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THE STATUS OF COAST GUARD CUTTER ACQUISITION PROGRAMS

(114–32)

HEARING

BEFORE THE

SUBCOMMITTEE ON
COAST GUARD AND MARITIME TRANSPORTATION

OF THE

COMMITTEE ON
TRANSPORTATION AND
INFRASTRUCTURE
HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTEENTH CONGRESS

SECOND SESSION

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CONTENTS

Page

Summary of Subject Matter iv

TESTIMONY

Rear Admiral Joseph M. Vojvodich, Assistant Commandant for Acquisition and Chief Acquisition Officer, U.S. Coast Guard 3
Michele Mackin, Director, Acquisition and Sourcing Management, U.S. Government Accountability Office 3
Ronald O'Rourke, Specialist in Naval Affairs, Congressional Research Service 3

PREPARED STATEMENTS SUBMITTED BY MEMBERS OF CONGRESS

Hon. John Garamendi of California 33

PREPARED STATEMENTS SUBMITTED BY WITNESSES

Rear Admiral Joseph M. Vojvodich 36
Michele Mackin 43
Ronald O'Rourke 65

SUBMISSIONS FOR THE RECORD

Rear Admiral Joseph M. Vojvodich, Assistant Commandant for Acquisition and Chief Acquisition Officer, U.S. Coast Guard, post-hearing responses to requests for information from the following Representatives:

Hon. Bob Gibbs of Ohio referenced instances of cracked diesel engine cylinder heads among National Security Cutters and asked if the repairs were covered under contract or warranty, or paid by the U.S. Coast Guard or other entity 12
Hon. Garret Graves of Louisiana requested an explanation of efforts by the U.S. Coast Guard to work with the Maritime Administration to maintain a list of vessels for disposal 18
Hon. Duncan Hunter of California asked why it wasn't until the testing of National Security Cutter No. 3 that operational capability issues were identified yet were not identified in Nos. 1 and 2 24
Hon. Duncan Hunter of California requested the U.S. Coast Guard's perspective on using multiyear procurement contracting and block buy contracting 30
Hon. Jim Bridenstine of Oklahoma submitted written questions for the record 40

Committee on Transportation and Infrastructure
U.S. House of Representatives

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Washington, DC 20515

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January 29, 2016

SUMMARY OF SUBJECT MATTER

TO: Members, Subcommittee on Coast Guard and Maritime Transportation
FROM: Staff, Subcommittee on Coast Guard and Maritime Transportation
RE: Subcommittee Hearing on the "Status of Coast Guard Cutter Acquisition Programs"

PURPOSE

On February 3, 2016, at 10:00 a.m., in 2167 Rayburn House Office Building, the Subcommittee on Coast Guard and Maritime Transportation will hold a hearing on the Status of Coast Guard Cutter Acquisition Programs. The Subcommittee will hear from the U.S. Coast Guard, the Congressional Research Service, and the U.S. Government Accountability Office.

BACKGROUND

Coast Guard Recapitalization

The Coast Guard began a process of recapitalizing its aging vessels and aircraft in the late 1990's. The program's focus was to replace those assets that carry out missions farther than fifty miles from shore and to modernize information technology systems that the Service relies upon to coordinate its operations. The program was known as the Integrated Deepwater Systems (Deepwater) and managed by a Lockheed Martin/Northrop Grumman team called the Integrated Coast Guard System (ICGS). However, Deepwater encountered significant quality and cost issues and was the subject of several hearings and an investigation by the Committee. The Coast Guard terminated the contract with the ICGS in 2007 and is now performing the acquisition functions in-house. The assets scheduled for recapitalization remain the same. Though some changes have been made in regards to what new assets will be acquired, the volume of total units to be purchased, and the cessation of some segments in approved programs of record.

The recapitalization program, a decades-long, multi-billion-dollar effort, would procure eight National Security Cutters, twenty-five Offshore Patrol Cutters, and fifty-eight Fast

Response Cutters. These cutters will replace ninety ageing cutters and patrol craft: twelve high-endurance cutters; twenty-nine medium-endurance cutters; and forty-nine 110-foot patrol boats. According to the Coast Guard, the ageing ships are man-power intensive, becoming less reliable, more costly to repair and maintain, and most are nearing or beyond their estimated service life. The National Security Cutters, Offshore Patrol Cutters, and Fast Response Cutters are multi-mission ships that would routinely perform, either close to shore or in the deepwater environment (more than fifty miles from shore), seven of the Coast Guard's missions: search and rescue; drug interdiction; ports, waterways, and coastal security; protection of living marine resources; other/general law enforcement; and defense readiness.

National Security Cutter

The National Security Cutter (NSC) is a Legend Class Cutter, 418 feet in length, replacing the legacy High Endurance Cutters (HECs), 378 feet in length, which were built in the late 1960's and early 1970s. The NSC is intended to be capable of extended deployments, increased endurance, and contain enhanced communication and surveillance systems compared to the HEC.

The Coast Guard began operating the first NSC in 2010. The Coast Guard has accepted five NSCs (three are operational and two are in post-delivery testing), three NSCs are in various stages of construction at Huntington Ingalls Shipbuilding in Pascagoula, Mississippi, and a ninth NSC was funded in P.L. 114-113, (H.R. 2029) the Consolidated Appropriations Act, 2016. The Coast Guard expects completion of the NSC project to improve the long-term capacity and capability it has in executing long-range and extended Coast Guard mission assignments and offshore and integrate operations with the Department of Defense.

The Service estimates the total acquisition cost of the eight ships at $5.559 billion, an average of about $695 million per ship. Fiscal year 2016 appropriations included a total of $743,400,000 for the NSC program. The total includes $640,000,000 for award and production costs associated with a ninth NSC, notwithstanding future costs for post-delivery activities. In addition, $12,000,000 was included for the necessary top-side engineering design work to support the deployment of small UAS equipment on NSCs.

Offshore Patrol Cutter

The Coast Guard's fiscal year 2015 Capital Improvement Plan indicates the first Offshore Patrol Cutter (OPC) would be procured in 2018, a year later than originally planned due to procurement delays. The Service will build twenty-five OPCs to replace the twenty-nine existing 210-foot and 270-foot Medium Endurance Cutters.

The Service plans to use a two-phase acquisition strategy for the OPC. Phase I involves issuing three contracts to competing contractors for preliminary and contract design in fiscal year 2014. The goal of awarding the competing design contracts is to maintain competition through the process to the down-select for detail design and construction in Phase II. The Service indicates a Phase II selection occurring late in fiscal year 2016. The selected contractor will issue a detailed design for construction, with a contract to build at least nine, potentially up to eleven vessels.

The Service noted in its award statement that multiple design contracts establish a fixed-price environment. The two-phase acquisition strategy was developed by analyzing lessons learned from other major government shipbuilding programs and through collaboration with industry on how to best design and produce the most affordable OPC. However, efforts to conduct such a phased contract approach did not result in increased competition or reduced costs for Phase II contract award for the Fast Response Cutters to be discussed below.

The service estimates the total acquisition cost of the 25 ships at $10.523 billion, averaging about $421 million per ship. Fiscal year 2016 appropriations included a total of $89,000,000 for the OPC program, with $70,500,000 to be used to exercise the option for Detail Design and commence Phase II of the OPC acquisition.

Fast Response Cutter

The Fast Response Cutter (FRC), a Sentinel-class patrol boat, is 154 feet in length, considerably smaller than OPCs, but larger than the 110-foot patrol boats it will replace.

The Service estimates the total acquisition cost of the 58 cutters at $3.764 billion, averaging about $65 million per cutter. A total of 38 FRCs have been funded through fiscal year 2016. The 14th FRC was commissioned into service on October 16, 2015, and the 15th was accepted by the Coast Guard on October 20, 2015, and is scheduled for commissioning in early 2016. Fiscal year 2016 appropriations included a total of $340,000,000 for the FRC program for the acquisition of six cutters.

FRCs are currently being built by Bollinger Shipyards of Lockport, LA. Bollinger Shipyards has a final contract to build 32 ships all of which were under contract in 2015. On February 27, 2015, the Service issued a Request for Proposal for a contract that will produce the remaining 26 ships. Bids were due by June 5, 2015. Bollinger Shipyards was the only bid and the price of the bid was higher than the first phase bid, said to be due to design changes, but confirming concerns that a second bidding process could lead to added costs to the program.

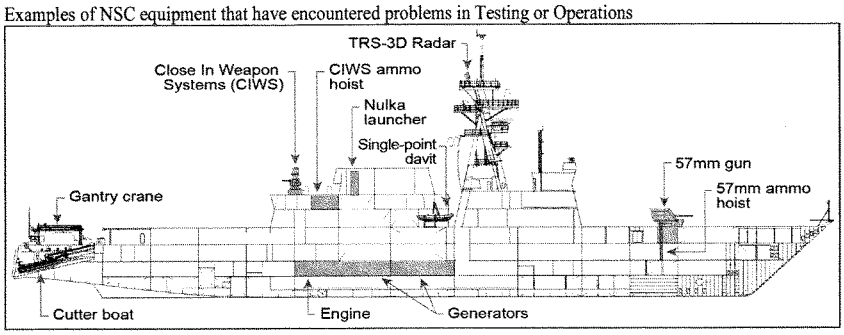
Phase 1 of the FRC acquisition program experienced challenges in the initial testing phase. In September 2013, the Department of Homeland Security (DHS) approved the FRC for full-rate production despite the FRC not meeting all key requirements during initial operation testing. At the time, the FRC partially met one of six key requirements and was found operationally effective (with the exception of its cutter boat) though not operationally suitable. DHS officials stated they approved the FRC for full-rate production because the Service has plans in place to address most major issues identified during testing including supplying the FRC with a small boat.

Government Accountability Office

The Government Accountability Office (GAO) issued a report entitled *National Security Cutter: Enhanced Oversight Needed to Ensure Problems Discovered during Testing and Operations Are Addressed* on January 12, 2016. The GOA reviewed the operation of the NSCs between 2010 and 2014 and the Initial Operational Test and Evaluation (IOT&E) conducted by

the U.S. Navy's Commander, Operational Test and Evaluation Force (COTF). The GAO reported that testing and operations revealed numerous issues with the NSCs, some are shown in the following figure.

Examples of NSC equipment that have encountered problems in Testing or Operations



Source: GAO presentation and analysis of U.S. Coast Guard data. | GAO-16-148

The GAO found the IOT&E, a key acquisition event to ensure the asset is capable of meeting its mission requirements before being approved for full-rate production, was conducted on the NSCs in 2014. The IOT&E occurred after the first three NSCs were operational and four others were under contract. IOT&E reviews critical operational issues (COI), an assessment of an asset's operational effectiveness and suitability, and key performance parameters (KPP), capabilities considered essential for mission accomplishment. The GAO notes KPPs differ from COIs in that KPPs focus on specific performance metrics, while COIs focus on certain types of missions that an asset should be able to conduct or its ability to be ready to perform those missions.

Deficiencies found during testing had critical, serious or moderate impact on the NSC mission accomplishment. Close-in weapon system failure was a critical impact. Serious impacts included NULKA launcher (one of two inoperable) and TRS-3D Air Search Radar equipment failure. Moderate impact included: access to electronic racks required disabling communication equipment; cutter boat is not designed to operate in all of Sea State 5 (Sea State 5 includes waves from 8 feet to 13.1 feet); Common Operation Picture display equipment failure; remote operated valve failure; 57mm gun weapon system misfire disrupting test event; Command and Control (C2) did not have available an embedded training module (preventing realistic tactical drills and exercises); and rubber electric matting had large gaps exposing crew to electric shock hazards.

The Service deferred some items from IOT&E including: unmanned aerial systems (UAS); Link-11 (capability to send/receive information with Navy ships); Cybersecurity COI; additional testing of cutter boats; NSC intelligence systems; and Subsonic anti-ship cruise missile (KPP 5.4), the Navy had a mishap with a drone during testing and implemented a moratorium, this capability will be tested in the follow-on operational test and evaluation (FOT&E).

The FOT&E, an event conducted after IOT&E and full rate production, is scheduled for the NSC for fall 2016 through 2017. The GAO raises concerns with FOT&E, specifically whether any found deficiencies will be subject to appropriate oversight to ensure that they are corrected. The GAO notes that by not having definitive guidance on what occurs at the end date for FOT&E and what oversight is needed for any remaining issues, DHS and the Service are accepting some risk that NSC deficiencies or KPPs may not be resolved for years.

The 2014 Acquisition Decision Memo (ADM) requires FOT&E to conduct 3 items: cybersecurity COI testing; verifying all major deficiencies (including unmet KPPs) are corrected; and assessing the NSC cybersecurity capabilities. The ADM does not require an acquisition review board after FOT&E. The GAO recommends DHS use such review if FOT&E raises any outstanding issues.

The Service has taken corrective actions to resolve certain deficiencies but has not submitted corrective actions plans to COTF, which is required as part of COTF guidance to formally close deficiencies. The Service states four of ten major deficiencies have been corrected and it's working on four more. The Service states it may not correct all deficiencies due to costs involved with fleet-wide changes. This may mean the Service's assets are not as capable as intended. DHS and Coast Guard guidance required the Coast Guard to determine if the capability meets the established minimum performance standards, but do not specify when this determination should be made.

The Service viewed the test results as proving the NSC's value. The GAO notes that by not meeting all of the KPPs, the Service cannot demonstrate that the NSC is operating as originally envisioned. The GAO states the Service should determine if the capability meets the established minimum performance standards, but again the DHS and Service guidance do not specify when this determination should be made. By comparison, the Department of Defense acquisition guidance requires that specific minimum performance standards, which are defined at the time assets are approved for system development, be met prior to entering full-rate production.

According to the GAO added costs to the NSC program as of June 2015 is approximately $202 million, as shown in the following table.

Retrofits and Design Changes for the National Security Cutter Class with Costs over $1 Million as of June 2015 Retrofits and design changes	**Estimated Cost (in millions)**
C4ISR upgrade	$88.5
Structural enhancements (National Security Cutters 1 and 2)	$38
Gantry crane that aids in launching cutter boats from stern ramp	$31
Single-point davit for cutter boat operations	$12.5
Upgrade communications system	$12.3
Update cutter monitoring system	$6.3
Upgrade two ammunition hoists	$6.3
Remove Aircraft Ship Integrated Secure and Traverse tracks in flight deck	$5.6
Breathing apparatus replacement	$1.6
Total cost	$202.1

Source: GAO presentation of Coast Guard data. | GAO-16-148

Note: The Coast Guard reported these numbers for all eight hulls. However, not all retrofit designs are currently being implemented because they have not all been finalized.
C4ISR stands for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance.

Performance issues discovered during operations and ongoing operational problems

Item	Problem	Fix and Cost
Cutter's Stern Gantry Crane	Not made for maritime environment. Frequent casualties due to lack of waterproofing.	Prototype of new crane successful on Stratton, change approved fleet-wide. (Cost $31 million)
Single Point Davit	Unreliable in lifting cutter boat in high seas, single-point davit risky method of launching cutter boats.	Stratton has a prototype dual-point davit, but not cleared for whole fleet. (Cost $12.5 million)
Two Ammunition Hoists	Difficult to use in current form.	Modification expected. (Cost $6.3 million)
Stern and Side doors	Stern doors open and close too slowly. Side door has potential for water intrusion and capsizing of boat.	Stern door redesign has not reached prototype stage. Side door has new design. (Cost N/A)
Propulsion Systems	July 2012- February 2105, 14 major casualties reported for diesel engines and at least 5 major casualties reported for generators over 3 operational NSCs. Leading to potential costly, mission limiting problems.	Root cause and potential fix unknown. (Cost N/A)
High Engine Temperatures	Warm waters forcing reduced speeds by 2 to 4 knots. 2014 operation reports showed *Waesche* and *Bertholf* had problems in water temps above 74 and 77 degrees F. *Stratton,* in 2013, had full speed in water temps up to 68 degrees, now has issues in water temps of 50-60 degrees F.	Coast Guard found root cause, but GAO did not see documentation. Unclear if design change or retrofit is necessary. (Cost N/A)
Cracked Cylinder Heads	NSCs averages 4 cracked cylinder head per year, not expected to fail at this rate. Issue unclear.	Added to study on propulsion optimization with engine manufacturer. Manufacturer has redesigned to prevent cracking. (Coast Guard pays for replacement at $50,000/each totaling $1.6M/year)
Generator Bearings	Class-wide problem, overheating generator bearings. Prevents use of generator. Two of three must be working to be safe to sail.	Prototype on *Stratton*, year to evaluate changes. Until fixed reduced availability for operations and costly repairs. (Each failed bearing costs about $100,000. Coast Guard pays, expired warranty)

Source: GAO presentation of Coast Guard data. | GAO-16-148

Conclusion

The GAO report indicates that DHS and the Service continue to have acquisition issues. Without more precise guidance on when testing should occur and what performance standards the testing should demonstrate before full scale production occurs, the issues with NSC and FRC acquisition programs could resurface during the OPC acquisition program. Without updated

guidance, the Service risks encountering the same scenario with the OPC (i.e. continuing to buy assets without testing that demonstrates the asset meets its full capabilities).

WITNESSES

Rear Admiral Joseph Vojvodich
Assistant Commandant for Acquisition and Chief Acquisition Officer
United States Coast Guard

Ms. Michele Mackin
Director, Acquisition and Sourcing Management
U.S. Government Accountability Office

Mr. Ronald O'Rourke
Specialist in Naval Affairs
Congressional Research Service

THE STATUS OF COAST GUARD CUTTER ACQUISITION PROGRAMS

WEDNESDAY, FEBRUARY 3, 2016

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON COAST GUARD AND MARITIME TRANSPORTATION,
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,
Washington, DC.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2167, Rayburn House Office Building, Hon. Duncan Hunter (Chairman of the subcommittee) presiding.

Mr. HUNTER. Good morning. The subcommittee will come to order.

The subcommittee is meeting today to discuss the status of Coast Guard cutter acquisition programs.

The Government Accountability Office issued a report on January 12th entitled "National Security Cutter: Enhanced Oversight Needed to Ensure Problems Discovered During Testing and Operations Are Addressed." It raises concerns with the timing of testing during production, the guidance available to guide production, testing and oversight of corrected actions, and the additional costs to address the deficiencies and operational issues.

An important discussion I would like to have today is how we ensure the end assets operate as intended and are what the taxpayers paid for. What lessons have we learned during the National Security Cutter and Fast Response Cutter acquisition programs that can be applied to the OPC [Offshore Patrol Cutter] program to minimize, if not eliminate, the same issues.

As I have said before, the Coast Guard is operating tens, and in some cases, hundreds of hours short of its operational targets, which puts our Nation at risk. Assets are not available for the Service to secure our ports, protect our environment, and ensure the safety of our waterways.

We heard in 2014 the lack of available assets resulted in historic lows in drug interdiction rates. The lack of assets must have affected other mission areas as well. The fact that the new assets may not be performing as intended is a problem that could continue to impact mission capabilities.

We have also previously discussed issues with the President's annual budget requests and the Capital Investment Plans, both of which have not supported the infrastructure needs of the Coast Guard. According to the Coast Guard's fiscal year 2016–2020 CIP, annual funding for acquisitions will be roughly $1 billion less than the GAO [Government Accountability Office] and Coast Guard offi-

cials have testified is needed on an annual basis to keep the current acquisition program on schedule and on budget.

The Capital Investment Plan is nothing more than a roadmap to additional acquisition delays, increased costs for taxpayers, and ongoing mission performance failures.

The President's budget requests have followed the poorly designed roadmap provided in the Capital Investment Plan. The fiscal year 2016 request cut funding needed to acquire critically needed replacement assets by 17 percent.

The budget request also failed to guarantee the funding needed to begin detailed design for the OPC, and failure to move into detailed design on the OPC by the end of fiscal year 2016 could result in significantly higher costs and substantial acquisition delays.

Moving this, and other, acquisitions further to the right will only further degrade Coast Guard mission performance.

As we move into reviewing the fiscal year 2017 budget, it would be a welcome change to see the President's budget support funding for the Coast Guard's acquisition programs.

Another component of the recapitalization is the Coast Guard's mission need statement. It is used to inform us and everybody the evolution of the Coast Guard's Capital Investment Plan. Up until last month, the Coast Guard was working on a mission need statement from 2004. So it only took them about 11 years to update it.

On January 8th the Coast Guard released a new mission need statement, as required by this committee, the Appropriations Committee, and our Senate counterparts.

The Howard Coble Coast Guard and Maritime Transportation Act of 2014 required an updated mission need statement to include information on current and projected gaps in Coast Guard mission capabilities and how major acquisition programs would address those gaps.

However, that is what it was supposed to do. What the Coast Guard released on January 8th actually states this: "This document does not seek to identify a material solution to meet future mission needs, but rather to identify the enduring, high-level capabilities required for the Coast Guard to execute its broad statutory authorities effectively and efficiently."

So it took the Coast Guard 11 years to do an updated mission need statement, and in that mission need statement, they said they are not going to do a future mission need statement.

While having an updated mission need statement is better than working off one developed over a decade ago, if it does not provide information on what assets are needed to perform certain missions, does it properly inform the evolution of the Capital Investment Plan and subsequently the President's budget request for Coast Guard assets?

Those are questions we have today. I look forward to discussing all of the issues before us today, including any lessons learned from the NSC [National Security Cutter] and the Fast Response Cutter acquisition programs so they could be applied to the Offshore Patrol Cutter acquisition program.

In the end, the American public deserves assets that perform as intended and expected. We do not need missions to be continually

compromised due to the limitations of old vessels and flaws in new ones.

With that I yield to Ranking Member Garamendi.

Mr. GARAMENDI. Thank you, Mr. Chairman.

I am listening carefully to your opening statement, and I am thinking, "What could I add?" Maybe welcome and good morning. I look forward to your testimony.

This chairman has laid out a series of issues. My opening statement repeats much of what he has already covered, and actually covered much more than my opening statement.

So I am just going to submit my statement for the record, and we will just get into it and go from there.

One thing that the chairman did not cover was our favorite subject, icebreakers. Maybe you did. Did you discuss that?

Mr. HUNTER. No, I did not.

Mr. GARAMENDI. Come on.

Mr. HUNTER. This one day, you got me.

Mr. GARAMENDI. So we want to talk about icebreakers a little bit to see where we are with that, but everything else that is in my opening statement he has already talked about. I could repeat it, but welcome, and I will submit it for the record.

Mr. HUNTER. One reason this is important this morning is because your National Security Cutters are almost done. You only have a block of what, 40 or 50 ships, FRCs [Fast Response Cutters] and OPCs, coming up, and then you are not going to have any acquisition for quite a while. This is it.

So we kind of get one shot at this to do it right and to do it as efficiently and as effectively as possible. So hopefully we hear this morning on how we are going to do that.

And with that, on the first panel for today's hearing we will start with Rear Admiral Joseph Vojvodich, boom, right there, the Coast Guard's Assistant Commandant for Acquisition and Chief Acquisition Officer.

Rear Admiral, you are recognized to make your statement.

TESTIMONY OF REAR ADMIRAL JOSEPH M. VOJVODICH, ASSISTANT COMMANDANT FOR ACQUISITION AND CHIEF ACQUISITION OFFICER, U.S. COAST GUARD; MICHELE MACKIN, DIRECTOR, ACQUISITION AND SOURCING MANAGEMENT, U.S. GOVERNMENT ACCOUNTABILITY OFFICE; AND RONALD O'ROURKE, SPECIALIST IN NAVAL AFFAIRS, CONGRESSIONAL RESEARCH SERVICE

Admiral VOJVODICH. Chairman Hunter, Ranking Member Garamendi, members of the subcommittee, good morning.

Thank you for the opportunity to speak about the Coast Guard's ongoing activities to recapitalize the surface fleet. On behalf of the Commandant and the men and the women of the United States Coast Guard, I want to express my appreciation for your oversight and continued support of our Service.

I also want to note the Service's thanks for including several Coast Guard priorities in the recently passed authorization bill. These new authorities will allow the Service to improve command structure and overall performance.

Our internal efforts to achieve continuous improvement are complemented by the valuable oversight performed by this subcommittee and the organizations represented by my distinguished fellow panel members today.

We continue to have a very effective working relationship with the Government Accountability Office, Ms. Mackin, and her team. This was evident during GAO's recent review of the National Security Cutter operational test and evaluation activities, which concluded with recommendations that are consistent with our plans to achieve OT&E.

We likewise benefit from the research and knowledge of Mr. O'Rourke and the Congressional Research Service. I am honored to have the opportunity to jointly testify with these committed professionals.

As the chief acquisition officer, I have the distinct pleasure to lead a talented team in delivering assets and capabilities needed to accomplish the Service's many missions. The importance of this work is reflected by the efforts put forward by this subcommittee and your colleagues to fully support the Coast Guard acquisition priorities in fiscal year 2016. We are fully prepared to execute these funds in an effective and efficient manner.

I can say this because we have made investment to mature our acquisition enterprise. We continue to grow a deep and talented acquisition workforce capable of performing critical program management, contract and support functions. We are actively applying lessons learned from each program to improve decisionmaking across the portfolio.

From cutter to cutter, program to program, we are approving our processes in a quality of delivered assets. In the end we are providing more capable products to our end users: the men and women in the field who are responsible for executing the missions.

We continue full rate production of the National Security Cutter and the Fast Response Cutter, and we are working hard on designing and delivering an affordable and capable Offshore Patrol Cutter. We recently completed preliminary and contract design phase of the OPC, and we are on schedule to award a follow-on contract for detail design before the end of this fiscal year.

At the same time, we are acting on the President's direction to accelerate the acquisition of a heavy icebreaker and begin planning construction of additional icebreakers. We recently completed the operational requirements document and released a draft technical package late last month, which outlines key requirements for a heavy icebreaker to advance our industry outreach strategy.

Additionally, we started a preservation and material condition assessment of *Polar Star*, and we anticipate having results later this summer.

The Commandant continues to make fleet recapitalization one of the Service's highest priorities, and we recognize the need to achieve affordability in everything that we do.

Thank you for your support of the Coast Guard's effort to provide our men and women in uniform with the mission capability they need in the 21st century.

I appreciate the opportunity to testify, and I look forward to the questions that you may have.

Mr. HUNTER. Thanks, Admiral.

Our next witness is Ms. Michele Mackin, Director of Acquisition and Sourcing Management for the U.S. Government Accountability Office.

Ms. Mackin, you are recognized.

Ms. MACKIN. Thank you, Mr. Chairman.

Good morning, Ranking Member Garamendi, members of the subcommittee. Thank you for having me here this morning to discuss the Coast Guard's cutter acquisitions, in particular, issues identified in the National Security Cutter's testing and in ongoing operations.

As was noted, we reported on these issues last month at the request of the subcommittee.

I will also share some observations on lessons learned from the NSC and from our work on commercial best practices as the Coast Guard moves forward with the Offshore Patrol Cutter.

By all accounts, the NSC is a more capable vessel than the High Endurance Cutters it is replacing. For example, it has increased range and a larger flight deck.

The NSC had an important event in the spring of 2014, its initial operational test and evaluation conducted by the Navy's test agent. This kind of operational testing is the only way to ensure that an asset is ready to meet its missions.

At the time of the testing, seven of eight NSCs were either delivered or under contract, and three were operational. The test was done on the third NSC, the *Stratton*.

The Navy determined that the NSC is operationally effective, meaning capable of performing its missions, and operationally suitable, meaning it can sustain operations in terms of availability and reliability.

At the same time, however, the Navy identified 10 major deficiencies that could affect the ship's operations. In addition, 7 of the 19 key performance parameters were not fully met. Some areas of concern pertain to the combat systems suite. Others pertain to the sea state requirements for the cutter boats that launch from the NSC.

Of note, the unmanned aerial system, key to the NSC's planned capabilities, could not be tested because the Coast Guard has not yet acquired a UAS [unmanned aircraft system].

The Coast Guard has plans to address most of the identified issues, and the items will be assessed again during follow-on operational testing, which is expected to start later this year and continue into 2017 or longer, at which point at least six NSCs will have been delivered.

In addition to the testing issues, the Coast Guard will need to replace certain equipment after all NSCs have been built. Examples include the gantry crane, which was not designed for a maritime environment and is experiencing significant corrosion, and the single point davit which cannot be operated in high seas as intended. These and other retrofits will cost over $200 million.

Further, we identified problems that have arisen during the 5 years the NSCs have been operational. Some of the problems are proving difficult to fix. Key areas of concern are high engine temperatures, which limit the speed of the NSC in certain conditions;

cracked cylinder heads, which are occurring at a rate higher than expected; and overheating generator bearings, which have caused at least one patrol to be cut short.

Until corrective actions are identified and implemented, the Coast Guard faces increased costs and the potential for NSC missions to be limited.

Finally, regarding lessons learned from the NSC, one element is competition. Our work on commercial shipbuilding best practices has found that competition can save money. The NSC procurement was sole-sourced under the Deepwater program, and the Coast Guard is taking steps to inject competition into the OPC acquisition.

Another observation is that the Coast Guard plans to conduct initial operational test and evaluation when one of the 25 OPCs is operational as compared to 3 of the 8 NSCs.

A third area is warranty provisions. Who pays for the defects and retrofits? In the case of the NSC, the Coast Guard generally will pay. The planned OPC warranty, which according to the Coast Guard will be similar to that of the Fast Response Cutter, would have stronger provisions that should be more effective in protecting taxpayer dollars.

And finally, the Coast Guard has opportunities to incorporate best practices in terms of ensuring that the OPC design is solidified and stable before construction begins, and that quality assurance at the shipyard is robust.

Mr. Chairman, Ranking Member Garamendi, members of the subcommittee, this concludes my prepared remarks.

Thank you.

Mr. HUNTER. Thank you, Ms. Mackin.

Our last witness is Mr. Ronald O'Rourke, a specialist in naval affairs for the CRS [Congressional Research Service].

Mr. O'Rourke, you are recognized.

Mr. O'ROURKE. Chairman Hunter, Ranking Member Garamendi, distinguished members of the subcommittee, thank you for the opportunity to appear before you today to discuss Coast Guard cutter acquisition programs.

Mr. Chairman, with your permission I would like to submit my written statement for the record and summarize it here briefly.

As requested, my testimony focuses on how multiyear procurement and block buy contracting could reduce acquisition costs for new Coast Guard cutters. I have seven points I would like to make.

The first is that multiyear procurement can reduce acquisition costs by roughly 10 percent compared to costs under annual contracting, and that block buy contracting can reduce acquisition costs by comparable amounts if the authority granted for using block buy contracting includes authority for making economic order quantity purchases of components.

The second point is that the Navy has used multiyear procurement and block buy contracting extensively in recent years in its shipbuilding and aircraft acquisition programs, and as a result estimates that it has saved billions of dollars in acquisition costs. That is billions with a "B."

Among other things, using multiyear procurement helped the Navy and Congress to convert a 9-ship buy of DDG–51 destroyers

into a 10-ship buy and to convert a 9-ship buy of *Virginia*-class attack submarines into a 10-ship buy.

The third point is that although the Navy in recent years has made extensive use of multiyear procurement and block buy contracting to reduce acquisition costs, the Coast Guard to date has not used multiyear procurement or block buy contracting in its cutter acquisition programs. The Coast Guard has used contracts with options in cutter acquisition programs. A contract with options may look like a form of multiyear contracting, but operates more like a series of annual contracts.

Contracts with options do not achieve the reductions in acquisition costs that are possible with multiyear procurement and block buy contracting.

The fourth point is that the Offshore Patrol Cutter program and the polar icebreaker program can be viewed as candidates for using block buy contracting, and the Fast Response Cutter program can be viewed as a candidate for using either multiyear procurement or block buy contracting.

The fifth point is that from a congressional perspective tradeoffs in making use of multiyear procurement and block buy contracting include reduced congressional control over year-to-year spending and tying the hands of future Congresses; reduced flexibility for making changes in Coast Guard acquisition programs in response to unforeseen changes in strategic and budgetary circumstances; a potential need to shift funding from later years to earlier years to fund economic order quantity 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; 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.

The sixth point is that using block buy contracting might save about $1 billion in the Offshore Control Cutter program; that using multiyear procurement or block buy contracting might save more than $100 million in the Fast Response Cutter program; and that using block buy contracting might save upwards of $100 million in a two-ship polar icebreaker program.

The $1 billion in potential savings in the OPC program would be about enough to pay for a polar icebreaker, and the combined potential savings across all three programs of about $1.2 billion is about equal to the average annual funding level in the Coast Guard's acquisition, construction and improvements account.

My seventh and final point is that in considering whether to grant authority for using multiyear procurement or block buy contracting, Congress may weigh the potential savings of these contracting mechanisms against the tradeoffs I just listed.

Mr. Chairman, this concludes my remarks. Thank you again for the opportunity to testify, and I look forward to the subcommittee's questions.

Mr. HUNTER. Thanks, Mr. O'Rourke.

I am not going to ask questions right now, but I would like you to explain just one thing really quickly and then we will start asking questions.

Can you just explain in layman's terms what a block buy does and tie it into appropriations and authorizations here in Congress and how the money is appropriated if you do a block buy and you give money for lead materials through the appropriations process here? How does it actually work?

Mr. O'ROURKE. A block buy contract is similar to a multiyear procurement contract. You can consider it to be the less formal stepchild or step-sibling of a multiyear procurement contract. Like a multiyear procurement contract, it is one contract. It covers several years' worth of procurement, and it gives the manufacturer, in this case the shipbuilder, the assurance that that firm needs to make investments in its capital plant and in its workforce to optimize the situation for the production of the units covered under the period of the contract. That saves money at the shipyard.

A block buy contract, if it also has written into it authority for making economic order quantity purchases of components, that is, batch purchases of components upfront, can save money at the component manufacturers.

And when you add those savings together, the savings under a block buy contract can be comparable to those of a multiyear procurement contract, on the order of roughly 10 percent, and this has occurred in a number of shipbuilding and aircraft acquisition programs that the Navy and the other DOD services have pursued in recent years.

Mr. HUNTER. How was the money appropriated? So if you do a multiyear, so say you are buying ships over 3 years, for example. How does the appropriations process work here in the House?

Mr. O'ROURKE. The appropriations are generally the same. You are doing annual appropriations. There is no need to fund the entire thing upfront. So you are funding the ships in this case one at a time.

The one change from annual contracting is that if you are doing economic order quantity, or EOQ, purchases of components——

Mr. HUNTER. Say that again.

Mr. O'ROURKE. If you are doing economic order quantity, or EOQ, purchases of components and you are ordering those components upfront that would be installed across all the ships in the group, then you do bring some money from later years into earlier years to pay for that.

Mr. HUNTER. Do you mind pulling that closer to you? I have artillery ears, and the rest of these guys are just old.

Mr. O'ROURKE. The one difference is that if you are making EOQ purchases of components, batch purchases of components, upfront as part of your strategy for achieving savings, then the money to pay for that is moved from later years into earlier years.

So in the first year of block buy contract for a group of cutters, you would pay for that first cutter in that year, but you would also make a payment for some of the components for the downstream ships, and that would be in addition.

So there is a shifting or re-phasing of a little bit of the money to the extent that you want to use your authority for making economic order quantity purchases—upfront batch purchases of components.

But in general, you are still paying for the ships one at a time as you would under annual contracting.

Mr. HUNTER. So could the manufacturer buy all the steel they want to as the steel market goes up and down? They can wait and time their buys or no?

Mr. O'ROURKE. It is usually discussed in terms of components, but the authority may extend I believe to materials as well. You can think about pumps and valves, for example, being the kind of thing that the shipbuilder would then order in batch fashion from the component manufacturer so that they can make them in an economically efficient manner, and then they would be ready for installation on each of the ships as those ships are then funded and produced through the life of the contract.

Mr. HUNTER. What is the difference between lead time materials and having the money appropriated upfront to buy lead materials, and what you are talking about, or is there a difference?

Mr. O'ROURKE. Somewhat similar. Long lead time materials are ordered ahead of the ship that it is going on so that they will be ready in time for installation on that one ship.

In this case if you are doing 25 OPCs or as many as 26 Fast Response Cutters, you are getting as many as 25 things or maybe 11 things for the OPC program, 11 sets of pumps and valves, all upfront, and they would sit there and wait then to be installed on each of the first 11 OPCs or the 26 Fast Response Cutters.

Mr. HUNTER. OK. And thanks.

We are going to jump right back into this, but I would just like to recognize Mr. Garamendi.

Mr. GARAMENDI. Well, let us not jump out of this for a few moments.

So the experience of the National Security Cutter and the Offshore Patrol Cutter would indicate that we may be better off looking at a block buy or a multiyear procurement contract for the OPCs; is that correct, Mr. O'Rourke?

Mr. O'ROURKE. What I would say is that the Navy's experience in reducing shipbuilding and aircraft acquisition costs through the use of both multiyear procurement contracts and block buy contracting offers an example that can be considered by this committee and the Congress for application in Coast Guard cutter acquisition. In weighing whether to do this or not, you would balance the potential savings of these contracting mechanisms against the tradeoffs that I listed earlier in my opening statement.

Mr. GARAMENDI. Ms. Mackin, do you tend to agree with the theory that Mr. O'Rourke is putting forward?

Ms. MACKIN. I think block buy multiyear can result in savings, but I will just mention Littoral Combat Ship. That was a block buy contract. It has not gone well in large part because the requirements were not firm, and now the Navy, you know, had 10 ships for each shipyard in these block buy contracts, and that was their strategy.

So I think it can result in savings, but the key really is to have the requirements nailed down and firm before construction. You may build a few ships and then move into a block buy situation afterwards, for example.

So that would be my only caveat there.

Mr. O'ROURKE. If I could just add very quickly, the Littoral Combat Ship program has had issues and controversy and difficulties, but I view those as being independent of the Navy's use of block buy contracting in that program, and the actual construction of the ships that are under the block buy contract under the LCS program has gone a lot more smoothly than the construction of the earlier ships that were done under annual contracting.

Mr. GARAMENDI. Why was that?

Mr. O'ROURKE. In part because the stability provided by working out the problems with the initial designs fed into the block buy contracts, and the shipbuilders were in a position where they could then produce them on a recurring, regular basis.

Mr. GARAMENDI. The first ships in any of these three and I suppose the Littoral Combat Ship also, the first ones are kind of like we are going to discover all of the errors and mistakes and problems and hopefully know what they are and get them out of the way, and then move into a more production type procedure.

Is that basically what happens all the time?

Mr. O'ROURKE. I think as a general matter the Navy discovers design issues and experiences cost growth on lead ships that is then, yes, fed into its understanding of the remainder of——

Mr. GARAMENDI. These three programs are all new ships. Excuse me. Each program is a new program. It is a new ship that had not previously been in the fleet; is that correct? I think so. I am wrong?

Mr. O'ROURKE. No, the Fast Response Cutter program is well underway, and so if you were to do a contract for that program, you are in the middle of it already.

Mr. GARAMENDI. I did not communicate well. My apologies. What I am saying is that all three of these ships, each one is a new ship at its outset. When the contract was let, it was a new ship. National Security Cutter had never been built before.

There are going to be problems. You are going to find out that this did not fit. You really did not want it done that way. What you really needed was something different. That is kind of like the way it is, is it not?

I guess the point to us is we should expect that to happen with the first one off the line. It gets into the water; hopefully it floats, and you go from there. Is that more or less correct, Admiral?

And then you find the problems. You solve it. You figure out the solutions to the problems, and then hopefully the next ships coming off the line do not have the same problem, correct?

Admiral VOJVODICH. Yes, sir, there is a great deal of learning that goes on in the shipyard.

Mr. GARAMENDI. In that process. So we might expect for the first cutter coming off in any of these three, first ships coming off in any of these three different types of ships to have problems, right? Wrong? It is going to be perfect?

Ms. MACKIN. I doubt it will be perfect, but I think this is where the commercial shipbuilding best practices could help inform the OPC acquisition. They are not the same kind of ships, but the principle of building them, the whole mechanical, electrical, the basic construction of the ships, there are definitely lessons to be learned there.

In the commercial world, they deliver a ship that works right off the bat, and largely because they make sure that the design is stable before they begin construction.

The Navy typically does not do that, and so I think here is an opportunity for the Coast Guard to try to get that part right on the OPC.

Mr. GARAMENDI. Very interesting. So you want to know before you begin to lay the keel what it is you want it to look like when it is completed. Is that what I heard you say?

Ms. MACKIN. Yes, sir.

Mr. GARAMENDI. And all of the little elements, including the unmanned aerial vehicle?

Ms. MACKIN. Those are additional capabilities. You know, I think here we are kind of dealing with a legacy Deepwater issue when you talk about the UAS, the cutter boats. The stern doors have problems. A lot of this is the way that procurement went. It was in a sole source environment. The Government had very little control over the requirements in those days.

The Coast Guard obviously has come a long way since then.

Mr. GARAMENDI. So I think what I am trying to get is a good sense of lessons learned, which I think is what we are here for today, and the application of those lessons learned to this next class of ships.

Mr. O'ROURKE. One of the oldest lessons in shipbuilding that has been learned many times over is to avoid design construction concurrency, and the Navy has moved in recent years to get away from that and to take its designs to a high stage of completion prior to starting the construction of the ships, and the degree of completion of design has been moving upward over time.

But, yes, that is one of the oldest and most——

Mr. GARAMENDI. Now, with that foundation in place I am out of time, well out of time, and so I am going to yield back, but I want to come back and circle back around as to whether those lessons are being applied by the Coast Guard.

Thank you, Mr. Chairman.

Mr. HUNTER. Mr. Gibbs from Ohio is recognized.

Mr. GIBBS. Thank you, Mr. Chairman.

Admiral, you know, I listened to the testimony from Ms. Mackin and Mr. O'Rourke, and I hear a common theme about the purchasing problems. We could save $1 billion if they do purchasing differently. That would pay for an icebreaker. I hear about the warranty. I have got a paper in front of me that talks about some of the challenges the Coast Guard has had, averages four cracked cylinder heads a year. Then the Coast Guard paid for it. Warranty did not pay for it or the manufacturer. Generator bearings, propulsion systems, stern doors maybe leak, may cause the boat to capsize.

I am trying to understand these issues. Why are taxpayers paying for these fixes? I mean, how do you guys negotiate contracts here? I mean, how does this work?

I think the other two witnesses, the Government Accountability Office and the Congressional Research Service are pretty critical about the procurement and what is happening. So can you expound or enlighten me why this is happening?

Admiral VOJVODICH. Yes, sir. Thank you for the opportunity to address that.

The National Security Cutter is obviously a very complex cutter derived with many complex systems, and so over time as we learn to operate them in the operational environment, we are going to encounter issues out there. And so, you know, when those issues come up, we engage our technical authority to make sure we understand the engineering aspect of it.

We engage the shipbuilder as well as the originating equipment manufacturers to understand the solutions. We put plans in place whether it is in design or prototypes or optimization studies, and we look at mission impact.

What we have observed with the National Security Cutter, we are able to meet mission. We are encountering issues along the way, and again, through this whole process of technical authority and the shipbuilder, we are addressing those efficiently to make sure that we have the best capability that we can provide to our operators.

Mr. GIBBS. So I guess what you are saying is some of this technology, you are developing it as you are building the ship, and so it is not as clear-cut.

I mean, we are talking about cracked cylinder heads on a diesel engine. I mean, I would think I missed something here.

Admiral VOJVODICH. The application of these technologies in a maritime environment in these complex, harsh environments, and again, when we looked at the initial design, a crane, a boat launch, a certain type of engine that has been used, and then we put it in the operator's hands in terms of how we actually apply and use it from a——

Mr. GIBBS. Well, let me ask you. OK. So you have a problem. So it is the cylinder heads, and you go back to the manufacturer. I mean, what kind of discussion do you have about who is responsible?

Why does it fall on the taxpayers? Do they assume some responsibility for the defect, or do you think it is all because of the stress and the pressures that the Coast Guard is putting on these ships? It is above the norm?

Admiral VOJVODICH. In terms of addressing who pays for it depends on the construct of the contract, whether it is in a warranty or it is missing a capability that we put on contract. In these particularities, it depends, sir, and in the case of the engine and the cracked cylinder head, I would like to get back to you and provide you the accurate detail for that particular case.

[The information follows:]

> The Coast Guard has been responsible for paying for replacement cylinder heads on the propulsion diesel engines. The Coast Guard continues to work with the engine manufacturer to study the root cause of these issues and is committed to developing an engineering solution to reduce the frequency of this repair.
>
> There have been other component repairs on the propulsion diesel engines, separate from the cylinder heads, where the Coast Guard and manufacturer have shared costs of failure analyses and repairs, and also situations where the manufacturer assumed all costs. In each instance, responsibility for the repairs was determined based on the specifics of that situation.

Mr. GIBBS. Ms. Mackin, do you want to respond since you talked about that this morning?

Ms. MACKIN. I think generally this is one of the lessons learned that we would point to for the OPC. The NSC, the way that procurement was under, you know, the former Deepwater program, it did not have a strong warranty provision. It just did not.

The Fast Response Cutter's warranty is much stronger, more what we would think of as a typical warranty, and as I mentioned, that is the same kind of warranty that is planned for the OPC. So if that plays out as planned, it should be better at protecting the taxpayer investment.

Mr. O'ROURKE. Could I just add one comment though?

Mr. GIBBS. Yes, go ahead.

Mr. O'ROURKE. Warranties are not free. If you tell the contractor that he is going to operate with a contract under warranty, he is going to price that into the contract. So the idea that you can get warranty protection and not have to pay for it, you know, you could be deluding yourselves on that.

It is not a question of avoiding a cost to the taxpayer. It is of balancing risk and when the taxpayer might pay for it. If you do not have a warranty provision, the Government might have a bad surprise down the road and the taxpayer would have to pay for it at that point, but if you put the warranty into the contract, the contractor will price that in, and the taxpayer is paying for it along the way. There is no bad surprise.

Mr. GIBBS. No, I would agree with that, but I just want to make sure that the Coast Guard is doing their due diligence here to make sure that they are not getting taken for a ride.

Mr. O'ROURKE. But when you weigh the cost of that warranty against the risks, it may or may not make sense to have that warranty.

When you go to a store and you buy some new piece of electronics equipment, the salesperson says, "Well, do you want to get a warranty on that?"

Now, how many of you have bought that warranty? Probably not many because it is priced in a way that it is not actually a good deal. So from the Coast Guard's standpoint, it is a matter of weighing what the extra cost of that warranty is against the risks and the exposure that it has.

That is not an easy task to do because there is some uncertainty involved, but I wanted to make that point because warranties may or may not make sense based on how they are priced into the contract.

Mr. GIBBS. I think that is an excellent point, and I appreciate and would agree with that. But I wanted to make sure that there should be some responsibility in some instances back on the manufacturer when trying to do our due diligence.

Mr. O'ROURKE. And the Coast Guard needs to address that issue with eyes open and take a careful look at it. That is what really needs to happen, and then make as informed a decision as you can on it.

Mr. GIBBS. Thank you, Mr. Chairman.

Mr. HUNTER. I thank the gentleman.

I would say, too, just looking at the NSC equipment problems that Mr. Gibbs was just nailing off, it looks like three or four of those are Coast Guard things, and the rest, the cylinder heads, the generator bearings, the propulsion systems, those are not Coast Guard-centric, right? I mean, those are just boat things. Those have nothing to do with weaponization or launching a UAS or launching a small boat off the back. It is not the gantry crane. That is none of those things. It is the engines, right?

Admiral VOJVODICH. Yes, sir.

Mr. HUNTER. And I would separate. I mean, you can expect to have issues with new things like the single point launching for the small boats and the crane and the UAS stop and maybe the modules for weapons, but not the engines. I think that is what is kind of surprising to me at least.

The gentlelady from California is recognized.

Ms. BROWNLEY. Thank you, Mr. Chairman.

And I apologize for being late. I was attending another meeting, but I am glad to be here as of now. So if my questions are repetitive, I apologize.

But the first question I had had to do with NSC retrofits, and I believe, Ms. Mackin, in your testimony you noted that the GAO review identified several issues that will require retrofits.

The Coast Guard plans to maintain the original equipment for the production of the remaining NSCs and conduct retrofits after accepting delivery. So my question is: does the GAO believe that this decision will result in a cost savings for the Coast Guard?

And how long would the new NSCs be out of service while these retrofits are being made?

Ms. MACKIN. Some of the retrofits have been known for many years, for example, the structural enhancements on the first two NSCs. I am not sure exactly what the timeframe will be, but I would expect many months for those two ships.

Others like the gantry crane were never intended for a maritime environment. So obviously it is experiencing corrosion. That will need to be replaced on all the ships, and there are prototypes right now, which is one reason they are testing the prototype on the third NSC before they go back and do the retrofits.

Maybe the admiral will have a better idea about how long the retrofits will take.

Ms. BROWNLEY. Can you speak to any cost issues relative to that? Is it going to cost more? Will there be cost savings?

Ms. MACKIN. The Coast Guard estimates a little over $200 million for the known retrofits. How that will play out time will tell because they have not taken place yet, and some of that will depend on how they contract for these and what that will look like, and that is not known at this point.

Ms. BROWNLEY. Thank you.

Admiral, thank you for your service. If you have any comments. No comment?

I mean, any terms of downtime with the retrofit, will it impact the Coast Guard's mission readiness at all?

Admiral VOJVODICH. Ma'am, thank you for the question. When we leave the cutter production at the shipyard, we incur costs, and sometimes we try to optimize the overall cost in terms of delivering

a mission complete cutter. Sometimes it is to our advantage to be able to get it out of the shipyard and put it in the hands of our sailors to operate it, to understand it, and then we get to pick the time and choose the time in between a deployment or an opportunity to learn more about the cutter to put in those retrofits in a place that we could perhaps compete and thoroughly understand the design with our technical authorities, as well as any of the manufacturers that we are involved with.

Ms. BROWNLEY. Thank you.

Ms. Mackin, again, in your testimony you noted that several weapons systems and the radar were repaired following initial operational test and evaluation, but the post-operational reports indicated persistent problems with these systems.

So what types of problems do persist?

Ms. MACKIN. There have been some problems with the combat systems suites. The air search radar, for example, has had some parts fail, and it is taking some time to get replacement parts from overseas. So that is one issue that has been coming up in operations.

In the test event itself, some of the weapons systems did not function as intended. As I noted, the Coast Guard has plans to fix those problems, and we will see how they do in the follow-on testing.

Ms. BROWNLEY. So would you describe these problems as isolated incidences or reoccurring in terms of other cutters and issues?

Ms. MACKIN. Frankly, until the follow-on testing is complete, which as I mentioned will not be until 2017 or later, it is hard to answer that question for sure. The Coast Guard will continue, I am sure, during operations to get more information, but really that operational testing that is very rigorous is the best way to ensure that these are not repeatable problems.

Ms. BROWNLEY. And who are the providers of the parts that are late? You said they came from overseas.

Ms. MACKIN. It is a German firm. I do not recall the name off the top of my head.

Ms. BROWNLEY. Thank you.

I yield back, Mr. Chairman.

Mr. HUNTER. Great question there on the end, too. I did not know we were buying German stuff with our taxpayer dollars. That is good.

Mr. Sanford, the gentleman from South Carolina is recognized.

Mr. SANFORD. Thank you, Mr. Chairman.

Two quick questions. One, we had a brief conversation about multiyear contracting and block buy contracting, which is ultimately I guess all about fleet modernization, and what hit me is the real next cusp of fleet modernization is really tied to the air. You know, vessels are important in terms of patrol, but ultimately if you really want to leverage that capacity in terms of intelligence, surveillance, reconnaissance, et cetera, you really need to have things attached to you that give you a much wider view than a patrol would.

And yet it seems that the stuff that I have read has suggested that we are really behind with Guard unmanned aerial systems on

the new National Security Cutters. Bring me up to speed on that. Why the lag?

Because it seems to me if you are really going to leverage taxpayer dollars, that is a vital way of doing so.

Admiral VOJVODICH. Sir, thanks for that question.

So the unmanned aerial system requirement exists in the National Security Cutter. We have looked at other solutions in terms of optimizing from an affordability perspective in delivering capability. We are working through a number of options, and one of the ones that we want to team up with is making sure that we are acquiring mature technologies that provide some capability, that some of the risks are wrung out, if you will.

So we partnered up with the Navy who has a small UAS program that delivers some capability. Right now we are looking at the design aspect, integrating with the National Security Cutter, and we anticipate in a year or so to be able to deliver some capability on the National Security Cutter here and test its capability accordingly.

Mr. SANFORD. Yes, ma'am. You had a thought as well?

Ms. MACKIN. I was just going to note that the UAS capability has long been an integral planned part of the NSC's capability as you mentioned, and it has been delayed. It was supposed to be initially available in 2007.

It turned out to be way too expensive and some technology problems existed there. So the Coast Guard has been studying it for many years since then.

As the admiral noted, it sounds like a small UAS will be available to be assessed in the follow-on testing.

Mr. SANFORD. But we still move forward with these vessels, but not the part that really leverages the vessels' capacity. It just seems to me we have got a little bit of that backward, but I will skip to a second question.

The GAO report suggested, I guess, the Fast Response Cutter and the HC–144 Maritime Patrol Aircraft that the initial testing basically said it was not fully operational, and this really goes back to my colleague's point with regard to things going wrong on ships and yet full procurement was approved.

Why would you go forward with something where in essence there are bolts in the system that are not working so well, yet you are going to go ahead with full production?

Help me understand that sequencing.

Admiral VOJVODICH. We follow a very rigorous process to understand what we are acquiring, and so we go through this initial operating, test and evaluation, and we get in our operators' hands. We demonstrate through an independent operational test authority, again, that it is operational, it is suitable, and effective, and that allows us to move forward to do mission. It allows us to get it into the operator's hand to be able to do——

Mr. SANFORD. So let me just interrupt then. So what you'd say is the GAO was off in their report? Because I mean their words were that neither asset met all key, "key" in their words, key requirements during initial operational testing.

Admiral VOJVODICH. At the high level we are ready to operate. There are aspects of the cutter that did not meet some of the testing criteria.

Mr. SANFORD. So you disagree with their definition of "key."

Admiral VOJVODICH. Those are our words. Those are key elements of the cutter. We have to demonstrate that. We are committed to complete the testing in the fall, operating test and evaluation.

Mr. SANFORD. I have got 22 seconds. So let me just throw one other thought at you and respond as best you can, which is the GAO report was also critical with regard to Coast Guard notifying Congress of performance breaches. Anything new that the committee ought to be aware of on that front?

Ms. MACKIN. We did make a recommendation there largely pertaining to the guidance of the Department of Homeland Security. It was not really clear. If you did not meet a key performance parameter during the testing, does that mean you are in breach and should report to Congress?

DHS has since, based on our recommendation, revised its guidance to allow for the follow-on testing to prove that those key parameters can be met before a breach is reported.

Mr. SANFORD. Thank you very much for your testimony.

Thank you, Mr. Chairman.

Mr. HUNTER. I thank the gentleman.

Mr. Garamendi is recognized.

[Inaudible.]

OK. Mr. Graves is recognized.

Mr. GRAVES OF LOUISIANA. Thank you, Mr. Chairman.

The acquisition schedule for NSC, FRC, OPC is concerning for a number of reasons when you look at the increased mission of the Coast Guard, and I think that has come up in several hearings that we have had over the last few years.

Mr. O'Rourke, one thing that the Navy last year retired the USS *Simpson*, which is the last of the *Perry*-class frigates; those served as a law enforcement platform for Coast Guard law enforcement detachments for operations particularly in the Caribbean.

Last year at a hearing Admiral Z noted that he had his eyes, I think, on 90 percent of the transit of drugs, but only had the capabilities to address 20 percent. What does the loss of that *Perry*-class platform do to the Coast Guard's capabilities?

Mr. O'ROURKE. I think the admiral was better prepared than I am to speak to that. I have been at hearings where this issue was discussed, and, yes, the shortfall in available cutter hours down in the southern region has reduced the fraction of drug interdiction warnings that the Coast Guard is actually prepared to act on, and they have intelligence that they sometimes cannot act on due to lack of assets.

Mr. GRAVES OF LOUISIANA. Is it safe to say that the acquisition schedule for the vessels I mentioned is not meeting demand, I guess, for lack of a better term, in regard to the Coast Guard's mission?

Mr. O'ROURKE. In a couple of ways. One is that the total number of cutters planned under the Coast Guard's program of record is well short of the number that the Coast Guard has previously cal-

culated would be needed to fully perform all of the Coast Guard's projected missions in coming years. In fact, the number is about 60 percent.

So the program of record would get you about 60 percent of the cutters that the Coast Guard feels it will need in future years under an earlier calculation to do all of its missions.

Mr. GRAVES OF LOUISIANA. OK.

Mr. O'ROURKE. A second way that the schedule is problematic is that the speed at which you are bringing on those ships is late compared to the end-of-service lives of the older assets they are replacing.

Mr. GRAVES OF LOUISIANA. Sure, sure. OK.

Mr. O'ROURKE. And that is well established as a function of the schedule.

Mr. GRAVES OF LOUISIANA. Thank you.

Admiral, switching topics, the inspector general reported that the MarAd [Maritime Administration] should maintain an inventory of vessels, U.S. vessels that are to be disposed and suggested that MarAd work with folks like the Coast Guard to maintain that inventory of vessels.

Are you aware of any efforts by the Coast Guard to work with MarAd to maintain a list of vessels to be disposed for scrapping purposes?

Admiral VOJVODICH. I am not aware of the specific list that you refer to with MarAd. We do work with MarAd, but I am not—I do not have any knowledge.

Mr. GRAVES OF LOUISIANA. Would you mind submitting on the record just an explanation of efforts by the Coast Guard to work with MarAd?

In that same regard, the Coast Guard vessel *Storis* was scrapped by MarAd, and as I recall, that vessel was scrapped in Mexico, which I believe was contrary to U.S. law, which required that scrapping efforts take place in the United States.

Are you aware of any efforts by the Coast Guard to address that inconsistency with MarAd?

Admiral VOJVODICH. I will provide a response for the record.

[The information follows:]

> MarAd is the program manager regarding scrapping of a variety of mothballed ships in the National Defense Reserve Fleet (NDRF). MarAd does not provide a list of NDRF vessels to the U.S. Coast Guard that are pending scrapping. MarAd does post a list of those vessels available for disposal in our open ship disposal solicitation DTMA–91–Q–2013–0014 posted on the Federal Business Opportunity Web site. The Coast Guard has no engagement regarding the selection of ship recycling facilities used by MarAd.

Mr. GRAVES OF LOUISIANA. Great. Thank you.

Mr. O'Rourke, one last question. Certainly you are familiar with increased activities in the Arctic, and could you just give a quick assessment of U.S. ice breaking capabilities compared to some of the other Arctic nations?

Mr. O'ROURKE. Yes. The Coast Guard currently has two operational polar icebreakers, one heavy polar icebreaker. That is the *Polar Star*, and one medium polar icebreaker. That is the *Healy*.

There is one additional heavy polar icebreaker. That is the *Polar Sea*. That ship is nonoperational. So the operational fleet can be

characterized as one plus one, one heavy, one medium, and one additional heavy in nonoperational status.

Mr. GRAVES OF LOUISIANA. Do you see those capabilities as being sufficient, noting again increased activities in changes in the Arctic?

Mr. O'ROURKE. What I can tell you is that the Department of Homeland Security has issued their own mission need statement. That is an official requirement statement expressing the view of the Department of Homeland Security, which states that the Coast Guard in coming years will potentially need up to three plus three polar icebreakers.

Mr. GRAVES OF LOUISIANA. And you mentioned that is in the Homeland Security report. Do you see that mission as solely being a Homeland Security or Coast Guard mission, or do you see other agencies, again, looking at what other nations are doing; do you see other agencies perhaps with the Department of Defense are having additional needs outside the scope of that report?

Mr. O'ROURKE. Oh, it is well established that the Coast Guard is operating its polar icebreakers as a national asset that serves the needs not only of core Coast Guard missions, but for other agencies as well, in particular, the National Science Foundation. A lot of what we use our polar icebreakers for is to support scientific research activities.

Mr. GRAVES OF LOUISIANA. What about military defense missions? Do you see a need there?

Mr. O'ROURKE. The icebreakers also have requirements under our military plans to meet national defense requirements.

And part of the reason for going up to three plus three potentially is to meet presence requirements for polar icebreakers that the Department of Defense has communicated to the Department of Homeland Security.

Mr. GRAVES OF LOUISIANA. Thank you.

Mr. Chairman, I am going to note that CRS just endorsed your bill.

Thank you.

Mr. HUNTER. I thank the gentleman.

Mr. Garamendi is recognized.

Mr. GARAMENDI. I am trying to figure out how to structure my work and in a way that has the maximum potential of resolving problems in the two projects that are going forward.

Ms. Mackin and Mr. O'Rourke, you have done extensive research on the problems that exist in the National Security Cutter and the OPC. Both the Fast Response Cutter and OPC have work to be done, new ships to be built, new contracts to be let. In reviewing the testimony and reviewing your work, you have information that I think can be put into a checklist, a list of things that need to be done to reduce the potential for problems.

But I do not have a list, nor do I see a list in your testimony. I think it would be very, very helpful. I can spend a lot of time asking questions, and I would probably learn a lot, but it seems to me that if we could have the development of a checklist. These are things that the Coast Guard should and must do to avoid problems that we have seen develop in the previous National Security Cutter program or the OPC.

Can the two of you, individually or together, develop such a checklist? And we can then hold the Coast Guard responsible to addressing. "Yep, we did that one. That problem is not going to happen again because we are paying attention. Maybe we ought to pay attention to this one because we have not paid attention to it."

Is that possible for you guys to do?

Mr. O'ROURKE. It is not only possible. I have already developed a list of well-established lessons in shipbuilding. I am sometimes asked for it. I will be happy to provide it for you after the hearing.

Ms. MACKIN. And for our part, I think in my statement I mentioned several items that there are lessons learned from NSC and commercial practices that could be applied to OPC. We could provide that.

Mr. GARAMENDI. I have noticed it is not to say that you have not thought about it because you have, but you know, maybe we can just get a little computer file and it says, "Check this off. Let us see. We are going to have some sort of a cannon, and does the Navy have that cannon already and can we just use the Naval cannon and, by the way, the control system for it and radar systems which may be available?"

Anyway, just a checklist, if you could develop that, that would certainly be useful to me and save probably a whole round of questions as I pursue trying to figure it out.

So I am asking for it from both of you, and if you want to work together that would be OK, too.

Ms. MACKIN. OK.

Mr. GARAMENDI. Thank you very much.

And with that I yield back.

Mr. HUNTER. I thank the gentleman.

OK. Now it is just you and me. Let us go back, multiyear procurement, block buy contracting, advanced procurement. Admiral, what does the Coast Guard have the statutory ability to do out of those three, if any?

Admiral VOJVODICH. Mr. Chairman, we have authority through title 10 to be able to do a multiyear procurement. We understand the benefits of that in terms of once we have a stable design, enduring need, and a good understanding of the cost. Those are great criteria to use.

We are also looking at potential downside. It does commit the Government well in advance of the year of appropriation in terms of things that we are going to buy, and so the downside is that if we are not able to meet that obligation, there could be a real downside in that contract in terms of not providing the expected funding for the multiyear buy.

Mr. HUNTER. But that is not your job. That is our job.

Admiral VOJVODICH. Yes, sir. Right.

Mr. HUNTER. So you have the statutory ability to do advanced procurement.

Admiral VOJVODICH. Yes, sir, advanced procurement, yes, sir.

Mr. HUNTER. And multiyear.

Admiral VOJVODICH. Multiyear procurement, yes, sir.

Mr. HUNTER. Have you ever used multiyear procurement?

Admiral VOJVODICH. I have not. I will have to go back in the archives and research that.

Mr. HUNTER. Well, we have the research right over here.

Have they ever used multiyear procurement?

Mr. O'ROURKE. I am not aware of the Coast Guard having used it in the past. I cannot prove a negative on it, but in the years that I have been here I have not seen it.

Mr. HUNTER. So I guess that leads to you already have the statutory ability to do multiyear procurement, which you could have done with the FRCs and did not do. You could have done it with the NSC. You did not do it.

Did you use advanced procurement? Advanced procurement I am guessing is the batch buys, or is that buying stuff for the one vessel?

Admiral VOJVODICH. We buy long lead time material that is in front of what is going to come in product.

Mr. HUNTER. That is per one vessel, right?

Admiral VOJVODICH. That is per one or a number of vessels that might be coming up in that production cycle within that particular fiscal year.

Mr. O'ROURKE. Right. That is only for 1 year's worth of procurement.

Mr. HUNTER. OK.

Mr. O'ROURKE. Either the ship or the multiple ships being procured that year, and that helps to optimize the construction schedule just for those ships, but that is still implementing annual contracting.

Mr. HUNTER. So Mr. O'Rourke says you could have saved $1 billion, could have saved, not can still save, but could have saved with the NSC.

Mr. O'ROURKE. The savings in my testimony are all future savings out there that could be realized. We missed opportunities for doing that with the National Security Cutter and the first 36 ships in the Fast Response Cutter program.

Mr. HUNTER. OK. So why not do it? If the Coast Guard has the ability to do it, why didn't the Coast Guard do it?

Why not save $1 billion?

Admiral VOJVODICH. We chose a contract strategy that encouraged options, sir. We can look at that further. We will have to work with the Department administration to really understand the upside and the downside of that, but we are willing to take another look at that.

Mr. HUNTER. Well, let me ask you this, Ms. Mackin and Mr. O'Rourke. When it comes to the Coast Guard then and the administration, where does OMB play in terms of what the Coast Guard can do, meaning what type of contracting strategies they can use?

Do they have a play in it? I mean, how does the administration play in terms of what their strategies are for contracting future ships?

Mr. O'ROURKE. In general, my understanding is that OMB can give directions to agencies regarding the ways in which it can carry its programs forward. Now, what OMB may or may not have said about the use of multiyear procedure or block buy contracting for these programs I do not know, but as a general issue, OMB can issue instructions to executive branch agencies, guidance if you will, for how programs are to be executed.

Mr. HUNTER. Ms. Mackin?

Ms. MACKIN. All I would say is for the National Security Cutter, I am not sure that would have been a good approach because the requirements were not stable. We are still seeing problems now. The first two ships are going to have to go through these structural enhancements. They are not representative of the rest of the ships, and so I think, again, not that it is a bad idea, not that it cannot save money, it is just that, as the admiral mentioned, it needs to be carefully considered.

Mr. HUNTER. And the one example, the LCS is a horrible ship, ships, right? The requirements were not set for and now they are lowering the number of LCS they are going to make in the future because they realize it was not the right ship. They just wanted to get numbers, et cetera, and all of the problems that they had.

I am look at one of the big retrofits. It is like $80 million for the C4ISR [command, control, communications, computers, intelligence, surveillance and reconnaissance] in the NSC. Why are things like that not simply taken from the Navy? It is not like the Coast Guard has to do special things that are tens of billions of dollars Navy budgeting has not already had to look at, in terms of weapons systems, C4ISR, radar, UAS.

You already talked about piggybacking with the Navy on UAS, thank God. Why the C4ISR retrofit? Why would the Coast Guard possibly need their own type of C4ISR modules or platform? There is no way it is more all-encompassing than what the Navy has. There is no way.

Ms. MACKIN. One thing I would offer, and the admiral can weigh in, is this, again, is a legacy Deepwater issue. The original C4ISR was an ICGS, Integrated Coast Guard Systems, a contractor system, very proprietary.

Mr. HUNTER. But why would the Coast Guard want to do that even then? I mean why would you have people in the Coast Guard say, "Let us develop our brandnew system that is probably much more limited than what the Navy has anyway, but let us do it all for us"?

Why would they decide that, even with the flawed Deepwater system, a program that was flawed for other reasons?

Who in the Coast Guard would say it is a great idea for us to develop our own multimillion-dollar communication C4ISR platform?

Ms. MACKIN. That was inherent in the Deepwater strategy. The contractor said, "Here it is," and frankly, the Government did not have adequate insight into the requirements, and the contractor made that call and so now the Coast Guard is opening up, opening up the architecture and implementing actually a very more cost-effective C4ISR system.

Mr. O'ROURKE. Mr. Chairman, if I could go back to your earlier question about the missed opportunity on the National Security Cutter, Ms. Mackin is right, of course, that there were problems with the design of that ship, but one of the statutory requirements for using multiyear procurement is that the item being procured has to have a stable design.

In shipbuilding programs, stable design is demonstrated by completing the construction of the first ship in class and putting it through its initial testing to show that there are no problems.

At that point, once those problems had been identified and, in fact, they were cranked into later ships in the NSC, you had a design that might then have met the statutory requirement for stable design, and the follow-on ships in the program could have been pursued under multiyear procurement.

So it is correct that you do not want to do this if you think that the design is not stable, but as you review the schedule of how these events transpired, multiyear procurement is never used on a lead ship anyway because of the requirement for stable design. It was a question of whether the program was ready for multiyear procurement for the follow-on ships in the class, and that is a question that people could have looked at and decided, well, yeah, it might have been.

Mr. HUNTER. I am not clear on that. On the NSC when you had some testing done, you had the first couple of ships done, were the problems that we are looking at, and we are looking at this. We already got this, but this is a nice, little page that has a lot of the issues, right?

These were not recognized right away? No one realized that there were issues until the fourth ship, fifth ship? At what point did you realize there were some issues?

Admiral VOJVODICH. Sir, some of those issues were revealed during operational test and evaluation through the test event.

Mr. HUNTER. Oh, the first ship?

Admiral VOJVODICH. In this particular case we used a third ship to demonstrate.

Mr. HUNTER. But the first ship was working well or these same issues were on the first ship as well?

Admiral VOJVODICH. Not that I know of, but I can get back to you. If there is a lineage that we can provide, we certainly will do that.

A number of those items, sir, if we leverage a Navy program of record like you just commented, that we need a weapons system and we need a particular sensor system; we leveraged the Navy on a number of those things outlined, and we will follow the Navy's priorities and look to them to, you know, help us develop those solutions and implementation.

And then over time as we get smarter and better users, we have brought more cutters, and we have more sailors that are accustomed to using the equipment. You know, we will become better and more proficient with the usage of the system.

Mr. HUNTER. I still do not understand that. OK. So you have one NSC goes into the water and people start operating it and it goes and does its thing. There are no issues there.

The second NSC jumps in the water. It goes out and starts being tested, and it is used operationally while it is being evaluated, and no problems there. Nothing changes.

You built the third NSC, put it in the water, and you have all of a sudden realized all of these different issues on the third one that no one saw on the first one or second one?

Admiral VOJVODICH. The third one was our opportunity to really have the capability that is reflective. So Ms. Mackin alluded to the changes——

Mr. HUNTER. Can you explain that though? Why is number 3 the charm? Why could you not recognize the operational capability of the first or second ones?

I mean, why did you have to wait until number 3 to really delve into it? I am just not understanding.

Admiral VOJVODICH. I would like to get you a finer detail for the record sir, for that one.

Mr. HUNTER. No, no, just tell me how. I do not need fine detail. Why is it boat number 3 is the one that we started recognizing issues and not the first one?

I am not trying to get you. I just do not understand.

Admiral VOJVODICH. Right. So that is the one that we said that is the one that we will have crews on it that is going to be indicative of future National Security Cutters. We want that one to be tested because that is going to demonstrate the initial operating capability.

Mr. HUNTER. Did you dramatically change design after the first two on the third one?

Admiral VOJVODICH. We did, and I will have to give you a level of detail on that, sir.

[The information follows:]

The third NSC, USCGC *Stratton*, was chosen for Initial Operational Test and Evaluation (IOT&E) because it was the first cutter considered representative of the fleet for the foreseeable future. That is to say *Stratton*'s fundamental characteristics and capabilities represent that which is intended for all NSCs.

As it relates to the first two NSCs (*Bertholf* and *Waesche*), there were two compelling reasons why the Coast Guard, Department, and the Navy's Commander Operational Test and Evaluation Force (COMOPTEVFOR) chose not to use them for IOT&E:

1. Cutter boat handling systems: Based on operational feedback from the first two NSCs, an improvement was needed for these systems. This included the original overhead gantry crane on the stern of the ship and the single-point davit on the starboard side of the ship. The overhead gantry crane was replaced with three folding boom cranes and the side davit was replaced with a new davit system offering improved control and handling during boat launch and recovery. These were first installed and tested on *Stratton*. To maximize the benefits of, and document best practices during formal testing, it was determined that the new cutter boat handling systems should be tested in IOT&E, and therefore *Stratton* was selected. The cutter boat handling systems for *Bertholf* and *Waesche* will be upgraded during their respective structural enhancement periods.
2. Structural enhancements: Neither *Bertholf* nor *Waesche* had undergone the structural enhancement to ensure at least a 30-year fatigue life of the ship's structure. These two cutters were too far along in construction to incorporate the structural enhancements during construction without incurring inordinate contract cost and schedule impacts. Although not a disabling impediment to testing, structural differences between *Stratton* and the first two NSCs were considered relevant to ensure IOT&E results were most representative of the end-state fleet.

Mr. HUNTER. OK. And how many of these were built with the Deepwater boondoggle? How many NSCs were built under the Deepwater plan?

Mr. O'ROURKE. Well, the Coast Guard transitioned out of Deepwater in 2007, and that transition was phased with the completion of contracts that were legacies coming out of that period. I do not know what the exact cutoff point was, but this is now a nine-ship program, and at some point most or all of the significant design issues with that class became known, and any ships procured after that point might have been considered candidates for multiyear procurement or block buy contracting.

The prices we paid for those ships suffered for a number of reasons. One is the general Deepwater contracting environment that Ms. Mackin mentioned, but there were two others. One is that the intervals that we had for procuring these ships were not regular and even. So the shipyard did not have a steady drumbeat.

And the third was that the final ships in the program were not done under a form of multiyear contracting.

These are all ways in which those ships turned out to be more expensive than they might have been.

Mr. HUNTER. Admiral, do you agree with that? Do you agree that multiyear procurement and block buy contracting can save money?

I mean, obviously it is not going to work if your first two ships are not really what you wanted in the first place, where you have actually changed so much design on the third one that it is the real ship that you are going to test against, but if you were going to do it the way that the Navy does it, meaning the right way, building, have all the lead time materials, do it right, do all your testing on that one ship, and then be able to do multiyear going out, does the Coast Guard have an issue with that?

Do you think that that would save you money?

Admiral VOJVODICH. We would have to look at it a lot closer, sir. We would absolutely love to——

Mr. HUNTER. Well, I am asking you. You do not have to look at it closer because in general does contracting ships like the Navy does it, especially when you only have really three or four types of ships in the entire Coast Guard, it is not too complicated, right?

Do you think that that would save the Coast Guard money?

Admiral VOJVODICH. As we indicate here, if we have a stable design, we have an enduring need, where the costs are well, well understood, the applicability of the multiyear procurement has some merits, and we will take that back for a high-level consultation.

Mr. HUNTER. Do you disagree with Mr. O'Rourke that it will save you $1 billion in the NSC?

Admiral VOJVODICH. I would have to look at that closer, sir.

Mr. HUNTER. OK. Do you disagree that you would save $100 million with the FRC?

Admiral VOJVODICH. Again, in the application of that particular strategy in terms of what we have here, I would have to look at it a lot closer.

Mr. HUNTER. OK. When the Navy went to block buys and multiyear procurement, did they just do it on one design and did they pick that ship design on purpose to do this on, or was it more of a "we can use this in any kind of ship class; let us just jump into it"?

I mean, how did the Navy decide to do it and was there anything special about when they decided to do it and on what type of ship?

Mr. O'ROURKE. The Navy decides its contracting strategies on a program-by-program basis, but I think there was a general atmosphere within the Navy in recent years that these contracting mechanisms made sense to them, and they began to use them more extensively.

I think it is important to note that all three of the Navy's year-to-year shipbuilding programs where you get a ship of that kind every year, year after year, all three of them, the *Virginia*-class attack submarine, the DDG–51, and the Littoral Combat Ship, are now under multiyear contracting, and collectively those ships represent more than two-thirds of all the ships in the Navy's 5-year shipbuilding plan. That is how extensively the Navy is using this.

And in terms of savings, if you looked at the last DDG–51 multiyear, the savings on that were estimated at $1.3 billion or $1.4 billion, and if you look at the last *Virginia*-class attack submarine multiyear, the savings on that were estimated in the range of $3 billion to $4 billion.

So just on those two instances of multiyear procurement contracting, the Navy saved more than $4 billion.

Mr. HUNTER. Has the Coast Guard looked at what class of ship would best fit the multiyear procurement contracting scheme?

Admiral VOJVODICH. Well, we read Mr. O'Rourke's report. We understand the utility of a multiyear strategy. We have considered it, and we have chosen the acquisition strategy that we are on right now.

Mr. HUNTER. When you do multiyear procurement, do you need us in this committee to authorize it?

Mr. O'ROURKE. Yes, multiyear contracts, more than a certain value, and these would be more than that threshold value, would need——

Mr. HUNTER. But does it have the statutory ability right now to do multiyear procurement?

Mr. O'ROURKE. They have a statutory framework in which the Services can conduct multiyear procurement, and that framework requires approval by Congress on a case-by-case basis for each program.

Block buy contracting has no title 10 or permanent statutory framework, and so in the instances where Congress has provided that for the Navy, they have done it through specific legislation. In one time they did it in an NDAA [National Defense Authorization Act], and in another time they did it in an appropriations bill.

Mr. HUNTER. So it would be the Appropriations Committee or the authorizing committee can both grant that authority?

Mr. O'ROURKE. Based on the precedent of the two block buy contracts for *Virginia*-class and Littoral Combat Ship, it appears that the authority can be provided through a single act that can be either a National Defense Authorization Act or an Appropriations Act.

Mr. HUNTER. Say that the Navy did not want to do it. Say that the Navy was like the Coast Guard and we do not want to save billions of dollars. We just want to spend money.

That is not fair, but I am kind of exaggerating.

Can Congress make them do it?

Mr. O'ROURKE. The authorities that were granted for *Virginia*-class and LCS allowed the Navy to do it. They did not mandate, but it may be that you can write the language so that it mandates the use.

For example, the Appropriations Committees in the past have said that the Navy will contract for the ship. It was an amphibious assault ship, which shall be funded on an incremental basis. And that is incremental funding, which is different from what we are talking about here.

But the use of the "shall" language mandated that to the Navy as the way that the ship would be funded in coming fiscal years. And based on that precedent you might imagine that language for block buy contracting can use the "shall" language and not simply to say that the Coast Guard may contract or may do this.

Mr. HUNTER. So the one last thing, I am not understanding that. How do you see it, and, Admiral, we will start with you; how do you see the Coast Guard? Let us just talk about buying ships. How is the Coast Guard different from the Navy?

Now, I do not mean in what size of ship, but in the way that you acquire them, why should the Coast Guard be contracting differently than the Navy?

Admiral VOJVODICH. Mr. Chairman, fundamentally we acquire and build ships very similarly. We use some of the same facilities that the Navy does. There are a level of requirements that might be different that might change the approach or the testing or the scrutiny of the hardening of the various ships, but fundamentally, you need steel. You need a shipyard. You need a lift. You need proficient workers to put it all together, and so there are some aspects that are exactly the same.

There are other ones that are some nuances that we would have to look at closely, but those probably are on a case-by-case basis.

Mr. HUNTER. Ms. Mackin, why should the Coast Guard ship acquisition be treated differently than the Navy?

Ms. MACKIN. I think there is one thing that has not been mentioned in this discussion and that is the contract type of the ships. The Fast Response Cutter was firm-fixed-price, and that is consistent with commercial best practices. That is the price is nailed down, and that is one reason they could negotiate a very strong warranty.

I believe the plan for the Offshore Patrol Cutter is to transition to firm-fixed-price at some point in time as well.

So block buy is one thing to look at, but contract type can also be a way to save a significant amount of money.

Mr. O'ROURKE. But the statute that regulates multiyear procurement requires that multiyear procurement contracts be fixed-price contracts, and the block buy contracts that are being done for the Littoral Combat Ship program are also fixed-price type contracts.

Ms. MACKIN. They are fixed-price incentive (firm target), which is a little different than firm-fixed-price.

Mr. HUNTER. But again, why should the Coast Guard acquisition be treated differently than the Navy?

Ms. MACKIN. I mean, that is a contracting officer's call in large part. There are lots of factors to consider. I am just offering the contract type is one very important component.

Why the Coast Guard did not consider block buy for the Fast Response Cutter, I do not know the answer to that.

Mr. HUNTER. Admiral? We can get it right now, Ms. Mackin.

Admiral VOJVODICH. For the OPC that is absolutely considered, but the path that we chose is not a multiyear procurement. I would be happy to take a closer look at the merits and the risks associated with that and provide a more thorough response. We would have to work with the Department and administration and make sure that we collectively understand the approach, and I am happy to follow up with you at some point, sir.

Mr. HUNTER. Admiral, here is what I am not understanding. If you build one or two ships, whether it is an FRC or the OPC, and you look at it and you test it and you evaluate it and you find problems and you then fix your problems, what is the downside with doing a multiyear procurement?

What is the downside, if any? If you have a design that is not flawed like the NSCs that we discovered on ship 3, if your design is good and your ship is good and your requirements are firm and set and fixed, what is the downside? I am not getting it.

Admiral VOJVODICH. And I understand. Based on my understanding the downside is that if we are unable to not meet that future year commitment——

Mr. HUNTER. But that is not your problem.

Admiral VOJVODICH. I understand.

Mr. HUNTER. So what is the downside to the Coast Guard? Why would the Coast Guard not want to do that?

Ms. MACKIN. Can I make an observation?

Mr. HUNTER. Yes.

Ms. MACKIN. The FRC had its initial operational test and evaluation and only one of its key performance parameters was even partially met. So it is not proven yet. It still has——

Mr. HUNTER. So you are say only one out of a bunch.

Ms. MACKIN. Out of six.

Mr. HUNTER. Was partially met.

Ms. MACKIN. Was partially met, and so they are going to have the follow-on operational test beginning this fall, just like the NSC. So——

Mr. HUNTER. How many FRCs have been built now? Anybody? John might know?

Mr. O'ROURKE. Well, there are 14 or 15 of the FRCs in operation.

Admiral VOJVODICH. Commissioned number 15 a week or so ago and deliver number 16 at the end of the calendar year.

Mr. HUNTER. And so is that normal to build that many when the operational requirements, whatever check boxes you have, are not met?

Ms. MACKIN. It was a fast-paced procurement. I would not say that is consistent with best practices because they still have to go through the follow-on testing and prove that they can meet those key performance parameters.

Mr. O'ROURKE. Right, but the issue is that even with the deficiencies that have been discovered through initial testing, the Coast Guard's intention is still to continue getting the ships.

So the question is: if you are still going to continue getting the ships, does it make sense to continue doing it under a contract with

options which operates closer to being a form of annual contracting or under block buy?

Mr. HUNTER. Mr. Graves is recognized for 5 minutes. Sorry about that.

Mr. GRAVES OF LOUISIANA. Yeah, that is all right. I mean, I am enjoying it.

To somewhat channel the chairman's frustration, you know there are two key things obviously that are, I think, his frustrations and ones that we share. One is that looking back over the last several years, certainly I think one can make a strong case for perhaps some taxpayer dollars not being used as wisely as they could have been on the acquisition, and something that is very important to me personally and I know the chairman shares it is the lack of capabilities.

I made reference earlier to Admiral Z's statement that eyes are on 90 percent of the drug trafficking shipments, yet capabilities only respond to 20 percent of them.

I think when you look across the Coast Guard's mission, which has expanded significantly over the last several years, the demand for the Coast Guard, the demand for the Coast Guard to have greater capabilities is significant, yet this acquisition schedule is continuing to drag on and, I think provide readiness issues that are not just limited to the Coast Guard but also transcends over to some of the support for Navy and other capabilities that are important for this Nation.

So looking back, we can talk about Deepwater. We can talk about NSC, FRC, whatever you want, but let us look forward for a minute. Looking at OPC, can you talk about some of the lessons learned that you were applying to that acquisition strategy that will ensure, again, fair use of taxpayer dollars, and ensure that we are delivering solid equipment within an appropriate amount of time?

Admiral VOJVODICH. Yes, I would be happy to. I appreciate the opportunity.

The key to all of this is to make sure that we have well understood, stable requirements that have been vetted throughout the Service with industry to make sure they understand it very well. It allowed us to have the conversation to understand where the cost drivers are, if you will, and to be able to address that, to make those appropriate adjustments.

We are using competition to the fullest, and we are also using fixed-price contracting throughout the acquisition, which is at times very difficult in a large ship buy because there are a lot of unknowns in the design. So right now we are in a limited competition, if you will, so they can mature their designs to be able to make a submission that is going to be a fixed-price environment as we move forward.

In terms of the testing, we absolutely learn from the testing over time. We are going to test on the first article for the OPC. We have learned that that involvement with test is very important.

We have involved the testers from both the Department and our operational test authority early in that development so they can help us make sure that the things that we put in the requirement are testable and it is well understood. So a lot of things that were

developed many years ago were unclear, and so even when we have these test events, we are sometimes not quite talking on the same sheet of music.

And so those are the kinds of things that we are resolving, and we are clearly moving forward with a lot of lessons learned into the strategy for the Offshore Patrol Cutter.

Mr. GRAVES OF LOUISIANA. Admiral, thank you. In closing I just want to make note that, you know, you have got a great group of Coasties out there, and there is increasing demand upon their services and mission requirements and making sure that we get the equipment out there to them that they need as soon as possible.

I think it is critical, and again, we do not need to go through the entire list of drug alien interdictions and many, many other things that you do, but looking back over the history, I know that there are a lot of mistakes that you guys are trying to make up for right now.

I just want to encourage you. You know, the Navy obviously, as the chairman pointed out, has some acquisition strategies that may be applicable in this case, but most importantly we have got to get this equipment out there as quickly as we can and make sure that we are respectful of taxpayer dollars moving forward.

Thank you. I yield back, Mr. Chairman.

Mr. HUNTER. I thank the gentleman.

I have one last question. If the Coast Guard decided to do a multiyear procurement for the OPCs and the rest of the FRCs, do you have the authority to do that or do you have to get approval from the Department of Homeland Security or the administration?

Admiral VOJVODICH. Mr. Chairman, I would like to take that back for the record. I will need to understand thoroughly what our options are with that strategy.

I understand at a high level what a multiprocurement strategy will allow. I know it was considered, but it sounds like you want me to take it to the next level, and I will thoroughly understand that.

Mr. HUNTER. I just looked at the bill we passed last year, the Coast Guard bill, and we grant you statutory authority for the OPCs to have multiyear procurement done on those.

So my question is though you obviously looked at that, and you have seen that. So do you have the authority, does the Coast Guard have the authority to do that if they want to?

Admiral VOJVODICH. I would like to take that one back for the record and make sure I thoroughly understand and provide you the best answer possible with that.

[The information follows:]

Multiyear Procurement (MYP) Contracting: The Coast Guard has considered multiyear procurement (MYP) contracting to acquire new assets; most recently the Coast Guard evaluated this strategy while planning for the Offshore Patrol Cutter. This contracting approach provides stability and promotes efficiencies which are more difficult to achieve when utilizing annual contracting mechanisms.

MYP contracting provides an opportunity to generate savings through economic order quantities for materials and equipment, as well as improved production efficiencies and shipyard learning associated with construction stability. MYP contracting is also beneficial for shipyard material and labor cost management. Optimally phased and stable production schedules estab-

lish the best scenario for shipyard learning, leading to reduced labor costs. In addition, multiple ship sets of supplies and materials may be procured at reduced costs due to quantity buys.

MYP contracting does introduce some risk if subsequent years' funding were not available. In such circumstances the Coast Guard would be required to renegotiate or terminate the contract likely requiring the Government to pay a cancellation fee. Renegotiating the contract would also have a negative financial impact, and therefore one potential disadvantage of using MYP is that it can reduce the flexibility to make changes in future years.

The Coast Guard has standing authority to enter into a multiyear contract under 10 U.S.C. 2306(b). In order to qualify, the Coast Guard must show the following:

- **Significant savings.** The program must demonstrate that a MYP contract would result in "significant savings" compared with annual contracting.
- **Realistic cost estimates.** The program's estimates of the cost of the MYP contract and the anticipated savings must be realistic.
- **Stable need for the items.** The program must expect its minimum need for the items will remain substantially unchanged during the contract in terms of production rate, procurement rate, and total quantities.
- **Stable funding request for the items.** There must be a reasonable expectation that the program will request annual funding for the contract at a level required to avoid contract cancellation.
- **Stable design for the items.** The design for the items to be acquired must be stable, and the technical risks associated with the items must not be excessive.

Block Buy Contracting: Like multiyear procurement, block buy contracting may provide an opportunity to generate savings through economic order quantities for materials and equipment, as well as improved production efficiencies and shipyard learning associated with construction stability. While Congress has provided the Coast Guard, the other armed services and NASA standing authority for multiyear procurement under 10 U.S.C. 2306(b), there is no similar general authority for block buy contracting. Congress has provided limited authority in specific instances to the Navy to use block buy contracting to acquire *Virginia*-class attack submarines and Littoral Combat Ships; however, no similar authority has ever been enacted for a Coast Guard acquisition program.

The Coast Guard has been responsible for paying for replacement cylinder heads on the propulsion diesel engines. The Coast Guard continues to work with the engine manufacturer to study the root cause of these issues and is committed to developing an engineering solution to reduce the frequency of this repair.

There have been other component repairs on the propulsion diesel engines, separate from the cylinder heads, where the Coast Guard and manufacturer have shared costs of failure analyses and repairs, and also situations where the manufacturer assumed all costs. In each instance, responsibility for the repairs was determined based on the specifics of that situation.

Mr. HUNTER. Ms. Mackin, do you know if the Coast Guard has the authority if they choose to go multiyear after being granted the authority to do so by this committee?

Ms. MACKIN. I have not looked into that.

Mr. HUNTER. Mr. O'Rourke.

Mr. O'ROURKE. Statutory authority versus direction that the Coast Guard may receive within the executive branch. As a matter of statutory authority, the Coast Guard has the authority to use multiyear procurement under title 10, 2306(d), and that is the law that governs multiyear procurement and establishes the statutory framework for conducting it.

It states explicitly that the Coast Guard is among the Services that can use it. That same law states that to use multiyear pro-

curement for a contract with a value above a certain level, you need to get congressional approval for each case in an Appropriations Act and a bill other than an Appropriations Act, which is typically an authorization act.

That is all part of the legislative framework for multiyear procurement.

For using block buy authority, block buy does not have a statutory framework. It just happens through specific legislation that Congress grants to the Service in question, and based on the two precedents of *Virginia*-class and Littoral Combat Ships, that can be a single provision in an authorization bill or a single provision in an Appropriations Act.

Mr. HUNTER. All right.

Mr. O'ROURKE. Now, none of that speaks to then the direction that the Service gets within the executive branch from its superiors, but as a matter of statutory authority, that is where we are.

Mr. HUNTER. All right. I think that that is all I have got. I do not think there is anybody else here.

Thank you very much for kind of getting deep into the weeds on this stuff. That is what we have to do in the end. We want to make the best decision possible. We want to save lots of money so we can buy other stuff, in general.

So thank you very much for your testimony.

With that our hearing is adjourned.

[Whereupon, at 11:33 a.m., the subcommittee was adjourned.]

Submit for Record

STATEMENT OF
THE HONORABLE JOHN GARAMENDI
SUBCOMMITTEE ON COAST GUARD AND MARITIME TRANSPORTATION
HEARING ON
"STATUS OF COAST GUARD CUTTER ACQUISITION PROGRAMS"
FEBRUARY 3, 2016

Mr. Chairman, thank you for scheduling this morning's hearing. The recapitalization of the Coast Guard's cutter fleets is vitally important.

The Coast Guard operates in a dynamic and evolving global maritime environment. To meet not only the demands of today, but the challenges of tomorrow, the Coast Guard must have new fleets of cutters, new aircraft, and advanced command, control and communication technologies to ensure success.

Considering the potential risks to our national and economic security, it is well worth our time to stay on top of the Coast Guard's progress; after all, this is the single-largest capital investment program in the more than 225-year history of the Coast Guard.

I want to welcome our witnesses this morning. The future security and reliability of the maritime supply chain, and the safety the American public, will be determined by the cutter fleets being purchased today, and I want to thank you for your thoughtful participation today.

We are roughly at the half-way point in this massive acquisition program now estimated to cost $30 billion. Fortunately, the completion of the program of record for the National Security Cutter is in sight, even with the addition of a 9th NSC courtesy of the 2016 omnibus appropriations act.

Another positive aspect is that more than half of the planned fleet of 54 Fast Response Cutters (FRCs) has been ordered and 15 are operational. These new Sentinel class cutters continue to demonstrate superior capabilities over the legacy cutters they replaced and validate the value of the investment made by Congress.

But several challenges lie ahead. Most glaring, the Offshore Patrol Cutter — the single largest segment (25 OPCs totaling $12.2 billion) — is behind schedule and has yet to come into production. We need to know where we are with this procurement, and when we can expect the Coast Guard to award a contract for final design.

Additionally, we need to maintain progress in building out the FRC program of record. It is my understanding that the Coast Guard has yet to award a final Phase II FRC contract. We need to know if this circumstance will be rectified soon, and if this delay will in any way effect the FRC delivery schedule.

We also need to make sure that Coast Guard apples the lessons learned from the NSC and FRC acquisition programs.

We also need to make sure that the Coast Guard has made adjustments to ensure robust operational testing and evaluation of its new assets. Of particular interest, I will want to hear from the Coast Guard on how it plans to conduct operational testing of the OPC before it initiates full line production for this new cutter class.

And last, but not least, we need to find a way to build at least one or two new heavy icebreakers which must now be factored into the equation.

Mr. Chairman, we all have a stake in making sure the Coast Guard gets this recapitalization right. It is imperative that we not lose sight of that reality. For if we do, we risk facing a future with Coast Guard far less capable than what the American people have come to expect.

Thank you.

U. S. Department of Homeland Security

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TESTIMONY OF
REAR ADMIRAL JOSEPH M. VOJVODICH
ASSISTANT COMMANDANT FOR ACQUISITION AND CHIEF ACQUISITION OFFICER
ON

"STATUS OF COAST GUARD CUTTER ACQUISITION PROGRAMS"

BEFORE THE
HOUSE TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON COAST GUARD AND MARITIME TRANSPORTATION

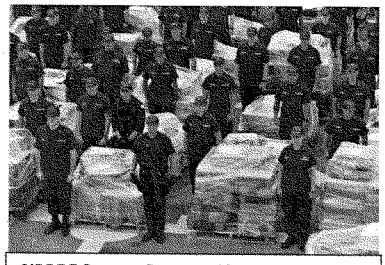
FEBRUARY 3, 2016

INTRODUCTION

Good morning Chairman Hunter, Ranking Member Garamendi, and distinguished members of the Subcommittee. Thank you for your continued oversight and strong support of the Coast Guard. I am honored to appear before you today to update you on our cutter acquisition programs, which are the centerpiece of our larger strategy to recapitalize our aging surface, aircraft, Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) systems, and shore infrastructure assets.

The Coast Guard continues to face a dynamic and complex array of challenges in performing the service's many missions to secure, safeguard and exercise stewardship over activities in our inland, coastal, and offshore waters. Chief among these challenges is the age and condition of existing assets not yet addressed by our ongoing recapitalization program, and the impact that declining readiness of those assets has on mission performance. For this reason, the Commandant continues to place the highest priority on advancing the planned recapitalization programs that will provide our men and women in the field with new and enhanced platforms and capabilities necessary to achieve mission success.

As the Chief Acquisition Officer of the Coast Guard, I lead a talented team of professionals dedicated to delivering the goods and services the Coast Guard needs to carry out its missions. It's easy to see the positive influence that our acquisition enterprise has on the organization when you consider the recent achievements of our new National Security Cutters (NSC) and Fast Response Cutters (FRC).



USCGC Stratton Crew stand by to offload 34 metric tons of cocaine in San Diego, August 2015. U.S. Coast Guard photo

USCGC Stratton boarding team members take control of a self-propelled semi-submersible off the coast of Central America, August 2015. U.S. Coast Guard photo

This summer, National Security Cutters were deployed to the Eastern Pacific, participating in the largest-ever narcotics seizure in the Coast Guard's history – over 34 metric tons of cocaine with a street value of more than $1 billion. The new cutters' enhanced command and control capabilities were on display as the operational group seized two self-propelled semi-submersibles and numerous go-fast vessels during the deployment.

USCGC WAESCHE performed operations in the Arctic, and FRCs have provided enhanced capabilities to respond to increasing migrant traffic in the Florida Straits and Caribbean Sea.

This subcommittee has been instrumental in supporting the Coast Guard's acquisition programs, and we are realizing the results of those critical investments in every mission area.

The Coast Guard continues its progress in acquiring the assets and capabilities necessary to meet the service's mission needs. In addition to efforts to complete the acquisition of the NSC class – including the recent start of fabrication for NSC 8 and preparations for a future contract award for production of NSC 9 – we are working hard on the Coast Guard's top acquisition priority: delivery of an affordable and capable Offshore Patrol Cutter (OPC). The OPC will serve as the backbone of the Coast Guard's strategy to project and maintain offshore presence in concert with the extended range and capability of the NSC and the enhanced coastal patrol capability of the FRC. The fifteenth FRC was commissioned in San Juan, Puerto Rico, last week, and we are preparing for the first delivery to our fourth FRC homeport, Cape May, New Jersey, later this summer.

In addition, we are acting on the President's direction to accelerate the acquisition of a new heavy icebreaker and begin planning for construction of additional icebreakers. We look forward to working with the Subcommittee as we advance the acquisition of this vital national asset..

Recapitalization is a key component to the Coast Guard's strategy to efficiently allocate resources to meet today's operational requirements, while investing in future capability to best serve the Nation. Our acquisition enterprise is working every day to ensure every appropriated dollar is used to its best advantage.

THE COAST GUARD ACQUISITION ENTERPRISE

With the stand-up of the Acquisition Directorate in 2007, the Coast Guard consolidated its portfolio of major and minor acquisition projects, contracting and procurement functions, research and development programs, logistics support and transition to sustainment functions, and other elements of acquisition support under a single command. Further, the Service established an acquisition governance structure, strengthened processes, institutionalized the role of our technical authorities, and built and maintained a highly capable and trained acquisition workforce.

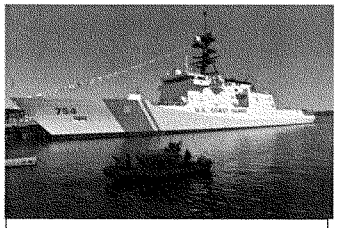
These improvements have been codified in the Coast Guard's Major Systems Acquisition Manual and are guided by the principles and requirements under Department of Homeland Security (DHS) - Acquisition Management Directive 102-01 and Federal Acquisition Regulations (FAR). We continue to implement initiatives to minimize acquisition risks and maximize affordability within our projects. We leverage the experience and expertise of our partners to perform key functions and guide Coast Guard decision-makers throughout the acquisition life cycle.

As a result of these ongoing efforts, Coast Guard acquisition personnel have routinely received awards for contracting and program management excellence. Most recently, the NSC acquisition program was recognized as the Fiscal Year 2014 DHS program of the year.

RECENT ACQUISITION SUCCESSES

The Coast Guard has made great strides in our efforts to recapitalize the Coast Guard fleet and support systems. The Service continues to accept delivery of new cutters, aviation assets, boats, C4ISR capabilities, and upgraded shore infrastructure, bolstering our mission readiness and performance.

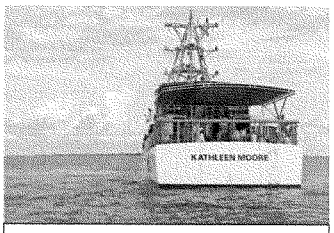
In support of the OPC Program, the Coast Guard has completed Preliminary and Contract Design activities with three shipyards – Bollinger Shipyards Lockport LLC (Lockport, Louisiana), Eastern Shipbuilding Group Inc. (Panama City, Florida), and General Dynamics, Bath Iron Works (Bath, Maine). Following the receipt of final management, technical, and price proposals, we plan to begin the source selection process leading to a Phase II (Detail Design and Construction) award to one contractor by the end of the current fiscal year.



The fifth National Security Cutter (JAMES) is commissioned into service, August 2015. U.S. Coast Guard photo.

Over the past year, the Coast Guard started fabrication of the eighth NSC (MIDGETT), accepted delivery of and commissioned the fifth NSC (USCGC JAMES), christened the sixth NSC (MUNRO), and continued production activities for the seventh NSC (KIMBALL). Following the receipt of additional funding for this program through the Consolidated Appropriations Act, 2016, the Coast Guard has begun activities that will lead to the acquisition of a ninth NSC.

The Coast Guard is conducting FRC operations out of three homeports: Sector Miami, Sector Key West, Florida, and Sector San Juan, Puerto Rico. A total of 32 FRCs have been ordered to date, and five additional FRCs are scheduled to be delivered in 2016. Later this year, we plan to award a Phase II contract that will include options for the acquisition of up to 26 FRCs on a firm fixed price basis with an economic price adjustment.



WPC 1109 (KATHLEEN MOORE) performs operations in the Caribbean Sea, December 2015. U.S. Coast Guard photo.

WLB 211 (OAK) is the first of sixteen 225' Seagoing Buoy Tenders to undergo a Midlife Maintenance Availability at the Coast Guard Yard. Coast Guard photo.

The Coast Guard is actively working to accelerate the acquisition of a new heavy icebreaker to maintain Coast Guard mission capabilities in the high latitude regions. Since the President's announcement, we have finalized the Polar Icebreaker Operational Requirements Document, and published a draft technical package, the first step in an industry outreach strategy that will continue up to and through the release of a contract solicitation. Industry engagement will provide the Coast Guard with the opportunity to receive feedback and input to inform the acquisition process; we anticipate our first industry engagement event this Spring. All of these efforts are complemented by ongoing consultation and coordination with international partners. We look forward to communicating additional details regarding our acquisition strategy through the FY 2017 budget process.

In concert with our efforts to acquire new assets, we are also focused on sustaining and improving our existing fleet through the In Service Vessel Sustainment program. The current work being conducted at the Coast Guard Yard in Curtis Bay, Maryland, includes a Service Life Extension Project (SLEP) to enhance mission readiness and extend the service life of the 140-foot icebreaking tug class by approximately 15 years. Last year, work began on the second of four planned SLEP phases on Coast Guard Cutter EAGLE. EAGLE SLEP will enhance habitability, remediate hazardous materials, and complete major maintenance necessary to ensure the vessel remains safe for operations. Earlier this year, the Coast Guard initiated a Midlife Maintenance Availability on the first 225-foot sea-going buoy tender that will address obsolescence of critical ship components and engineering systems.

CONCLUSION

Since 1790, the Coast Guard has safeguarded our Nation's maritime interests and natural resources on our rivers, in the ports, on the high seas, and in theaters around the world. Each day, the Coast Guard carries out its missions to protect lives, protect the environment, secure our maritime borders and facilitate commerce. Our acquisition workforce is, likewise, working each day to acquire and deliver the assets and capabilities needed to support these critical missions.

The cutters we acquire today will provide vital capability for decades to come. We are committed to maximizing the Nation's return on these important investments. Given the projected timelines to replace our aging fleet of legacy assets, continued investment in sustainment will be incorporated into our planning to ensure mission effectiveness in the 21st century.

Thank you for the opportunity to testify before you today and for all you do for the men and women of the U.S. Coast Guard. I look forward to answering your questions.

Question#:	1
Topic:	Average Unscheduled Maintenance Days
Hearing:	The Status of the Coast Guard's Cutter Acquisition Programs
Primary:	The Honorable Jim Bridenstine
Committee:	TRANSPORTATION (HOUSE)

Question: With such an aging fleet operating within the inland waterways, what are the average unscheduled maintenance days these Inland Tenders experience annually?

Response: For the Inland Fleet, the metric used by the Coast Guard is the percentage of operational time free of mission-degrading or mission-disabling casualties, which may result in unscheduled maintenance. Due to the nature of the Inland Fleet, they are able to shift the operational schedule to meet unscheduled maintenance needs while performing required operations. From Fiscal Year 2012 to Fiscal Year 2015, the inland fleet was operationally free of mission-degrading and mission-disabling casualties 72 percent of the time; this equates to an annual average of 10 days of unscheduled maintenance due to casualties per cutter.

Question: How many operational days on average do these Inland Tenders lose annually?

Response: Due to the autonomous nature of the Inland Fleet and their ability to shift operations to meet unscheduled maintenance needs, the Coast Guard does not track lost operational days for these cutters.

Question#:	2
Topic:	Replacing the Inland Tender Fleet
Hearing:	The Status of the Coast Guard's Cutter Acquisition Programs
Primary:	The Honorable Jim Bridenstine
Committee:	TRANSPORTATION (HOUSE)

Question: Congress appropriated $5 million in 2009 to the Coast Guard to begin work leading to the replacement of the Inland Tender Fleet. What plans if any, does the Coast Guard have for replacing the aging Inland Tender Fleet?

Response: The Fiscal Year 2009 funds were used to complete the following activities necessary to become a Major Acquisition Program:

- Mission Analysis Report
- Business Case Analysis by USCG Surface Forces Logistics Center
- Preliminary design by US Army Corps of Engineers Marine Design Center (including a Preliminary Cost Estimate and alternative designs)
- Preliminary Affordability Assessment

Based on the results of these activities and acquisition planning, the replacement program for the Inland Tenders has been designated a formal acquisition program.

Question#:	3
Topic:	Multi-purpose/Agency Platform
Hearing:	The Status of the Coast Guard's Cutter Acquisition Programs
Primary:	The Honorable Jim Bridenstine
Committee:	TRANSPORTATION (HOUSE)

Question: In 2010, your predecessor and the Commanding General of the Army Corps of Engineers explored the feasibility of designing an Inland Tender that can be tailored to meet the mission of both Services. Is a multi-purpose/agency platform to replace the Coast Guard's aging Inland Tender Fleet still an option for the Service?

Response: The teaming effort with the Army Corps of Engineers resulted in several high level conceptual designs, and contributed to the Mission Needs Statement and Concept of Operation development. The Coast Guard is using this information to refine the requirements necessary to meet Coast Guard missions. Any multi-agency application would have to be determined by other agencies based on compatibility with these requirements.

United States Government Accountability Office

Testimony before the Subcommittee on Coast Guard and Maritime Transportation, Committee on Transportation and Infrastructure, House of Representatives

For Release on Delivery
Expected at 10:00 a.m. ET
Wednesday, February 3, 2016

COAST GUARD ACQUISITIONS

Enhanced Oversight of Testing Could Benefit National Security Cutter Program and Future DHS Acquisitions

Statement of Michele Mackin, Director, Acquisition and Sourcing Management

GAO-16-314T

GAO Highlights

Highlights of GAO-16-314T, a testimony before the Subcommittee on Coast Guard and Maritime Transportation, Committee on Transportation and Infrastructure, House of Representatives

Why GAO Did This Study

The Coast Guard's flagship, 418-foot NSC was first commissioned in 2008. It completed initial testing, an event designed to test all critical systems that are necessary for successful operations, in the spring of 2014, after 7 of the 8 planned cutters were already under contract and 3 ships were operational. GAO has been reviewing the NSC as part of its broader Coast Guard acquisition reviews since 2001.

This statement is primarily based on GAO's January 2016 report on the NSC's initial testing event (GAO-16-148), and addresses issues related to (1) the results of the NSC's initial test event, (2) the Coast Guard's plans for follow-on testing, and (3) the performance of the NSC during operations. The statement also includes GAO's observations on the Coast Guard's acquisition approach for its Fast Response Cutter and Offshore Patrol Cutter programs. GAO reviewed these two programs in June 2014 (GAO-14-450) and April 2015 (GAO-15-171SP) and also conducted selected updates on their acquisition status in January 2016. The statement also draws on GAO's prior work on commercial shipbuilding best practices.

What GAO Recommends

In January 2016 (GAO-16-148), GAO recommended that DHS take several actions to strengthen oversight of test and evaluation of major assets. GAO also recommended that the Coast Guard direct the NSC program to clarify the key performance parameters for cutter boat operations. DHS and the Coast Guard concurred with all of these recommendations.

View GAO-16-314T. For more information, contact Michele Mackin at (202) 512-4841 or mackinm@gao.gov.

February 2016

COAST GUARD ACQUISITIONS

Enhanced Oversight of Testing Could Benefit National Security Cutter Program and Future DHS Acquisitions

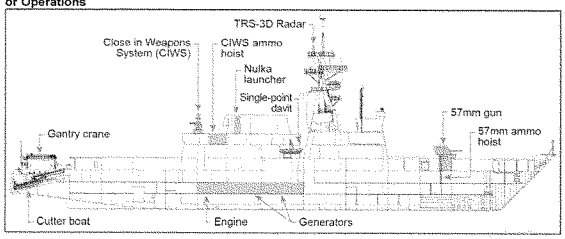
What GAO Found

In January 2016, GAO reported that the Navy's Commander, Operational Test and Evaluation Force conducted the initial testing on the National Security Cutter (NSC) in spring 2014, when three of the cutters were already operational. The Navy deemed the NSC operationally effective and suitable. At the same time however, the testing revealed some major deficiencies. Two metrics used to assess an asset in testing are key performance parameters (KPP) and critical operational issues (COI). The NSC met 18 of 19 COIs and 12 of its 19 KPPs. Navy testers found 10 major deficiencies that varied in terms of their effect on the NSC program, including 4 deficiencies related to the NSC's weapon systems and 1 for its cutter boats. The Coast Guard plans to correct most of the NSC's major deficiencies.

Also, as GAO reported, following initial testing, a Department of Homeland Security (DHS) acquisition review board approved the NSC program for full rate production in October 2014. The Coast Guard plans to begin follow-on testing in fall 2016. DHS acquisition guidance does not specify the timing of follow-on testing for its programs or any actions program offices should take in response to the findings of follow-on testing. As a result, future DHS acquisitions risk fielding assets without knowing the full capabilities, as was the case with the NSC.

GAO also found that problems discovered outside of testing are preventing the Coast Guard from operating fully capable NSCs. By the time of initial testing, the Coast Guard had nearly 4 years' experience operating NSCs and has encountered issues that require retrofits. In order to minimize cost increases for some changes, the Coast Guard plans to maintain the original equipment for the production of the remaining NSCs and conduct retrofits after accepting delivery. In some instances, replacement equipment is still in the prototype phase. The identified problems will continue to affect the NSC until retrofits are implemented.

Examples of National Security Cutter Equipment That Have Encountered Problems in Testing or Operations



Source: GAO presentation and analysis of U.S. Coast Guard data. | GAO-16-314T

GAO has observed, based on prior work reviewing the Coast Guard's ongoing Fast Response Cutter program and plans for its upcoming Offshore Patrol Cutter program, that the Coast Guard has matured its acquisition process. The process to date reflects some lessons learned from the NSC acquisition, for example in the

areas of competition and the schedule for initial testing. Furthermore, as the $12 billion Offshore Patrol Cutter program moves forward, it may have opportunities to further incorporate some best practices that GAO has highlighted in May 2009 (GAO-09-322) and March 2013 (GAO-13-325) on other shipbuilding work. For example, before a contract is signed, best practices call for a full understanding of the effort needed to design and construct the ship to be reached, enabling commercial buyers and shipbuilders to sign a contract that fixes the price, delivery date, and ship performance parameters.

Chairman Hunter, Ranking Member Garamendi, and Members of the Subcommittee:

I am pleased to be here today to discuss the status of the Coast Guard's National Security Cutter (NSC) program, in particular its initial test results and operational effectiveness. The flagship, 418-foot NSC was first commissioned in 2008, and completed initial operational test and evaluation (IOT&E), an event designed to test all critical systems that are necessary for successful operations, in the spring of 2014, after 7 of the 8 cutters were under contract.[1] We have been reviewing the NSC as part of our broader Coast Guard acquisition reviews since 2001.

My statement today is based on our January 2016 report on the NSC's IOT&E event.[2] I will address issues related to (1) the results of the NSC's IOT&E, (2) the Coast Guard's plans for follow-on operational test and evaluation (FOT&E), and (3) the performance of the NSC during operations. I will also offer observations on the acquisition approach of the Coast Guard's Fast Response Cutter (FRC) that is currently being deployed and the planned Offshore Patrol Cutter (OPC). The FRC replaces the Coast Guard's Island Class Patrol boat, and provides greater fuel capacity and improved communications capabilities over the legacy asset, as well as the ability to conduct full operations in moderate sea conditions. The OPC is intended to replace the Coast Guard's aging Medium Endurance Cutter fleet and is to be the backbone of the cutter fleet for the foreseeable future. We most recently reviewed the FRC and OPC as part of our June 2014 report on Coast Guard acquisitions, which was work requested by this committee, and our April 2015 report on the Department of Homeland Security's (DHS) major acquisitions.[3]

[1]Although the Coast Guard has planned for 8 NSCs, the Consolidated Appropriations Act, 2016 stated that, of the funds provided by the Act, not less than $640 million shall be immediately available and allotted to contract for the production of the ninth NSC, notwithstanding the availability of funds for post-production costs. Pub. L. No. 114-113 (Dec. 18, 2015).

[2]GAO, *National Security Cutter: Enhanced Oversight Needed to Ensure Problems Discovered during Testing and Operations Are Addressed*, GAO-16-148 (Washington, D.C.: Jan. 12, 2016).

[3]GAO, *Coast Guard Acquisitions: Better Information on Performance and Funding Needed to Address Shortfalls*, GAO-14-450 (Washington, D.C.: June 5, 2014) and GAO, *Homeland Security Acquisitions: Major Program Assessments Reveal Actions Needed to Improve Accountability*, GAO-15-171SP (Washington, D.C.: April 22, 2015).

Based on findings from our January 2016 report, we recommended that DHS take several actions to strengthen oversight of test and evaluation of major assets. We also recommended that the Coast Guard direct the NSC program to clarify the key performance parameters (KPP) for cutter boat operations. DHS and the Coast Guard concurred with all of our recommendations.

For our January 2016 report, we reviewed the NSC's program documentation, including test reports, and key metrics the Coast Guard uses to evaluate assets. We interviewed Coast Guard officials and officials from the Navy's Commander, Operational Test and Evaluation Force (COTF)—which conducted the NSC testing—to determine areas where the NSC is or is not meeting required capabilities and performance metrics. To add important context to our review, we toured the NSC used for IOT&E (*Stratton*) and interviewed the Commanding Officer concerning his experiences operating the vessel and its capabilities. To assess the Coast Guard's plans for FOT&E, we reviewed Coast Guard and DHS guidance and Coast Guard documents. We interviewed Coast Guard officials to determine the timeline for FOT&E, identify what systems will be tested, and determine what, if any, changes are planned for the NSC fleet based on IOT&E and operations. To assess the performance of the NSC during regular operations, we reviewed after action reports and engineering reports, which are prepared by the cutters' commanding officers, to identify any equipment casualties (i.e., equipment failures) the cutters are experiencing on a regular basis and the effect that these casualties are having on operations. We also toured the Huntington Ingalls Industry shipyard in Pascagoula, Mississippi, where the NSCs are built to gain an understanding of how design changes are incorporated into the production process. For our April 2015 review that included the OPC and FRC, we reviewed the programs' schedules, cost estimates, and acquisition plans and interviewed program officials. For our June 2014 report, we reviewed the acquisition program baseline for programs in the Coast Guard's portfolio as well as the Coast Guard's budget and discussed the acquisition portfolio with Coast Guard, DHS, and Office of Management and Budget officials and followed up on previous efforts to address affordability. This statement also draws from our prior work on commercial best practices in shipbuilding.[4] More information about the

[4]GAO, *Best Practices: High Levels of Knowledge at Key Points Differentiate Commercial Shipbuilding from Navy Shipbuilding,* GAO-09-322 (Washington, D.C.: May 13, 2009).

scope and methodology of this past work can be found in these reports. We also obtained updated information from the Coast Guard on the acquisition status of the FRC and OPC, which we incorporated as appropriate throughout the statement, and shared with Coast Guard officials our observations on the FRC and planned OPC acquisition approaches.

We conducted the work on which this statement is based in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

DHS and Coast Guard acquisition guidelines require operational test and evaluation by an independent test agency to confirm that the production configured system meet all requirements before approval for full-rate production. The Coast Guard uses the U.S. Navy's COTF to conduct operational tests and other evaluations for its major acquisition programs according to those programs' requirements. COTF serves as an independent evaluator of an asset's capabilities and has experience testing U.S. Navy assets.

In conducting operational testing, COTF evaluates an asset's operational effectiveness and suitability:

- For operational effectiveness, testers determine whether or not an asset can meet its missions.
- For operational suitability, testers determine whether or not the agency can logistically support the asset to an acceptable standard, such as having the asset available for operations 85 percent of its scheduled deployment time.

Critical operational issues (COI) are one metric used to determine an asset's operational effectiveness and suitability and are stated in the form of a question. COIs are examined during testing to evaluate a system's ability to provide the desired capability and perform its mission. COTF assessed the NSC's COIs, for example, by comparing the outcome of the test event against the full scope of the COI to determine whether the COI was met or not. Unmet COIs are often the result of related deficiencies,

which are identified during testing and include any system that is lacking in its ability to meet normal standards or to function as intended. Deficiencies are scored based on the severity of the problem and its impact on the asset's ability to accomplish its mission.[5] COIs and deficiencies identified during testing both factor into an asset's overall operational effectiveness and suitability rating.

In addition to verifying that an asset is operationally effective and suitable, operational testing also tests key performance parameters (KPP), which are the capabilities considered essential for mission accomplishment. KPPs are listed by threshold values, which are the minimum acceptable level of performance, and objective values, which are the desired level of performance. For example, a KPP for the NSC is being able to reach a maximum speed of 28 knots for a threshold value and 31 knots for an objective value. KPPs differ from COIs in that KPPs focus on specific performance metrics, while COIs focus on certain types of missions that an asset should be able to conduct or an asset's ability to be ready to perform those missions. Table 1 provides examples of COIs and KPPs for the NSC.

Table 1: Examples of National Security Cutter Critical Operational Issues and Key Performance Parameters

Critical Operational Issue	Key Performance Parameter
Defense Readiness – Will the NSC be capable of providing defense readiness to a combatant commander?	Deliver warning shots
Surveillance and Reconnaissance – Will the NSC effectively conduct the mission of surveillance and reconnaissance?	Exchange information with mission partners
Reliability – Will the reliability of the NSC support completion of its mission?	Endurance – 60 days without replenishment for fuel and subsistence.

Source: GAO presentation of Coast Guard information. | GAO-16-314T

[5] Deficiencies are rated as Severe (precludes mission accomplishment), Major 1 (critical impact on mission accomplishment), Major 2 (serious impact on mission accomplishment), Major 3 (moderate impact on mission accomplishment), and Minor (no significant impact on mission accomplishment).

Operational testing can occur over many test events. Two of those key test events are:

- Initial Operational Test and Evaluation (IOT&E): This event is meant to gather the data necessary to resolve COIs, determine an asset's operational effectiveness and suitability, and, according to Coast Guard acquisition guidance, occur prior to a full-rate production decision. The test event concludes with a rating of operationally effective or not effective, operationally suitable or not suitable.

- Follow-on operational test and evaluation (FOT&E): This event is conducted after IOT&E and an asset's full rate production decision and focuses on refining the conclusions that were made during previous operational test events, evaluating production changes, and reevaluating the system to ensure that it continues to meet operational needs. It also validates any incomplete or deferred requirements and verifies the correction of deficiencies identified during IOT&E. FOT&E concludes with an operational effectiveness and suitability rating similar to that of IOT&E.

Following IOT&E and FOT&E, COTF writes a test report that focuses on the resolution of the asset's COIs and any deficiencies that were identified during testing. These reports typically include a summary of the resolution of the asset's COIs.

While Initial Operational Testing Revealed Some Major Deficiencies, the NSC Met Most of Its Key Performance Parameters

As we reported in January 2016, IOT&E took place about 2 years later than planned and after 7 of the 8 planned NSCs were under contract, with 3 operational.[6] We have previously found that delaying critical test events can lead to late discoveries and could result in additional design changes and costs to programs.[7] The 8 NSCs are planned to be fully operational by 2020 and the Coast Guard is phasing out the legacy 378-foot High Endurance Cutters as the NSCs enter operations. During testing, the NSC successfully demonstrated 18 of its 19 COIs, with one COI—cybersecurity—being deferred to FOT&E. This deferral was due to the DHS Director of Operational Test and Evaluation (DOT&E) postponing the testing of the NSC's cybersecurity capabilities until a more robust test plan could be developed to reflect emerging threats.

At the conclusion of IOT&E, COTF found the NSC to be operationally effective and suitable, but with 10 major deficiencies. None of the major deficiencies were rated as severe, which would preclude the NSC from accomplishing its mission. Five of the 10 major deficiencies pertained to the NSC's weapon systems and cutter boats. Table 2 shows the 10 deficiencies.

Table 2: National Security Cutter Major Deficiencies Identified during Initial Operational Test and Evaluation

Initial Operational Test and Evaluation (IOT&E) deficiency rating	System	Deficiency discussion
Major 1 – Critical impact on mission accomplishment	**Close-in weapon system (CIWS)** – Part of the combat system, a radar-guided gun used to protect against Anti-ship Cruise Missiles and close-in surface and low flying aircraft.	CIWS suffered an equipment failure that resulted in a loss of capability.
Major 2 – Serious impact on mission accomplishment	**NULKA Launcher** – Part of the combat system, it provides defense against modern radar homing anti-ship missiles by using a rocket-propelled, disposable decoy to lure the missiles away from the NSC.	One of the NSC's two NULKA launchers was inoperable during IOT&E, and was not repaired prior to completing the test event.

[6]GAO-16-148.

[7]GAO, *Navy Shipbuilding: Significant Investments in the Littoral Combat Ship Continue Amid Substantial Unknowns About Capabilities, Use and Cost*, GAO-13-530 (Washington, D.C.: July 22, 2013).

Initial Operational Test and Evaluation (IOT&E) deficiency rating	System	Deficiency discussion
Major 2	**TRS-3D Air Search Radar –** Part of the combat system, it detects targets of interest and allows the NSC to clear the airspace around the cutter for safe helicopter operations.	The air search radar suffered an equipment failure that resulted in a loss of capability.
Major 3 – Moderate impact on mission accomplishment	**Access to electronic racks –** The racks are located in the Combat Information Center and contain different information systems used for communications.	Technicians had no direct access to maintenance and test ports which required disabling some critical communication equipment in order to gain access. This results in temporary degraded capability to maintain command and control during assigned missions.
Major 3	**Cutter boat operational parameters –** The NSC is intended to operate three cutter boats, two Over the Horizon-IVs (OTH-IV) and one Long Range Interceptor Mark II (LRI-II). The LRI-II was not tested during IOT&E.	The cutter boat is not designed to operate in all of sea state 5. However, the NSC routinely operates in areas that experience sea state 5 and above; having a cutter boat with different operational limitations could in some instances result in degraded capability if the situation warranted use of a cutter boat to enhance a certain specific mission.[a]
Major 3	**Common Operational Picture (COP) display –** An information display that provides the position and additional information of vessel and aircraft contacts to the Coast Guard and other decision makers.	During 57mm live fire events, the COP suffered an equipment failure that resulted in a loss of capability.
Major 3	**Remote operated valves** – Designed as a manning reduction measure to reduce the number of personnel required to operate the damage control systems.	During testing, the crew was unable to remotely operate damage control valves. This situation degrades the capability of the cutter by inhibiting timely response and increasing the number of crew required to operate fire pumps and fuel transfer valves.
Major 3	**57mm gun weapon system –** An intermediate caliber weapon that fires high-explosive rounds, which can be employed against large and small surface craft as well as low-slow flier air threats.	The 57mm gun suffered a misfire that disrupted the test event.
Major 3	**Command and Control (C2) embedded training module** – The C2 system is required to have the capability to train, sustain, and enhance individual and crew skill proficiencies necessary to operate and maintain the asset.	There was not an available embedded training module within the C2 system to simulate air and surface contacts. This prevented realistic tactical drills and exercises.
Major 3	**Rubber electric matting installation –** Used to protect crew and equipment from electrical shock hazards.	The gaps in the electrical safety matting were too large, exposing crew and equipment to the metal deck below. The improper installation of the matting presented an electrical shock hazard to personnel and installed equipment.

Source: GAO presentation of Navy and Coast Guard data. | GAO-16-314T

Note: Shaded rows are deficiencies that were known prior to IOT&E, but not repaired.

[a]Sea state refers to the height, period, and character of waves on the surface of a large body of water.

In its assessment of the NSC's IOT&E event, DOT&E stated that the reliability and operational availability issues of the weapon systems—the CIWS, NULKA Launcher, TRS-3D air search radar, and the 57-mm gun—affect the overall ability of the NSC to conduct certain missions. While the CIWS, NULKA launcher, and air search radar were all repaired following IOT&E, post-operational reports indicate that problems persist with these systems as they were often unavailable during operations.[8] Despite these findings, as noted above, COTF found the NSC to be operationally effective and suitable.

While COIs and deficiencies factor into a system's operational effectiveness and suitability rating, KPPs are measures of the capabilities considered essential to mission accomplishment. In our January 2016 report, we found that during IOT&E and other test events, the NSC fully met 12 of its 19 KPPs.[9] However, by not meeting all KPPs, the Coast Guard is not able to demonstrate that the NSC is providing the capabilities that it intended to field. For instance, the Coast Guard has not yet demonstrated that the NSC can achieve a hard and soft kill against a subsonic cruise missile as required, or fully meet interoperability requirements with the Department of Defense, DHS, and other government agencies.[10] Table 3 displays the 7 KPPs not fully met for the NSC, the test results, and a discussion of these results.

[8] Post-operational reports include engineering reports and after action reports. Engineering reports are annual reports that address the high priority engineering and sustainability problems with the cutter's equipment and provide an assessment of the condition of the cutter, among other things. After action reports are command-approved reports that provide detailed observations about cutter operations, casualties, and lessons learned, among other things, following deployments.

[9] By comparison, the Maritime Patrol Aircraft conducted IOT&E in July 2012 and it met or partially met 4 of its 7 KPPs. The Fast Response Cutter conducted IOT&E in July 2013 and it partially met only 1 of its 6 KPPs.

[10] Hard kill involves an active attempt to destroy a missile, such as using the CIWS to destroy the target. Soft kill involves using a decoy, such as the NULKA, to lure missiles away from the target.

Table 3: Key Performance Parameters Not Fully Met for the National Security Cutter

Key performance parameter (KPP) (threshold requirement)	Was KPP tested?	Was KPP met?	Test result	Discussion
Transit range (12,000 nm)	Yes	Partial	10,967 nm	Insufficient data was collected during Initial Operational Test and Evaluation (IOT&E) to resolve the KPP. NSC 1 and 2 have met the threshold in operations and NSCs 3 through 8 will be tested in the future.
Conduct all missions (sea state 5: up to 13.1 foot waves)[a]	Yes	Partial	The cutter boats are not rated to operate in all of sea state 5.	The operational limitation of the embarked cutter boat during IOT&E was mid sea state 5 (11 foot waves).
Ability to embark, launch and recover a cutter boat (sea state 5: up to 13.1 foot waves)	Yes	Partial	The cutter boats are not rated to operate in all of sea state 5.	The operational limitations of the embarked cutter boat during IOT&E was mid sea state 5 (11 feet).
Ability to embark, launch and recover a cutter boat while towing	Yes	Partial	The NSC demonstrated that it can tow a vessel of similar size.	For the NSC to conduct towing operations, one of the rear cutter boats has to be launched, which will be problematic in higher sea states since the cutter boat is not rated for operations in seas higher than mid sea state 5 (11 feet).
Conduct a minimum of 4 hours of flight operations day and night with manned aircraft and 16 hours with a combination of manned and unmanned aircraft systems (UAS)	Partial	Partial	The manned system requirements were met. The UAS has not been fielded or tested yet.	According to Coast Guard officials, of the 20 UAS programs reviewed, only 2 came close to meeting the requirements. Not having UAS has reduced the aerial surveillance capability of the NSC. NSC operators explained that the cutters regularly deploy with one helicopter.
Achieve hard and soft kill against a subsonic anti-ship cruise missile	No	No	N/A	According to DHS officials, the target drone was not available for IOT&E due to a moratorium on using the target for tests that resulted from a malfunction during a U.S. Navy test using the same target.
Interoperability (exchange information with mission partners)	Yes	Partial	Not all information systems were installed prior to IOT&E, which was cited as a limitation to the test.	According to Coast Guard officials, Link-11, a system used to transmit and receive information with U.S. Navy ships, was only able to receive data. A pending upgrade to the NSC's C4ISR software should allow the cutter to transmit data.

Source: GAO analysis of Navy and Coast Guard data. | GAO-16-314T

[a]Sea state refers to the height, period, and character of waves on the surface of a large body of water.

Of the 7 KPPs not met, 3 pertain to the NSC's cutter boat operations. The cutter boats are designed to be integral to the NSC's overall capability, operate both within and beyond the visual range of the NSC, and enhance the overall mission effectiveness of the NSC in every mandated

mission area.[11] We found that the Coast Guard and COTF have different interpretations of the cutter boat KPPs. COTF conducted IOT&E according to the NSC's test and evaluation plan and determined that the three KPPs involving cutter boats were not fully met since the boats are unable to operate through all sea state 5 conditions. According to Coast Guard officials, the September 2012 requirements document for the NSC should have been written more clearly to convey the sea state expectation for cutter boat launch and recovery operations, since the NSC's sea state KPP was never intended to be applicable to the operation of the cutter boats. In January 2016 we recommended, and the Coast Guard concurred, that the NSC's KPPs for the operation of the cutter boats should be clarified.

Unclear Guidance on Follow-on Testing May Lead to NSCs and Future DHS Assets Deploying without Having Demonstrated Full Capabilities

As we reported in January 2016, according to COTF officials, FOT&E will begin in the fall of 2016 and is scheduled to continue through at least 2017. Following IOT&E, DHS held an acquisition review board (ARB) to discuss the outcome of IOT&E, which resulted in DHS approving the NSC program for full rate production in October 2014. ARBs review major acquisition programs for proper management, oversight, accountability, and alignment with DHS's strategic functions at acquisition decision events and other meetings as needed. The resulting acquisition decision memorandum (ADM) from October 2014 directed the Coast Guard to conduct FOT&E and complete three action items: (1) complete testing of the cybersecurity COI; (2) verify the correction of all major deficiencies, including the unmet KPPs; and (3) assess the NSC's cyber-security capabilities. The cybersecurity COI is planned to be tested in 2016, which, if successful, will address the first and third requirements of the ADM, but other testing events are expected to occur through 2017 and possibly beyond.

The ADM also directed the Coast Guard to verify the correction of all deficiencies, including the 7 unmet KPPs. According to Coast Guard officials, they have corrected 4 of the 10 major deficiencies from IOT&E that involved equipment failures by restoring the operational status of the

[11]The NSC is intended to deploy with three cutter boats: two Over The Horizon-IV (OTH-IV) and one Long-Range Interceptor II (LRI-II). The OTH-IV is a 26-foot boat capable of over-the-horizon operations with a range of 200 nautical miles and is capable of achieving speeds of 40 knots. The LRI-II is 35 feet long with a range of more than 200 nautical miles and is capable of sustaining speeds of 38 knots.

related systems on the *Stratton*, and they have plans to correct four more. However, according to Coast Guard documentation and officials, they may not correct 2 deficiencies due to the cost of making fleet-wide changes, and because the Coast Guard has developed an interim solution. Table 4 shows the Coast Guard's plans, as we reported in January 2016, for resolving the major deficiencies.

Table 4: Coast Guard Plans to Resolve Initial Operational Test and Evaluation Major Deficiencies

Initial Operational Test and Evaluation deficiency rating	Plan to resolve through Follow-on Operational Test and Evaluation	Deficiency Status
Major 1 – Close-in-weapon system	The Coast Guard has corrected this deficiency and plans to work with the Commander Operational Test and Evaluation Force (COTF) to close-out this deficiency during the third quarter of fiscal year 2016.	Addressed by Coast Guard; pending close-out with COTF
Major 2 – NULKA Launcher	The Coast Guard has corrected this deficiency and plans to work with COTF to close-out this deficiency during the third quarter of fiscal year 2016.	Addressed by Coast Guard; pending close-out with COTF
Major 2 – TRS-3D Air Search Radar	The Coast Guard has corrected this deficiency and plans to work with COTF to close-out this deficiency during the third quarter of fiscal year 2016.	Addressed by Coast Guard; pending close-out with COTF
Major 3 – Access to electronic racks	The Coast Guard is considering alternate configurations of the racks to mitigate access challenges. However, the cost of implementing alternate configurations may make fleet-wide changes an unrealistic option.	No immediate plans
Major 3 – Cutter boat operational parameters	According to Coast Guard officials, a cutter boat safe operating limits study, being conducted in conjunction with the U.S. Navy, is expected to be complete by September 2016. Its results will inform discussions with COTF regarding cutter boat safe operational parameters.	Pending
Major 3 – Common Operational Picture	Problems with the information display were observed again during the *Waesche's* August 2015 Combat System Ship Qualification Trials (CSSQT) and the Coast Guard plans to reconfigure the mounts and retest.	Pending
Major 3 – Remote operated valves	The Coast Guard has developed an interim solution by operating the valves manually, which Coast Guard officials have indicated is a lower priority deficiency to address.	No immediate plans
Major 3 – 57mm gun weapon system	The Coast Guard has corrected this deficiency and plans to work with COTF to close-out this deficiency during the third quarter of fiscal year 2016.	Addressed by Coast Guard; pending close-out with COTF
Major 3 – Command and control	The Coast Guard is completing the design of an upgrade for embedded training and expects to install the upgrade starting in fiscal year 2016. All cutters are expected to receive the upgrade.	Pending
Major 3 – Rubber electric matting installation	The same installation error was observed on the *Waesche* during its August 2015 CSSQT and the Coast Guard is treating this as a class-wide issue. COTF plans to verify correct installation through a visual inspection.	Pending

Source: GAO analysis of Coast Guard data. | GAO-16-314T

As we also found in January 2016, while the Coast Guard has plans to conduct FOT&E for the NSC, it will have accepted the delivery of at least the 6th NSC before the testing is complete, meaning that the Coast Guard will be operating 6 NSCs before it has resolved issues from IOT&E and knows the cutter's full capabilities. DHS's guidance for its major acquisitions does not require programs to conduct FOT&E, nor does it specify the timing of FOT&E or the actions that should be taken following the completion of testing.[12] Further, DHS's directive on test and evaluation does not include any direction or guidance on FOT&E.[13]

We concluded in our January 2016 report that this gap in DHS guidance also has implications for future DHS assets. Most significantly, the Coast Guard is in the process of designing the OPC, which is the last of the major cutter classes to be built as part of the recapitalization program. This cutter class, which is intended to bridge the mission gap between the FRC and NSC, is estimated to cost $12.1 billion, making it the most expensive Coast Guard recapitalization program to date.[14] Without updated guidance that establishes timeframes and responsibilities for completing all testing, the Coast Guard risks encountering the same scenario with the OPC—and other future DHS assets—that it has experienced with the NSC. That is, the Coast Guard could continue to buy assets without having demonstrated their full capabilities in testing. In January 2016 we recommended that updated guidance should establish factors that should be considered with planning FOT&E, including when test events will be concluded. We also recommended that an ARB be held, if necessary, to provide oversight and specify any further actions programs should take following FOT&E. DHS agreed with these recommendations and estimated they would be implemented by November 2016.

[12]Coast Guard acquisition guidance specifies that FOT&E is an objective of the Produce/Deploy Phase of the acquisition process, but does not specify when FOT&E is to conclude.

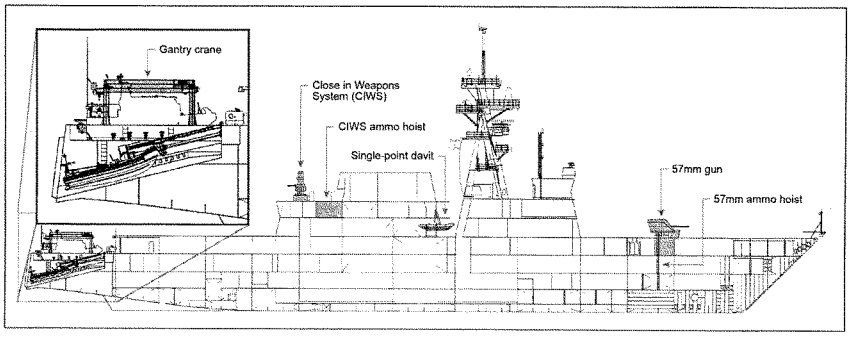
[13]DHS Directive 026-06, Test and Evaluation (May 22, 2009).

[14]The three classes of cutters are the 418' NSC, the 154' FRC (in production with 15 of 58 planned cutters delivered), and the OPC (in the design phase and planned for 25 cutters total).

Problems Discovered Outside of IOT&E Are Preventing the Coast Guard from Operating Fully Capable NSCs

As we reported in January 2016, by the time of the spring 2014 IOT&E event, the Coast Guard had nearly four years of experience operating the NSCs. The Coast Guard has encountered several issues that require major retrofits and design changes on the NSC to correct problems encountered during operations and discovered during test events outside of IOT&E. The total cost of changes we identified as of June 2015 totals approximately $202 million. In order to minimize cost increases for some of these changes, the Coast Guard plans to maintain the original equipment design for the production of the remaining NSCs and plans to conduct retrofits after accepting delivery of the cutters. In some instances, replacement equipment is still in the prototype phase. The problems identified with these systems during operations will continue to impact the NSC until the design changes are implemented across the fleet. Figure 1 shows selected systems that will require retrofits after all eight cutters are built.

Figure 1: Selected National Security Cutter Systems Requiring Retrofitting After Production



Source: GAO presentation and analysis of U.S. Coast Guard data. | GAO-16-314T

Early testing can allow performance issues to be discovered at a point when fixes can be incorporated into the design of an asset while it is still in production. As we have previously found for Department of Defense programs, continuing with full-rate production before ensuring that assets meet key requirements risks replicating problems in each new asset until such problems are corrected. The Coast Guard conducted IOT&E several

years after it began operating the NSC and after the contracts for the majority of the fleet had been initiated. As a result, the Coast Guard plans to purchase and install equipment with known design flaws on the NSCs that are currently in production. Thus, the Coast Guard will be faced with paying for the replacement of these systems with new equipment that it must also purchase.

Furthermore, we found in January 2016 that the Coast Guard has encountered a variety of problems with the cutter's propulsion systems during operations and, although there are several factors known to influence these problems, the root causes and the method and cost of potential solutions are not yet known. The problems include: (1) high engine temperatures, which limit the top speed of the cutter in certain conditions, (2) cracked cylinder heads, which are occurring at a rate higher than expected and are the NSCs number one operational degrader and cost driver for maintenance, and (3) overheating generator bearings, which have caused at least one patrol to be cut short due to the lack of an effective backup generator. Although the Coast Guard has two studies underway to identify the root causes of these problems, until the causes are identified and corrective actions implemented, the Coast Guard is at risk of experiencing costly and potentially mission-limiting problems with this equipment across the fleet. Thus, we recommended, and DHS agreed, to provide oversight and specify any further actions the NSC program should take at the conclusion of the studies related to the propulsion systems.

Observations on the FRC and OPC Acquisitions

As the Coast Guard has progressed in its acquisition of cutters, it has matured its acquisition processes, which has been demonstrated in its approach with the FRC and OPC programs. The process to date reflects some lessons learned from the NSC acquisition, for example in the areas of competition and the schedule for IOT&E. Furthermore, as the $12 billion OPC program moves forward, it may have opportunities to further incorporate some best practices that we have highlighted in our past work on shipbuilding.[15]

As we reported in June 2014 and April 2015, the Coast Guard purchased the technical specifications and licenses necessary to build the FRC in

[15]GAO-09-322 and GAO-15-171SP.

order to use the information to conduct a full and open competition for the remaining 26 of 58 planned vessels.[16] According to Coast Guard officials, the second phase of the acquisition was intended to promote competition and allowed bidders on the contract to make certain design changes to the ship, though the key performance parameters remain the same and the design for several critical systems—such as the propulsion system, generators, hull structure, and bridge layout—remain the same. The Coast Guard plans to award a contract for the second phase of this acquisition by the end of June 2016. We noted in June 2014 that when the government owns technical data rights, it does not need to rely on only one contractor to meet requirements.

As we also reported in April 2015, the Coast Guard is using a two-phased, competitive strategy to select a contactor to construct the OPC.[17] In general, as we have previously found, competition is likely to save taxpayer dollars as opposed to a sole source acquisition approach, such as was used for the NSC.[18] During the first phase for the OPC, the Coast Guard conducted a full and open competition to select three contractors to perform preliminary and contract design work, and, in February 2014, awarded firm-fixed price contracts to three shipbuilders. For the second phase, the Coast Guard plans to award, by the end of fiscal year 2016, a contract to one of these shipbuilders to complete the detailed design of the vessel and construct the first 9 to 11 ships. As we also reported, the Coast Guard plans to recompete the contract for the remaining vessels.

Competitive contracts can allow for the best return on investment for taxpayers by saving taxpayer money, conserving scarce resources, improving contractor performance, curbing fraud, and promoting accountability for results.[19] According to Coast Guard officials, the Coast Guard currently plans to award the construction contract for the lead OPC ship in fiscal year 2018 and deliver this ship in 2021. As we found in April 2015, the OPC's initial and full operational capability dates both slipped 15 months, which the Coast Guard attributes to procurement delays,

[16]GAO-14-450 and GAO-15-171SP.

[17]GAO-15-171SP.

[18]GAO, *Defense Contracting: Actions Needed to Increase Competition*, GAO-13-325 (Washington, D.C.: Mar. 28, 2013).

[19]GAO-13-325.

including a bid protest that GAO ultimately denied in June 2014. The Coast Guard's fiscal year 2016 Capital Investment Plan reflects $1.5 billion in funding for the OPC, which funds the detailed design work and construction of the first three vessels. After the first 3 of the planned fleet of 25 OPCs are built, the Coast Guard plans to increase its purchase to 2 OPCs per year until the final asset is delivered, currently scheduled for fiscal year 2035.

Regarding the timeframes for IOT&E, as we reported in January 2016, this event occurred for the NSC after 3 of its 8 planned cutters were operational. For the FRC, IOT&E occurred after 4 of the planned 58 cutters were operational. For the OPC, the Coast Guard plans to begin IOT&E by December 2023, by which time it expects to have 1 operational OPC of a planned buy of 25.

In addition to its efforts to enhance competition, the Coast Guard has developed a warranty provision under its contract with Bollinger Shipyards for the FRC program that has held the contractor responsible for production deficiencies. As we reported in June 2014, the Coast Guard does not always have insight into how much it costs the contractors to fix these issues.[20] However, after multiple deficiencies interrupted production, officials noted they are confident that the Coast Guard has received value from this warranty. The Coast Guard plans to use these strategies when purchasing the OPC.[21]

Based on best practices that we have previously identified, the Coast Guard may have opportunities to incorporate additional shipbuilding best practices with the OPC program. In May 2009, we reported on best practices that commercial shipbuilders use to ensure that ships are delivered on time and within budget.[22] We found that before a contract is signed, a full understanding of the effort needed to design and construct the ship is reached, enabling commercial buyers and shipbuilders to sign a contract that fixes the price, delivery date, and ship performance parameters. To minimize risk, buyers and shipbuilders reuse previous designs to the extent possible and attain an in-depth understanding of

[20]GAO-14-450.

[21]We are currently reviewing Coast Guard and Navy warranties and guarantees for shipbuilding and plan to issue our report this spring.

[22]GAO-09-322.

new technologies included in the ship design. Before construction begins, commercial shipbuilders complete key design phases that correspond with the completion of a three-dimensional product model. Final information on the systems that will be installed on the ship is needed to allow design work to proceed. During construction, buyers maintain a presence in the shipyard and with key suppliers to ensure the ship meets quality expectations and is delivered on schedule. We will continue to assess the progress of the FRC and OPC acquisitions going forward.[23]

Chairman Hunter, Ranking Member Garamendi, and Members of the Subcommittee, this concludes my prepared statement. I would be pleased to respond to any questions.

GAO Contact and Staff Acknowledgments

If you or your staff have any questions about this statement, please contact Michele Mackin at (202) 512-4841 or mackinm@gao.gov. In addition, contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Individuals who made key contributions to this testimony include Katherine Trimble, Assistant Director; John Crawford; Lindsey Cross; and Peter W. Anderson.

[23]The DHS Appropriations Act, 2015 requires GAO to develop a plan for ongoing reviews of these programs. Explanatory Statement submitted by Mr. Rogers of Kentucky, Chairman of the House Committee on Appropriations, regarding H.R. 240, Department of Homeland Security Appropriations Act, 2015 (published in Cong. Record, Jan. 13, 2015, at p. H276).

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TESTIMONY

Statement of

Ronald O'Rourke
Specialist in Naval Affairs

Before

House Transportation and Infrastructure Committee
Coast Guard and Maritime Transportation Subcommittee

Hearing on

The Status of Coast Guard Cutter Acquisition Programs

February 3, 2016

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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 the status of Coast Guard cutter acquisition programs. As requested, my testimony focuses on how multiyear procurement (MYP) and block buy contracting (BBC) could reduce the acquisition cost of new Coast Guard cutters.

Some Key Points Up Front

Some key points that can be made up front include the following:

- MYP and BBC are two forms of multiyear contracting. The Coast Guard, like the Navy and the other armed services, has authority under 10 USC 2306b to use MYP. Specific legislation has been used to grant the Navy authority to use BBC in two of its shipbuilding programs. Based on this precedent, it would appear that specific legislation could be used to grant the Coast Guard authority to use BBC in cutter acquisition programs.
- MYP can reduce the unit procurement costs of ships by roughly 10%, compared to unit procurement costs under the standard or default approach of annual contracting. BBC can reduce the unit procurement costs of ships by amounts comparable to those of MYP, if the authority granted for using BBC explicitly includes authority for making economic order quantity (EOQ) purchases (i.e., up-front batch purchases) of components. If the authority granted for using BBC does not explicitly include authority for making EOQ purchases, then the savings from BBC will be less—in the range of roughly 5%. EOQ authority comes automatically with MYP authority, but must be explicitly included in legislation granting BBC authority.
- The Navy in recent years has used MYP and BBC in shipbuilding and aircraft acquisition programs to reduce the acquisition costs of those programs. The Coast Guard, in contrast, to date has not used MYP or BBC in cutter acquisition programs. The Coast Guard has used contracts with options in cutter acquisition programs. A contract with options may look like a form of multiyear contracting, but operates more like a series of annual contracts. Contracts with options do not achieve the reductions in acquisition costs that are possible with MYP and BBC.
- MYP contracts and block buy contracts can be awarded competitively. 10 USC 2306b requires MYP contracts to be fixed price contracts. BBC contracts can also be fixed price contracts.
- BBC, unlike MYP, can be used at the outset of a shipbuilding program, starting with the lead ship in the class. MYP, in contrast, cannot be used until the lead ship has completed construction. Thus, for a class of ships that is procured at a rate of one ship per year and in which each ship takes five years to build, BBC can be a contracting option starting with the first ship in the class, and MYP can become a contracting option starting with the fifth or sixth ship in the class. This difference is due to the requirement under the statute governing MYP (10 U.S.C. 2306b) that a program must demonstrate design stability to qualify for MYP. In a shipbuilding program, design stability is typically demonstrated by completing the construction of the lead ship in the class.
- From a congressional perspective, tradeoffs in making greater use of MYP and BBC include the following:
    - reduced congressional control over year-to-year spending, and tying the hands of future Congresses;

- reduced flexibility for making changes in Coast Guard 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 MYP or BBC 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.

- The Offshore Patrol Cutter (OPC) program and the polar icebreaker (PIB) program can be viewed as candidates for using BBC, and the Fast Response Cutter (FRC) program can be viewed as a candidate for using either MYP or BBC. Using MYP and BBC for all three of these programs might produce savings totaling about $1.2 billion, an amount roughly equivalent to the average annual funding level in the Coast Guard's Acquisition, Construction, and Improvements (AC&I) account. In considering whether to grant authority for using MYP or BBC for these programs, Congress may weigh the potential savings of these contracting mechanisms against the tradeoffs listed above.
- In discussing MYP and BBC, it can be helpful to distinguish contracting mechanisms from funding approaches such as incremental funding. Contracting mechanisms and funding approaches are often mixed together in discussions of acquisition programs, sometimes leading to confusion. For more on the distinction between contracting mechanisms and funding approaches, see **Appendix A**. For additional background information on MYP and BBC, see **Appendix B**.
- Incremental funding has been used more extensively in certain Navy shipbuilding programs in recent years to mitigate budget "spikes" associated with the procurement of very expensive ships that are procured at a rate of less than one per year, such as aircraft carriers and LHA-type amphibious assault ships. Based on this precedent, the polar icebreaking program can be viewed as a candidate for using incremental funding.
- Using incremental funding distributes the acquisition cost of a ship across multiple years, but as a general matter does not materially change the total acquisition cost of the ship. Mitigating budget spikes associated with funding polar icebreakers, however, might reduce the need for the Coast Guard to shift the acquisition of other items to years before and after the spike. Since such shifts can increase costs for those other programs by disrupting their acquisition schedules, using incremental funding in the PIB program might help avoid cost increases to other programs. This would not be a savings, but rather an avoided cost increase.

Context for Considering Coast Guard Cutter Acquisition Programs

The context for considering Coast Guard cutter acquisition programs is formed by several elements, including those discussed below.

Mission Needs and Planned Number of Cutters

In assessing the potential use of MYP and BBC in Coast Guard cutter acquisition programs, it can be noted, as a starting point, that the Coast Guard's planned number of new cutters falls considerably short of the number that the Coast Guard has calculated would be needed to fully perform the Coast Guard's statutory missions in coming years. For example, the Coast Guard has calculated that fully performing its missions in coming years would require 9 NSCs, 49 OPCs, and 91 FRCs (149 cutters in total), or about 64% more than the 8 NSCs, 25 OPCs, and 58 FRCs (91 cutters in total) that are included in the Coast Guard's program of record (POR).

Although the POR force would have considerably more mission capability and capacity than the Coast Guard's legacy force, the Coast Guard has estimated that the POR force would nevertheless have capability or capacity gaps for performing six of the Coast Guard's 11 statutory missions in coming years—search and rescue; defense readiness; counter-drug operations; ports, waterways, and coastal security; protection of living marine resources; and alien migrant interdiction operations. The Coast Guard has judged that some of these mission performance gaps would be "high risk" or "very high risk." The mission performance gaps of the POR force, which have not been emphasized in public discussions of Coast Guard planning and budgeting, are discussed in some detail in the CRS report on Coast Guard cutter procurement.[1] If limits on Coast Guard acquisition funding lead to a future Coast Guard with fewer and/or older platforms than called for under the POR, the mission performance gaps noted above will be greater still.

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

The Coast Guard has testified over the years that acquiring the ships and aircraft in its POR on a timely basis while also adequately funding other Coast Guard acquisition programs would require a funding level for the Coast Guard's AC&I account of roughly $1.5 billion to $2.5 billion per year. As shown in **Table 1**, the Administration's FY2013 budget submission programmed an average of about $1.5 billion per year in the AC&I account. As also shown in the table, subsequent budget submissions have reduced that figure to between $1 billion and $1.2 billion per year.

Table 1. Funding in AC&I Account in FY2013-FY2016 Budgets

Millions of dollars, rounded to nearest tenth

	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	Avg.
FY13 budget	1,217.3	1,429.5	1,619.9	1,643.8	1,722.0				1,526.5
FY14 budget		951.1	1,195.7	901.0	1,024.8	1,030.3			1,020.6
FY15 budget			1,084.2	1,103.0	1,128.9	1,180.4	1,228.7		1,145.0
FY16 budget				1,017.3	1,125.3	1,255.7	1,201.0	1,294.6	1,178.8

Source: Coast Guard FY2013-FY2016 budget submissions.

At a June 26, 2013, hearing before this subcommittee, I testified that the FY2014 budget submission's one-third reduction in the average AC&I account funding level compared to the level in the FY2013 budget submission.

[1] See the section entitled "Planned NSC, OPC, and FRC Procurement Quantities" in CRS Report R42567, *Coast Guard Cutter Procurement: Background and Issues for Congress*, by Ronald O'Rourke.

> is one of the largest percentage reductions in funding that I have seen a five-year acquisition account experience from one year to the next in many years.
>
> About twenty years ago, in the early 1990s, Department of Defense (DOD) five-year procurement plans were reduced sharply in response to the end of the Cold War—a large-scale change in the strategic environment that led to a significant reduction in estimated future missions for U.S. military forces. In contrast to that situation, there has been no change in the Coast Guard's strategic environment since last year that would suggest a significant reduction in estimated future missions for the Coast Guard.[2]

The Coast Guard has testified that funding the AC&I account at a level of about $1 billion to $1.2 billion per year would make it difficult to fund various Coast Guard acquisition projects, including a new polar icebreaker, and improvements to Coast Guard shore installations. Coast Guard plans call for procuring OPCs at an eventual rate of two per year. If each OPC costs roughly $400 million, procuring two OPCs per year in an AC&I account of about $1 billion to $1.2 billion per year would leave about $200 million to $400 million per year for all other AC&I-funded programs.

Using figures from the FY2014 budget submission, the Coast Guard has about 12.9% as many active-duty personnel as the Navy.[3] If the amount of funding for the surface ship acquisition and sustainment part of the AC&I account were equivalent to 12.9% of the amount of funding in the Navy's shipbuilding account, the surface ship acquisition and sustainment part of the AC&I account would be about $1.8 billion per year.[4] Navy surface ship acquisition, unlike Coast Guard surface ship acquisition, includes substantial numbers of large and complex ships, including nuclear-powered aircraft carriers, highly capable surface combatants, and large amphibious and auxiliary ships. Accounting for this difference in Navy and Coast Guard surface ship acquisition by reducing the $1.8 billion figure by, say, one-half or one-third would produce an adjusted figure of about $900 million to about $1.2 billion per year for surface ship acquisition and sustainment.

Again using figures from the FY2014 budget submission, funding in the Navy's shipbuilding account is equivalent to about 51% of the Navy's funding for active-duty personnel.[5] If Coast Guard funding for surface ship acquisition and sustainment were equivalent to 51% of Coast Guard funding for military pay and allowances, the surface ship acquisition and sustainment part of the AC&I account would be about $1.7 billion per year.[6] Reducing the $1.8 billion figure by, say, one-half or one-third to account for differences in the types of surface ships acquired by the Navy and Coast Guard (see previous paragraph) would produce an adjusted figure of about $850 million to about $1.1 billion per year for surface ship acquisition and sustainment.[7]

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[2] Statement of Ronald O'Rourke, Specialist in Naval Affairs, Congressional Research Service, before the House Transportation and Infrastructure Committee, Subcommittee on Coast Guard and Maritime Transportation, Hearing on Coast Guard Readiness: Examining Cutter, Aircraft, and Communications Needs, June 26, 2013, p. 1.

[3] The Coast Guard for FY2014 appears to be requesting an active-duty end strength—the number of active-duty military personnel—of 41,594 (measured by the Coast Guard in full-time equivalent [FTE] positions); the Navy for FY2014 is requesting an active-duty end strength of 323,600.

[4] The Navy's proposed FY2014 budget requested $14,078 million for the Shipbuilding and Conversion, Navy (SCN) appropriation account.

[5] The Navy's proposed FY2014 budget requested $27,824 million for the Military Personnel, Navy (MPN) appropriation account.

[6] The Coast Guard's proposed FY2014 budget requested $3,425.3 million for military pay and allowances.

[7] For further discussion, see the section entitled "Funding Level of Coast Guard's Acquisition Account" in CRS Report R42567, *Coast Guard Cutter Procurement: Background and Issues for Congress*, by Ronald O'Rourke.

Navy Use of MYP and BBC in Shipbuilding Programs

With congressional approval, the Navy in recent years has made significant use of MYP and BBC in its shipbuilding and aircraft acquisition programs. Among other things, the Navy in recent years has used MYP or BBC 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 program. These three programs account for a significant share of the Navy's shipbuilding effort: Of the 48 new-construction ships in the Navy's FY2016 five-year (FY2016-FY2020) shipbuilding plan, these three programs account for 34, or about 71%. 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's increasing use of MYP and BBC in recent years amounts to a significant change—some might say a quiet revolution—in Navy ship and aircraft acquisition. In an interview published on January 13, 2014, Sean Stackley, the Assistant Secretary of the Navy for Research, Development, and Acquisition (i.e., the Navy's acquisition executive), stated:

> What the industrial base clamors for is stability, so they can plan, invest, train their work force. It [multiyear contracting] gives them the ability in working with say, the Street [Wall Street], to better predict their own performance, then meet expectations in the same fashion we try to meet our expectations with the Hill.
>
> It's emblematic of stability that we've got more multiyear programs in the Department of the Navy than the rest of the Department of Defense combined. We've been able to harvest from that significant savings, and that has been key to solving some of our budget problems. It's allowed us in certain cases to put the savings right back into other programs tied to requirements.[8]

Opportunities for Using MYP and BBC in Cutter Acquisition Programs

Certain Coast Guard cutter acquisition programs can be viewed as candidates for using MYP or BBC. In considering whether to grant authority for using MYP or BBC, Congress may weigh the potential savings of these measures against the tradeoffs listed earlier. Below are brief discussions of individual cutter acquisition programs.

Offshore Patrol Cutter (OPC) Program

The Coast Guard wants to procure a total of 25 OPCs, and currently plans to use a contract with options for acquiring the first 9 to 11 ships in the program. The OPC program can be viewed as a candidate for instead using BBC for the initial ships in the program, and either BBC or MYP for later ships in the program. If using BBC and MYP were to reduce the acquisition costs of OPCs by about 10% (compared to costs under a contract with options), the savings would amount to roughly $1 billion. An alternate way to characterize such savings would be to say that using BBC or MYP would enable the Coast Guard to get about two and a half of the 25 OPCs for "free," or to pay for the acquisition of a polar icebreaker.

Section 223 of the Howard Coble Coast Guard and Maritime Transportation Act of 2014 (S. 2444/P.L. 113-281 of December 18, 2014) states:

[8] "Interview: Sean Stackley, US Navy's Acquisition Chief," *Defense News*, January 13, 2014: 22.

SEC. 223. MULTIYEAR PROCUREMENT AUTHORITY FOR OFFSHORE PATROL CUTTERS.

In fiscal year 2015 and each fiscal year thereafter, the Secretary of the department in which the Coast Guard is operating may enter into, in accordance with section 2306b of title 10, United States Code, multiyear contracts for the procurement of Offshore Patrol Cutters and associated equipment.

Fast Response Cutter (FRC) Program

The Coast Guard plans to soon award a contract with options for acquiring the final 26 ships in the 58-ship FRC program. The final 26 ships in the program can be viewed as a candidate for instead using either MYP or BBC. If using MYP or BBC were to reduce the acquisition costs of OPCs by about 10% (compared to costs under a contract with options), the savings would amount to more than $100 million. An alternate way to characterize such savings would be to say that using MYP or BBC could enable the Coast Guard to get about two and a half of the 26 FRCs for "free."

Polar Icebreaker (PIB) Program

On September 1, 2015, the White House issued a fact sheet in conjunction with a visit to Alaska by President Obama indicating that the Administration wants to procure a new polar icebreaker in FY2020, and that the Administration will also "begin planning for construction of additional icebreakers" beyond the one that the Administration proposes to procure in FY2020.[9] On January 13, 2016, the Coast Guard announced that "the United States Coast Guard (USCG) Polar Icebreaker Replacement Program intends to host an Industry Day followed by one-on-one meetings with prospective shipbuilders and ship designers as a part of ongoing market research.... Industry Day is tentatively planned to occur in March 2016."[10]

A program to procure multiple polar icebreakers could be viewed as a candidate for using BBC. The acquisition cost of the first polar icebreaker has been notionally estimated at about $1 billion. On this basis, if using BBC were to reduce the acquisition costs of a two-ship polar icebreaker program by about 5% (compared to costs under annual contracting),[11] the combined savings on the two ships would amount to upwards of $100 million.

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[9] The White House, "FACT SHEET: President Obama Announces New Investments to Enhance Safety and Security in the Changing Arctic," September 1, 2015, accessed September 2, 2015, at https://www.whitehouse.gov/the-press-office/2015/09/01/fact-sheet-president-obama-announces-new-investments-enhance-safety-and.

[10] "USCG Polar Class Icebreaker Replacement Program," accessed January 15, 2016, at https://www.fbo.gov/index?s=opportunity&mode=form&id=a778c49349c443d2658666e19cc100e9&tab=core&tabmode=list&= .

As part of this announcement, the Coast Guard released an industry data package for the polar icebreaker replacement program. A notional schedule for the program included in the package shows a draft Request for Proposals (RFP) being released in the first quarter of FY2017, a final RFP being released in the fourth quarter of FY2017 or the first quarter of FY2018, a contract award being made between the fourth quarter of FY2018 and the fourth quarter of FY2019, and construction of the ship beginning as soon as the fourth quarter of FY2019. (*Polar Icebreaker Industry Data Package*, undated, released January 13, p. 3. Accessed January 15, 2016, at https://www.fbo.gov/index?tab=documents&tabmode=form&subtab=core&tabid=a82ce0769a3dc86fc8984d6854dea47f .)

For more on the PIB program, see CRS Report RL34391, *Coast Guard Polar Icebreaker Modernization: Background and Issues for Congress*, by Ronald O'Rourke.

[11] For a program involving two ships rather than a larger number of ships, the potential savings under BBC, even with EOQ authority, might be closer to 5% than 10%. When the Navy, as part of its FY1983 budget submission, proposed procuring two Nimitz (CVN-68) class aircraft carriers (CVN-72 and CVN-73) together in a single year, the Navy estimated that doing so would reduce the combined cost of CVN-72 and CVN-73 by 5.6% in real terms. Congress, in its action on the FY1983 defense budget, fully funded CVN-72 and CVN-73 in the FY1983. When the Navy, as part of its FY1988 budget submission, proposed procuring (continued...)

Based on precedents in Navy shipbuilding, the PIB program can also be viewed as a candidate for using incremental funding. Using incremental funding in the PIB program would not materially reduce the acquisition costs of polar icebreakers, but it would reduce the funding spikes associated with funding polar icebreakers and thereby reduce the need for the Coast Guard to shift the acquisition of other items to years before and after such spikes. Since such shifts can increase costs for those other programs by disrupting their acquisition schedules, using incremental funding in the PIB program might help avoid cost increases to other programs. This would not be a savings, but rather an avoided cost increase.

The three above instances of potential savings from using MYP and BBC—roughly $1 billion for the OPC program, more than $100 million for the FRC program, and upwards of $100 million for the PIB program—total about $1.2 billion, an amount roughly equivalent to the average annual funding level in the Coast Guard's AC&I account.

As mentioned earlier, in considering whether to grant authority for using MYP or BBC in cutter acquisition programs, Congress may weigh the potential savings of these measures against the tradeoffs listed earlier.

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.

(...continued)

two more Nimitz-class aircraft carriers (CVN-74 and CVN-75) under a two ship block buy, with CVN-74 to be procured in FY1990 and CVN-75 to be procured FY1993, the Navy estimated that the block buy would reduce the combined cost of CVN-74 and CVN-75 by a considerably larger percentage. The Government Accountability Office (GAO) stated that the savings would be considerably less than the Navy estimated, but agreed that a two-ship acquisition strategy is less expensive than a single-ship acquisition strategy, and that some savings would occur in a two-ship strategy for CVN-74 and CVN-75. Congress, in its action on the FY1988 budget, accelerated the procurement of CVN-74 and CVN-75 to FY1988 and fully funded the two ships in FY1988. For further discussion, see the section entitled "Potential Two-Ship Block Buy on CVN-79 and CVN-80" in the December 22, 2014, version of CRS Report RS20643, *Navy Ford (CVN-78) Class Aircraft Carrier Program: Background and Issues for Congress*, by Ronald O'Rourke, available from the author.

Appendix A. Contracting Mechanisms and Funding Approaches

In discussing MYP and BBC, it can be helpful to distinguish contracting mechanisms from funding approaches such as incremental funding. Contracting mechanisms and funding approaches are often mixed together in discussions of acquisition programs, sometimes leading to confusion. Stated briefly:

- **Funding approaches** are ways that Congress can appropriate funding for weapon procurement programs. Examples of funding approaches include traditional full funding (the standard or default approach), incremental funding, and advance appropriations. In Department of Defense (DOD) acquisition, any of these funding approaches might make use of advance procurement (AP) funding.[12] As a general matter, funding approaches do not materially change the total procurement cost of a ship.
- **Contracting mechanisms** are ways contract for the procurement of weapons systems, once funding for those systems has been appropriated by Congress. Examples of contracting mechanisms include annual contracting (the standard or default approach), MYP, and BBC. Contracting mechanisms can materially change the total procurement cost of a ship.

The use of a particular funding approach in a defense acquisition program does not dictate the use of a particular contracting mechanism. Acquisition programs consequently can be implemented using various combinations of funding approaches and contracting mechanisms. Most DOD weapon acquisition programs use a combination of traditional full funding and annual contracting. A few DOD programs, particularly certain Navy shipbuilding programs, use incremental funding as their funding approach. A limited number of DOD programs use MYP as their contracting approach, and to date two Navy shipbuilding programs have used BBC as their contracting approach. The situation is summarized in **Table A-1**.

Table A-1. DOD Use of Contracting Mechanisms and Funding Approaches

		Funding approaches		
		Full funding	Incremental funding	Advance appropriations
Contracting mechanisms	Annual contracting	Most DOD programs	A few DOD programs (e.g., CVNs, LHAs, DDG-1000s)	
	MYP	Selected DOD programs		
	Block buy contracting	Virginia-class submarines (units 1-4) and Littoral Combat Ships (units 5-24)		

Source: Table prepared by CRS.

Notes: Advance procurement (AP) can be used with any of the funding approaches. As a general matter, funding approaches do not materially change the total procurement cost of a ship. (By mitigating budgets spikes, however,

[12] AP funding is provided in one or more years prior to the year of procurement of a weapon system for the procurement of long-leadtime components—components with long construction times. Such components must be funded prior to the procurement of the remainder of the weapon system if they are to be ready for installation in the weapon system at the appropriate point in the construction process. AP funding is a permitted exception to the full funding provision. AP funding is not to be confused with advance appropriations.

incremental funding might prevent disruptions to other programs.) Contracting approaches can materially change the total procurement cost of a ship. Funding a ship inside or outside the procurement title of the DOD appropriation act can affect the application of the full funding policy, and thus how funds can be used for purposes such as making combined purchases of components for multiple ships in a class.

Appendix B. Background Information On MYP and BBC

This appendix provides basic background information on DOD use of MYP and BBC.[13] The Coast Guard, like DOD, has authority under 10 USC 2306b to use MYP. Specific legislation has been used to grant the Navy authority to use BBC in two of its shipbuilding programs. Based on this precedent, it would appear that specific legislation could be used to grant the Coast Guard authority to use BBC in cutter acquisition programs.

Multiyear Procurement (MYP)

MYP in Brief

What is MYP, and how does it differ from annual contracting? MYP, also known as multiyear contracting, is an alternative to the standard or default approach of annual contracting. Under annual contracting, DOD uses one or more contracts for each year's worth of procurement of a given kind of item. Under MYP, DOD instead uses a single contract for two to five years' worth of procurement of a given kind of item, without having to exercise a contract option for each year after the first year. DOD needs congressional approval for each use of MYP.

To illustrate the basic difference between MYP and annual contracting, consider a hypothetical DOD program to procure 20 single-engine aircraft of a certain kind over the five-year period FY2015-FY2019, at a rate of four aircraft per year:

- **Under annual contracting**, DOD would issue one or more contracts for each year's procurement of four aircraft. After Congress funds the procurement of the first four aircraft in FY2015, DOD would issue one or more contracts (or exercise a contract option) for those four aircraft. The next year, after Congress funds the procurement of the next four aircraft in FY2015, DOD would issue one or more contracts (or exercise a contract option) for those four aircraft, and so on.
- **Under MYP**, DOD would issue one contract covering all 20 aircraft to be procured during the five-year period FY2015-FY2019. DOD would award this contract in FY2015, at the beginning of the five-year period, following congressional approval to use MYP for the program, and congressional appropriation of the FY2015 funding for the program. To continue the implementation of the contract over the next four years, DOD would request the FY2016 funding for the program as part of DOD's proposed FY2016 budget, the FY2017 funding as part of DOD's proposed FY2017 budget, and so on.

Potential Savings Under MYP

How much can MYP save? Compared with estimated costs under annual contracting, estimated savings for programs being proposed for MYP have ranged from less than 5% to more than 15%, depending on the particulars of the program in question, with many estimates falling in the range of 5% to 10%. In practice, actual savings from using MYP rather than annual contracting can be difficult to observe or verify because of cost growth during the execution of the contract that was caused by developments independent of the use of MYP rather than annual contracting.

[13] Material in this appendix is adapted from 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.

A February 2012 briefing by the Cost Assessment and Program Evaluation (CAPE) office within the Office of the Secretary of Defense (OSD) states that "MYP savings analysis is difficult due to the lack of actual costs on the alternative acquisition path, i.e., the path not taken."[14] The briefing states that CAPE up to that point had assessed MYP savings for four aircraft procurement programs—F/A-18E/F strike fighters, H-60 helicopters, V-22 tilt-rotor aircraft, and CH-47F helicopters—and that CAPE's assessed savings ranged from 2% to 8%.[15]

A 2008 Government Accountability Office (GAO) report stated that

> DOD does not have a formal mechanism for tracking multiyear results against original expectations and makes few efforts to validate whether actual savings were achieved by multiyear procurement. It does not maintain comprehensive central records and historical information that could be used to enhance oversight and knowledge about multiyear performance to inform and improve future multiyear procurement (MYP) candidates. DOD and defense research centers officials said it is difficult to assess results because of the lack of historical information on multiyear contracts, comparable annual costs, and the dynamic acquisition environment.[16]

How does MYP potentially save money? Compared to annual contracting, using MYP can in principle reduce the cost of the weapons being procured in two primary ways:

- **Contractor optimization of workforce and production facilities.** An MYP contract gives the contractor (e.g., an airplane manufacturer or shipbuilder) confidence that a multiyear stream of business of a known volume will very likely materialize. This confidence can permit the contractor to make investments in the firm's workforce and production facilities that are intended to optimize the facility for the production of the items being procured under the contract. Such investments can include payments for retaining or training workers, or for building, expanding, or modernizing production facilities. Under annual contracting, the manufacturer might not have enough confidence about its future stream of business to make these kinds of investments, or might be unable to convince its parent firm to finance them.
- **Economic order quantity (EOQ) purchases of selected long-leadtime components.** Under an MYP contract, DOD is permitted to bring forward selected key components of the items to be procured under the contract and to purchase the components in batch form during the first year or two of the contract. In the hypothetical example introduced earlier, using MYP could permit DOD to purchase, say, the 20 engines for the 20 aircraft in the first year or two of the five-year contract. Procuring selected components in this manner under an MYP contract is called an economic order quantity (EOQ) purchase.[17] EOQ purchases can reduce the procurement cost of the weapons being procured under the

[14] Slide 10 from briefing entitled "Multiyear Procurement: A CAPE Perspective," given at DOD cost analysis symposium, February 15-17, 2012, posted at InsideDefense.com (subscription required) May 14, 2012.

[15] Slide 12 from briefing entitled "Multiyear Procurement: A CAPE Perspective," given at DOD cost analysis symposium, February 15-17, 2012, posted at InsideDefense.com (subscription required) May 14, 2012. Slide 12 also stated that these assessed savings were based on comparing CAPE's estimate of what the programs would cost under annual contracting (which the briefing refers to as single-year procurement or SYP) to the contractor's MYP proposal.

[16] Government Accountability Office, *Defense Acquisitions[:] DOD's Practices and Processes for Multiyear Procurement Should Be Improved*, GAO-08-298, February 2008, p. 3.

[17] The term EOQ is occasionally used in discussions of defense acquisition, somewhat loosely, to refer to any high-quantity or batch order of items, even those that do not take place under MYP or BBC. As a general matter, however, EOQs as described here occur only within MYP and block buy contracts.

MYP contract by allowing the manufacturers of components to take maximum advantage of production economies of scale that are possible with batch orders.[18]

What gives the contractor confidence that the multiyear stream of business will materialize? At least two things give the contractor confidence that DOD will not terminate an MYP contract and that the multiyear stream of business consequently will materialize:

- For a program to qualify for MYP, DOD must certify, among other things, that the minimum need for the items to be purchased is expected to remain substantially unchanged during the contract in terms of production rate, procurement rate, and total quantities.
- Perhaps more important to the contractor, MYP contracts include a cancellation penalty intended to reimburse a contractor for costs that the contractor has incurred (i.e., investments the contractor has made) in anticipation of the work covered under the MYP contract. The undesirability of paying a cancellation penalty acts as a disincentive for the government against canceling the contract. (And if the contract is canceled, the cancellation penalty helps to make the contractor whole.)[19]

Permanent Statute Governing MYP

Is there a permanent statute governing MYP contracting? There is a permanent statute governing MYP contracting—10 U.S.C. 2306b. The statute was created by Section 909 of the FY1982 Department of Defense Authorization Act (S. 815/P.L. 97-86 of December 1, 1981), revised and reorganized by Section 1022 of the Federal Acquisition Streamlining Act of 1994 (S. 1587/P.L. 103-355 of October 13, 1994), and further amended on several occasions since. DOD's use of MYP contracting is further governed by DOD acquisition regulations.

Under this statute, what criteria must a program meet to qualify for MYP? 10 U.S.C. 2306b(a) states that to qualify for MYP, a program must meet several criteria, including the following.

- **Substantial savings.** DOD must estimate that using an MYP contract would result in "substantial savings" compared with using annual contracting.

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[18] A 2008 GAO report on multiyear contracting lists five areas of savings, most of which are covered in the two general areas of savings outlined above. One of GAO's five areas of savings—limited engineering changes due to design stability—can also occur in programs that use annual contracting. The GAO report states:

> Multiyear procurement can potentially save money and improve the defense industrial base by permitting the more efficient use of a contractor's resources. Multiyear contracts are expected to achieve lower unit costs compared to annual contracts through one or more of the following sources: (1) purchase of parts and materials in economic order quantities (EOQ), (2) improved production processes and efficiencies, (3) better utilized industrial facilities, (4) limited engineering changes due to design stability during the multiyear period, and (5) cost avoidance by reducing the burden of placing and administering annual contracts. Multiyear procurement also offers opportunities to enhance the industrial base by providing defense contractors a longer and more stable time horizon for planning and investing in production and by attracting subcontractors, vendors, and suppliers. However, multiyear procurement also entails certain risks that must be balanced against potential benefits, such as the increased costs to the government should the multiyear contract be changed or canceled and decreased annual budget flexibility for the program and across DOD's portfolio of weapon systems. Additionally, multiyear contracts often require greater budgetary authority in the earlier years of the procurement to economically buy parts and materials for multiple years of production than under a series of annual buys.

Government Accountability Office, *Defense Acquisitions[:] DOD's Practices and Processes for Multiyear Procurement Should Be Improved*, GAO-08-298, February 2008, pp. 4-5.

[19] Annual contracts can also include cancellation penalties.

- **Realistic cost estimates.** DOD's estimates of the cost of the MYP contract and the anticipated savings must be realistic.
- **Stable need for the items.** DOD must expect that its minimum need for the items will remain substantially unchanged during the contract in terms of production rate, procurement rate, and total quantities.
- **Stable design for the items.** The design for the items to be acquired must be stable, and the technical risks associated with the items must not be excessive.

Section 811 of the FY2008 National Defense Authorization Act (H.R. 4986/P.L. 110-181 of January 28, 2008) amended 10 U.S.C. 2306b to require the Secretary of Defense to certify in writing, by no later than March 1 of the year in which DOD requests MYP authority for a program, that these and certain other criteria have been met. It also requires that the Secretary provide the congressional defense committees with the basis for this determination, as well as a cost analysis performed by DOD's office of Cost Assessment and Program Evaluation (CAPE) that supports the findings.[20] Section 811 further amended 10 U.S.C. 2306b to require the following:

- **Sufficient prior deliveries to determine whether estimated unit costs are realistic.** A sufficient number of the type of item to be acquired under the proposed MYP contract must have been delivered under previous contracts at or within the most current estimates of the program acquisition unit cost or procurement unit cost to determine whether current estimates of such unit costs are realistic.
- **No Nunn-McCurdy critical cost growth breaches within the last five years.** The system being proposed for an MYP contract must not have experienced within five years of the anticipated award date of the MYP contract a critical cost growth breach as defined under the Nunn-McCurdy act (10 U.S.C. 2433).[21]
- **Fixed-price type contract.** The proposed MYP contract must be a fixed-price type contract.[22]

What is meant by "substantial savings"? The meaning of "substantial savings" is open to interpretation and might depend on the circumstances of the program in question. In practice, estimated savings of at least 5% might be judged substantial, and estimated savings in the range of 10% (or more) are more likely to be judged substantial. The amount of savings required under 10 U.S.C. 2306b to qualify has changed over time; the requirement for "substantial savings" was established by Section 808(a)(2) of the FY1991 National Defense Authorization Act (H.R. 4739/P.L. 101-510 of November 5, 1990), which amended 10 U.S.C. 2306b in this regard.[23]

What is meant by "stable design"? The term "stable design" is generally understood to mean that the design for the items to be procured is not expected to change substantially during the period of the contract. Having a stable design is generally demonstrated by having already built at least a few items to that design (or in the case of a shipbuilding program, at least one ship to that design) and concluding,

[20] §811 states that the cost analysis is to be performed by DOD's Cost Analysis Improvement Group (CAIG). In a subsequent DOD reorganization, CAIG was made part of CAPE.

[21] For more on the Nunn-McCurdy provision, see CRS Report R41293, *The Nunn-McCurdy Act: Background, Analysis, and Issues for Congress*, by Moshe Schwartz.

[22] The requirement for using a fixed price contract is now codified at 10 U.S.C. 2306b, subsection (i)(3)(F).

[23] For a discussion of the evolution of the savings requirement under 10 U.S.C. 2306b, including a figure graphically summarizing the legislative history of the requirement, see Government Accountability Office, *Defense Acquisitions[:] DOD's Practices and Processes for Multiyear Procurement Should Be Improved*, GAO-08-298, February 2008, pp. 21-22, including Figure 3 on p. 22.

through testing and operation of those items, that the design does not require any substantial changes during the period of the contract.

Potential Consequences of Not Fully Funding an MYP Contract

What happens if Congress does not provide the annual funding requested by DOD to continue the implementation of the contract? If Congress does not provide the funding requested by DOD to continue the implementation of an MYP contract, DOD would be required to renegotiate, suspend, or terminate the contract. Terminating the contract could require the government to pay a cancellation penalty to the contractor. Renegotiating or suspending the contract could also have a financial impact.

Effect on Flexibility for Making Procurement Changes

What effect does using MYP have on flexibility for making procurement changes? A principal potential disadvantage of using MYP is that it can reduce Congress's and DOD's flexibility for making changes (especially reductions) in procurement programs in future years in response to changing strategic or budgetary circumstances, at least without incurring cancellation penalties. In general, the greater the portion of DOD's procurement account that is executed under MYP contracts, the greater the potential loss of flexibility. The use of MYP for executing some portion of the DOD procurement account means that if policymakers in future years decide to reduce procurement spending below previously planned levels, the spending reduction might fall more heavily on procurement programs that do not use MYP, which in turn might result in a less-than-optimally balanced DOD procurement effort.

Congressional Approval

How does Congress approve the use of MYP? Congress approves the use of MYP on a case-by-case basis, typically in response to requests by DOD.[24] Congressional approval for MYP contracts with a value of more than $500 million must occur in two places: an annual DOD appropriations act[25] and an act other than the annual DOD appropriations act.[26]

In annual DOD appropriations acts, the provision permitting the use of MYP for one or more defense acquisition programs is typically included in the title containing general provisions, which typically is Title VIII.

An annual defense authorization act is usually the act other than an appropriations act in which provisions granting authority for using MYP contracting on individual defense acquisition programs are included. Such provisions typically occur in Title I of the defense authorization act, the title covering procurement programs.

Provisions in which Congress approves the use of MYP for a particular defense acquisition program may include specific conditions for that program in addition to the requirements and conditions of 10 U.S.C. 2306b.

How often is MYP used? MYP is used for a limited number of DOD acquisition programs. Annual DOD appropriations acts since FY1990 typically (but not always) have approved the use of MYP for one or a few DOD programs each year.

[24] The Anti-Deficiency Act (31 U.S.C. 1341) prohibits the making of contracts in advance of appropriations. A multiple-year commitment may be made when authorized by Congress by entering into a firm commitment for one year and making the government's liability for future years contingent on funds becoming available.

[25] 10 U.S.C. 2306b, subsection (l)(3).

[26] 10 U.S.C. 2306b, subsection (i)(1).

A February 2012 briefing by the Cost Assessment and Program Evaluation (CAPE) office within the Office of the Secretary of Defense (OSD) shows that the total dollar value of DOD MYP contracts has remained more or less stable between FY2000 and FY2012 at roughly $7 billion to $13 billion per year. The briefing shows that since the total size of DOD's procurement budget has increased during this period, the portion of DOD's total procurement budget accounted for by programs using MYP contracts has declined from about 17% in FY2000 to less than 8% in FY2012.[27] The briefing also shows that the Navy makes more use of MYP contracts than does the Army or Air Force, and that the Air Force made very little use of MYP in FY2010-FY2012.[28]

A 2008 GAO report stated:

> Although DOD had been entering into multiyear contracts on a limited basis prior to the 1980s, the Department of Defense Authorization Act, [for fiscal year] 1982,[29] codified the authority for DOD to procure on a multiyear basis major weapon systems that meet certain criteria. Since that time, DOD has annually submitted various weapon systems as multiyear procurement candidates for congressional authorization. Over the past 25 years, Congress has authorized the use of multiyear procurement for approximately 140 acquisition programs, including some systems approved more than once.[30]

Block Buy Contracting (BBC)

BBC in Brief

What is BBC, and how does it compare to MYP? BBC is similar to MYP in that it permits DOD to use a single contract for more than one year's worth of procurement of a given kind of item without having to exercise a contract option for each year after the first year.[31] BBC is also similar to MYP in that DOD needs congressional approval for each use of BBC.

BBC differs from MYP in the following ways:

- There is no permanent statute governing the use of BBC.
- There is no requirement that BBC be approved in both a DOD appropriations act and an act other than a DOD appropriations act.
- Programs being considered for BBC do not need to meet any legal criteria to qualify for BBC because there is no permanent statute governing the use of BBC that establishes such criteria.

[27] Slide 4 from briefing entitled "Multiyear Procurement: A CAPE Perspective," given at DOD cost analysis symposium, February 15-17, 2012, posted at InsideDefense.com (subscription required) May 14, 2012.

[28] Slide 5 from briefing entitled "Multiyear Procurement: A CAPE Perspective," given at DOD cost analysis symposium, February 15-17, 2012, posted at InsideDefense.com (subscription required) May 14, 2012.

[29] S. 815/P.L. 97-86 of December 1, 1981, §909.

[30] Government Accountability Office, *Defense Acquisitions[:] DOD's Practices and Processes for Multiyear Procurement Should Be Improved*, GAO-08-298, February 2008, p. 5.

[31] Using the hypothetical example introduced earlier involving the procurement of 20 aircraft over the five-year period FY2013-FY2017, DOD would follow the same general path as it would under MYP: DOD would issue one contract covering all 20 aircraft in FY2013, at the beginning of the five-year period, following congressional approval to use BBC for the program, and congressional appropriation of the FY2013 funding for the program. To continue the implementation of the contract over the next four years, DOD would request the FY2014 funding for the program as part of DOD's proposed FY2014 budget, the FY2015 funding as part of DOD's proposed FY2015 budget, and so on.

- A BBC contract can cover more than five years of planned procurements. The BBC contracts currently being used by the Navy for procuring Littoral Combat Ships (LCSs), for example, cover a period of seven years (FY2010-FY2016).
- Economic order quantity (EOQ) authority does not come automatically as part of BBC authority because there is no permanent statute governing the use of BBC that includes EOQ authority as an automatic feature. To provide EOQ authority as part of a BBC contract, the provision granting authority for using BBC in a program may need to state explicitly that the authority to use BBC includes the authority to use EOQ.
- BBC contracts are less likely to include cancellation penalties.

Given the one key similarity between BBC and MYP (the use of a single contract for more than one year's worth of procurement), and the various differences between BBC and MYP, BBC might be thought of as a less formal stepchild of MYP.

When and why was BBC invented? BBC was invented by Section 121(b) of the FY1998 National Defense Authorization Act (H.R. 1119/P.L. 105-85 of November 18, 1997), which granted the Navy the authority to use a single contract for the procurement of the first four Virginia (SSN-774) class attack submarines. The four boats were scheduled to be procured during the five-year period FY1998-FY2002 in annual quantities of 1-1-0-1-1. Congress provided the authority granted in Section 121(b) at least in part to reduce the combined procurement cost of the four submarines. Using MYP was not an option for the Virginia-class program at that time because the Navy had not even begun, let alone finished, construction of the first Virginia-class submarine, and consequently could not demonstrate that it had a stable design for the program.

When Section 121(b) was enacted, there was no name for the contracting authority it provided. The term block buy contracting came into use later, when observers needed a term to refer to the kind of contracting authority that Congress authorized in Section 121(b).

Potential Savings Under BBC

How much can BBC save, compared with MYP? BBC can reduce the unit procurement costs of ships by amounts comparable to those of MYP, if the authority granted for using BBC explicitly includes authority for making economic order quantity (EOQ) purchases of components. If the authority granted for using BBC does not explicitly include authority for making EOQ purchases, then the savings from BBC will be less. Potential savings under BBC might also be less than those under MYP if the BBC contract does not include a cancellation penalty, or includes one that is more limited than typically found in an MYP contract, because this might give the contractor less confidence than would be the case under an MYP contract that the future stream of business will materialize as planned, which in turn might reduce the amount of money the contractor invests to optimize its workforce and production facilities for producing the items to be procured under the contract.

Frequency of Use of BBC

How frequently has BBC been used? Since its use at the start of the Virginia-class program, BBC has been used very rarely. The Navy did not use it again in a shipbuilding program until December 2010, when it awarded two block buy contracts, each covering 10 LCSs to be procured over the six-year period FY2010-FY2015, to the two LCS builders.[32] A third example, arguably, is the Air Force's KC-46 aerial

[32] For further discussion, see CRS Report RL33741, *Navy Littoral Combat Ship (LCS)/Frigate Program: Background and Issues for Congress*, by Ronald O'Rourke. The contracts were later extended to cover FY2016.

refueling tanker program, which is employing a fixed price incentive fee (FPIF) development contract that includes a "back end" commitment to procure certain minimum numbers of KC-46s in certain fiscal years.[33]

Using BBC Rather than MYP

When might BBC be suitable as an alternative to MYP? BBC might be particularly suitable as an alternative to MYP in cases where using a multiyear contract can reduce costs, but the program in question cannot meet all the statutory criteria needed to qualify for MYP. As shown in the case of the first four Virginia-class boats, this can occur at or near the start of a procurement program, when design stability has not been demonstrated through the production of at least a few of the items to be procured (or, for a shipbuilding program, at least one ship).

MYP and BBC vs. Contracts with Options

What's the difference between an MYP or block buy contract and a contract with options? The military services sometimes use contracts with options to procure multiple copies of an item that are procured over a period of several years. The Navy, for example, used a contract with options to procure Lewis and Clark (TAKE-1) class dry cargo ships that were procured over a period of several years. A contract with options can be viewed as somewhat similar to an MYP or block buy contract in that a single contract is used to procure several years' worth of procurement of a given kind of item.

There is, however, a key difference between an MYP or block buy contract and a contract with options: In a contract with options, the service is under no obligation to exercise any of the options, and a service can choose to not exercise an option without having to make a penalty payment to the contractor. In contrast, in an MYP or block buy contract, the service is under an obligation to continue implementing the contract beyond the first year, provided that Congress appropriates the necessary funds. If the service chooses to terminate an MYP or block buy contract, and does so as a termination for government convenience rather than as a termination for contractor default, then the contractor can, under the contract's termination for convenience clause, seek a payment from the government for cost incurred for work that is complete or in process at the time of termination, and may include the cost of some of the investments made in anticipation of the MYP or block buy contract being fully implemented. The contractor can do this even if the MYP or block buy contract does not elsewhere include a provision for a cancellation penalty.

[33] For more on the KC-46 program, see CRS Report RL34398, *Air Force KC-46A Tanker Aircraft Program*, by Jeremiah Gertler.

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