Congressional Budget Office
Nonpartisan Analysis for the U.S. Congress

An Analysis of the Navy's Fiscal Year 2024 Shipbuilding Plan

OCTOBER | 2023

Box 1.

The Potential Effect of the AUKUS Security Pact on the U.S. Navy's Inventory of Attack Submarines

In September 2021, the governments of Australia, the United Kingdom, and the United States announced they were forming a pact, known as AUKUS, to promote security and deterrence in the Western Pacific region. The pact comprises two groups of cooperative endeavors, or "pillars." The aim of Pillar 1 is for the United States and the United Kingdom to help Australia establish an industrial base for nuclear-powered attack submarines. The ships would eventually be built using a British design, modified in part with technology from U.S. Virginia class submarines. Pillar 2 focuses on cooperation in several high-technology areas, including cyber, artificial intelligence, undersea capabilities, offensive and defensive hypersonic weapons, electronic warfare, and others.

Because Australia could take decades to build its own attack submarines, the pact calls for the United States to sell a limited number of Virginia class nuclear-powered attack submarines (SSNs) to Australia as an interim step. Though details of the sale, including the cost of the ships and the timing of deliveries, are still undetermined, some Australian and U.S. government officials have suggested that the first ships would be transferred in the early 2030s. The sale could involve as few as 3 used submarines or as many as 5 submarines, which would include used and newly built ships.

The Navy's 2024 shipbuilding plan states that the service "anticipates building additional Virginia class SSNs in the 2030s as replacements for submarines sold to Australia."[1] Those replacement submarines are not included in the 2024 plan's three alternative long-range projections of the Navy's future fleet. According to that plan, between 2030 and 2039, the Navy would buy 16 SSNs under Alternative 1, 21 under Alternative 2, and 18 under Alternative 3. To purchase 3 to 5 additional replacement submarines during that period, the Navy would need to build 1.9 to 2.6 SSNs per year, depending on which alternative it followed.

However, the U.S. submarine industrial base is currently struggling to meet the Navy's demand for submarines. Since 2011, the Congress has authorized and appropriated funds for the Navy to buy 2 Virginia class submarines per year and to begin building a class of 12 Columbia class ballistic missile submarines (SSBNs). The Navy ordered the first Columbia class ship in 2021 and expects to order the second in 2024; the remaining ships are scheduled to be ordered between 2026 and 2035 at a rate of 1 ship per year. Currently, the shipyards are building fewer than 1.5 SSNs per year in addition to beginning construction of Columbia class ships and are facing a backlog of work. Over the past several years, the time between the appropriation of funds for SSNs and their delivery has increased from six years (when the Navy was building 1 SSN per year) to nine years. Therefore, it would be very difficult and expensive for the U.S submarine industry to increase production of attack submarines during a period when it must also build 1 Columbia class ship per year. (Columbia class SSBNs are two and one-half times the size of Virginia class SSNs.) Moreover, SSBNs are the Navy's highest acquisition priority. As a result, the sale of SSNs to Australia would reduce the number of attack submarines available to the Navy.

Using the 2024 shipbuilding plan's Alternative 1 as a baseline, the Congressional Budget Office developed three illustrative scenarios to show how the AUKUS pact could affect the size of the Navy's attack submarine force (see the figure).[2] In the first two scenarios, the Navy would not buy submarines to replace those it sells to Australia, whereas in the third scenario it would.

In Scenario 1, the United States would sell 3 Virginia class SSNs—2 used and 1 new ship—to Australia in the 2030s. The used ships would have roughly 20 years of remaining service life, so they would probably come from the recently completed or soon-to-be-completed group of submarines known as Block IV. The new SSN would be the first ship completed from the group of submarines the Navy plans to order between 2030 and 2036, known as Block VII. In Scenario 2, the United States would sell 5 attack submarines to Australia between 2032 and 2044—2 used ships from Block IV and 3 new ones from Block VII. Under Alternative 1 in the Navy's current shipbuilding plan, the SSN force would consistently number 50 or more ships by 2034 and would grow to 60 by 2053. In

1. Department of the Navy, *Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels for Fiscal Year 2024* (March 2023), p. 4 and p. 15 (footnote 3), https://tinyurl.com/37bkemd9 (PDF).

2. The most detailed discussion to date on the specific numbers and types of submarines that Australia would purchase can be found in testimony by senior Australian admirals before a parliamentary hearing on AUKUS. See John Hunter Farrell, "Australia to Get One New Build Virginia Class Submarine, Two From U.S. Navy," *The Drive* (June 8, 2023), https://tinyurl.com/33n6nmtj. See also, Ronald O'Rourke, *Navy Virginia-Class Submarine Program and AUKUS Submarine Proposal: Background and Issues for Congress*, Report RL32418, version 259 (Congressional Research Service, October 23, 2023), pp. 11–20, https://tinyurl.com/vbhy77ax.

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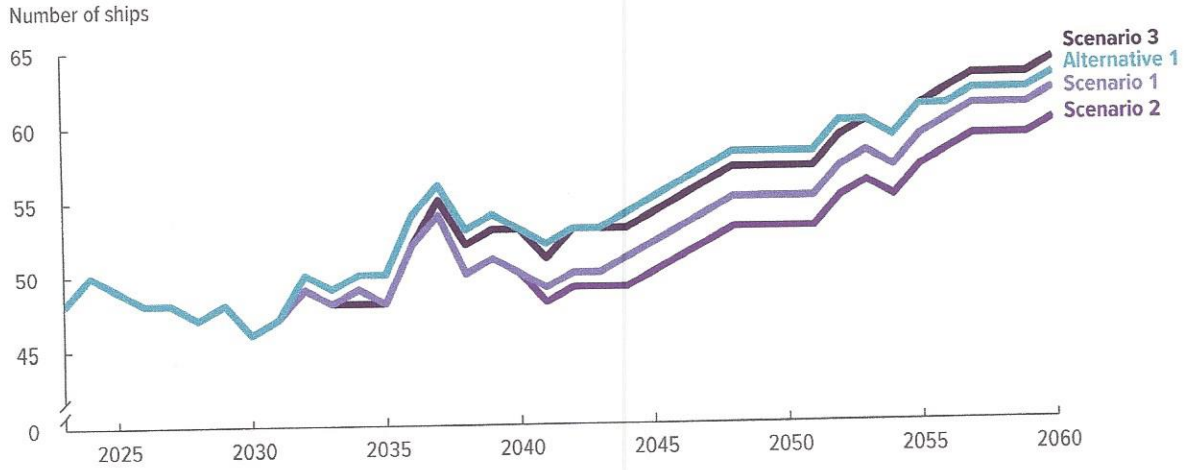
Scenarios 1 and 2, reflecting the AUKUS pact, the Navy would have 3 to 5 fewer SSNs during most of the 2033–2053 period.

In Scenario 3, the United States would sell 5 SSNs to Australia—2 used and 3 new ships—but the Navy would buy 4 submarines in the 2030s as replacements, effectively increasing production of SSNs to 2 ships per year during that decade. In that case, the Navy would still have fewer attack submarines than it would under Alternative 1 for 20 years (between 2032 and 2052), but more than it would in the other two scenarios. By 2056, however, the Navy would have a slightly larger force of SSNs in Scenario 3 than it would under Alternative 1 of the 2024 plan. (Buying replacement submarines under Alternatives 2 and 3 would be more challenging because of their higher baseline production rates. In those cases, attack submarine production would exceed 2 SSNs per year for several years.)

CBO developed those scenarios under the assumption that Australia would purchase the smaller Virginia class SSNs instead of the larger ships with Virginia payload modules (VPMs), which add four large-diameter payload tubes to ships in that class. Under that assumption, the first two scenarios represent the minimum and maximum potential capability, respectively, that Australia could acquire from the United States under the AUKUS pact, considering the time required to build new submarines. For example, the United States could not sell and deliver 5 new Virginia class SSNs to Australia in the 2030s unless Australia wanted the larger submarines with VPMs.

Would China be less deterred if the United States reduced the number of its attack submarines to help Australia develop its submarine force? Because the United States and Australia have a strong alliance, improving the Australian Navy's capability could help offset the U.S. Navy's potential loss of capability. That loss might even be more than offset because the Australian submarines would be based in the Western Pacific region and therefore could respond more quickly to any conflict with China involving Taiwan or other issues in the South China Sea. However, Australia would control its own submarines, and their participation in any particular conflict would not be guaranteed. In fact, in March 2020, the Australian defense minister stated that his country did not promise to support the United States in the event of a conflict involving Taiwan and the People's Republic of China.

U.S. Attack Submarine Force Under AUKUS



Data source: Congressional Budget Office. See www.cbo.gov/publication/59508#data.

In Scenario 1, the United States would sell a total of 3 SSNs to Australia: 2 used SSNs (from the Block IV production line) in 2032 and 2035 and 1 new SSN (from the Block VII production line) in 2038.

In Scenario 2, the United States would sell a total of 5 SSNs to Australia: 2 used SSNs (from the Block IV production line) in 2032 and 2035 and 3 new SSNs (from the Block VII production line) in 2038, 2041, and 2044.

In Scenario 3, the United States would sell a total of 5 SSNs to Australia: 2 used SSNs (from the Block IV production line) in 2032 and 2035 and 3 new SSNs (from the Block VII production line) in 2038, 2041, and 2044. Additionally, the Navy would build 4 replacement SSNs in 2030, 2031, 2033, and 2035. The number of replacement submarines built in the 2030s is limited to 4 ships so that a construction rate of 2 SSNs per year is not exceeded. If the Navy could build more than 2 SSNs per year in the 2030s, then its attack submarine force could be larger by the late 2030s.

SSNs = attack submarines.