How Boeing's KC-46 Next-Gen Tanker Will Set The Global Standard For Aerial Refueling

Boeing is developing a versatile aerial refueling tanker for the U.S. Air Force that will be a game-changer for the joint force and overseas allies. Much of the media coverage reaching the public has been about delays in completing testing, but three dozen of the tankers have already been built and it now looks like Boeing will replace all 457 of the planes in the current refueling fleet.

It isn't hard to see why the KC-46, as the new tanker is designated, is a top priority for the Air Force. The Air Force provides aerial refueling for the other U.S. military services, plus allies, plus coalition partners. Without a flexible, reliable aerial refueling capability, many destinations in Europe, Asia and elsewhere would not be reachable. But seven out of eight tankers in the current fleet are over 50 years old, and they are very inefficient compared with the 767 commercial transport on which the KC-46 is based.

Boeing (a contributor to my think tank) was so confident in its next-gen tanker design that it bid aggressively to win an Air Force competition, and agreed to cover any costs of development that exceeded a $4.9 billion ceiling price. That has resulted in a series of charges to earnings as the development process stretched out, but the charges aren't costing taxpayers a cent. Over the long run, the Chicago-based aerospace giant will have sustained a global refueling franchise that persists through the end of the century, generating revenues that

dwarf any near-term costs.

From Boeing with permission

A KC-46 tanker refuels a Navy F/A-18 Super Hornet fighter in December.

KC-46 thus extends Boeing's dominance of a mission area that began during the early days of the Cold War, when the company developed tanker versions of the same aircraft design that would become the 707 commercial transport -- the world's first successful jetliner. Most airlines today have long since abandoned the four-engine 707 in favor of more fuel efficient twinjets, but because of a multi-decade hiatus in military modernization after the Cold War ended, the Air Force is only now getting around to replacing its Cold War aerial refueling fleet.

One reason we know KC-46 is the future of the refueling mission is that the Air Force must buy the planes at a fairly rapid clip to avoid expensive modifications to the aged tankers in the current fleet. That

would be a costly proposition that results in the service holding on to aircraft incapable of matching the efficiency of newer jets. But the more compelling reason for why the Air Force is sure to stick with its current plans is that KC-46 is by far the most capable aerial refueler ever built.

You can see how capable it will be simply by reviewing the "key performance parameters" that the Air Force established in making the original award to Boeing. These performance requirements are quite demanding -- in fact, they're the main reason why the program is taking longer than expected to get into the force -- but when the smoke clears, the Air Force will have a next-generation tanker far superior to anything available elsewhere in the world. So let's consider what those key requirements are.

First of all, KC-46 must provide aerial refueling capability compatible with all the military aircraft in the joint fleet. That means a rigid, telescoping "boom" for Air Force fighters and bombers, and a flexible, hose-like "drogue" for tactical aircraft operated by the sea services. The technology on the new tanker has been successfully demonstrated with the F-15, F-16 and F/A-18 fighters; the B-1 and B-52 bombers; the A-10 close air support plane; the C-17 airlifter; and both of the other tankers in the present fleet.