

NUCLEAR PROPULSION PATHWAY LOCKED IN

THE AUSTRALIAN GOVERNMENT has set in motion the procurement of the nuclear propulsion system for the future SSN-AUKUS submarine fleet, with a AUD\$310 million payment for long-lead items from the UK.

Announced on 24 February, the payment will directly support the manufacture of critical components for Australia's nuclear powered submarines to be built at Osborne in South Australia, including the nuclear propulsion systems of Australia's first two SSN-AUKUS boats.

The plan will see the UK deliver complete, welded nuclear propulsion systems for Australian-built SSN AUKUS boats, with work already underway at the Rolls Royce Submarines' facility in Derby.

Early progress on reactor manufacturing is essential to maintaining program momentum, sustaining specialist skills and align industrial schedules across the AUKUS partnership. By securing long lead items now, Defence stated, Australia is ensuring schedule certainty and strengthening supply chain resilience. "It also reflects Australia's commitment to the highest standards of nuclear safety, security and non proliferation, consistent with international obligations and best practice."

This latest AUKUS Pillar I down payment is in addition to Australia's contribution of £2.4 billion (AUD\$4.6 billion) over 10 years to expand the production capacity of Rolls-Royce Submarines.

Rolls Royce Submarines is a cornerstone of the UK's nuclear submarine enterprise and a key partner in the delivery of the future SSN AUKUS submarines to the Royal Navy (RN) and Royal Australian Navy. Employing around 4,000 people, Rolls-Royce Submarines designs, manufactures and provides in-service support to the pressurised water reactors that power all RN submarines.

The SSN-AUKUS submarines will



ABOVE: Rolls-Royce will supply the PWR3+ nuclear reactors for all SSN-AUKUS submarines. Image: Rolls-Royce

be powered by the Rolls-Royce Pressurised Water Reactor 3+ (PWR3+), the next-generation variant of the PWR3 nuclear reactor currently planned for the RN's 17,000-tonne, 153m Dreadnought-class nuclear-powered ballistic missile submarines. In both classes, the reactor will power a single pump-jet propulsor.

Understood to offer improved safety and better operational flexibility, the PWR3+ reactor cores are designed to last the entire operational life of the submarines, essentially meaning the lead Australian SSN-AUKUS submarine will not likely require refuelling until the early-2070s.

RIGHT: The Propel: Australian Submarine Scholarship will provide financial support for up to 3,000 students studying in priority STEM fields relative to Australia's nuclear-powered submarine program. Image: Grok

STEM SCHOLARSHIPS LAUNCHED

On 24 March, the Australian Government launched the Propel: Australian Submarine Scholarship program, a AUD\$15.8 million initiative to support the development of Australia's future nuclear-powered submarine workforce.

To be rolled out over 3 years, Propel will offer up to 3,000 scholarships to students studying in priority STEM (science, technology, engineering and mathematics) fields at Australian



universities, providing AUD\$5,000 in financial support as well as opportunities to learn from some of Australia's most accomplished scientists and engineers. More than 800 students nationwide are already taking part as members of the inaugural cohort, according to Defence.

Delivered through a partnership between the Australian Submarine Agency (ASA) and the Australian Academy of Technological Sciences and Engineering, Propel will contribute to the 20,000 highly skilled jobs needed to deliver and sustain Australia's nuclear-powered submarines over coming decades.

The scholarships align with the Government's broader investments to increase the pipeline of STEM-qualified Australians for the nuclear-powered submarine enterprise, including through the Nuclear-Powered Submarine Student Pathways program for additional Commonwealth Supported Places, the ASA Nuclear Graduate Program and national workforce development initiatives as part of the Skills and Training Academy.

INDUSTRY GATHERS FOR SSN-AUKUS BUILD & SUSTAINMENT OPPORTUNITIES

More than 350 representatives from Australian companies gathered in Perth and Adelaide for the AUKUS National Supply Chain Conference series, bringing together Australian industry, the Australian Submarine Agency (ASA) and sovereign submarine build partners ASC and BAE Systems to progress Australia's role in the SSN-AUKUS program.

The WA conference, held in Perth on 12 March, focused on AUKUS sustainment, highlighting opportunities for Australian suppliers to support through-life capability and sustainment activities.



ABOVE: ASC chief operating officer SSN-AUKUS, Christian Hamilton (shown right), delivering ASC's SSN-AUKUS Build Program update at the Adelaide conference. Image: ASC

This was followed by the SA conference in Adelaide on 17 March, which centred on the SSN-AUKUS Build Program, the first time Australian industry, ASA, ASC and BAE Systems have come together at this scale to discuss the build component of the SSN-AUKUS program.

Across both events, attendees heard first-hand from the ASA, ASC, BAE Systems and the UK Submarine Delivery Agency on program progress and the pathways for Australian businesses to enter the Australian (and potentially the UK) AUKUS supply chain, whether through sustainment or build activities for the eight new conventionally armed, nuclear-powered submarines due to enter service in the 2040s.

With SSN-AUKUS firming up as one of the largest industrial endeavours in

Australia's history, Australian businesses will play a fundamental role in delivering this capability to the Royal Australian Navy, as well the Royal Navy and US Navy, strengthening trilateral resilience and national security outcomes across all three AUKUS partner nations.

Australian businesses interested in joining the AUKUS supply chain can find more information via the following links:

- AUKUS Sustainment: <https://gateway.icn.org.au/projects/4038>
- SSN-AUKUS Build: <https://gateway.icn.org.au/projects/5284>

ASC SOVEREIGN PARTNER MILESTONE

On 22 March 2026, ASC marked two years since the company was selected as the Australian Government's Sovereign Submarine Partner for the SSN-AUKUS program, tasked with sustaining and jointly building Australia's future conventionally armed, nuclear-powered submarines.

Since then, ASC has grown in number

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and been at the centre of the uptick in tempo within the program.

Most notable ASC achievements over the past 2 years include:

- Grown its workforce to more than 3,000 employees;
- Deployed 230+ ASC employees to the US and UK to build the skills and gain the experience needed for nuclear-powered submarine sustainment and construction;
- Supported submarine maintenance periods in Australia for a US Virginia-class submarine (USS Vermont) and a UK Astute-class submarine (HMS Anson); and
- Strengthened Australia's sovereign supply chain and industrial capability

ASC TEAM MEMBERS RECOGNISED

Two members of ASC's sustainment team, Tim and Alan, were formally recognised with Department of Defence group-level commendations for their



ABOVE: The Astute-class submarine HMS Anson arrives at HMAS Stirling in Western Australia for a scheduled submarine maintenance period. Image: Aust DoD

exceptional contributions to Australia's nuclear-powered submarine program.

Tim and Alan played leading roles in partnering with Sydney's MAK Water to design and deliver a market-first mobile water purification plant to support the AUKUS nuclear-powered submarine program. The plant is an Australian-built solution that can be readily deployed to provide global support to AUKUS partners.

The innovation, leadership and technical excellence displayed in their work have delivered measurable progress and

BELOW: Navy presents ASC employees Alan (fifth from left) and Tim (to Alan's left) with Defence commendations in recognition of their work on the AUKUS Pillar 1 program. Image: ASC

illustrates the strength of Australia's industrial base. Their achievements reflect the depth of expertise within ASC and the key role employees play in supporting the nation's fledgling nuclear-powered submarine enterprise.

VERTICAL LAUNCH CAPABILITY COMING FOR SSN-AUKUS SUBMARINES

The US State Department has outlined a UK request for technical assistance covering the design and development of vertical launch tubes for the future SSN-AUKUS nuclear-powered attack submarines for Australia and the UK.

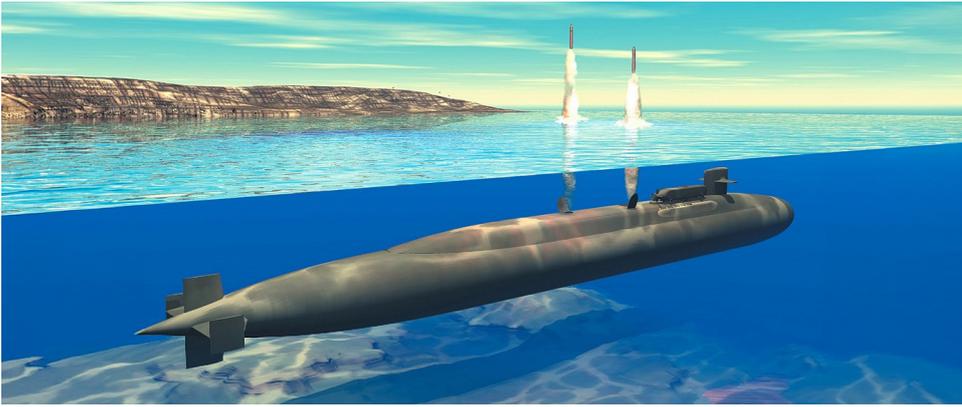
The Foreign Military Sales (FMS) request confirms the vertical launch capability as an inherent component of the design for the British and Australian submarines, indicating that the vessels will have the ability to employ a variety of long-range precision strike weapons and land attack cruise missiles.

The FMS request also includes common weapon launchers, multiple all-around canister support service modules, network input/output units, servers and switches and custom electronics that are specific components of the submarine warfare federated tactical system, plus simulation equipment, engineering demonstration models, testing and installation equipment, equipment components, information technology hardware, publications and technical documentation, software and source code. Non-recurring engineering support, design integration of US equipment, submarine combat and weapons systems support would also be provided.

The package would also include US industry support, facility support, personnel training and the embedding of US and UK personnel located in both UK and US facilities to support submarine design. Other support listed includes US government and contractor engineering, technical and logistics support services, test and trials support, studies and surveys, as well as other related elements of engineering services for associated equipment and program support.

The total value of the FMS package is understood to exceed US\$1 billion (AUD\$1.45 billion).





ABOVE: Befitting a nuclear attack submarine, the SSN-AUKUS submarine design will feature vertical launch tubes to enable the use of precision strike weapons.
Image: US Navy

VIRGINIA SUBMARINE RECEIVES 3D PRINTED PART

A US shipyard has successfully inspected, tested and welded the first additively manufactured copper-nickel flange aboard a Virginia-class nuclear submarine.

Engineered to address an operational need aboard the submarine USS Washington, it is both the first time a 3D printed copper-nickel flange has been welded at a public shipyard and one of its first applications for an in-service US Navy submarine.

The initiative originated from a

directive issued by Vice Admiral Robert Gaucher, then serving as commander of Submarine Forces and direct reporting portfolio manager for submarines.

Located in the northeast state of Maine, the Portsmouth Naval Shipyard's engineering and planning material support division identified a potential application for additively manufactured components on USS Washington, then co-ordinated with the maritime industrial base's centre of excellence to acquire the 3D printed component and deliver it to the shipyard's receipt inspection division.

The flange then underwent testing and

inspections to certify it met all technical requirements, while a team of engineering and trade experts simultaneously completed a full weld qualification on the new material.

"The unique nature of this momentous achievement is a testament to the strong teaming and innovation that PNSY is known for," stated Captain Jesse Nice, Shipyard Commander at Portsmouth Naval Shipyard. "For the first time, we forged a submarine component that met the fleet's most rigorous technical specifications."

Naval Sea Systems Command (NAVSEA) said in January this year that the validation of a 3D printed metal part for a Virginia-class boat was proof that additively manufactured components can comply with the rigorous standards required for deep sea operations, and that it underscored the potential for allied interoperability and interchangeable repair capabilities among the AUKUS Pillar I partners.

In 2023, engineers at Newport News Shipbuilding and General Dynamics created a 3D printed copper-nickel drain assembly for the Virginia-class submarine USS Oklahoma. **DTR**



LEFT: USS Washington (SSN 787) enters dry dock at the Portsmouth Naval Shipyard for a scheduled maintenance period in mid-November 2024.
Image: US Navy

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