TESTIMONY OF

Christine H. Fox

Director, Cost Assessment and Program Evaluation

Office of the Secretary of Defense

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Mr. Chairman, Senator McCain, and distinguished members of the committee, thank you for the opportunity to appear before you to discuss the analytic basis for the restructuring of the JSF program. The analysis has been led by analysts and managers in Cost Assessment and Program Evaluation, or CAPE. Today, I will 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 Weapons System Acquisition Reform Act recently increased the responsibility and authority of our organization in the conduct of these independent cost estimates. 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 results of JET I informed the FY 2010 President's Budget. 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. Through those discussions, the team obtained detailed information on the program's progress to date, enabling it to incorporate the most current information into its cost estimate. The team compared the data gleaned from these interviews with the development and production costs and schedules of previous DoD manned tactical fighter aircraft programs. As with any cost estimate developed in CAPE , our objective was to forecast the likely path of events going forward, given the capability requirements and the current status of the program. The JSF cost and schedule estimates developed by the JET II team are based directly on the Department's experience in developing and procuring comparable manned tactical fighter aircraft such as the F-22 and the F-18, adjusted to reflect the actual costs incurred in the JSF program to date and the program's projected acquisition schedule.

It is difficult to calculate mathematically the precise confidence levels associated with CAPE life-cycle cost estimates prepared for major acquisition programs. Based on the rigor in 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 JSF joint estimate will prove too low or too high for execution of the restructured program as described.

I would like to comment here on the documentation of the JET II work. Normally, we would document the results of an important independent cost estimate such as JET II in a written report. In the case of JET II, however, we pulled the results into a summary

level briefing as quickly as possible to present to DoD leadership. This briefing, the same briefing that has been provided to your staff, prompted Dr. Carter to create a JSF Task Force as soon as the JET II results became available. From that point forward, these same analysts were deeply engaged in guiding the program restructuring and have not been given an opportunity to write a report. We prefer to document our work in written reports and hope to return to that practice for the JSF program in the future, time-permitting.

The restructuring led by CAPE also considered results of the Independent Manufacturing Review Team, commissioned by USD(AT&L), and discussed in Dr. Carter's testimony. In summary, the Independent Manufacturing Review Team assessed that the rate of production of F-35s in the Future Years Defense Program years 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 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 by April 1, 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 APUC figure of $69.2 million (BY 2002 $).

We currently anticipate that APUC figure 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 APUC 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 affect primarily 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 APUC figure will be included in the final JSF Nunn-McCurdy certification package to be delivered to Congress in early June, 2010.

Finally, I would like to focus a minute on the perceptions of the JSF program that result from this 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.

Development delays such as the ones the JSF program is currently experiencing have been experienced by other aircraft programs. These programs ultimately produced aircraft that are valuable to the DoD. For example, the C-17 program experienced significant development problems beginning in the late 1980s and continuing through

the early 1990s. These problems raised questions about cost effectiveness. In response, DoD restructured the program and reduced the aircraft order until the problems were resolved in the mid-1990s. Similarly, the F-22 program repeatedly failed to meet key performance, schedule, and cost goals throughout its development program. In response, DoD restructured the development program and reduced production aircraft. Ultimately, the contractor was able to overcome these challenges and produce a capable aircraft.

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. Thank you again for the opportunity to appear before you today.