not be interpreted as a signal that the JSF program has insurmountable technical problems. The results of our reviews instead reflect the program's complexity and the risks remaining in its development activities.

We believe that the restructuring of the JSF program at this early stage is consistent with the goals of WSARA. The independent cost estimates and the results of the IMRT were taken very seriously and acted upon by Secretary Gates. The Department now has a realistic fiscal plan for this important tactical aircraft program.

Finally I would like to discuss the analysis behind the Department's decision not to fund an alternate engine for the JSF. CAPE has conducted several reviews of the costs and benefits of pursuing an alternate engine strategy, beginning in 2007.

Our 2007 study produced an extensive cost-benefit analysis of F136 alternative engine acquisition strategies. On the cost side, we found that the potential life-cycle cost savings were not compelling, and estimated that the alternate engine would cost an additional \$1.2B in net present value. That said, we did suggest that pursuing a competitive F136 acquisition strategy may provide a hedge against potential technical problems in the baseline F135 engine. We also noted the potential benefit of motivating increased contractor responsiveness through competition.

In 2010 CAPE updated two key factors in the 2007 analysis: 1) the additional appropriations through FY 2010 that had been directed by Congress for development of the F136 alternative engine, which now represent 'sunk costs'; and, 2) the cost estimates for the primary and second engine System Design and Development (SDD)

programs based on more recent actual cost information from both engine programs. The updated study did not include any other changes to the extensive list of assumptions used in the 2007 study, including the assumption that competition would begin in 2014. In particular, it does not fully reflect the recently restructured JSF program resourced in the FY 2011 President's Budget and the FY 2011-15 FYDP.

The updated results indicate that a competitive engine acquisition strategy becomes slightly more attractive than the 2007 study results indicated. This is because the costs of the SDD program for the second engine have become increasingly sunk with the additional directed congressional appropriations in FYs 2008-10 for the F136 development program. While the 2010 update is in fact more favorable to a competitive acquisition strategy than the 2007 analysis, the fundamental conclusion remains the same: the potential life-cycle cost savings from a competitive sourcing of engines for the JSF program do not provide a compelling business case. In net present value terms, the estimated costs of a competitive engine acquisition strategy are projected to be approximately equivalent to a sole-source scenario, or at the breakeven point, as a result of the additional sunk costs for the F136 development program during the last three years.

During the preparation of the FY 2011 President's Budget request, CAPE developed an estimate of the resources required to fully fund the F136 alternate engine program, consistent with the most recent restructuring of the JSF aircraft program. Based on the current stage of the F136 development and this restructuring, CAPE concluded that the competitive procurement of engines would now begin in 2017, three years later than the 2014 date assumed in prior analyses. This adjustment more appropriately reflects the programmatic and schedule changes incorporated into the restructured JSF aircraft development program, as well as the status of the alternative engine development program. It would provide necessary time to complete

developmental qualification of the alternate engine. It would also provide a sufficient window for directed production buys to allow the second engine source to progress, with learning or cost improvement, to be positioned to compete more effectively with the primary engine source beginning in 2017.

We concluded that DoD would have to invest \$2.9 billion (TY \$) over the next six years to complete the development program for the alternate engine; to fund an engine “component improvement program” to maintain engine currency; to perform directed buys of engines from the primary and second sources to prepare for a competition; and to procure tooling, support equipment, and spares to enable DoD to conduct competitive procurement of JSF engines beginning in 2017. Based on the fact that the additional early costs to the program are known but the benefits of competition are speculative, the Secretary decided that we could not afford to invest the additional \$2.9B.

The capabilities that the JSF will provide our forces are unique and this aircraft is a critical component of our force structure. The Department is committed to ensuring that the investments we make in this platform, and any other, represent the best use of the resources we steward. The considerations involved in choosing not to pursue an alternate engine strategy and to restructure the program were thoroughly and objectively analyzed. We believe that the strategy we have developed for the JSF is in the Nation’s best interest. Thank you again for the opportunity to appear before you today.