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Air Force F-15EX Fighter Program

In FY2020, the Trump Administration proposed to buy eight F-15EX aircraft for \$1.1 billion, the first installment toward a planned initial buy of 144 planes. Subsequently, Congress authorized \$985.5 million and appropriated \$1.05 billion for the program. The Administration's FY2021 budget requests \$1.27 billion for 12 more F-15EXs; the plan set forth in FY2020 had called for 18 in FY2021.

This acquisition represents a change from previous Air Force plans to procure only stealthy "fifth-generation" fighter aircraft. What is an F-15EX, and why might the Air Force have changed plans?

What is an F-15EX?

The Air Force received its first F-15 Eagle air superiority fighter in 1974. Subsequently, the F-15 evolved to encompass more roles, most notably with the deployment of the F-15E Strike Eagle in 1989. The F-15E added substantial air-to-ground capability, including a second cockpit for a weapons systems operator. The Air Force has 453 F-15s of all variants, the last of which was ordered in 2001. Since then, F-15s have been continuously produced for a variety of international customers, including (among others) Israel, Saudi Arabia, and Japan.

Figure 1. F-15EX Concept



Source: Boeing.

Current F-15s have stronger airframes and more advanced sensors, processors, and flight control systems than those in the U.S. fleet. Many also include conformal fuel tanks to extend range and increase payload. The proposed F-15EX would be based on the most advanced Eagles, currently entering production for Qatar, which first flew on April 14, 2020. F-15EXs would add radar and other subsystems unique to the United States. Boeing says that the F-15EX

would have 70% parts commonality with existing U.S. F-15s.

Why is the Air Force requesting F-15EXs?

Air Force officials have offered numerous justifications for the F-15EX:

- The Air Force is engaged in upgrades to its existing F-15 fleet. While costing more per aircraft than modernizing legacy F-15s, a new F-15EX would yield more future life. Replacing the older, 1980s-era F-15Cs with F-15EX could also enable the Air Force to avoid the cost of some or all of those upgrades. "The Air Force has tried to retire its 250 aging F-15Cs and two-seat F-15Ds over the years due to structural issues with the aircraft, including most recently in 2017. Now, instead of paying to upgrade the older aircraft in the fleet, the Air Force hopes to use that money to buy Boeing's F-15EX."
- Buying F-15s, according to the Air Force, is an economical way of reaching the service's goals for fighter fleet size and average age. "Gen. James 'Mike' Holmes, head of Air Combat Command, told reporters in February that purchasing the F-15EX could be the 'affordable answer' to meeting the Air Force's goal of acquiring 72 new fighter jets each year."
- F-15s could also cost less to operate over time than fifth-generation fighters like the F-35. (The per-hour cost of F-15s is fairly well established, while there is less real-world experience with the F-35 fleet; a direct comparison is difficult.)
- Because the Air Force already operates F-15s, transition to the F-15EX could be comparatively easy. "We made the determination to buy F-15EXs so that we could keep our readiness at a higher level and meet the capacity need that we had for those fourth generation platforms. That is important from a readiness perspective because the time to transition from an F-15C to an F-15EX we estimate at 3 to 6 months, while the time to transition from an F-15C to an F-35 could be anywhere from 18 to 36 months and would require MILCON and other attributes that are not in our budget."
- F-15EX procurement helps maintain a competitive fighter aircraft industrial base. Currently, Boeing and Lockheed Martin are the prime contractors supplying fighter jets to the Department of Defense. A National Defense magazine report stated:

After the decision was made to continue with a mix of fourth- and fifth-generation aircraft, “the conversation then turned to how are we going to maintain a robust industrial base,” a Pentagon official, who declined to be named, official told reporters.

“For the future of the Department of Defense, it’s going to be good to have multiple providers in the tactical aircraft portfolio ... and that’s what led our way into the F-15EX decision,” he added.

Former Air Force Secretary Heather Wilson said that the Air Force did not request the F-15EXs in its initial FY2020 budget submission. This proposal appears to have been added by the Office of the Secretary of Defense during the budget build process, without a request for proposals or explanation. However, Wilson and other Air Force officials subsequently advocated for the F-15EX. ““We are seeing a decline in the number of fighters available, the increase in the average age of those fighters, and if we look at the whole system and the whole capacity over the next 10 to 20 years, one of the airframes that is not going to make it is the F-15C,” Wilson said.” “We need to replace those F-15Cs with something.” Gen. Arnold Bunch added, “We have now looked at ... what it takes to modernize that capability up in an F-15C, and the determination we made was that was not what we needed to do.”

Does the F-15EX replace the F-35?

The Air Force has been at pains to emphasize that the F-35 and F-15EX are not rivals, but complementary. The F-35 brings superior stealth and sensor fusion; the F-15 can carry more payload. (Air Force officials describe this as the difference between “capability” and “capacity.”) The message of different missions can also be seen in the emphasis on F-15EX as an alternative to modernizing existing F-15s in their existing roles.

Given a fixed Air Force budget topline, however, increases in one program require cuts in others. According to Air Force Chief of Staff General David Goldfein, “If we had the money, those would be 72 F-35s. But we’ve gotta look at this from a cost/business case.” He also noted, “We are absolutely adamant that the F-35 program, the program of record, absolutely stays on track and we don’t take a dime out of the F-35.”

While maintaining the planned purchase of 48 F-35As in FY2020, the Administration reduced its projected buy by

18 aircraft through FY2023 in its FY2020 and FY2021 budget submissions. This may not be a direct correlation, but has led some to see a tension between the two programs.

Although the F-15EX acquisition was proposed as a sole-source contract outside of the normal requirements-definition process, Congress acted to retroactively require much of the same documentation. The FY2020 National Defense Authorization Act and the explanatory statement accompanying the FY2020 Defense Appropriations Act require the Secretary of the Air Force to provide an F-15EX acquisition strategy, cost and schedule estimates, and strategies for test and evaluation, logistics, and post-production fielding. The appropriations statement also requires a capability production document and life-cycle sustainment plan.

Possible questions

- Should acquisition of new fighters be a competitive procurement?
- What are the relative costs of upgrade and modernizing existing F-15s as opposed to buying new ones? How many flight hours does the Air Force expect to get from the jets in each case?
- If new F-15EXs are purchased, would the Air Force retire older F-15s rather than upgrading them? How many upgrades would be foregone for each new F-15 purchased?
- How does the replacement of F-15s fit with the Air Force’s declared goal of growing to 386 squadrons?
- If stealthy aircraft are only required in a given conflict until the air defenses are taken down, which allows older-technology aircraft to operate with impunity, does it make sense to size the buy of fifth-generation aircraft using requirements for the early phases of conflict?
- What is DOD’s commitment to completing the planned buy of F-35As?
- How does the F-15EX fit with the current National Military Strategy emphasizing capability against sophisticated adversaries?

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