



Admiral: Navy Must Shrink Submarine Development Costs

By [Kris Osborn](#) - September 27th, 2013

The Navy is trying to lower costs for its nuclear-armed Ohio Replacement Submarine program by leveraging technologies from the Virginia-class submarine program, senior service officials said.

The Navy has made adjustments and pursued strategies aimed at lowering costs and improving technologies for its new fleet of nuclear-armed ballistic missile submarines, Rear Adm. Richard Breckenridge, director of undersea warfare, told Military.com in an interview.

The ongoing program is an effort to replace the current fleet of 14 Ohio-class, nuclear-armed ballistic missile submarines, or SSBNs, with 12 new high-tech ships, he said. The Navy's Ohio Replacement program is being worked on by Electric Boat, a division of General Dynamics, under a five year \$1.85 billion developmental deal.

"The biggest cost savings achieved has been as a result of fine tuning, leaning, optimizing the military requirements to the minimum essential to deliver the capability at the most reasonable cost. We're trying to get it under \$5 billion dollars per copy," Breckenridge said.

Navy officials hope to sustain a per-boat price of \$4.9 billion for the Ohio Replacement Program after paying non-recurring engineering costs associated with construction of the first boat.

The Navy estimated in May the average procurement cost of boats two through 12 in the Ohio replacement program would be about \$5.4 billion, and is working to reduce that figure to a target of \$4.9 billion, according to a Congressional Research Service report.

"Even with this cost-reduction effort, observers are concerned about the impact the Ohio replacement program will have on the Navy's ability to procure other types of ships at desired rates in the 2020s and early 2030s," the report states.

During recent Congressional testimony, senior Navy leaders told lawmakers that according to budget projections and the Navy's 30-year shipbuilding plan, the service will need an additional \$4 billion per year above the established budget by 2021 in order to succeed in funding construction of the Ohio Replacement program.

Construction of the first Ohio Replacement program submarine is slated for 2021. However, advance procurement begins in 2019 and planning, research and development is already underway. The Navy's

2014 budget request asks for just over \$1 billion for the Ohio Replacement program, now in its technology development phase.

Senior Navy officials explain that many measures continue to be taken to ensure successful development of the submarines while lowering costs.

Instead of being engineered with 24 missile tubes, which is the case with the current Ohio subs, the Ohio Replacement boats will lower costs by only having 16 missile tubes, Breckenridge said.

In addition, the Ohio Replacement submarines are being engineered with a new nuclear-reactor core sufficient to power the ships for 42 years. Unlike the current Ohio-class SSBNs which require a several-year long mid-life nuclear re-fueling process, the new Ohio Replacement boats will be able to continue straight through with their missions without needing this re-fueling pause, Breckenridge explained.

“The main story about Ohio Replacement is with 12 submarines we will be able to do what we can do today. Now we can do a fuel for life. That technology results in dramatic cost savings for the program,” Breckenridge explained. “To keep a two ocean strategy and hold at risk the targets that matter around the globe, there is a minimum number of submarines you need – 12.”

The Ohio Replacement program is also borrowing technology already in production on the Virginia-class attack submarine procurement program. For example, the Virginia class program switched from a sphere-shaped sonar to a conformal plane array, a lower cost technique for getting comparable sonar technology, Breckenridge explained.

“We will leverage that for the Ohio Replacement,” he said.

Also, the Virginia-class submarines removed the need for a penetrating mast/periscope by setting up a fiber-optic link between sail-mounted, high definition cameras and a control room inside the submarine. This allows sailors inside the control room to view live camera feeds on large high-definition TV screens, Breckenridge said.

The Ohio Replacement program will leverage this technology as well, and also utilize the Virginia-class submarines’ “fly-by-wire” ship control system. Instead of having four sailors operate mechanical, hydraulic controls, the “fly-by-wire” system uses a joystick and touch-panel digital controls.

An escalating global nuclear threat and near-peer countries’ ongoing efforts to develop nuclear-armed submarines — amount to a global circumstance requiring the U.S. Navy to improve its sea-based nuclear deterrent, Breckenridge explained.

“What’s happening in the rest of the world right now is not the American ideal of fewer nuclear weapons. Although we are in treaties with Russia and continue to reduce our arsenals, nuclear weapons are proliferating,” Breckenridge said.

Citing North Korea and Iran as countries trying to acquire nuclear weapons, Breckenridge said the Navy remains committed to its mission of sea-based deterrence.

“We know sea-based strategic deterrence very well. Next year we’ll break the 4,000 patrol barrier,” Breckenridge said. “Sea-based strategic deterrent stability has prevented major war since the advent of nuclear weapons. Since the 60s, we’ve had this consecutive safeguard force that is out there providing the ultimate security to the nation.”

Meanwhile, the Russian and Chinese militaries are currently building new class of SSBNs or nuclear-armed ballistic missile submarines, Breckenridge said.

One analyst said sea-based nuclear weapons form an indispensable portion of the U.S. Nuclear Triad.

“Submarines are nearly perfect second strike weapon and they always have been. The main legitimate justification is that they offer an ability to credibly retaliate under any circumstances. They are more accurate than land-based ICBMs and vastly superior to bombers,” said Chris Preble, vice president for defense and foreign policy studies at the Cato Institute, a Washington, D.C.-based think tank.