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1 Key Messages

1. This proposed Nuclear-Powered Submarine Partnership and Collaboration Agreement between the Government of Australia and the Government of the United Kingdom of Great Britain and Northern Ireland (the AUK Treaty) is critical to operationalise the AUKUS arrangements.
2. The current US review into the AUKUS arrangements will conclude that the export of Virginia-class nuclear attack submarines to Australia is unfeasible.
3. It is also increasingly unlikely that a satisfactory Article 14 agreement with the International Atomic Energy Agency (IAEA) will be negotiated for the export of Virginia-class nuclear attack submarines.
4. This means the submarine component of AUKUS is likely to become bilateral between Australia and the United Kingdom, with the United States playing a diminished role.
5. The Trump Administration is increasingly concerned about some of the political positions being taken by the United Kingdom and Australia.
6. A joint Australia-United Kingdom development of the SSN-AUKUS Class is a natural fit for a new nuclear-powered submarine.
7. Nevertheless, there will be a critical capability gap in Australia's submarine capability, and consideration should be given to urgently reviving the Australia-French deal, this time to acquire nuclear-powered Suffren-class submarines.

2 Introduction - Nuclear Questions

For the ANNPA¹ I provided a provocative, but accurate, submission which advocated strongly for the agreement while being candid about the globally unprecedented step of acquiring nuclear-powered submarines as a non-nuclear armed state, and its implications for nuclear non-proliferation and disarmament.² The additional bilateral AUK Treaty³ provides

¹ Agreement among the Government of Australia, the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the United States of America for Cooperation Related to Naval Nuclear Propulsion.

² Submission number 1 - Crispin Rovere:

<https://www.aph.gov.au/DocumentStore.ashx?id=4af28b83-fdd4-40f5-9f11-2dd18be81e8f&subId=761470>

³ The agreement being considered in this inquiry will be referred to as "the AUK Treaty" throughout this submission.

an opportunity to update the Parliament on developments that impact the AUKUS arrangements.

In general, Australian officials have not directly contested the core claims made in my original submission. However, before analysing the specifics of the new AUK Treaty, greater clarity is needed on issues my submission highlights that have made their way into the public debate. These are:

- definition of weapons-grade uranium
- utility of naval propulsion fuel for a nuclear bomb
- difficulties in negotiating an Article 14 Agreement with the IAEA.

2.1 Definition of Weapons Grade Uranium

There has been discussion about the precise definition of 'weapons-grade' uranium, and whether or not this is to be found in the reactors of nuclear-powered submarines.

For example, it has been said that there is no 'internationally standard definition', and instead the IAEA uses the terms 'low-enriched' and 'high-enriched' uranium as categories.

The US Department of Energy (which maintains America's nuclear arsenal) defines 'weapons-grade uranium' as typically 90%+ U-235.⁴ The Center for Arms Control and Non-Proliferation shares this definition,⁵ while the United Nations Terminology Database (UNTERM) puts the threshold slightly higher at 93%+ U-235.⁶

Suggestions that weapons-grade uranium do not have a usable definition, are false. It may vary slightly in thresholds across jurisdiction, but it is a common term that can be summarised as uranium that is enriched to a very high percentage U-235.

More importantly for this Parliament is whether the uranium in America's naval propulsion fuel assemblies requires further enrichment to be used for nuclear weapons—it does not.

Unclassified information regarding the Virginia Class submarine reveals that the HEU used is of weapons grade, as per any of the thresholds listed above.

2.2 Utility of naval propulsion fuel for a nuclear bomb

Multiple Australian officials have stated that nuclear fuel in submarine reactors will not be in a form that could be used to create weapons. To do so would require

⁴ See "Closing the Circle on Splitting of the Atom", glossary p.99

https://www.energy.gov/sites/prod/files/2014/03/f8/Closing_the_Circle_Report.pdf

⁵ See <https://armscontrolcenter.org/uranium-enrichment-for-peace-or-for-weapons/>

⁶ See <https://unterm.un.org/unterm2/en/view/UNHQ/323A979D73EAC39A85256A000007ACBF>

further chemical processing in facilities that Australia does not have and will not seek.

No doubt this is true; however, 'chemical processing' is not the main proliferation risk for nuclear weapons. The critical question is whether uranium U-235 exists in sufficient concentrations for use in a nuclear explosive device. The answer is yes.

The uranium enrichment process is the technically challenging component in manufacturing nuclear weapons. Once HEU of weapons-grade purity is obtained, converting it into a bomb—regardless of its initial form—is relatively straightforward.

Remember it was not 'chemical processing' that concerned foreign powers with regard to Iran's nuclear program. Instead it was the fact that Iran had enriched significant quantities of uranium to 60%+ U-235 that justified military intervention.

While it's flippant to say that 'chemical processing' is as simple as dissolving in water, it's true that Australia would never accept that the absence of these facilities constituted an adequate nuclear safeguards provision were it put forward by any other nation on Earth.

2.3 Difficulties in negotiating an Article 14 Agreement with the IAEA

Negotiating an Article 14 Agreement with the IAEA for the transfer of naval nuclear propulsion material is unprecedented and fraught with challenges.

So far, only one person operating in an official capacity has referred publicly to the obvious reason why. At a panel on AUKUS at the 2024 NPT PrepCom, Senior US State Department official Paul Watzlavick acknowledged that:

ANNPA obligates the partners to protect naval nuclear propulsion information and related classified information from disclosure, including disclosure to the IAEA⁷

To date, no Australian official has referred to this clause of the ANNPA in any public commentary. For the reasons laid out in my original submission, this requirement for secrecy renders an Article 14 safeguards agreement that is of equivalent efficacy to those of civilian programs functionally impossible.

That said, the prospect of overcoming these challenges may be slightly increased if Australia doesn't end up receiving US nuclear powered submarines, and instead waits to receive the SSN AUKUS-Class constructed by the United Kingdom.

⁷ See

<https://www.gov.uk/government/speeches/nuclear-safeguards-and-the-npt-aokus-side-event-may-2025>

This is because the public statements made by both Australian and British officials (but not American) insist that the IAEA will have full oversight throughout the life-cycle of the submarine and 'no undeclared nuclear material' in Australia.⁸

One imagines the only way for this to be technically feasible is for the IAEA to be sufficiently informed about specifics of the reactor design to determine precisely how much HEU should be in the submarine and have measures in place for tracking the material.

It is unlikely that the US military will provide that information to an international agency given the sensitivities involved. However, it *may* be the case that the SSN AUKUS-Class submarines can be designed in a manner that provides the IAEA the required information, while still protecting military secrets.

There would still be some complexities with this, given the degree to which American technology is integrated with existing British systems. However it may still be technically feasible if the AUKUS class is designed from scratch with Article 14 requirements in mind.

3 US Politics and AUKUS

The election of President Trump in 2024 introduced new uncertainties into the AUKUS arrangements, particularly the submarine pillar.

3.1 The US Review of AUKUS

The Trump Administration has initiated a comprehensive review of AUKUS, led by Undersecretary of Defense, Elbridge Colby, focusing on whether it aligns with 'America First' priorities. This review is likely to highlight the unfeasibility of exporting Virginia-class submarines due to US industrial constraints.

The US Navy is struggling with production delays: the Columbia-class ballistic missile submarines are prioritised, leaving Virginia-class output at about one per year—far below the two needed to maintain the fleet, let alone export.

Australia has already contributed over \$1.6 billion to US shipyards by mid-2025, with more payments scheduled. However, these funds have not accelerated production sufficiently.

⁸ As above

Accordingly, it is probable that the review will recommend that this component of AUKUS, export of Virginia-class submarines to Australia, be abandoned.

3.2 Political Frictions

The Trump Administration is demanding that allies, including Australia, increase defence spending to 3-5% of GDP. Australia's current level of around 2% falls short, raising frustrations.

Additionally, there are concerns over political divergences. For instance, Australia's hardening stance on Israel and potential recognition of Palestinian statehood could provoke retaliation, as seen with Canada's experience: Trump imposed 35% tariffs on Canadian goods after similar moves.

Militarily, chronic capability gaps in the Australian Defence Force undermine our utility as an ally. These frustrations are likely to mount.

Finally, domestic policies like Australia's Online Safety Act, the promotion of digital IDs, and the banning of under-16s from social media are viewed in conservative US circles as infringements on free speech. Perceived double-standards on democratic norms (e.g., European election controversies) have further fueled bitterness.⁹

3.2 US Strategic Calculus on China (and Australia)

The general US consensus is that the primary danger period for a conflict is some time over the next few years to a decade. As China's economy slows, and long-term structural problems begin to assert (infrastructure mal-investment, high youth unemployment, rapidly ageing population) it may be that Chinese power relative to the United States will never be as great as it is now. Factoring in also a severe inventory shortage in US ordinance owing to Ukraine's war effort, and President Xi's desire for legacy, and the prospect of a Chinese invasion of Taiwan can appear close to imminent.

Any such war will likely be highly coordinated between Beijing and its allies, with Russia attacking the Baltic countries and North Korea invading South Korea simultaneously with this invasion.

Despite this broad theatre, the United States is also planning for the war with China to be intense but limited to settling the question of Taiwan. Thus the

⁹ The overturning of Romania's first-round elections, the banning of Marine Le Pen from French elections, and the labelling of Germany's AfD Party as a 'right-wing extremist' group by German intelligence, all to muted (or supportive) international response, is viewed with particular antipathy in MAGA circles.

United States anticipates (however dubiously) that Beijing will agree to a renewed peace should their invasion of Taiwan be defeated and have no prospect of success, resulting in US regional hegemony being firmly re-established.

Similarly, China believes that should Taiwan fall under Beijing's control, that the United States will conclude hostilities rather than escalate the war by investing heavily to retake it.

Both sides are making assumptions about how the other will behave during a high tempo crisis, which may not play out in reality. Should the conflict escalate, then Australia's role and strategic location will emerge as having pivotal importance.

However, during the opening stages where war-fighting is expected to be concentrated within the first-island chain, Australia's relevance will relatively appear marginal to the belligerents.

The above helps explain why some American strategic planners feel that providing nuclear submarines to Australia at this time would be an intolerable waste, especially absent any pre-commitment by Australia to deploy US-made submarines in defence of Taiwan,

3.3 Implications for Australia

Without commenting on the merits of these examples, it is clear that Australia's alliance relationship with the United States is hardly secure.

Nor should it be assumed that President Trump's occupancy of the White House represents a temporary aberration in bilateral relations. MAGA is now firmly imprinted on the Republican Party psyche, while America First acolyte, Vice-President JD Vance, remains the overwhelming favourite to be elected next term.

If the Australian Government does not believe it can move closer to Trump's positions across this spectrum of concerns, then eventually these fissures will translate into open criticism and prejudicial action.

Given that the US review of AUKUS is almost certain to conclude that exporting nuclear-powered submarines to Australia is infeasible given American industrial constraints, the above suggests that Australia-UK nuclear propulsion cooperation is going to be the decisive element in whether these arrangements can prove workable.

4 A UK-led Nuclear Submarine Program

Unlike the United States, Anglo-Australian nuclear cooperation has a long history. Australia was indispensable for Britain's own nuclear weapons program. Not only did Australia host British nuclear tests at Maralinga, but during those tests Australia also contributed nuclear material, money and scientific expertise.

As noted in my original submission, one of the options that British civil servants are known to provide incoming British Prime Ministers in the event of incurring an incapacitating nuclear attack is for British submarine commanders to place themselves under Australian command.

In many respects, having the UK build an AUKUS Class submarine for Australia is a natural extension of this relationship. While geography dictates that Australia's strategic interests intersect more with those of the United States, in terms of identity, history, political alignment, culture and trust, the British establishment rightfully believes that Australia will act in common cause with London as a matter of reflex, with Westminster's trust in Canberra reasonably similar to that of Edinburgh or Cardiff.

In short, the United Kingdom will be willing to share nuclear and naval propulsion secrets with Australia without the same domestic institutional hang-ups that exist in Washington. The bottom line is that Australia and the United Kingdom can jointly develop a new class of nuclear-powered submarines with excellent mutual cooperation, goodwill, and trust that will sustain a multi-decade development and sustainment program.

5 Capability Gap - Reviving Australia - French nuclear cooperation

With three submarine procurement processes in a row now likely defunct,¹⁰ a period in which Australia lacks any submarine capability now appears inevitable.

Consideration should be given to reviving Australia-French submarine cooperation, with a view to acquiring the Suffren-Class nuclear-powered submarine. The Suffren-Class, being among the smallest of all nuclear-powered submarines in terms of tonnage, is also arguably far better suited to Australia's shallow littoral conditions. The AUKUS-Class, projected to be over twice the size as the Suffren-Class, is designed for long-range Pacific operations, but is arguably vulnerable when seeking to deny strategic choke points in Australia's northern approaches.

¹⁰ Australia cancelled the acquisition of Japanese diesel-electric Soryu Class subs, and then abandoned France for AUKUS, with the Americans now poised to jettison the submarine component as well.

Restoring Australia-French strategic relations is a good idea in its own right, but reconstituting mutual trust and confidence to a point where bilateral nuclear cooperation with Paris may be possible holds enormous strategic promise for both nations.

6 Recommendations for the Committee

- Endorse this proposed agreement with the United Kingdom.
- Start planning now for the United States to abandon the submarine component of AUKUS.
- Note that concluding a working Article 14 Agreement with the IAEA that is acceptable to the Americans is going to be difficult anyhow.
- Endorse full cooperation with the United Kingdom to build the SSN AUKUS-Class Submarine.
- Noting the inevitable capability gap, endorse exploring the possibility of reviving Australia-French submarine cooperation, with a view to acquiring the Suffren-Class nuclear-powered submarine.

About the Author

Crispin Rovere is an internationally recognised expert in nuclear strategy, arms control, and grand strategy, widely cited in think tanks and media outlets around the world. He has written the related award-winning screenplay "Soul Code". He has written several books, and at the time of submission is employed in medical innovation.