by Mackenzie Eaglen

While few expect any tough votes if the Senate's FY 2010 defense appropriations bill arrives on the floor this autumn, one outstanding question remains: Given that Members have largely acquiesced to all of President Obama's defense cuts, will Congress continue funding the Joint Strike Fighter (JSF) alternate engine (F-136)?

For the past three years, all four congressional defense committees have remained staunchly committed to a competitive F-35 propulsion system, which includes developing an alternate engine. Further, Congress has repeatedly demonstrated that it supports competition in major defense contracts, given the resulting cost savings and innovation that typically leads to a better product. This time should be no different, particularly in light of the lessons learned from the Great Engine War in the 1980s.

Should Congress fail to fund the alternate engine, there will be only one type of engine available for a plane--the JSF--that will constitute 90 percent of all U.S. fighters in 2035. Because it is a single-engine plane as opposed to dual-engine, if something goes wrong with the engine, it could lead to a system-wide grounding of every aircraft until the problem is identified and fixed--unless there is an alternative available. Such a scenario constitutes an unacceptably high risk. Further, Congress just passed a new acquisition reform law that demands competition for all major subsystems--including fighter engines. Consequently, Congress must keep JSF alternate engine funds intact when the final defense bills are signed into law later this year.

New Law Demands Competition throughout the Lifecycle, Including Subsystems

Earlier this year, Congress passed the Weapon Systems Acquisition Reform Act of 2009, changing how the Pentagon buys major platforms and reforming the defense acquisition process to rein in spending on contracts that are over cost and behind schedule. The bill clearly directs Pentagon acquisition strategies to ensure competition throughout the lifecycle of major defense programs. Specifically, the law states the Secretary of Defense shall "ensure that the acquisition strategy for each major defense acquisition program includes measures to ensure competition, of the option of competition ... as a means to improve contractor performance." The cost savings of competition will only increase over time as performance-based logistics reduce the operating costs of systems. This life cycle management process keeps pressure on the manufacturers for a high-quality, lower-cost product while maintaining a critical engineering industrial base that will be needed in the future.

The Air Force, working with a decreased topline, has taken steps to decrease competition for the largest single subsystem being built. In its FY 2007, 2008, 2009, and 2010 budget requests, the Air Force requested elimination of the alternate engine program. With a shrinking procurement account, it is understandable that the Air Force wants to reinvest these funds

elsewhere. However, with Congress's legitimate insistence that engine competition be maintained, the Weapons Acquisition Reform Act as law, and the proven benefits of competition including cost savings, the Air Force should finish production--which is already 70 percent complete--of the alternate engine.

The Benefits of Competition

Because the JSF will be procured at an unprecedented volume (3,000 to 6,000 fighters worldwide) and because the fighter has only one engine on the aircraft--as opposed to two, where if one engine were to die the plane could still fly--an alternate engine is a critical insurance policy for America's defense.

Engines designed in tandem, like those for the JSF, allow customers to substitute one for the other on a moment's notice if something goes wrong. In fact, the planes themselves are designed so that either engine can be "plugged in" depending on what country or service is buying them. An alternate engine produced by a different manufacturer is essential in preventing the worst-case scenario--a system-wide grounding of every U.S. military aircraft--from happening. Two engines are also smart policy given that the U.S. has never asked a multi-role fighter to produce more than 40,000 pounds of thrust.

Congress and the Government Accountability Office (GAO) have also highlighted other benefits of engine competition, including better engine performance, improved responsiveness from contractors, maintaining a healthy industrial base, increased engine reliability, and enhanced operational readiness. Further, the GAO estimates that competitive pressures could yield enough savings to offset the cost of the competition over the JSF's program life.

Recalling the Great Engine War

Another reason Congress continues funding an alternate engine for the single-engine, mass-produced JSF is likely due to Members' memory of the Great Engine War of the 1980s to power the F-16 Falcon.

The Great Engine War describes the competition between Pratt and Whitney and General Electric to produce engines (the F-100 and F-110 respectively) to power the Air Force's F-16 Falcon fighter aircraft. This competition was held annually between 1984 and 1994 to produce and maintain these engines for the Air Force.

Pratt and GE went head to head, each company spurring the other to create a better, more efficient, and cheaper engine. Ultimately, the Air Force had more affordable engines "with twice the life and much more durability." The government's ultimate award announcement claimed the competition saved the U.S. government $2.5-3 billion over 20 years, resulting in "vastly improved engines, significantly enhanced warranties, and an enlarged industrial base and protection against production disruption." Even The New York Times applauded the competition efficiencies, improved quality, and reduced costs.

Furthermore, the GAO reports that the F-16 engine competition yielded "significant cost

savings." The report notes that "in the first four 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.

Finally, GAO reported the "great engine war was able to generate significant benefits because competition incentivized contractors to improve designs and reduce costs during production and sustainment." While the Great Engine War is now a memory, Members would be wise to recall that many of the F-15 and F-16 engines are still reaping the benefits of competition as part of foreign military sales.

An International Component

The U.S. Air Force, Navy, and Marine Corps are not the only services invested in this program--eight international partners and allies are also wedded to JSF production. The Pentagon's 2006 memorandum of understanding concerning the production, sustainment, and follow-on development of the JSF allows international participants to designate the F-135, the F-136, or both in their participant procurement request in such quantities and in accordance with delivery schedules as they require.

Maintaining the U.S. government's commitment to America's friends and allies to provide the option of either engine must remain a key component of any decision regarding the future of the JSF.

Competition: Essential to America's Defense

Air Force officials have testified that the cost of funding the alternate engine program could result in 53 fewer JSFs. Given the recent truncated buy of the F-22 that fell short of the stated military requirement, it is no surprise Air Force leaders are concerned about purchasing adequate numbers of fifth-generation fighters. However, that debate should be centered squarely where it belongs: in the Air Force budget topline, which is wholly inadequate for what the nation is asking the service to do now and in the future. Uniformed leaders should not have to choose between numbers and operational risk.

Given that the JSF will be the mainstay of the entire U.S. military's fighter force for the next 40-50 years at nearly 2,500 planes--and up to 6,000 procured globally--retaining two engines is smart planning. Competition encourages contractor innovation and produces a better product while saving taxpayer money in the long term. Pentagon officials must follow the law and require all major programs and subsystems to compete, including the F-136 JSF alternate engine.

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