



Statement of

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Coast Guard and Maritime Transportation Subcommittee

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Building a 21st Century Infrastructure for America: Coast Guard Sea, Air, and Land Capabilities: Part II

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Chairman Hunter, Ranking Member Garamendi, distinguished members of the subcommittee, thank you for the opportunity to appear before you today to discuss building a 21st century infrastructure for America: Coast Guard sea, air, and land capabilities.

As requested, my testimony focuses on Coast Guard ship acquisition. I have been working on military ship acquisition issues for Congress for 33 years, including Coast Guard ship acquisition issues for almost 20 years.¹ I currently maintain CRS reports for Congress on cutter acquisition and the polar icebreaker program.² For additional reference, this statement includes a summary of acquisition lessons learned for Navy shipbuilding in **Appendix A**, and some considerations on the use of warranties in shipbuilding contracts in **Appendix B**.

Funding Level for Coast Guard's Acquisition (AC&I) Account

Coast Guard Officials Now Regularly Mention a Figure of \$2 Billion per Year

Much of the discussion in recent years about Coast Guard acquisition has focused on past, current, and potential future funding levels for the Coast Guard's Acquisition, Construction, and Improvements (AC&I) account. Coast Guard officials this year have begun stating regularly what they stated only infrequently in previous years: that executing the Coast Guard's various acquisition programs fully and on a timely basis will require the AC&I account to be funded in coming years at a level of about \$2 billion per year. Statements from Coast Guard officials on this issue in past years have sometimes put this figure as high as about \$2.5 billion per year.³

Navy Shipbuilding Funding Requests Have Increased Substantially During the Years of the BCA

An annual AC&I funding level of \$2 billion or \$2.5 billion per year would represent something like a 100% increase over requested amounts for the AC&I account in recent years. That may make the achievement of a funding level of \$2 billion or \$2.5 billion per year look daunting.

By way of comparison, however, it can be noted that Navy in recent years has testified to a need for substantially increasing the size of the Navy's shipbuilding account—known formally as the Shipbuilding and Conversion, Navy, or SCN, account—and that requested funding levels for this account have increased substantially in recent years, notwithstanding the caps on defense spending under the Budget Control Act (BCA). The Navy's FY2013 budget—the first budget submitted after enactment of the BCA in 2011—requested a total of \$13.58 billion for the SCN account. Five years later, with the BCA, as amended, still in place, the Navy's FY2018 budget, as amended on June 29, 2017, requests a total \$20.40

¹ See, for example, CRS Report 98-830 F, *Coast Guard Integrated Deepwater System: Background and Issues for Congress*, October 5, 1998, by Ronald O'Rourke.

² CRS Report R42567, *Coast Guard Cutter Procurement: Background and Issues for Congress*, by Ronald O'Rourke, and CRS Report RL34391, *Coast Guard Polar Icebreaker Modernization: Background and Issues for Congress*, by Ronald O'Rourke.

³ See, for example, the spoken testimony of Admiral Robert Papp, then-Commandant of the Coast Guard, before this subcommittee on October 4, 2011, and remarks by Coast Guard Rear Admiral Mark Butt at the 2012 Navy League Sea Air Space conference, as quoted in David Perera, "The Coast Guard Is Shrinking," *FierceHomelandSecurity.com*, April 18, 2012.

billion for the SCN account—an increase of about \$6.8 billion, or about 50%, over the FY2013 requested figure.

A 50% increase over the amount requested for the AC&I account for FY2013 (\$1.217 billion) or the amount requested for the AC&I account FY2018 (\$1.204 billion) would equate to an AC&I funding level of about \$1.8 billion, which is fairly close to the figure of \$2 billion being mentioned this year by Coast Guard officials. Under the Coast Guard's FY2013 budget submission, the AC&I account was projected to increase to \$1.722 billion by FY2017; under the service's FY2017 budget submission, it was projected to increase to \$1.841 billion by FY2021.

Using Past AC&I Funding Levels as a Guide for Future AC&I Funding Levels Poses Issues

In assessing future funding levels for executive branch agencies, a common practice is to assume or predict that the figure in coming years will likely be close to where it has been in previous years. While this method can be of analytical and planning value, for an agency like the Coast Guard, which goes through periods with less acquisition of major platforms and periods with more acquisition of major platforms, this approach might not always be the best approach, at least for the AC&I account.

More important, in relation to maintaining Congress's status as a co-equal branch of government, including the preservation and use of congressional powers and prerogatives, an analysis that assumes or predicts that future funding levels will resemble past funding levels can encourage an artificially narrow view of congressional options regarding future funding levels, depriving Congress of agency in the exercise of its constitutional power to set funding levels and determine the composition of federal spending.

Planned Force-Level Goals for New Cutters Have Remained Unchanged Since to 2004

As I have noted in previous testimony and reports, the Coast Guard's program of record for National Security Cutters (NSCs), Offshore patrol Cutters (OPCs), and Fast Response Cutters (FRCs) includes only about 61% as many cutters as the Coast Guard calculated in 2009 would be needed to fully perform its projected future missions.⁴ The Coast Guard's planned force levels for NSCs, OPCs, and FRCs have remained unchanged since 2004. In contrast, the Navy since 2004 has adjusted its ship force-level goals eight times in response to changing strategic and budgetary circumstances.⁵

Although the Coast Guard's strategic situation and resulting mission demands may not have changed as much as the Navy's have since 2004, the Coast Guard's budgetary circumstances may have changed since 2004. The 2004 program of record was heavily conditioned by Coast Guard expectations in 2004 about future funding levels in the AC&I account. Those expectations may now be different, as suggested by the willingness of Coast Guard officials this year to begin regularly mentioning the need for an AC&I funding level of \$2 billion per year.

⁴ See Appendix A of CRS Report R42567, *Coast Guard Cutter Procurement: Background and Issues for Congress*, by Ronald O'Rourke.

⁵ See Table 1 and Table B-1 of CRS Report RL32665, *Navy Force Structure and Shipbuilding Plans: Background and Issues for Congress*, by Ronald O'Rourke. As shown in those tables, the Navy's force-level goal of 2002-2004 was followed by new force-level goals in early 2005, February 2006, mid-2011, September 2011, March 2012, January 2013, March 2015, and December 2016.

More to the point, continuing to, in effect, use the Coast Guard's 2004 expectations of future funding levels for the AC&I account as an implicit constraint on planned force levels for NSCs, OPCs, and FRCs can encourage an artificially narrow view of Congress's options regarding future Coast Guard force levels and associated funding levels, depriving Congress of agency in the exercise of its constitutional power to provide for the common defense and general welfare of the United States, and to set funding levels and determine the composition of federal spending.

Funding Coast Guard Ships Through Navy's Shipbuilding Account

As a supplemental means of funding the acquisition of Coast Guard ships, Congress has the option of providing funding for the acquisition of Coast Guard ships through the SCN account. Although this approach creates some complexity in tracking and executing funding for Coast Guard ship acquisition, it has been used in the past. The Coast Guard's medium polar icebreaker, Healy, was funded largely through the SCN account,⁶ and the FY2017 Department of Defense appropriations act (Division C of H.R. 244/P.L. 115-31 of May 5, 2017) provided \$150 million for the current polar icebreaker program.

On three occasions in recent years—in 2002, 2006, and 2013—Navy and Coast Guard leaders have signed a joint National Fleet Policy Statement to provide (as stated in the 2013 edition) “direction and guidance for our Services to achieve commonality and interoperability for 21st century maritime and naval operations.” The document states that “This Policy is particularly important in light of: significantly constrained fiscal resources; the growing costs of acquiring, training, and maintaining technologically advanced forces; and the complexity and lethality of national security threats and challenges confronting the Nation in and from the maritime domain.” It states further that “This Policy enables Navy and Coast Guard forces to effectively and efficiently support each other while identifying specific methods and measurements, avoid redundancies and achieve economies of scale to maximize our Nation's investment of increasingly scarce resources.”⁷

⁶ The somewhat complicated funding history for the ship is as follows: The Coast Guard's proposed FY1990 budget requested \$244 million for the acquisition of an icebreaker. The FY1990 DOD appropriations act (H.R. 3072/P.L. 101-165 of November 21, 1989) provided \$329 million for the ship in the SCN account. (See pages 77 and 78 of H.Rept. 101-345 of November 13, 1989.) This figure was then reduced by \$4.2 million by a sequester carried out under the Balanced Budget And Emergency Deficit Control Act of 1985, also known as the Gramm-Rudman-Hollings Act (H.J.Res. 372/P.L. 99-177 of December 12, 1985). Another \$50 million was rescinded by the Dire Emergency Supplemental Appropriations for Disaster Assistance, Food Stamps, Unemployment Compensation Administration, and Other Urgent Needs, and Transfers, and Reducing Funds Budgeted for Military Spending Act of 1990 (H.R. 4404/P.L. 101-302 of May 25, 1990). An additional \$59 million for the ship was then appropriated in the FY1992 DOD Appropriations Act (H.R. 2521/P.L. 102-172 of November 26, 1991). Also, an additional \$40.4 million in acquisition funding for the ship was provided through a series of annual appropriations in the Coast Guard's AC&I account from FY1988 through FY2001. The resulting net funding for the ship was thus \$374.2 million, of which \$333.8 million, or 89.2%, was DOD funding, and \$40.4 million, or 10.8%, was Coast Guard acquisition funding. (Source: Undated Coast Guard information paper provided to CRS by Coast Guard legislative liaison office, March 3, 2016.)

⁷ *The National Fleet, A Joint United States Navy and United States Coast Guard Policy Statement*, undated but issued in 2013. Accessed July 17, 2017, at <https://www.uscg.mil/seniorleadership/DOCS/National%20Fleet%20Policy%20-%20signed%2025Jun13.pdf>.

OPC Program: Option for Reducing Cost Through Multiyear Contracting

As I have testified previously to this subcommittee,⁸ the Navy in recent years, with congressional approval, has made significant use of multiyear contracting (i.e., multiyear procurement [MYP] and block buy contracting) in its shipbuilding and aircraft acquisition programs.⁹ Among other things, the Navy in recent years has used multiyear contracting for all three of its year-to-year shipbuilding programs—the Virginia-class attack submarine program, the DDG-51 destroyer program, and the Littoral Combat Ship (LCS) program. These three programs account for more than two-thirds of all the ships in the Navy’s five-year shipbuilding plans in recent years. Savings from the use of MYP recently have, among other things, helped Congress and the Navy to convert a nine-ship buy of DDG-51 class destroyers in FY2013-FY2017 into a 10-ship buy, and a nine-ship buy of Virginia-class attack submarines in FY2014-FY2018 into a 10-ship buy. The Navy is also now using block buy contracting in the John Lewis (TAO-205) class oiler program.¹⁰ In contrast, the Coast Guard to date has not used multiyear contracting for its shipbuilding or other acquisition programs.

As I have testified previously to this subcommittee, using multiyear contracting in the 25-ship OPC program—specifically, block buy contracting with economic order quantity (EOQ) authority for the initial ships in the program,¹¹ followed by either block buy contracting with EOQ authority or multiyear procurement (MYP) contracting for later ships in the program—rather than annual contracting might reduce the total acquisition cost of the program by about \$1 billion,¹² a savings (which would accumulate over time) equivalent to or a bit greater than the acquisition cost of either a polar icebreaker or a 35-ship program to replace Coast Guard’s current 35-ship inland waterways fleet.

This potential savings of \$1 billion represents a once-in-a-generation opportunity for using multiyear contracting to reduce the cost of an individual Coast Guard acquisition program by such an amount. The \$1 billion in potential savings is considerably greater than the savings (discussed later in this statement) that might be achieved by using multiyear contracting in the polar icebreaker acquisition program.

The Coast Guard is currently using a contract with options for acquiring the first nine ships in the OPC program. Although a contract with options may look like a form of multiyear contracting, it is not an

⁸ See, for example, Statement of Ronald O'Rourke, Specialist in Naval Affairs, Before [the] House Transportation and Infrastructure Committee, Coast Guard and Maritime Transportation Subcommittee Hearing on The Status of Coast Guard Cutter Acquisition Programs, February 3, 2016, p. 5.

⁹ As I have testified previously, from a congressional perspective, tradeoffs in making greater use of multiyear contracting include the following: reduced congressional control over year-to-year spending, and tying the hands of future Congresses; reduced flexibility for making changes in acquisition programs in response to unforeseen changes in strategic or budgetary circumstances (which can cause any needed funding reductions to fall more heavily on acquisition programs not covered by multiyear contracts); a potential need to shift funding from later fiscal years to earlier fiscal years to fund EOQ purchases of components; the risk of having to make penalty payments to shipbuilders if multiyear contracts need to be terminated due to unavailability of funds needed for the continuation of the contracts; and the risk that materials and components purchased for ships to be procured in future years might go to waste if those ships are not eventually procured. Congress has considered these tradeoffs in deciding whether to grant the Navy authority for using multiyear contracting in the service’s shipbuilding and other acquisition programs.

¹⁰ For additional discussion of multiyear contracting, see CRS Report R41909, *Multiyear Procurement (MYP) and Block Buy Contracting in Defense Acquisition: Background and Issues for Congress*, by Ronald O'Rourke and Moshe Schwartz.

¹¹ EOQ authority is authority to make up-front batch purchases of selected components of all the end items (in this case, ships) that are to be acquired under the contract.

¹² See, for example, Statement of Ronald O'Rourke, Specialist in Naval Affairs, Before [the] House Transportation and Infrastructure Committee, Coast Guard and Maritime Transportation Subcommittee Hearing on The Status of Coast Guard Cutter Acquisition Programs, February 3, 2016, p. 5.

example of multiyear contracting. Contracts with options operate more like annual contracting, and they do not achieve the savings that can be achieved through multiyear contracting. Acquiring the first nine ships in the OPC program under the current contract with options could forego roughly \$350 million of the \$1 billion in potential savings.

One option for the subcommittee would be to look into the possibility of having the Coast Guard either convert the current OPC contract at an early juncture into a block buy contract with EOQ authority, or if conversion is not possible, replace the current contract at an early juncture with a block buy contract with EOQ authority.¹³ Replacing the current contract with a block buy contract might require re-competing the program, which would require effort on the Coast Guard's part and could create business risk for Eastern Shipbuilding Group, the shipbuilder that holds the current contract. On the other hand, the cost to the Coast Guard of re-competing the program would arguably be small relative to a potential additional savings of perhaps \$300 million, and Eastern arguably would have a learning curve advantage in any new competition by virtue of its experience in building the first OPC.

OPC Program: Option for Increasing Procurement Rate to Complete Program Sooner

The current procurement profile for the OPC, which reaches a maximum projected rate of two ships per year, would deliver OPCs many years after the end of the originally planned service lives of the medium-endurance cutters that they are to replace. Coast Guard officials have testified that the service plans to extend the service lives of the medium-endurance cutters until they are replaced by OPCs. There will be maintenance and repair expenses associated with extending the service lives of medium-endurance cutters, and if the Coast Guard does not also make investments to increase the capabilities of these ships, the ships may have less capability in certain regards than OPCs.

One possible option for addressing this situation would be to increase the maximum annual OPC procurement rate from the currently planned two ships per year to three or four ships per year. Doing this could result in the 25th OPC being delivered about four years or six years sooner, respectively, than under the currently planned maximum rate. Increasing the OPC procurement rate to three or four ships per year would require a substantial increase to the Coast Guard's AC&I account, which gets back to the issue discussed earlier of future funding levels for that account and Congress's agency in setting funding levels and determining the composition of federal spending.

Increasing the maximum procurement rate for the OPC program could, depending on the exact approach taken, reduce OPC unit acquisition costs due to improved production economies of scale. Doubling the rate to four ships per year, for example, could reduce unit procurement costs by as much as 10%, which could result in hundreds of millions of dollars in additional savings in acquisition costs for the program. Increasing the maximum procurement rate could also create new opportunities for using competition in the OPC program. Notional alternative approaches for increasing the OPC procurement rate to three or four ships per year include but are not necessarily limited to the following:

- increasing the production rate to three or four ships per year at Eastern Shipbuilding—an option that would depend on Eastern Shipbuilding's production capacity;
- introducing a second shipyard to build Eastern's design for the OPC;
- introducing a second shipyard (such as one of the other two OPC program finalists) to build its own design for the OPC—an option that would result in two OPC classes; or

¹³ As part of the replacement scenario, the Coast Guard could end the implementation of the current contract with options by not exercising an option.

- building additional NSCs in the place of some of the OPCs—an option that might include de-scoping equipment on those NSCs where possible to reduce their acquisition cost and make their capabilities more like that of the OPC. Such an approach would be broadly similar to how the Navy is planning to use a de-scoped version of the San Antonio (LPD-17) class amphibious ship as the basis for its planned LX(R) class amphibious ships.¹⁴

Polar Icebreakers: Option for Reducing Cost Through Block Buy Contracting

In previous testimony and reports, I have provided estimates of the savings that might be achieved by using block buy contracting rather than annual contracting for acquiring polar icebreakers. Most recently, in my CRS report on the polar icebreaker program, I have estimated that using a block buy contract that included EOQ purchases would reduce the combined acquisition cost of three heavy polar icebreakers by upwards of 7%, which could equate to a savings of upwards of \$200 million.

The new report on polar icebreaker acquisition from the National Academies of Sciences, Engineering, and Medicine (NASEM) recommends acquiring four science-ready heavy polar icebreakers built in series to a common design as the most cost-effective approach for meeting U.S. needs for both heavy and medium polar icebreakers.¹⁵ The savings from using a block buy contract with EOQ purchases on such a four-ship acquisition would be greater than the savings on a three-ship heavy polar icebreaker acquisition.

If policymakers decide to procure five or six science-ready heavy polar icebreakers built in series to a common design, the savings of using block buy contracting with EOQ purchases could be greater still—in a six-ship program, I estimate, the savings could exceed \$400 million. The NASEM report notes that its recommended approach would additionally avoid incurring the design and engineering costs (estimated in the report at \$126 million) for a separate class of medium polar icebreakers.

Inland Waterways Fleet

The Coast Guard is in the early stages of analysis for an anticipated recapitalization of the service's inland waterways fleet of river tenders, construction tenders, and inland buoy tenders. The Coast Guard has testified that replacements for these tenders might cost about \$25 million each.¹⁶

It is not clear yet whether the 35 existing tenders will need to be replaced on a strict one-for-one basis—the Coast Guard is now examining that issue—but using the figure of \$25 million, the total acquisition cost of a 35-unit replacement program might be roughly \$875 million, although this figure might be reduced through use of multiyear contracting. Numerous U.S. shipyards—including shipyards that are not capable of building the Coast Guard's larger and more complex cutters—might be interested in bidding for this program.

Mr. Chairman, this concludes my statement. Thank you again for the opportunity to testify, and I will be pleased to respond to any questions the subcommittee may have.

¹⁴ For additional discussion, see CRS Report R43546, *Navy John Lewis (TAO-205) Class Oiler Shipbuilding Program: Background and Issues for Congress*, by Ronald O'Rourke.

¹⁵ Division on Earth and Life Studies and Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine, *Acquisition and Operation of Polar Icebreakers: Fulfilling the Nation's Needs, Letter Report*, cover letter dated July 11, 2017, 147 pp.

¹⁶ Spoken testimony of Vice Admiral Sandra Stosz, Deputy Coast Guard Commandant, Mission Support, at a June 7, 2017, hearing on Coast Guard Sea, Land and Air Capabilities before this subcommittee, as reflected in transcript of hearing.

Appendix A. A Summary of Some Acquisition Lessons Learned for Navy Shipbuilding

A general summary of lessons learned in Navy shipbuilding, reflecting comments made repeatedly by various sources over the years, includes the following:

- **At the outset, get the operational requirements for the program right.** Properly identify the program's operational requirements at the outset. Manage risk by not trying to do too much in terms of the program's operational requirements, and perhaps seek a so-called 70%-to-80% solution (i.e., a design that is intended to provide 70%-80% of desired or ideal capabilities). Achieve a realistic balance up front between operational requirements, risks, and estimated costs.
- **Impose cost discipline up front.** Use realistic price estimates, and consider not only development and procurement costs, but life-cycle operation and support (O&S) costs.
- **Employ competition** where possible in the awarding of design and construction contracts.
- **Use a contract type that is appropriate for the amount of risk involved,** and structure its terms to align incentives with desired outcomes.
- **Minimize design/construction concurrency** by developing the design to a high level of completion before starting construction and by resisting changes in requirements (and consequent design changes) during construction.
- **Properly supervise construction work.** Maintain an adequate number of properly trained Supervisor of Shipbuilding (SUPSHIP) personnel.
- **Provide stability for industry,** in part by using, where possible, multiyear procurement (MYP) or block buy contracting.
- **Maintain a capable government acquisition workforce** that understands what it is buying, as well as the above points.

Identifying these lessons is not the hard part—most if not all these points have been cited for years. The hard part is living up to them without letting circumstances lead program-execution efforts away from these.

Appendix B. Some Considerations Relating to Warranties in Shipbuilding and Other Defense Acquisition

In discussions of Coast Guard (and also Navy) shipbuilding, one question that sometimes arises is whether including a warranty in a shipbuilding contract is preferable to not including one.

Including a warranty in a shipbuilding contract (or a contract for building some other kind of defense end item), while potentially valuable, might not always be preferable to not including one—it depends on the circumstances of the acquisition, and it is not necessarily a valid criticism of an acquisition program to state that it is using a contract that does not include a warranty (or a weaker form of a warranty rather than a stronger one).

Including a warranty generally shifts to the contractor the risk of having to pay for fixing problems with earlier work. Although that in itself could be deemed desirable from the government's standpoint, a contractor negotiating a contract that will have a warranty will incorporate that risk into its price, and depending on how much the contractor might charge for doing that, it is possible that the government could wind up paying more in total for acquiring the item (including fixing problems with earlier work on that item) than it would have under a contract without a warranty.

When a warranty is not included in the contract and the government pays later on to fix problems with earlier work, those payments can be very visible, which can invite critical comments from observers. But that does not mean that including a warranty in the contract somehow frees the government from paying to fix problems with earlier work. In a contract that includes a warranty, the government will indeed pay something to fix problems with earlier work—but it will make the payment in the less-visible (but still very real) form of the up-front charge for including the warranty, and that charge might be more than what it would have cost the government, under a contract without a warranty, to pay later on for fixing those problems.

From a cost standpoint, including a warranty in the contract might or might not be preferable, depending on the risk that there will be problems with earlier work that need fixing, the potential cost of fixing such problems, and the cost of including the warranty in the contract. The point is that the goal of *avoiding highly visible payments* for fixing problems with earlier work and the goal of *minimizing the cost* to the government of fixing problems with earlier work are separate and different goals, and that pursuing the first goal can sometimes work against achieving the second goal.

The Department of Defense's guide on the use of warranties states:

Federal Acquisition Regulation (FAR) 46.7 states that “the use of warranties is not mandatory.” However, if the benefits to be derived from the warranty are commensurate with the cost of the warranty, the CO [contracting officer] should consider placing it in the contract. In determining whether a warranty is appropriate for a specific acquisition, FAR Subpart 46.703 requires the CO to consider the nature and use of the supplies and services, the cost, the administration and enforcement, trade practices, and reduced requirements. The rationale for using a warranty should be documented in the contract file....

In determining the value of a warranty, a CBA [cost-benefit analysis] is used to measure the life cycle costs of the system with and without the warranty. A CBA is required to determine if the warranty will be cost beneficial. CBA is an economic analysis, which basically compares the Life Cycle Costs (LCC) of the system with and without the warranty to determine if warranty coverage will improve the LCCs. In general, five key factors will drive the results of the CBA: cost of the warranty + cost of warranty administration + compatibility with total program efforts + cost of overlap with Contractor support + intangible savings. Effective warranties integrate reliability,

maintainability, supportability, availability, and life-cycle costs. Decision factors that must be evaluated include the state of the weapon system technology, the size of the warranted population, the likelihood that field performance requirements can be achieved, and the warranty period of performance.¹⁷

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¹⁷ Department of Defense, Department of Defense Warranty Guide, Version 1.0, September 2009, accessed July 13, 2017, at [www.acq.osd.mil/dpap/pdi/ ... /departmentofdefensewarrantyguide\[1\].doc](http://www.acq.osd.mil/dpap/pdi/.../departmentofdefensewarrantyguide[1].doc).