

GAO Highlights

Highlights of [GAO-18-600](#), a report to congressional addressees

Why GAO Did This Study

To maintain heavy polar icebreaking capability, the Coast Guard and the Navy are collaborating to acquire up to three new heavy polar icebreakers through an integrated program office. The Navy plans to award a contract in 2019. 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.

Section 122 of the National Defense Authorization Act for Fiscal Year 2018 included a provision for GAO to assess issues related to the acquisition of the icebreaker vessels. In addition, GAO was asked to review the heavy polar icebreaker program's acquisition risks. This report examines, among other objectives, the extent to which the program is facing risks to achieving its goals, particularly in the areas of design maturity, technology readiness, cost, and schedule. GAO reviewed Coast Guard and Navy program documents, analyzed Coast Guard and Navy data, and interviewed knowledgeable officials.

What GAO Recommends

GAO is making six recommendations to the Coast Guard, DHS, and the Navy. Among other things, GAO recommends that the program conduct a technology readiness assessment, re-evaluate its cost estimate and develop a schedule according to best practices, and update program baselines following a preliminary design review. DHS concurred with all six of GAO's recommendations.

View [GAO-18-600](#). For more information, contact Marie A. Mak at (202) 512-4841 or makm@gao.gov.

September 2018

COAST GUARD ACQUISITIONS

Polar Icebreaker Program Needs to Address Risks before Committing Resources

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:

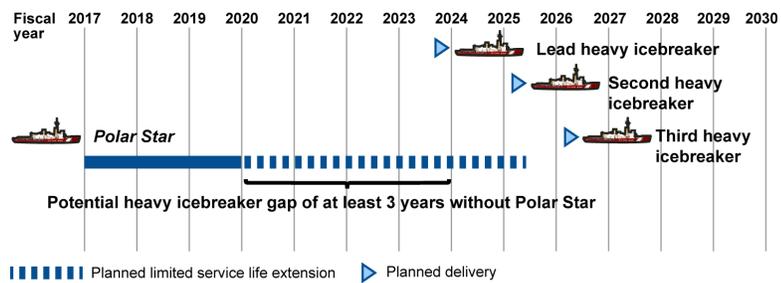
Design. The Coast Guard set program baselines before conducting a preliminary design review, which puts the program at risk of having an unstable design, thereby increasing the program's cost and schedule risks. While setting baselines without a preliminary design review is consistent with DHS's current acquisition policy, it is inconsistent with acquisition best practices. Based on GAO's prior 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 substantially met GAO's best practices for being comprehensive, well-documented, and accurate, but only partially met best practices for being credible. The cost estimate did not quantify the range of possible costs over the entire life of the program. As a result, the cost estimate was not fully reliable and may underestimate the total funding needed for the program.

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).

Potential Heavy Polar Icebreaker Gap and Delivery Schedule for New Icebreakers



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.