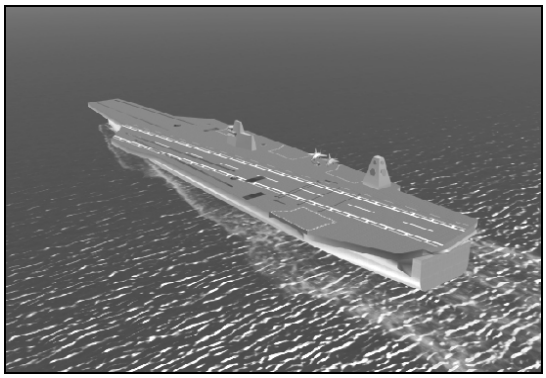
CVN(X) FUTURE AIRCRAFT CARRIER



CVN(X) is a new class of nuclear-powered, large deck aircraft carrier. The first ship, CVNX1, is projected to be part of the fleet for at least 50 years – through 2063. In addition to the new F/A-18E/F, CVN(X) will also integrate two emerging aircraft systems: the Joint Strike Fighter (JSF) and Unmanned Combat Air Vehicle – Navy (UCAV-N). These three new aircraft systems, coupled with its new Integrated Warfare System (IWS) will provide future joint force commanders with enhanced strategic and operational capabilities.

CVNX1 will have a *Nimitz* class hull, an upgrade of the CVN-77 weapon system, new designs for its reactor and propulsion plants, and significant changes to its electrical power generating capacity. This additional electrical capacity will power a new Electro-Magnetic Launching and Recovery Systems (EMALS and EARS respectively). CVNX1 is planned to introduce the new EMALS and a legacy recovery system. CVNX2 will have both EMALS and EARS. The decision to start replacing steam driven catapults with EMALS in CVNX1 will be made in FY02.

BACKGROUND INFORMATION

OSD approved the Navy's evolutionary approach to acquisition of a new aircraft carrier in a June 2000 Milestone I decision, following an Analysis of Alternatives (AOA) concerning potential approaches and designs. Part 1 of the AOA was completed in 1997 and focused on the carrier air wing (CVW) composition and selected an 80-plane air wing. Part 2 of the AOA was completed in 1998 and selected the *Nimitz* class hull for CVNX1 with evolutionary improvements in CVNX2 and follow-on ships. Part 3 of the AOA ended in January 2000 and considered six new designs and eight modified CVNX1 designs before settling on concept designs for CVNX2. A Milestone B (MS B) decision is scheduled for Summer/Fall 2002, with construction of CVNX1 to begin in 2006.

Using an evolutionary approach to acquisition, major elements of the CVN(X) IWS will be based on that for CVN-77, the last ship in the *Nimitz* class and also the transition ship to the CVN(X) class. CVN-77's IWS will include a new Multi-Function Radar (MFR), AN/SPY-1D search radar, Rolling Airframe Missile weapon system, and Evolved Sea Sparrow Missiles for self-defense against cruise missiles.

TEST & EVALUATION ACTIVITY

DOT&E approved the CVN(X) TEMP that supported the Milestone I decision in June 2000. The program manager decided to accelerate the MS B decision several years to Summer/Fall 2002 to support advanced funding for the nuclear power plant while OPEVAL remained scheduled for 2013. This raised concerns at all levels regarding the maturity of the program to adequately support a MS B decision in 2002. DOT&E provided the program comments to help make the MS 1 TEMP adequate for a MS B decision. Comments centered on the lack of detail regarded funding, measures of effectiveness, and modeling.

COMOPTEVFOR (COTF) is currently conducting an Early Operational Assessment (EOA), with a report due in March 2002 to support a Summer/Fall 2002 Milestone B decision.

The IWS has not been completely specified, thereby delaying determination of the extent of OT&E. Through the program's T&E IPT, DOT&E and COTF are developing a test approach. A TEMP is being drafted, with final approval anticipated for February 2003.

DOT&E has yet to approve the CVN(X) LFT&E Management Plan, the document that describes the testing and analysis necessary to assess the vulnerability of CVN(X) class carriers, which also must be adequate to support the Summer/Fall 2002 MS B decision. The Navy began a vulnerability assessment of a CVNX1 early baseline configuration for MS B using a set of engineered shotlines. DOT&E is participating in the review of primary and secondary damage for these assessments, as well as in the development of the recoverability actions. DOT&E also witnessed several tests evaluating the performance of armor systems and protection technologies, and some weapon sensitivity testing.

TEST & EVALUATION ASSESSMENT

The CVN(X) OT&E planning is off to a slower than expected start and there is concern that a meaningful EOA may not be completed before the Summer/Fall 2002 MS B decision. Even if the MS B decision is postponed and advanced funding for the propulsion plant is delayed, the program has sufficient time to make significant schedule and design adjustments.

Advancing the MS B decision several years created two parallel test tracks. The low risk track involves the propulsion plant. The high risk track involves the successful integration of at least seven highly complex warfare systems at various levels of technical maturity: F/A-18E/F, JSF, UCAV-N, CVN-77 IWS, EMALS, EARS, and the large electrical system necessary to support EMALS and EARS.

Since the June 2000 MS1 decision, the program office has taken aggressive steps to ensure that it has a T&E team capable of supporting this very complex and lengthy test program. This team is working with COTF to develop a test plan that adequately supports both high and low risk test tracks. This involves setting up a significant number of operational assessments and OT&E phases between MS B in 2002 and OPEVAL in 2013.

In the case of the CVN-77 IWS, definitive operational requirements are a must. For air defense, IWS OT&E will focus on self-defense against the primary threat, anti-ship cruise missiles. Vulnerability assessment of the CVN-77 IWS will provide technical insights into improving CVN(X) IWS.