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EPX

Outlook

- In February 2010, the U.S. Navy terminated the current EPX program
- The Navy will either create a new program to take the place of EPX or fulfill the EP-3E mission with resources it already owns or new resources that are currently in development

Orientation

Description. Before cancellation, the EPX aircraft was to be the U.S. Navy's premier manned airborne intelligence, surveillance, reconnaissance (AISR) platform tailored to the maritime environment.

Sponsor

U.S. Navy
Naval Air Systems Command (NAVAIR)
47123 Buse Rd, IPT, Unit 7
Patuxent River, MD 20670-5440
USA
Web site: <http://www.navair.navy.mil>

Application. The goal of the EPX program was to replace the existing EP-3E Aries signal intelligence (SIGINT) reconnaissance aircraft fleet. The new aircraft was expected to fulfill Navy requirements for a manned intelligence, surveillance, reconnaissance, and targeting (ISR&T) capability.

Price Range. The cost of the EPX was never determined. The U.S. Navy reported in April 2001 that the EP-3E, the Navy's current SIGINT reconnaissance aircraft, had a unit cost of \$36 million. Because the EPX was going to have more advanced technology and more capabilities than the EP-3E, it would have cost significantly more.

Status. The EPX program was canceled in February 2010.

Total Produced. The EPX program was canceled before any units were produced.

Contractors

Prime

Boeing Defense, Space & Security	http://www.boeing.com/bds/ , PO Box 516, St Louis, MO 63166 United States, Tel: + 1 (314) 232-0232, Fax: + 1 (314) 777-1096, Prime (EPX Risk Reduction Study)
Lockheed Martin Aeronautics Co	http://www.lockheedmartin.com/aeronautics/ , 86 S Cobb Dr, Marietta, GA 30063 United States, Tel: + 1 (770) 494-4411, Fax: + 1 (770) 494-6263, Prime (EPX Risk Reduction Study)

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Northrop Grumman Aerospace Systems	http://www.as.northropgrumman.com , 1 Space Park, Redondo Beach, CA 90728 United States, Tel: + 1 (310) 812-4321, Prime (EPX Risk Reduction Study)
Argon Engineering	http://www.argonst.com , 12701 Fair Lakes Circle, Suite 800, Fairfax, VA 22033 United States, Tel: + 1 (703) 322-0881, Fax: + 1 (703) 322-0885, Consortium Member (EPX Risk Reduction Study)
L-3 Communications Corp	http://www.L-3Com.com , 600 Third Ave, New York, NY 10016 United States, Tel: + 1 (212) 697-1111, Fax: + 1 (212) 805-5477, Consortium Member (EPX Risk Reduction Study)
Raytheon Co	http://www.raytheon.com , 870 Winter St, Waltham, MA 02451-1449 United States, Tel: + 1 (781) 522-3000, Fax: + 1 (781) 860-2520, Consortium Member (EPX Risk Reduction Study)

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Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

Technical Data

Design Features. The EPX program was tasked with the recapitalization of the existing EP-3E Aries signals intelligence (SIGINT) reconnaissance aircraft and was expected to fulfill U.S. Navy requirements for a manned intelligence, surveillance, reconnaissance, and targeting (ISR&T) capability.

The EPX was anticipated to be equipped with advanced synthetic aperture radar (SAR), moving target indicators (MTIs), measurement and signature intelligence sensors, extended-range electro-optical/infrared (EO/IR) sensors, and EO/IR cameras. The EPX design goal was to encompass both line-of-sight (LOS) and beyond line-of-sight (BLOS) communications – specifically, a common datalink, high-bandwidth satcom, and Link 11 and Link 16. Targets would be able to be handed off to tactical operators through VHF, UHF, and HF channels.

It was believed that EPX would provide data fusion and a robust reach-back capability, allowing onboard operators to push intelligence to tactical commanders

and operators in mission support centers. The EPX design called for a network-centric approach that would represent a significant capability in the Maritime Patrol and Reconnaissance Force (MPRF) family of systems, including the P-8A Poseidon Multimission Maritime Aircraft (MMA) and the Broad Area Maritime Surveillance (BAMS) unmanned aerial system (UAS).

The U.S. Navy did not make public its specifications for EPX range or altitude requirements. However, according to the Navy, the EP-3 has an airspeed of 411 knots (466 mph, 745 kmph) and a cruising speed of 328 knots (403 mph, 644 kmph). The EP-3 ceiling is 28,300 feet (8,626 m, 5.36 mi) and its maximum mission range is 2,380 nautical miles (2,739 mi). For three hours on station at 1,500 feet, the range is 1,346 nautical miles (1,549 mi). The EPX would have been required to operate in a maritime environment.

Program Review

Teaming with the Army – ACS

The objective of the U.S. Army Aerial Common Sensor (ACS) program is to merge and improve the capabilities of the Army Guardrail and Airborne Reconnaissance Low (ARL) intelligence platforms into a single integrated intelligence, surveillance, and reconnaissance (ISR) system. In 2003, the Navy decided to participate in the ACS program in order to replace its fleet of EP-3E Aries II electronic intelligence aircraft.

The two services have different requirements. For example, the Army wants to have four workstations

aboard each ACS platform, while in 2003 the Navy was looking to have six crew operators aboard its ISR aircraft. The Navy also inherently needs to operate in a maritime environment.

Showstopper

Prime contractor Lockheed Martin was awarded a contract for development and production of five ACS aircraft in 2004. Low-rate production was expected to begin in 2007, and full-rate production was scheduled to start in 2009.

In 2005, ACS program management concluded that the specified Embraer ERJ-145 jet could not handle the weight of the payload, cabling, cooling systems, and power units necessary for use on the plane. Reducing the payload was not an option because the Army did not want to reduce ACS functions. The weight problem led the Navy to delay its formal entry into the program.

Consequently, the Army issued a stop-work order to Lockheed Martin in September 2005 and gave the company 60 days to present alternative plans. Lockheed Martin presented three solutions, but the Army did not find any of those alternatives acceptable. The Army terminated the Lockheed Martin ACS contract in January 2006. However, the Army stated that the ACS program itself had not been terminated.

Going Their Separate Ways

In early 2007 it was announced that the Army and the Navy had agreed to individually develop their own new SIGINT aircraft. In April 2007, an Office of the Secretary of Defense (OSD) Acquisition Decision Memorandum (ADM) directed both services to establish independent plans to recapitalize each of their ISR systems.

The Navy Chats with Industry Leaders

NAVAIR's Maritime Patrol and Reconnaissance Aircraft Program Office (PMA-290) met with industry leaders in October 2007 and announced the objectives of the Navy EPX program and an upcoming solicitation for competitive contract proposals for program concept development. In November 2007, the Navy issued the EPX Solicitation, stating that the EPX program will recapitalize the EP-3 aircraft to provide tactical-, theater-, and national-level intelligence, surveillance, reconnaissance, and targeting (ISR&T) support to carrier strike groups and to theater, combatant, and national commanders.

In December 2007, Northrop Grumman, along with L-3 Communications, announced that it had submitted a proposal for the EPX program. *Flight International* reported that Boeing, EADS North America, Lockheed Martin, and Raytheon had also submitted bids.

The Joint Requirements Oversight Council (JROC) validated separate service requirements in December 2007, and the Navy established EPX as a program to accomplish its ISR&T recapitalization.

Three Contracts, Three Teams

In February 2008, the U.S. Navy awarded three industry teams – led by Boeing, Northrop Grumman, and Lockheed Martin – contracts valued at \$1.25 million each to conduct program studies. Specifically, these

awards called for each team to conduct a five-month study toward development of a preferred system concept, and an analysis of the associated risks and requirements.

In April 2008, Robert Watt from Booz Allen Hamilton was tapped to lead the EPX analysis of alternatives (AoA) and the Office of the Secretary of Defense directed the Navy to proceed with the AoA.

Boeing. For this effort, Boeing worked with partner Argon ST of Fairfax, Virginia. Argon is a designer and developer of SIGINT sensors and information operations systems. Boeing revealed at the 2008 Farnborough Air Show that Raytheon would supply the Boeing EPX platform with sensors and multi-intelligence integration.

Boeing is prime contractor for the Navy's P-8A Poseidon, a military derivative of a 737-800. The P-8A Poseidon is a long-range ASW ISR aircraft. Boeing looks to tailor the P-8A for the EPX role. Boeing also produces the EA-18G Growler that is being developed by the Navy for naval airborne electronic attack (AEA) missions.

Northrop Grumman. A second team consisted of Northrop Grumman and L-3 Communications. L-3 Communications is the current system integrator for the EP-3E Joint Common Configuration (JCC). *Aviation Week & Space Technology* reported in April 2009 that Northrop Grumman was offering an Airbus platform for the EPX bid. *Flight International*, meanwhile, quoted EADS North America Chief Executive Ralph Crosby as saying that the A321 was the ideal candidate to compete in the EPX contest.

Northrop Grumman won a \$1.1 billion deal to develop the U.S. Navy Broad Area Maritime Surveillance (BAMS) unmanned aerial system (UAS) in April 2008. The BAMS UAS will provide ISR data collection over large maritime distances for long time periods. According to Captain Bob Dishman, Navy BAMS program director, the third BAMS increment will include the addition of a signals intelligence collector on the aircraft that will work closely with EPX.

Lockheed Martin. Lockheed Martin was the leader of a third industry team working on the EPX risk reduction study. Lockheed Martin is also the original EP-3E manufacturer. Although there was a weight issue with the Lockheed Martin ACS Embraer platform, Embraer was still a potential EPX candidate.

Navy Looking to Award Contract

The Naval Air Systems Command issued a solicitation in August 2008 regarding its intent to award one or two

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Technology Development contracts for the EPX program.

Should We Get Back Together?

Various news reports state that, in late 2008, Pentagon officials were discussing the possibility of re-merging the Army ACS and Navy EPX programs. Both programs call for a modest number of platforms (20-50), and the cost benefit of combining them is significant. However, because the original ACS program of 2006 was a failure, these two programs will probably remain separate despite the duplication of effort. Also, if the Navy awards EPX to one company and the Army awards ACS to another, the possibility of industry protests is reduced.

Proposed Timeline

Based on information provided at the Navy's November 2008 EPX Industry Day, *Inside the Pentagon* reported in February 2009 that a single contractor would be elected in FY14 to develop, manufacture, and test the system (Milestone B). In FY18, the program would reach Milestone C and begin low-rate initial production (LRIP), followed by Initial Operational Capability (IOC) in 2021. Various industry sources have speculated that the development contract would have been worth approximately \$1 billion and that between 14 and 19 aircraft would have been required.

Terminated

However, in February 2010, at a Senate Armed Services Committee hearing, U.S. Defense Secretary Robert Gates announced that the EPX intelligence aircraft and several other programs were being terminated. Secretary Gates stated that the FY11 Budget Request was building on last year's reforms and was aimed at programs that were "in excess or performing poorly."

Funding

FUNDING, U.S. NAVY

	Actual <u>FY09</u>	Estimate <u>FY10</u>	Estimate <u>FY11</u>	TOTAL <u>COST</u>
RDT&E (Navy)				
PE#0307217N – EPX (EP-3E Replacement)				
Project 3015 EPX	0.00	0.198	0.00	0.198

All \$ are in millions.

Note: No funds requested. The Department of the Navy decided to terminate the current program.

Source: FY12 U.S. Navy RDT&E Justification of Estimates, Budget Activity 7, February 2011

Contracts/Orders & Options

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
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Boeing with partner Argon ST	1.25	Feb 2008 – An award for a five-month study to develop a preferred system concept and analyze the associated risks and requirements for the EPX program. The U.S. Navy is the contracting agency. Three identical contracts were awarded – one to each team.
Lockheed Martin	1.25	Feb 2008 – An award for a five-month study to develop a preferred system concept and analyze the associated risks and requirements for the EPX program. The U.S. Navy is the contracting agency. Three identical contracts were awarded – one to each team.
Northrop Grumman with partner L-3 Communications	1.25	Feb 2008 – An award for a five-month study to develop a preferred system concept and analyze the associated risks and requirements for the EPX program. The U.S. Navy is the contracting agency. Three identical contracts were awarded – one to each team.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
Apr	2000	Army ACS Concept Exploration Phase contracts awarded
Jun	2003	Navy decides Army ACS platform may be suitable to replace Navy EP-3E aircraft
Aug	2004	Lockheed Martin chosen for ACS development program
Jan	2006	U.S. Army cancels Lockheed Martin's ACS development program
Jan	2007	U.S. Army and Navy agree to have separate service SIGINT programs
Nov	2007	Navy issues EPX solicitation
Feb	2008	Navy awards three teams five-month concept study contracts
	FY09	Anticipated award of Technology Development contract(s)
Feb	2010	EPX program canceled

Worldwide Distribution/Inventories

This was a U.S. Navy program. The program was canceled before any systems were produced.

Forecast Rationale

Three major companies submitted bids for the EPX program contract. The Boeing-led team included Argon ST and Raytheon. A second team consisted of Northrop Grumman and L-3 Communications. Lockheed Martin was the leader of a third EPX industry team.

Terminated!

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Datalinks - EW Battle Manager

The planned EPX aircraft was intended to be part of the Navy's Maritime Patrol and Reconnaissance Force (MPRF) family of systems, which includes the P-8A Poseidon and the Broad Area Maritime Surveillance (BAMS) unmanned aerial system (UAS). Boeing is the prime contractor for the P-8A Poseidon, while Northrop Grumman will develop the BAMS UAS.

One of the main challenges that faced engineers was equipping EPX with the ability to maintain cooperative datalinks. *Aviation Week & Space Technology* quoted Tim Norgart, Boeing's director of Business Development for Airborne Anti-submarine Warfare and ISR Systems, as saying that the ability to move the

EPX

information around and generate a single picture creates an electronic warfare (EW) Battle Manager. It was envisioned that the EPX would integrate information in the air from EA-18G Growlers, P-8A Poseidons, and BAMS UAS platforms.

Equivalent or Superior Capabilities

In April 2011, *C4ISR Journal* reported that Congress wants top defense officials to certify that whichever direction the Navy decides to go, the service will provide "equivalent or superior" capabilities to those of EP-3Es and the secretive Special Projects planes. A spokesman for the Navy said the Pentagon will certify that it is "sustaining" the EP-3 and Special Projects Aircraft and discuss a plan to replace them with a "family of systems" approach.

C4ISR Journal reported that the Navy has been working on improvements to the EP-3's SIGINT sensors and has ordered replacement wings, which in theory could extend the airplane's flying life to 2030.

According to the article, in December 2010, Congress gave the Navy a reprimand when it said the service abandoned EP-X without "planning and budgeting for alternative means" to collect SIGINT for ground commanders and analysts in the national intelligence agencies. The language was included in the 2011 National Defense Authorization Act signed by President Obama in January 2011. The law requires the Defense Department to send a naval SIGINT report to Congress each year by February 1 until "the fielding by the Navy of a platform or mix of platforms and sensors that are, in the aggregate, equivalent or superior to the EP-3E."

The congressional language is becoming sterner but so far has stopped short of telling the Navy to start work on successors to the EP-3Es and Special Projects Aircraft.

In a May report, the Senate Armed Services Committee said it did not "quarrel with the [EP-X] decision," but said it was "concerned that the Navy shifted the EP-X outyear funds to other priorities and had no concrete plans for the future."

New Program or Existing Resources

The existing EP-3E Aries SIGINT reconnaissance aircraft is nearing the end of its lifespan – an issue that the Navy will need to address. The Navy will either create a new program to take the place of EPX or it will fulfill the EP-3E mission with resources it already owns or new resources that are currently in development.