

After nearly a decade of struggle and false starts, the Air Force can now proceed with replacing its fleet of 50-year-old KC-135 aerial refuelers.

The Air Force has chosen Boeing as the winner of the KC-X competition to replace the oldest KC-135s. The service in February awarded Boeing a \$3.5 billion contract, which will pay for development and deliveries of four initial aircraft. Plans call for 18 airplanes to be

delivered by 2017, with further deliveries through the 2020s. The KC-X program overall is valued at more than \$30 billion.

The announcement wasn't the signal for a victory lap, however. The real climax of the competition came on March 4, when EADS North America, Boeing's rival for the KC-X contract, announced it would not protest the Air Force's choice. Only then was the tanker award considered a done deal, and the Air Force could at long last get the program going.

Having finally achieved success with the KC-X—now to be called the KC-46A—for several years the service's top modernization priority, the Air Force may view its procedures in this contest as the model for upcoming programs. These competitions may well prove just as contentious, given that big procurement contracts will likely be rare in the years to come.

Air Force Secretary Michael B. Donley, announcing the KC-X winner at a Pentagon press conference in February,



A KC-46A tanker prepares to refuel a C-17 in this Boeing artist's concept. The Air Force selected the KC-46A as its new tanker in February; at least 179 are to be built.

said the service had done its utmost to use a “clear and disciplined approach to requirements,” and a “clear description of how the evaluation would be conducted.” More than 230 acquisition experts from across all the armed services and Defense Department evaluated the proposals or vetted the evaluation even as it was under way.

Moreover, “when it came to requirements, we wanted to make absolutely certain” operators were in charge of setting them, ensuring the selected air-

craft would be suitable to the mission, Donley said.

The rules, Donley noted, called on each offeror to meet a threshold of 372 mandatory requirements. If both did so—and if the price difference between the bids on those basic needs was less than one percent—then, and only then, would USAF consider a series of tie-breaker considerations.

Also evaluated were life cycle costs over a 40-year period, to include the anticipated price of fuel, and the costs

of modifying runways and hangars to accommodate the aircraft.

Both Boeing and EADS were determined to have met the threshold 372 requirements. Because Boeing’s price was more than one percent lower than EADS,’ the “nonmandatory capabilities,” or tiebreakers, “were not used in determining the outcome,” Donley said.

At the same press conference, Deputy Defense Secretary William J. Lynn III declined to give specific numbers, but said Boeing was “a clear winner.”



Tanker Answer

The KC-46A was a long time coming.

By **John A. Tirpak**, Executive Editor



An F-35 prepares to refuel from a KC-46A in this Boeing graphic. To simplify the KC-X competition, USAF specified an airplane very much like its existing KC-135.

He went on to say, “I do think we’ve learned important lessons from this process, and we’ve tried to reflect them in this competition.”

Pentagon acquisition, technology, and logistics chief Ashton B. Carter said the program will be of a fixed-price nature, possible because top Pentagon leaders believe this tanker “can be well-specified and well-defined.” Carter had previously said fixed-price deals are unsuitable for projects requiring the invention of new technology or incurring significant developmental risk.

Money To Be Made

Boeing issued a statement saying it is proud to have won the program, but in April declined to elaborate much on the aircraft it will build for the Air Force.

Based on company press releases and those of its industrial partners, Boeing will build the KC-46 based on the 767-200ER commercial airliner. It will feature a KC-10-based boom refueling system; the boom operator will have a station just aft of the cockpit, with the ability to see multiple panoramic video views of what is happening at the back of the aircraft.

The KC-46A will have a digital flight deck, defensive systems, and capacity to refuel aircraft with both boom-type receptacles and probe-and-drogue systems. The new tanker will be able to refuel three aircraft simultaneously: two Navy-style probe-and-drogue type aircraft from wingtip pods and one from

the centerline boom, configured either way (Air Force or Navy style).

In addition to its tanking capability, the KC-46A will be able to carry cargo, passengers, or patients. Up to 18 standard pallets will fit in the cargo deck, and seats can be installed to allow carriage of 58 passengers in normal configuration and up to 114 for contingencies. Up to 58 patients—24 on litters and 34 ambulatory—can also be accommodated in the cargo area. Seating for up to 15 aircrew will be provided in the cockpit area.

The KC-46A will be powered by two Pratt & Whitney 4062 engines, of the same kind flown on commercial 747s, 767s, and some Airbus A300s. According to Warren M. Boley Jr., former Pratt & Whitney military engines president, the engines will be specially tuned to

increase their fuel burn efficiency and allow a greater gross takeoff weight. For a 179-aircraft program, Pratt expects to supply about 400 engines, Boley said, though he noted it has not yet been decided if the company will supply the engines directly to Boeing or if the Air Force will sign a separate contract with Pratt and supply the engines to Boeing as government-furnished equipment.

The first KC-46 is slated to fly in 2015. Boley said Pratt will deliver the first engines in 2013 and continue producing them for the KC-46 through “about 2027.”

Although EADS charged that Boeing tendered an “extremely lowball” bid (see box, p. 43), Boeing insists that the KC-46A will be a moneymaker. According to the *Seattle Post-Intelligencer*, James F. Albaugh, Boeing’s commercial airplanes president and CEO, said, “I’d rather lose than win and lose money. We’re going to make money on this airplane.” He said the profit margin on the KC-46 will not be “as attractive as we have on other programs,” but it will still be “very profitable.”

Albaugh noted that Boeing has signed up to provide a very specific airplane with specific capabilities. If the Air Force changes its mind and wants to add more capability, “that’s fine, but they’re going to have to pay for it.”

In March 17 testimony before the Senate Armed Services Committee, Air Force Chief of Staff Gen. Norton A. Schwartz said the service will scrutinize Boeing “microscopically” to ensure that it delivers on its promises. However, because numerous USAF programs have been felled by what is called “requirements creep”—the slow adding of costly additional capabilities that wreck cost projections—Schwartz and Donley said changes to the tanker program’s scope



To restrain cost growth, USAF leaders will impose tight discipline to avoid “requirements creep” on the KC-46A.

of work will have to be approved at the highest levels of the service.

"It might be at our level," Schwartz said. "We intend to maintain discipline on this." Engineering change orders will not, in any case, be approved at the program office level.

Donley, at a breakfast with defense reporters in early April, said a draft memo was on his desk for review, detailing the process by which program changes will be made.

Life cycle costs were a key in Boeing winning the tanker contest. The KC-46 is smaller than the KC-45 that EADS offered, and so presumably costs less to build and requires less fuel to fly. It also requires less hangar space to house and less runway modification than the larger airplane.

In its promotional literature, Boeing claimed that the NewGen Tanker would burn "24 to 29 percent less fuel than the Airbus A330, saving more than \$10 billion in fuel costs." Overall life cycle savings "in fuel, maintenance, and initial investment for the Boeing 767 is a staggering 20 to 25 percent, and range from \$11 billion to \$36 billion, depending on fuel cost inflation and annual flying rates."

Rep. Norman Dicks (D-Wash.) said he felt he had helped Boeing, a major Washington-state constituent, win the contest by insisting the Air Force take a long view of fuel costs.

"I wanted 50 years" of fuel usage counted in the contest, versus the Air Force's original plan to count 25 years, Dicks told the *Seattle Post-Intelligencer*. He said that only made sense since the Air Force will be using some of its KC-135s "until they're 80 years old. Why not 50? I couldn't sell that, but at least we got 40."

Albaugh said, "That one small change was instrumental in our winning this program."

Boeing also said its tanker would support 50,000 jobs in the US.

Ralph D. Crosby Jr., board chairman of EADS North America, said his company had made a "very aggressive" bid on the tanker program and was surprised by the outcome. He urged the Air Force to hold Boeing to "what they have committed to," adding, "we stand ready with a fully developed and operational system to step in if they falter."

Schwartz, in a late February interview, was asked why Boeing was not counted as having offered a higher-risk proposal, given that USAF sought an off-the-shelf solution and the KC-46 hasn't flown yet.

EADS Concedes

At a March press conference in Washington, D.C., called to explain why EADS would not protest, Chairman Ralph D. Crosby Jr. said the cost difference between Boeing's bid and that of EADS was about 10 percent; Boeing bid \$20.6 billion and EADS bid \$22.6 billion in today's dollars. While Boeing enjoyed a \$500 million life cycle cost advantage in fuel usage and another \$300 million advantage in a lower cost to build facilities for its smaller airplane, Crosby said the Air Force determined that EADS had an \$800 million advantage in operational advantages as calculated by the Air Force's Integrated Fleet Aerial Refueling Assessment, or IFARA, tool.

Those factors collectively being a wash, and both companies having offered what Air Force Secretary Michael B. Donley called "awardable" proposals, the deciding factor was price.

Boeing, Crosby charged, made "an extremely lowball offer in order to achieve their strategic objectives." Those objectives, he said, were to shore up Boeing's commercial business by gaining production volume, and to prevent EADS from using the tanker to establish ground presence in the broader American market. It was EADS' plan to establish both tanker and commercial freighter aircraft production facilities in the Gulf Coast region of the US if it won the KC-X contract.

On the issue of the Air Force's acquisition performance, Crosby was unequivocal.

"We believe that the Air Force has been absolutely scrupulous in applying the rules," he said. "In this competition, the rules were the rules, and while there is a great deal that we don't know about the acquisition decision, particularly the definition of the winning proposal, it's clear that there is no foundation for a protest," Crosby said.

In this round of the KC-X, EADS had offered its KC-45, a version of the KC-30 (based on the Airbus A330) it has sold to several countries, including Britain and Australia. In the previous iteration of the contest, EADS was teamed with Northrop Grumman, which was the team lead. They offered the same airplane—and won—but that award was thrown out after the Government Accountability Office found the Air Force didn't follow its own rules in evaluating the bids.

However, when USAF revealed its request for proposal for this round, Northrop Grumman declined to bid.

The new RFP signaled "a preference for a smaller aircraft," Northrop Grumman CEO Wes Bush said at the time, explaining why he considered it fruitless to bid. The Air Force's new evaluation rules did not "provide adequate value recognition of the added capability of a larger tanker, precluding us from any competitive opportunity."

"The bottom line is, I don't think that we necessarily mandated a machine that was flying in every respect," Schwartz said. "Clearly, the [Boeing] 767 is an established platform, as is the [Airbus] A330." Both platforms "qualified" under the KC-X contest rules, Schwartz said, so the deciding factors became life cycle costs and mission capability.

Competition Works

In February, Boeing rolled out its 1,000th 767, counting all variants.

Boeing declined to make its executives available to discuss the KC-46 for this article, but Albaugh revealed some of the thinking behind the company's winning bid during a celebration of the tanker victory in March.

Albaugh told the *Seattle Post-Intelligencer* Boeing kept in mind that the KC-135 is not the only potential plum

to result from the KC-X victory. Many Air Force platforms—the E-8 JSTARS, the RC-135 Rivet Joint, the E-3 AWACS, and others—are also based on the C-135 or 707 airframe. All of these will likely need replacement programs to begin within the next decade or two.

"They all need to be replatformed, and I think this is a great airplane to do it on," Albaugh said. The Air Force has for years said it would consider the chosen tanker platform a leading candidate to replace the other, similarly sized aircraft.

Crosby, in his press conference, acknowledged that a lesson to be learned from the tanker is that "competition really does work," as evidenced by the steep drop in the price of a 179-aircraft program starting with the proposed tanker lease in 2001 until today.

Adjusted for changes in aircraft quantities, requirements, and inflation, Crosby



The KC-46A will be derived from Boeing's 767, shown here in Italian Air Force livery with an F-15. New features will include both boom and probe-and-drogue refueling systems.

said the cost for leasing the new tanker from Boeing in 2002 would have been \$48 billion; in 2008, Boeing bid \$42 billion versus Northrop Grumman-EADS' bid of \$38.5 billion; and in 2011, EADS bid \$35 billion against Boeing's winning bid of \$31.5 billion (in then-year dollars).

Discipline Maintained

Donley in April said there are lessons from the tanker to be applied to future big-ticket contests. "Knowing what you want and setting the requirements up front is extremely important," he said. Holding changes to the absolute minimum will also be paramount.

"There were about five reasons why we succeeded this time" in the tanker competition, Donley continued, ranging from the methodical approach to improvement and crisis management.

First, the Air Force spent months studying its failures in the 2008 competition, and "we carefully evaluated what our weaknesses had been" in its previous request for proposal.

Then, those lessons were applied to creating "as strong an RFP as we could. We skinned down the requirements. ... Basically we got down to the essential minimums."

Next, USAF assembled "a strong team" of skilled acquisition professionals, supplemented with experts from other services and other government agencies to both look over its shoulder and vet the work as it was being done.

There were "good teaming arrangements" with the Office of the Secretary of Defense to handle letters from congressmen seeking information and press inquiries, and to coordinate messages.

"We also maintained discipline through this process" and did what



A KC-135 undergoes depot maintenance. Despite the KC-46A go-ahead, the Air Force can only buy about 15 tankers a year, meaning the KC-135 will remain in service until 2050 or longer.

the RFP said the Air Force would do, without deviation.

The service "weathered a number of crises," Donley noted. Long before the award, the RFP itself could have been protested. In fact, Crosby said his company talked with the Air Force at great length about how the competition was structured, believing it might favor Boeing's airplane. Eventually, the company acceded to USAF's methodology.

Another crisis was the late entry of a third competitor, US Aerospace, which threatened the timetable. US Aerospace proposed Ukrainian-sourced Antonovs as the tanker platform, then submitted its proposal late. When it was disqualified, the contractor filed a protest the Government Accountability Office had to quickly adjudicate. The GAO dismissed the protest.

Finally, the Air Force suffered a self-inflicted wound when it inadvertently passed to both contractors data discs comparing the two tankers. USAF even-

tually gave both contractors full access to the data to level the playing field.

This mistake, "if not handled properly, could have affected the whole procurement," Donley said. Indeed, the Senate held a hearing on the inadvertent disclosure and whether it could have put either bidder at a disadvantage. The Pentagon IG had to come in and investigate, "coincidental with ... our internal deliberations on the source selection. So the timing could not have been more difficult or more sensitive in that regard."

Donley's conclusions about all this? "Don't be afraid to hang tough when we're buffeted by conflicting contractor interests" in a contest fraught with "plenty of political interest and sensitivity." The Air Force, he said, "staked out what we thought was the best deal" for operators and taxpayers alike, "and we stood by it."

"We have discussed this with Boeing," said Donley. "I think they have the same interest. This is a fixed-price incentive, so they aren't interested in absorbing additional costs ... unless they could get the Air Force to pay for it, and obviously, our interest is in executing the program that we just agreed on. ... We're going to set a very, very high threshold for any program changes."

Lynn said the Air Force still plans to pursue two follow-on tanker competitions: the KC-Y, to finish replacement of the KC-135, and the KC-Z, which will replace the KC-10. No firm timetables have been set for those contests, but they are likely to occur beyond 2025. ■