

CRS Report for Congress

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Navy DD(X) and CG(X) Programs: Background and Issues for Congress

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Summary

The DD(X) destroyer and CG(X) cruiser are proposed new types of Navy ships. The FY2006-FY2011 Future Years Defense Plan (FYDP) reduces planned DD(X) procurement to one ship per year in FY2007-FY2011 and accelerates procurement of the first CG(X) to FY2011. The Navy estimates that the first and second DD(X)s would cost more than \$3 billion each to procure, including detailed design and nonrecurring engineering costs, and that subsequent DD(X)s would cost \$2.2 billion to \$2.6 billion each to procure. These estimates are substantially higher than last year's figures. The FY2006 budget requests \$666 million in advanced procurement funding for the first DD(X), which is planned for procurement in FY2007, \$50 million in advance procurement funding for the second DD(X) planned, which is planned for procurement in FY2008, and \$1,115 million for DD(X)/CG(X) research and development.

The Navy is considering using a one-time, winner-take-all competition between Northrop Grumman's Ship System Division (NGSS) and General Dynamics' Bath Iron Works (GD/BIW) to build all DD(X)s. Several Members of Congress have expressed opposition to this idea. On March 17, 2005, the Senate passed an amendment (S.Amdt 182) adding a provision (Section 510) to the budget resolution (S.Con.Res. 18) expressing the sense of the Senate that a winner-take-all strategy would be ill-advised. The DD(X) and CG(X) programs pose several potential issues for Congress. For a longer discussion of the DD(X) and CG(X) programs, see CRS Report RL32109.¹ This report will be updated as events warrant.

Background

The DD(X) destroyer and CG(X) cruiser programs were announced by the Navy in November 2001 as part of a proposed new family of surface combatants that is also to

¹ CRS Report RL32109, *Navy DD(X) and LCS Ship Acquisition Programs: Oversight Issues and Options for Congress*, by Ronald O'Rourke.

include the small Littoral Combat Ship (LCS).² The DD(X) replaced a similar proposed destroyer called the DD-21. The DD(X), which would incorporate several new surface combatant technologies, is to be a multimission destroyer with an emphasis on the naval surface fire support (NSFS) mission. It would have a full-load displacement of about 14,000 tons, compared to about 9,000 tons for current Navy cruisers and destroyers. It would be equipped with two 155-mm (6.1-inch) Advanced Gun Systems (AGSs) for supporting Marines ashore and 80 missile tubes for Tomahawk cruise missiles and other weapons. It would have a crew of 125 to 175 persons, compared to more than 300 on current Navy destroyers and cruisers. In large part due to its reduced crew size, the DD(X) is to cost substantially less to operate and support than the Navy's current cruisers and destroyers.

The CG(X) would be derived from the basic DD(X) design, but would have a stronger emphasis on air and missile defense. It would have a more powerful radar than the DD(X), as well as additional missile tubes in the place of the DD(X)'s AGSs. The CG(X) might be somewhat larger than the DD(X), and would have a procurement cost equal to or greater than that of the DD(X).

The Navy originally envisaged procuring a total of 16 to 24 DD(X)s, but Navy officials testified in February and March 2005 that they have a requirement for eight to 12. The FY2005-FY2009 FYDP submitted to Congress in February 2004 called for procuring the first DD(X) in FY2005, another two in FY2007, two more in FY2008, and three more in FY2009, for a total of eight ships through FY2009. The FY2006-FY2011 submitted to Congress in February 2005 reduces planned DD(X) procurement to one per year for FY2007-FY2011, for a total of five ships through FY2009. The FY2006-FY2011 FYDP also accelerates procurement of the first CG(X) to FY2011.

Estimated DD(X) unit procurement costs have increased substantially:

- In 2004, the Navy estimated that the first DD(X) would cost about \$2.8 billion to procure, including about \$1 billion in detailed design and nonrecurring engineering costs (DD/NRE) for the class. The Navy now estimates the cost at \$3,291 million (an increase of about 18%), including \$558 million in DD/NRE costs.
- In 2004, the Navy estimated that the second DD(X) would cost \$2,053 million to procure; the Navy now estimates the cost at \$3,061 million (an increase of about 49%), including \$219 million in DD/NRE costs.
- In 2003-2004, the Navy estimated that subsequent DD(X)s would cost between \$1.5 billion and \$1.8 billion each to procure; it now estimates the cost at about \$2.2 billion to \$2.6 billion each (an increase of roughly 45%).

The Navy in 2004 proposed incrementally funding the first DD(X) through the Navy's research and development account rather than fully funding the ship through the Navy's ship-procurement account (the Shipbuilding and Conversion, Navy, or SCN, account), where Navy combat ships traditionally have been procured. Congress, in acting on the FY2005 budget, directed that the first DD(X) be fully funded in the SCN account.

² For more on the LCS, see CRS Report RS21305, *Navy Littoral Combat Ship (LCS) Program: Background and Issues for Congress*, by Ronald O'Rourke.

The DD(X) is being developed by a national industry team lead by Northrop Grumman's Ship Systems (NGSS) division (which includes the Ingalls Shipyard in Pascagoula, MS) and Raytheon Systems Company. The team also includes General Dynamics' Bath Iron Works (GD/BIW) of Bath, ME, as well as Lockheed Martin, Boeing, and several other companies. Under the Navy's current DD(X) acquisition strategy, the first DD(X) would be built by NGSS, the second DD(X) would be built GD/BIW, and contracts for building the first six DD(X)s would be equally divided between NGSS and GD/BIW. In February 2005, however, Navy officials announced that they were considering seeking approval from the Office of Secretary of Defense to instead hold a one-time, winner-take-all competition between NGSS and GD/BIW to build all DD(X)s.

Table 1 on the next page shows funding for the DD(X) and CG(X) programs through FY2011.

Issues For Congress

Potential oversight issues for Congress for the DD(X) and CG(X) programs include the following:

DD(X) Numerical Requirement. The Navy has not explained in detail why the total number of DD(X)s to be procured has declined by 50%, from an earlier envisaged range of 16 to 24 to the current requirement for eight to 12. To what degree was this reduction driven by affordability considerations rather than changes in operational requirements? In light of current ambiguity in Navy planning regarding the future overall size and structure of the fleet³ and recent year-to-year instability in Navy shipbuilding plans, what is the chance that the Navy might change this figure again?

DD(X) Naval Surface Fire Support Mission. The size and cost of the DD(X) reflects in part the presence on the ship of the two AGSs, which in turn reflects a Navy desire to increase the fleet's naval surface fire support (NSFS) capability. A November 2004 GAO concluded that "The Navy and Marine Corps have only recently begun the process to establish validated NSFS requirements that address the overall capabilities needed and the balance between different systems that will be required to provide effective, continuous, and sustaining support fire for forces operating ashore."⁴ DD(X) supporters could argue that the geography of places like the Korean Peninsula as well as the ability of Navy ships to remain on station for months at a time without interruption are reasons for maintaining a robust Navy NSFS capability. DD(X) skeptics can argue that NSFS did not play a major role in U.S. military operations in Kosovo, Afghanistan, and Iraq, and that Afghanistan and Iraq highlighted new concepts for ground operations using smaller-sized ground units supported by aircraft armed with relatively inexpensive, all-weather precision-guided munitions, raising questions about the priority of NSFS compared to other investments.

³ For a discussion of this issue, see CRS Report RL32665, *Potential Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, by Ronald O'Rourke.

⁴ Government Accountability Office, *Information on Options for Naval Surface Fire Support*, GAO-05-39R, Nov. 2004, p. 2.

Table 1. Funding For DD(X)/CG(X) Program, FY2002-FY2011

(millions of then-year dollars, rounded to nearest million)

	02	03	04	05	06	07	08	09	10	11	FY02-FY11
Research, Development, Test & Evaluation, Navy (RDTEN) account											
DD(X)	505	909	1015	1164	1085	794	445	282	279	323	6801 ^a
CG(X)	0	0	0	0	30	110	279	365	397	403	1584 ^a
Subtotal RDTEN	505	909	1015	1164	1115	904	724	647	676	726	8385^a
Shipbuilding and Conversion, Navy (SCN) account (including advance procurement)											
DD(X) 1	0	0	0	220	666	2405	0	0	0	0	3291
<i>Construction</i>	0	0	0	22	306	2405	0	0	0	0	2733
<i>DD/NRE^b</i>	0	0	0	198	360	0	0	0	0	0	558
DD(X) 2	0	0	0	84	50	163	2764	0	0	0	3061
<i>Construction</i>	0	0	0	5	40	120	2677	0	0	0	2842
<i>DD/NRE^b</i>	0	0	0	79	10	43	87	0	0	0	219
DD(X) 3	0	0	0	0	0	0	51	2492	0	0	2543
DD(X) 4	0	0	0	0	0	0	0	51	2579	0	2630
DD(X) 5	0	0	0	0	0	0	0	0	50	2186	2236
DD(X) 6+	0	0	0	0	0	0	0	0	0	0	0
CG(X) 1	0	0	0	0	0	0	0	0	0	3210	3210
<i>Construction</i>	0	0	0	0	0	0	0	0	0	2710	2710
<i>DD/NRE^b</i>	0	0	0	0	0	0	0	0	0	510	510
CG(X) 2+	0	0	0	0	0	0	0	0	0	0	0
Subtotal SCN	0	0	0	304	716	2568	2815	2543	2629	5396	16971
TOTAL	505	909	1015	1468	1831	3472	3539	3190	3305	6122	25356

Source: U.S. Navy data provided to CRS on March 24, 2005.

a. Additional funding required after FY2011. Figures do not include \$1,111.4 million in research and development funding provided for the DD-21/DD(X) program in FY1995-FY2001. FY2006 Navy budget justification books reflect a different division of total RDT&E funds between DD(X) and CG(X) for FY2007-FY2011.

b. Detailed design and nonrecurring engineering costs for the class.

Readiness of New DD(X) Technologies. Navy officials argue that they have taken steps to ensure that the several new technologies scheduled for the DD(X) would be ready for the lead DD(X), including the use of land-based engineering design models (EDMs) for verifying new technologies and increased levels of development funding. Skeptics are concerned that in spite of these steps, one or more critical technologies may not be ready for the lead DD(X). A September 2004 Government Accountability Office (GAO) report expressed concern about the maturity of several new technologies intended for the lead DD(X) and about the Navy's fall-back plans in the event that one or more of

these technologies do not mature in time to support the Navy's lead-ship construction schedule.⁵

DD(X)/CG(X) Affordability And Cost Effectiveness. Given the substantial increase in estimated DD(X) procurement costs reported in the FY2006 budget, would the DD(X) and CG(X) programs still be affordable and cost effective? The decision to reduce DD(X) procurement to one ship per year in FY2007-FY2011, which appears to have been driven in large part by affordability considerations, suggests that, unless budget conditions change, the Navy may never be able to afford to procure more than one DD(X) or CG(X) per year. A one-per-year DD(X)/CG(X) procurement rate, if sustained for a period of many years, might not be enough to maintain the cruiser-destroyer force at desired levels. The prospect of a one-per-year rate might also raise questions about the potential cost effectiveness of the DD(X)/CG(X) effort when measured in terms of average unit acquisition cost, which is the average cost to develop and procure each ship. Given the several billion dollars in research and development funding programmed for the DD(X)/CG(X) effort, if DD(X)s or CG(X)s are procured at a rate of one per year for 20 or fewer years and the combined number of DD(X)s and CG(X)s is consequently 20 or less, then the average acquisition cost for the DD(X)/CG(X) effort could be more than \$3 billion per ship. Supporters could argue that even if unit acquisition cost has increased, the low annual operating and support costs of the DD(X) and CG(X) would keep the DD(X)/CG(X) effort cost effective when measured in terms of total ownership cost, which is the sum of acquisition cost plus life-cycle operating and support costs.

CG(X) Missile-Defense Mission. CG(X) supporters argue that the ship will be cost-effective in part because of its missile-defense capabilities, including its ability to fire a proposed ballistic missile defense interceptor called the Kinetic Energy Interceptor (KEI). Skeptics could argue that funding for development of the KEI was substantially reduced in the FY2006 budget, raising questions about whether the KEI will be fielded, that if the KEI is based at sea, it might be better to base it on submarines (for boost-phase missile defense) or non-combatant surface ships (for mid-course defense), and that if KEIs are to be based on a surface combatant, the Navy could retrofit them onto some or its existing Aegis cruisers or destroyers. Supporters could argue that even if the CG(X) does not carry the KEI, its powerful radar could still contribute to missile defense operations, and the ship would still be needed for air-defense operations.

Shipbuilding Industrial Base. Some observers, particularly those connected with the surface combatant industrial base, are concerned that the Navy's DD(X) procurement plan would not provide enough work to maintain the financial health of both NGSS and GD/BIW. They are even more concerned about the Navy's idea for holding a one-time, winner-take-all competition between NGSS and GD/BIW to build all DD(X)s, because the consequences for the yard that loses such a competition could be very serious. Several Members of Congress have expressed their opposition to the idea of a winner-take-all competition.

⁵ Government Accountability Office, *DEFENSE ACQUISITIONS: Challenges Facing the DD(X) Destroyer Program*, GAO-04-973, Sept. 2004. See also General Accounting Office, *DEFENSE ACQUISITIONS: Assessments of Major Weapon Programs*, GAO-04-248, Mar. 2004, pp. 45-46.

Options for providing additional work for NGSS and GD/BIW during the period FY2006-FY2011 include procuring additional Arleigh Burke (DDG-51) class Aegis destroyers, accelerating procurement of amphibious ships, transferring production of LCSs to NGSS or GD/BIW, modernizing Aegis cruisers and destroyers (perhaps more extensively than planned by the Navy), and expanding and accelerating the procurement of new cutters under the Coast Guard's Deepwater acquisition program.⁶

One option for supporting NGSS and GD/BIW in FY2011 and beyond, particularly as a hedge against the possibility the DD(X)/CG(X) program is terminated due to concerns about affordability or cost effectiveness, would be to start design work now on a less expensive surface combatant that might be ready for lead-ship procurement in FY2011. Compared to the DD(X)/CG(X) design, a less-expensive ship might be more easily affordable within available resources at a rate of two per year. A program procuring two ships per year might be better able to maintain the cruiser-destroyer force at desired levels over the long run, and might be easier to divide between two shipyards.

Potential Options For Congress. Potential options for Congress, some of which can be combined, include the following:

- approve the DD(X) program as proposed by the Navy and supplement the industrial base, if needed, with additional DDG-51s, amphibious ships, transferred LCSs, Aegis ship modernizations, or Deepwater cutters;
- accelerate procurement of the lead DD(X) to FY2006 and the second DD(X) to FY2007 to better support the industrial base;
- defer procurement of the lead DD(X) to FY2008 to provide more time for maturation of key technologies;
- procure two or more DD(X)s per year to reduce DD(X) unit procurement costs and better support the industrial base;
- build DD(X)s at a single yard, or build each DD(X) jointly at two yards;
- terminate the DD(X) program now, or after procuring a single ship as a technology demonstrator, and supplement the industrial base with additional DDG-51s, amphibious ships, transferred LCSs, Aegis ship modernizations, or Deepwater cutters;
- start design work now on a smaller, less expensive alternative to the DD(X)/CG(X) design — such as a ship about the same size as today's 9,000-ton Aegis cruisers and destroyers — and procure this new design, rather than DD(X)s or CG(X)s, starting around FY2011.

Legislative Activity for FY2006

On March 17, 2005, the Senate passed an amendment (S.Amdt. 182) adding a provision (Section 510) to the budget resolution (S.Con.Res. 18) expressing the sense of the Senate that a winner-take-all strategy for the DD(X) program would be ill-advised.

⁶ For more on the Deepwater program, see CRS Report RS21019, *Coast Guard Deepwater Program: Background and Issues for Congress*, by Ronald O'Rourke.