United States Government Accountability Office

Testimony

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

COAST GUARD ACQUISITIONS

Addressing Key Risks Is Important to Success of Polar Icebreaker Program

Accessible Version

Statement of Marie A. Mak, Director,
Contracting and National Security Acquisitions

For Release on Delivery Expected at 10:00 a.m. ET
Thursday, November 29, 2018

GAO Highlights

Highlights of GAO-19-255T, a testimony before the Subcommittee on Coast Guard and Maritime Transportation, Committee on Transportation and Infrastructure, House of Representatives

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COAST GUARD ACQUISITIONS

Addressing Key Risks Is Important to Success of Polar Icebreaker Program

Why GAO Did This Study

To maintain heavy polar icebreaking capability, the Coast Guard, in collaboration with the Navy, plans to acquire up to three new heavy polar icebreakers. The Navy plans to award a contract in 2019 for the polar icebreaker program. GAO has found that before committing resources, successful acquisition programs begin with sound business cases, which include plans for a stable design, mature technologies, a reliable cost estimate, and a realistic schedule.

This statement addresses, among other things, the key acquisition risks facing the polar icebreaker program. This statement is primarily based on GAO's April 2018 and September 2018 reports examining the Coast Guard's polar icebreaker acquisition, and also draws from GAO's extensive body of published work examining the Coast Guard's and the Navy's shipbuilding efforts. In its prior work, GAO analyzed Coast Guard and Navy guidance, data, and documentation, and interviewed Coast Guard and Navy officials.

What GAO Recommends

In September 2018, GAO recommended, among other things, that the polar icebreaker program update program baselines following a preliminary design review, conduct a technology readiness assessment, re-evaluate its cost estimate, and develop a schedule according to best practices. DHS concurred with all of GAO's recommendations and identified actions it plans to take to address them.

View GAO-19-255T. For more information, contact Marie A. Mak at (202) 512-4841 or makm@gao.gov.

What GAO Found

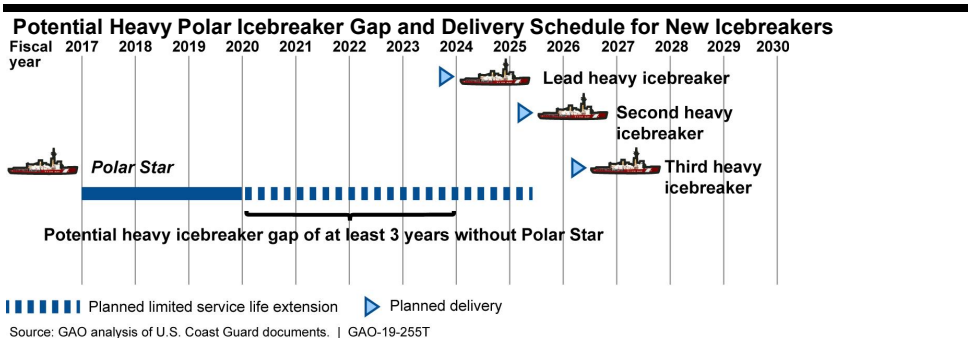
The Coast Guard—a component of the Department of Homeland Security (DHS)—did not have a sound business case in March 2018, when it established the cost, schedule, and performance baselines for its heavy polar icebreaker acquisition program, because of risks in four key areas:

Design. The Coast Guard set program baselines before conducting a preliminary design review, which puts the program at risk of having an unstable design, thereby increasing the program's cost and schedule risks. While setting baselines without a preliminary design review is consistent with DHS's current acquisition policy, it is inconsistent with acquisition best practices. Based on a prior GAO recommendation, DHS is currently evaluating its policy to better align technical reviews and acquisition decisions.

Technology. The Coast Guard intends to use proven technologies for the program, but did not conduct a technology readiness assessment to determine the maturity of key technologies prior to setting baselines. Coast Guard officials indicated such an assessment was not necessary because the technologies the program plans to employ have been proven on other icebreaker ships. However, according to best practices, such technologies can still pose risks when applied to a different program or operational environment, as in this case. Without such an assessment, the program's technical risk is underrepresented.

Cost. The lifecycle cost estimate that informed the program's $9.8 billion cost baseline was not fully reliable because it only partially met GAO's best practices for being credible. It did not quantify the range of possible costs over the entire life of the program. As a result, the cost estimate may underestimate the total funding needed for the program. However, the estimate substantially met GAO's best practices for being comprehensive, well-documented, and accurate.

Schedule. The Coast Guard's planned delivery dates were not informed by a realistic assessment of shipbuilding activities, but rather driven by the potential gap in icebreaking capabilities once the Coast Guard's only operating heavy polar icebreaker—the *Polar Star*—reaches the end of its service life (see figure).



Source: GAO analysis of U.S. Coast Guard documents. | GAO-19-255T

GAO's analysis of selected lead ships for other shipbuilding programs found the icebreaker program's estimated construction time of 3 years is optimistic. As a result, the Coast Guard is at risk of not delivering the icebreakers when promised and the potential gap in icebreaking capabilities could widen.

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

I am pleased to be here today to discuss key challenges the Coast Guard faces with its heavy polar icebreaker acquisition program. The Coast Guard, a component within the Department of Homeland Security (DHS), is developing the first heavy polar icebreakers it has bought in over 40 years. The Coast Guard, in collaboration with the Navy, plans to invest up to $9.827 billion for the acquisition, operation, and maintenance of three heavy polar icebreakers over their entire 30-year lifecycle. In March 2018, the Navy released a solicitation that included options for the detail design and construction of three polar icebreakers. The Navy anticipates awarding the contract to a single shipbuilder in the third quarter of fiscal year 2019. As the *Polar Star*—the Coast Guard's only operating heavy polar icebreaker—nears the end of its service life, the new icebreakers will play a critical role in the Coast Guard's ability to ensure year-round access to the Arctic and Antarctic, which affects U.S. economic, maritime, and national security interests in these regions.

My statement today will address (1) key acquisition risks facing the polar icebreaker program and (2) funding uncertainties for the program. This statement is based primarily on our April and September 2018 reports examining the Coast Guard's polar icebreaker acquisition, as well as drawing from our extensive body of work examining the Coast Guard's and the Navy's shipbuilding efforts.[1] For the reports cited in this statement, among other methodologies, we analyzed Coast Guard and Navy guidance, data, and documentation, and interviewed Coast Guard and Navy officials. Detailed information on our scope and methodology can be found in the reports cited in this statement.

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

[1]GAO, *Coast Guard Acquisitions: Polar Icebreaker Program Needs to Address Risks before Committing Resources,* GAO-18-600 (Washington, D.C.: Sept. 4, 2018); and *Coast Guard Acquisitions: Status of Coast Guard's Heavy Polar Icebreaker Acquisition,* GAO-18-385R (Washington, D.C.: Apr. 13, 2018).

evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The Coast Guard Did Not Establish a Sound Business Case for the Polar Icebreaker Program

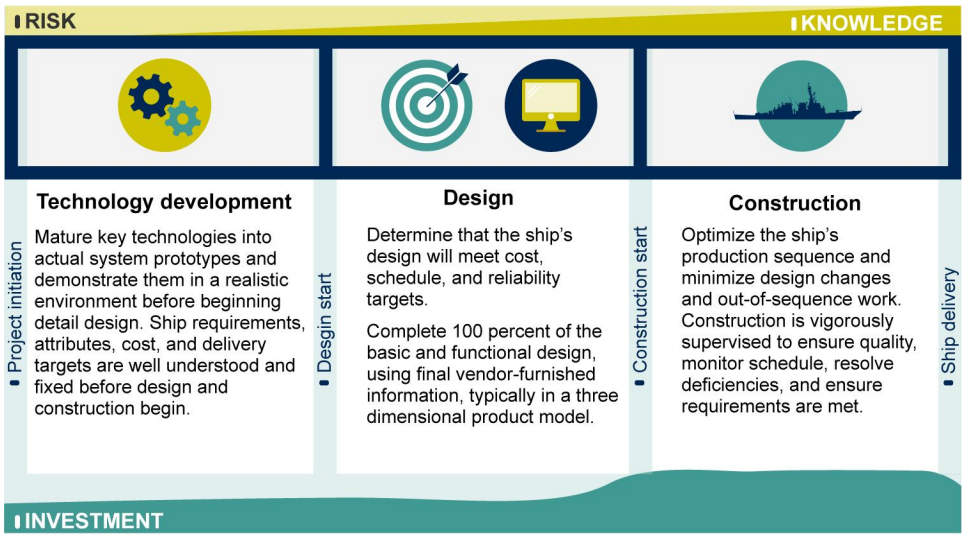
In September 2018, we found the Coast Guard did not have a sound business case when it established the acquisition baselines for its polar icebreaker program in March 2018 due to risks in four main areas—design, technology, cost, and schedule.[2] Our prior work has found that successful acquisition programs start with solid, executable business cases before setting program baselines and committing resources.[3] A sound business case requires balance between the concept selected to satisfy operator requirements and the resources—design knowledge, technologies, funding, and time—needed to transform the concept into a product, which in this case is a ship with polar icebreaking capabilities. Without a sound business case, acquisition programs are at risk of breaching the cost, schedule, and performance baselines set when the program was initiated—in other words, experiencing cost growth, schedule delays, and reduced capabilities.

At the heart of a business case is a knowledge-based approach. We have found that successful shipbuilding programs build on attaining critical levels of knowledge at key points in the shipbuilding process before significant investments are made (see figure 1).

[2]GAO-18-600.

[3]GAO, *Navy Shipbuilding: Past Performance Provides Valuable Lessons for Future Investments*, GAO-18-238SP (Washington, D.C.: June 6, 2018); *Weapon System Requirements: Detailed Systems Engineering Prior to Product Development Positions Programs for Success*, GAO-17-77 (Washington, D.C.: Nov. 17, 2016); *Best Practices: High Levels of Knowledge at Key Points Differentiate Commercial Shipbuilding from Navy Shipbuilding,* GAO-09-322 (Washington, D.C.: May 13, 2009); and *Defense Acquisitions: Realistic Business Cases Needed to Execute Navy Shipbuilding Programs,* GAO-07-943T (Washington, D.C.: July 24, 2007).

Figure 1: Executing a Strong Shipbuilding Case



Source: GAO depiction of notional shipbuilding process. | GAO-19-255T

Accessible Data for Figure 1: Executing a Strong Shipbuilding Case

Technology development	Design	Construction
Mature key technologies into actual system prototypes and demonstrate them in a realistic environment before beginning detail design. Ship requirements, attributes, cost, and delivery targets are well understood and fixed before design and construction begin.	Determine that the ship's design will meet cost, schedule, and reliability targets. Complete 100 percent of the basic and functional design, using final vendor-furnished information, typically in a three dimensional product model.	Optimize the ship's production sequence and minimize design changes and out-of-sequence work. Construction is vigorously supervised to ensure quality, monitor schedule, resolve deficiencies, and ensure requirements are met.

We provide additional information below on each of the four main risks that affect the soundness of the polar icebreaker program's business case.

The Coast Guard Plans to Have a Stable Design before Starting Construction but Did Not Assess Design Maturity Prior to Setting Program Baselines

The Coast Guard expressed a commitment to having a stable design for the polar icebreaker program prior to the start of lead ship construction, but it set the program's baselines before conducting a preliminary design review—a systems engineering event that is intended to verify that the contractor's design meets the requirement of the ship specifications and is producible.

Shipbuilding best practices we identified in 2009 found that design stability on a ship is achieved upon completion of the basic and functional designs.[4] The basic design includes fixing the ship steel structure; routing all major distributive systems, including electricity, water, and other utilities; and ensuring the ship will meet the performance specifications. The functional design includes further iteration of the basic design, such as providing information on the exact position of piping and other outfitting in each block, and completing a 3D product model. At this point of design stability, the shipbuilder has a clear understanding of the ship structure as well as how every system is set up and routed throughout the ship. Consistent with our best practices, prior to the start of construction on the lead ship, the Coast Guard plans to require the shipbuilder to complete basic and functional designs, develop a 3D model output, and provide at least 6 months of production information to support the start of construction.

Although the Coast Guard plans to have a stable design prior to ship construction, it set the program's acquisition program baselines prior to gaining knowledge on the feasibility of the selected shipbuilder's design. Program baselines inform DHS's and the Coast Guard's decisions to commit resources. Our best practices for knowledge-based acquisitions state that before program baselines are set, programs should hold key systems engineering events, such as a preliminary design review, to help ensure that requirements are defined and feasible and that the proposed design can be met within cost, schedule, and other system constraints.[5]

[4]GAO-09-322.

[5]GAO, *Best Practices: Using A Knowledge-Based Approach To Improve Weapon Acquisition,* GAO-04-386SP (Washington, D.C.: Jan. 1, 2004).

The Coast Guard has yet to conduct a preliminary design review for the program because DHS's current acquisition policy does not require programs to do so until after setting program baselines. However, in April 2017, we found that DHS's sequencing of the preliminary design review is not consistent with our acquisition best practices, which state that programs should pursue a knowledge-based acquisition approach that ensures program needs are matched with available resources—such as technical and engineering knowledge, time, and funding—prior to setting baselines.[6] As a result, we recommended that DHS update its acquisition policy to require key technical reviews, including the preliminary design review, to be conducted prior to approving programs' baselines. DHS concurred with this recommendation and stated that it planned to initiate a study to assess how to better align its processes for technical reviews and acquisition decisions. Upon completion of the study, DHS plans to update its acquisition policies, as appropriate. As of June 2018, DHS indicated that it had completed its study and was in the process of updating its acquisition policies. GAO will review the policies once complete to determine if the updates meet the intent of this recommendation.

By setting the polar icebreaker program's baselines prior to gaining knowledge on the shipbuilder's design, the Coast Guard has established cost, schedule, and performance baselines without a stable or mature design. Although completing the preliminary design review after setting program baselines is consistent with DHS policy, this puts the Coast Guard at risk of breaching its established baselines and having to revise them later in the acquisition process, after a contract has been signed and significant resources have been committed to the program. At that point, the program will be well underway and it will be too late for decision makers to make appropriate tradeoff decisions between requirements and resources without causing disruptions to the program.

[6]GAO, *Homeland Security Acquisitions: Earlier Requirements Definition and Clear Documentation of Key Decisions Could Facilitate Ongoing Progress,* GAO-17-346SP (Washington, D.C.: Apr. 6, 2017).

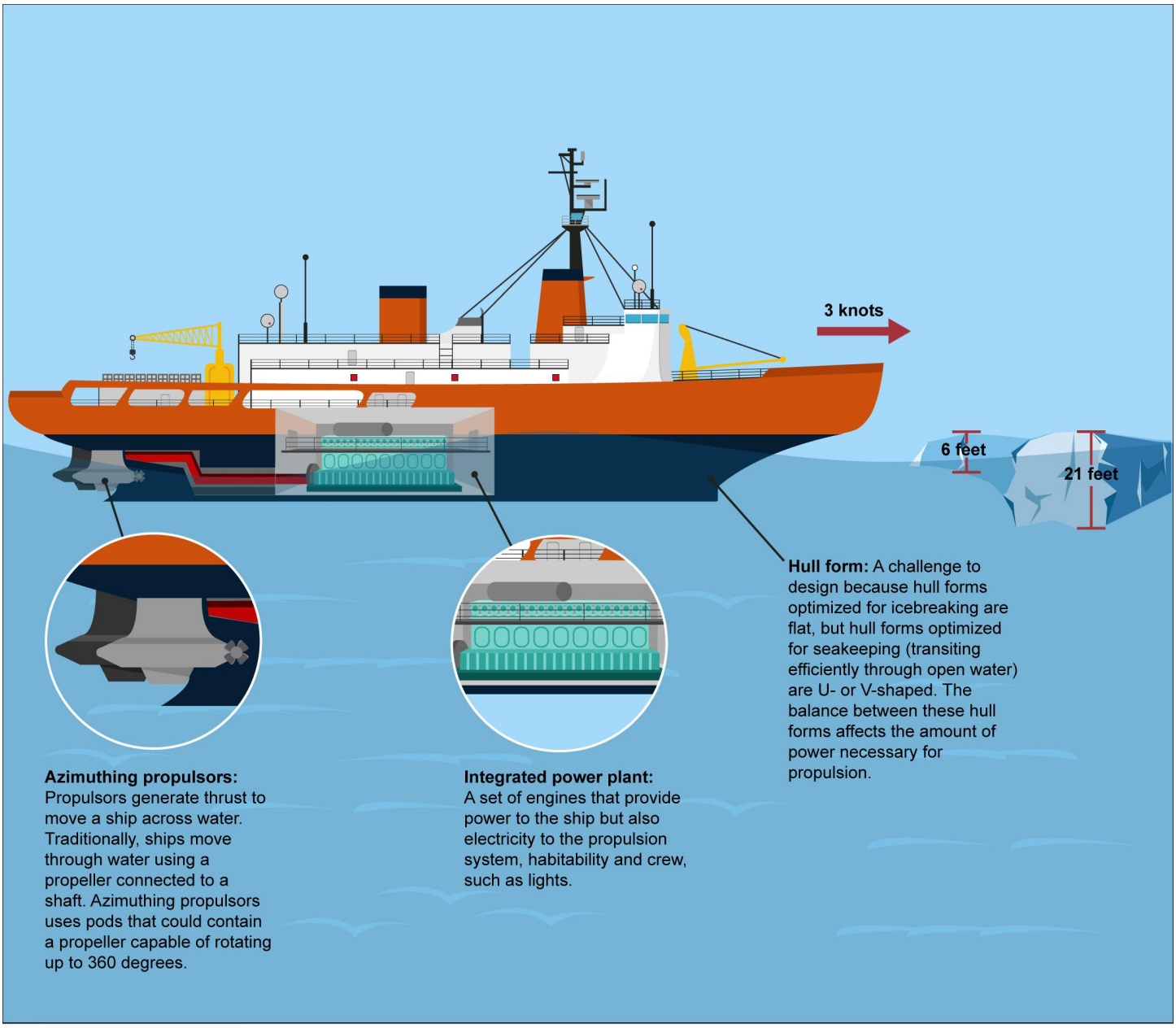
Coast Guard Intends to Use Proven Technologies for the Polar Icebreaker Program but Has Not Assessed Their Maturity

The Coast Guard intends to use what it refers to as “state-of-the-market” or “proven” technologies for the polar icebreaker program, but it has not yet conducted a technology readiness assessment to determine the maturity of key technologies prior to setting program baselines. This approach is inconsistent with our best practices for technology readiness.[7] A technology readiness assessment is a systematic, evidence-based process that evaluates the maturity of critical technologies—hardware and software technologies critical to the fulfillment of the key objectives of an acquisition program. According to our best practices, a technology readiness assessment should be conducted prior to program initiation.

At the time of our earlier review, Coast Guard officials told us the polar icebreaker program does not have any critical technologies and thus, does not need to conduct a technology readiness assessment. From design studies and industry engagement, Coast Guard officials determined that the key technologies required for the polar icebreakers, such as the integrated power plant and azimuthing propulsors, are available commercially and do not need to be developed. Figure 2 provides additional information on the risks for these key technologies, as well as design risks for an icebreaker’s hull form.

[7]GAO, *GAO Technology Readiness Assessment Guide: Best Practices for Evaluating the Readiness of Technology for Use in Acquisition Programs and Projects*, GAO-16-410G (Washington, D.C.: Aug. 11, 2016).

Figure 2: Key Technology and Design Risks for Notional Heavy Polar Icebreaker



Source: GAO notional depiction based upon analysis of U.S. Coast Guard and Navy information. | GAO-19-255T

Note: This ship design is notional and does not represent a design solution from the Coast Guard or industry.

Accessible Data for Figure 2: Key Technology and Design Risks for Notional Heavy Polar Icebreaker

Azimuthing propulsors	Integrated power plant	Hull form
Azimuthing propulsors: Propulsors generate thrust to move a ship across water. Traditionally, ships move through water using a propeller connected to a shaft. Azimuthing propulsors uses pods that could contain a propeller capable of rotating up to 360 degrees.	Integrated power plant: A set of engines that provide power to the ship but also electricity to the propulsion system, habitability and crew, such as lights.	Hull form: A challenge to design because hull forms optimized for icebreaking are flat, but hull forms optimized for seakeeping (transiting efficiently through open water) are U- or V-shaped. The balance between these hull forms affects the amount of power necessary for propulsion.

Coast Guard officials stated that the integrated power plant is the standard power plant used on domestic and foreign icebreakers. Coast Guard officials told us that similarly, market survey data on azimuthing propulsors show that ice-qualified azimuthing propulsors in the power range required have been used on foreign icebreakers.

However, according to our best practices, critical technologies are not just technologies that are new or novel.[8] Technologies used on prior systems can also become critical if they are being used in a different form, fit, or function. Based on our analysis of available Coast Guard information, we believe the polar icebreaker program's planned integrated power plant and azimuthing propulsors should be considered critical technologies given their criticality in meeting key performance parameters, how the technologies are being reapplied to a different operational environment from prior uses of the technologies, and the extent to which they pose major cost risks. By not conducting a technology readiness assessment and identifying, assessing, and maturing its critical technologies prior to setting the program's program baselines, the Coast Guard is potentially underrepresenting technical risk and understating its cost, schedule, and performance risks.

[8]GAO-16-410G.

Polar Icebreaker Program's Cost Estimate Substantially Met Best Practices but Is Not Fully Reliable

We found that the Navy's lifecycle cost estimate used to inform the polar icebreaker program's $9.827 billion cost baseline substantially adheres to most of our cost estimating best practices; however, the estimate is not fully reliable.[9] The cost estimate is not fully reliable because it only partially met best practices for being credible.[10] Highlights from our assessment of the polar icebreaker program's lifecycle cost estimate are detailed below:

- **Comprehensive: substantially met.** The estimate includes government and contractor costs over the full lifecycle of all three ships and documents detailed ground rules and assumptions, such as the learning curve used to capture expected labor efficiencies for follow-on ships. However, the costs for disposal of the three ships were not at a level of detail to ensure that all costs were considered and not all assumptions, particularly regarding operating and support costs, were varied to reflect the impact on cost should these assumptions change.
- **Well-documented: substantially met.** The estimate's documentation mostly captured the source data used as well as the primary methods, calculations, results, rationales, and assumptions used to generate each cost element. However, the documentation alone did not provide enough information for someone unfamiliar with the cost estimate to replicate what was done and arrive at the same results.
- **Accurate: substantially met.** The estimate was properly adjusted for inflation, and we did not find any mathematical errors in the estimate calculations we inspected. Officials stated that labor and material cost data from recent, analogous programs were used in the estimate. While the documentation does not discuss the reliability, age, or

[9]The GAO Cost Estimating and Assessment Guide was used as criteria in this analysis. For more information, see *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-3SP (Washington, D.C.: Mar. 2, 2009). A cost estimate is considered reliable if the overall assessments for each of the four characteristics of a reliable cost estimate—comprehensive, well documented, accurate, and credible—are substantially or fully met.

[10]A credible cost estimate should analyze the sensitivity of the program's expected cost to changes among key cost-driving assumptions and risks. It should also quantify the cost impact of risks related to assumptions changing and variability in the underlying data used to create the cost estimate.

relevance of the cost data, Navy officials provided us with additional information regarding those data characteristics.

- **Credible: partially met.** The Navy only modeled cost variation in the detail design and construction portion of the program and excluded from its analyses any risk impacts related to the remainder of the acquisition, operating and support, and disposal phases, which altogether comprise about 75 percent of the lifecycle cost. Without performing a sensitivity analysis on the entire life cycle cost of the three ships, it is not possible for the Navy to identify key elements affecting the overall cost estimate. Further, without performing a risk and uncertainty analysis on the entire life cycle cost of the three ships, it is not possible for the Navy to determine a level of confidence associated with the overall cost estimate.

By not quantifying important risks, the Navy may have underestimated the range of possible costs for about three-quarters of the entire program. The estimate provides an overly optimistic assessment of the program's vulnerability to cost growth should risks be realized or current assumptions change. This, in turn, may underestimate the lifecycle cost of the program.

Polar Icebreaker Program's Optimistic Schedule Is Driven by Capability Gap and Does Not Reflect Robust Analysis

The Coast Guard's planned delivery dates of 2023, 2025, and 2026 for the three ships were not informed by a realistic assessment of shipbuilding activities, but rather were primarily driven by the potential gap in icebreaking capabilities once the *Polar Star* reaches the end of its service life (see figure 3).

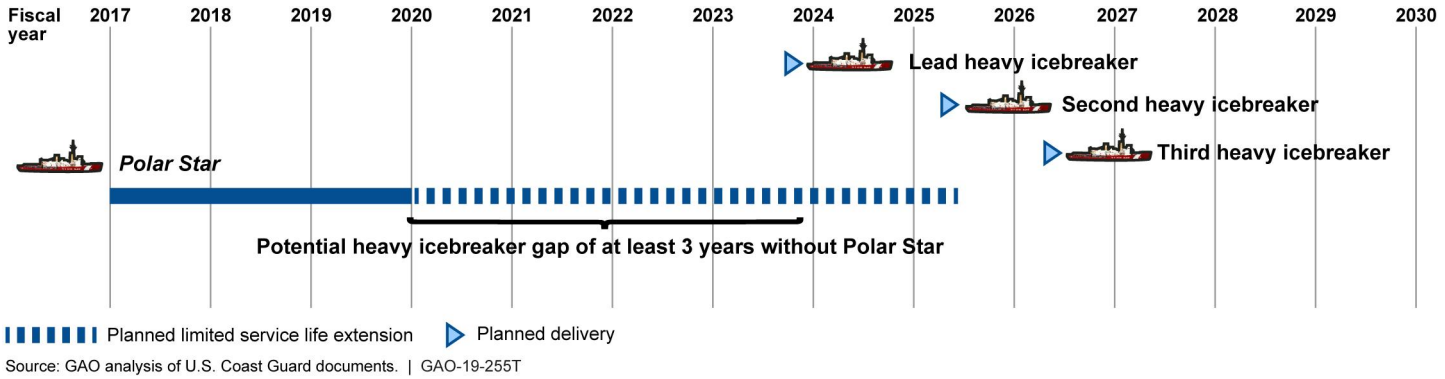
Figure 3: The Coast Guard's Heavy Polar Icebreaker, *Polar Star*

U.S. Coast Guard Cutter Polar Star

Source: U.S. Coast Guard. | GAO-19-255T

The *Polar Star's* service life is estimated to end between fiscal years 2020 and 2023. This creates a potential heavy polar icebreaker capability gap of about 3 years, if the *Polar Star's* service life were to end in 2020 and the lead polar icebreaker were to be delivered by the end of fiscal year 2023 as planned. If the lead ship is delivered later than planned in this scenario, the potential gap could be more than 3 years. The Coast Guard is planning to recapitalize the *Polar Star's* key systems starting in 2020 to extend the service life of the ship until the planned delivery of the second polar icebreaker (see figure 4).

Figure 4: The Coast Guard's Potential Heavy Polar Icebreaker Capability Gap and Planned Delivery of New Heavy Polar Icebreakers



Source: GAO analysis of U.S. Coast Guard documents. | GAO-19-255T

Further, we compared the program's planned construction schedule to the construction schedules of delivered lead ships for major Coast Guard and Navy shipbuilding programs active in the last 10 years as well as the *Healy*, the Coast Guard's only medium polar icebreaker. We found that the polar icebreaker's lead ship construction cycle time of 2.5 to 3 years is optimistic, as only 3 of the 10 ships in our analysis were constructed in 3 years or less.[11] Further, as another point of comparison, the *Healy* was constructed in just under 4.5 years.

An unrealistic schedule puts the Coast Guard at risk of not delivering the icebreakers when promised and the potential gap in icebreaking capabilities could widen. Just as importantly, our prior work on shipbuilding programs has shown that establishing optimistic program schedules based on insufficient knowledge can create pressure for programs to make sacrifices elsewhere, which can lead to work being performed concurrently, costly rework, and further delays.[12]

To address the risks we identified and establish a sound business case, we made a number of recommendations in our September 2018 report to DHS, Coast Guard, and the Navy, including:

- Conducting a technology readiness assessment in accordance with best practices, identifying critical technologies, and developing a plan to mature any technologies not designated to be mature before detail design of the lead ship begins;
- Updating the program's cost estimate in accordance with best practices before the contract option for construction of the lead ship is awarded;
- Developing a program schedule in accordance with best practices to set realistic schedule goals for all three ships before the contract option for construction of the lead ship is awarded; and

[11]The three ships in our analysis that were constructed in 3 years or less were largely based on commercial designs or built to mostly commercial standards.

[12]GAO, *Columbia Class Submarine: Immature Technologies Present Risks to Achieving Cost, Schedule, and Performance Goals*, GAO-18-158 (Washington, D.C.: Dec. 21, 2017); *Navy Shipbuilding: Past Performance Provides Valuable Lessons for Future Investments*, GAO-18-238SP (Washington, D.C.: June 6, 2018); *Ford-Class Aircraft Carrier: Follow-On Ships Need More Frequent and Accurate Cost Estimates to Avoid Pitfalls of Lead Ship*, GAO-17-575 (Washington, D.C.: June 13, 2017); and GAO-07-943T.

- Updating the program's acquisition program baselines prior to authorizing lead ship construction, after completion of the preliminary design review, and after it has gained the requisite knowledge on its technologies, cost, and schedule.[13]

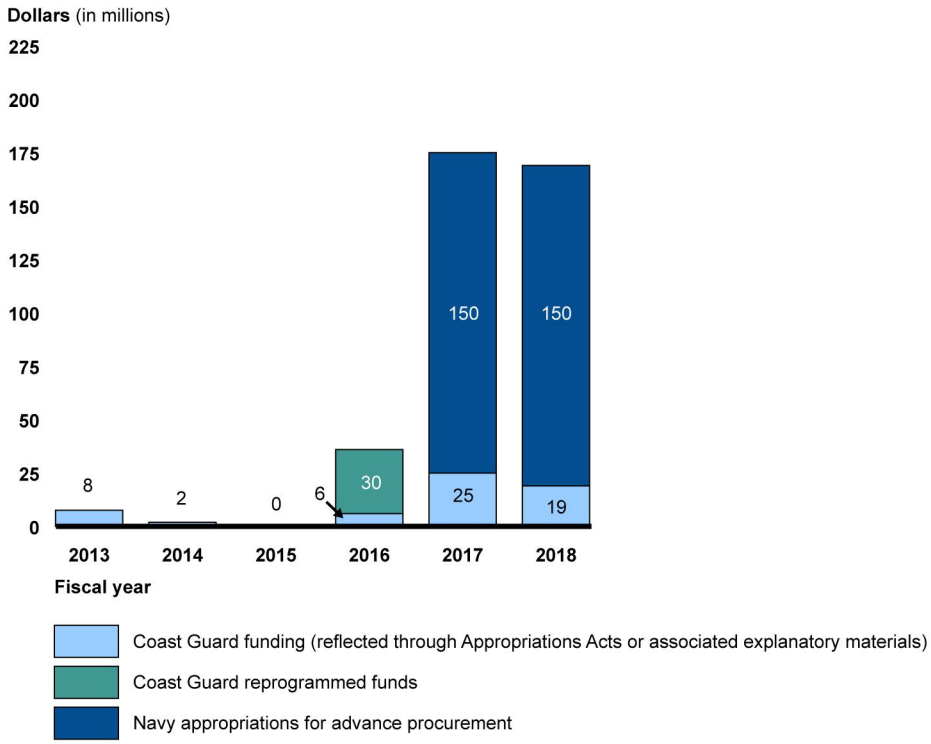
DHS concurred with all of our recommendations and identified actions it planned to take to address them. For example, earlier this month, the Coast Guard indicated that it has identified a preliminary list of potential critical technologies and is in the process of developing a technology readiness assessment plan. The Coast Guard also plans to update the program's cost estimate within 8 months of the contract award and update the program schedule within 3 months of the contract award.

How the Polar Icebreaker Program Will Be Funded Moving Forward is Unclear

Of the $9.827 billion estimated for the lifecycle costs of the polar icebreaker program, about $3 billion is for acquisition costs. From 2013 through 2018, the polar icebreaker program has received $360 million in funding—$60 million in Coast Guard appropriations and $300 million in Navy appropriations. In addition, according to Coast Guard officials, in fiscal year 2017, Coast Guard reprogrammed $30 million in fiscal year 2016 appropriations for the polar icebreaker program from another program (see figure 5).

[13]GAO-18-600.

Figure 5: Polar Icebreaker Program Funding, Fiscal Years 2013-2018



Source: GAO analysis of U.S. Coast Guard and Navy information. | GAO-19-255T

Accessible Data for Figure 5: Polar Icebreaker Program Funding, Fiscal Years 2013-2018

Fiscal year	Coast Guard funding (reflected through Appropriations Acts or associated explanatory materials)	Coast Guard reprogrammed funds	Navy appropriations for advance procurementpropriated to Navy
2013	7.6	n/a	n/a
2014	2	n/a	n/a
2015	0	n/a	n/a
2016	6	30	n/a
2017	25	n/a	150
2018	19	n/a	150

According to Coast Guard and Navy officials, the Navy plans to use the $300 million in Navy appropriations in fiscal year 2019 to fund the advanced planning, design, engineering, and long lead time materials for the first polar icebreaker. As part of the polar icebreaker program's acquisition strategy and reflected in the March 2018 request for proposals, the Navy plans to establish options for the subsequent detail design and construction of each of the three ships. The request for proposals specified that the options will be priced as fixed-price incentive type (see table 1).

Table 1: Polar Icebreaker Proposed Detail Design and Construction Contract Structure as of May 2018

Line item number	Initial award or option	Scope of work
1	Initial award	Advanced planning, design, engineering, long lead time materials
2	Option 1	Detail design and construction of ship 1
3	Option 2	Detail design and construction of ship 2
4	Option 3	Detail design and construction of ship 3

Source: GAO analysis of Navy information. | GAO-19-255T

The Navy did not request any funding in fiscal year 2019 for the polar icebreaker program, while Coast Guard requested $30 million. Subsequently, after discretionary budget caps were relaxed by Congress, the administration's fiscal year 2019 budget addendum requested an additional $720 million in fiscal year 2019 Coast Guard appropriations for the program.[14] As the program prepares to award a contract in fiscal year 2019 worth billions of dollars if all the options are exercised, it is unclear to what extent the program will be funded using Coast Guard or Navy appropriations or how much total funding will be provided.

In conclusion, as the Coast Guard embarks on the acquisition of its new polar icebreakers to address capability gaps in the Arctic and Antarctic regions, it faces a number of key acquisition and funding risks. DHS, the Coast Guard, and the Navy must gain key acquisition knowledge before committing significant resources to the program while Congress faces key funding and tradeoff considerations. To put the polar icebreaker program in a position to succeed, Congress and the agencies must remain committed to establishing and executing a sound business case for the program.

Chairman Mast, 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 Marie A. Mak, (202) 512-4841 or makm@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

[14]See Bipartisan Budget Act of 2018, Pub. L. No. 115-123, § 30101(a) (Feb. 9, 2018).

made key contributions to this testimony include Rick Cederholm, Assistant Director; Peter Anderson; Kurt Gurka; Claire Li; and Roxanna Sun.

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