

RAND's Insights on Australia's Naval Shipbuilding Capability

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Testimony of John F. Schank and Paul DeLuca¹
The RAND Corporation²

Before the Economics References Committee
Australian Senate

November 13, 2020

We appreciate the opportunity to meet with the Senate Economics References Committee. We are sorry we are not able to be there in person.

Researchers at the RAND Corporation have studied shipbuilding issues in the United States and the United Kingdom for more than 30 years. During the past decade, we have used our knowledge and expertise to help the Commonwealth of Australia understand the cost, benefits, and challenges of national shipbuilding strategies and decisions. We have provided lessons learned on the *Collins*-class submarine program, estimated the need for and the availability of technical personnel to design a submarine in Australia, and assisted the Future Frigate prime contractor decision by evaluating the costs versus capabilities of approximately 20 existing warship designs. These are just a few of our numerous projects that have supported the Australian Defence Force as it moves to enhance its capabilities.

Your invitation to today's meeting specifically referred to the 2015 report titled *Australia's Naval Shipbuilding Industrial Enterprise: Preparing for the 21st Century*.³ At the request of the Australian Department of Defence's 2015 White Paper Enterprise Management team, in this report, we analysed the capability of the shipbuilding and ship repair industrial bases in Australia

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³ John Birkler, John F. Schank, Mark V. Arena, Edward G. Keating, Joel B. Predd, James Black, Irina Elena Danescu, Dan Jenkins, James G. Kallimani, Gordon T. Lee, Roger Lough, Robert Murphy, David Nicholls, Giacomo Persi Paoli, Deborah Peetz, Brian Perkinson, Jerry M. Sollinger, Shane Tierney, and Obaid Younossi, *Australia's Naval Shipbuilding Industrial Enterprise: Preparing for the 21st Century*, Santa Monica, Calif.: RAND Corporation, RR-1093-AUS, 2015. As of November 10, 2020: https://www.rand.org/pubs/research_reports/RR1093.html

to meet the demands of then-current and future naval surface ship programs. Our research was aimed to help Australia's defence policymakers in the following three ways:

1. providing an understanding of the capacity and associated costs of Australia's naval shipbuilding industrial base to implement the country's then-planned acquisition programs
2. gauging how alternative acquisition requirements, programs, build strategies, quantities, and related costs and schedules might affect the capacity of that industrial base
3. measuring the economic effects of the industry throughout Australia.

We evaluated the pros and cons of the following three options:

1. building the naval surface ships on Australia's acquisition list entirely in-country
2. building them partially in-country and partially overseas
3. having them built at shipyards overseas.

Each strategy had costs and risks. We concluded that domestic production of naval ships in Australia would carry a price premium (estimated as 30 to 40 percent compared with the cost of similar ships built abroad). This premium was largely caused by the need to recreate a production workforce with each new class of vessels. The premium to build in Australia could be lowered if the government adopted a continuous build strategy to avoid having to reconstitute industrial, supplier, and management capabilities with each new ship program; had mature designs when production started; and minimised changes during production. These measures (and a cultural shift in industry toward continuous improvement) could cut this premium in half.

Such an approach would require specific steps. These included filling the gap between the end of the Air Warfare Destroyer program and the start of Future Frigate construction and adopting a continuous build strategy that started a new surface combatant every 18 to 24 months. There would be some challenges with replacing *ANZAC*-class ships in a timely manner, but they could be overcome with careful management of the current and future fleets.

Our research suggested that there might be economic benefits associated with shipbuilding, especially when it occurred in areas that would otherwise have slack in their labour forces. However, the benefits were unclear and would largely depend on broader economic conditions in Australia.

Much has happened in the five years since our study was published. The 2015 report formed much of the basis of the 2017 Naval Shipbuilding Plan. The BAE Global Combat Ship has been chosen as the basis for the Future Frigate, Offshore Patrol Vessels are being built at the Osbourne shipyard to help fill the gap between the end of Air Warfare Destroyer construction and the start of Future Frigate construction, and the Future Frigate program is planning a drumbeat of two years to help support continuous naval shipbuilding in Australia. Because of the current status of the Future Frigate program and the potential effects of the coronavirus disease 2019 pandemic, the Australian government will have to carefully balance starting production to minimise any workforce gap versus delaying the start of construction to achieve better design maturity.

The submarine program has made similar progress: The Department of Defence has chosen Naval Group to design and build the *Attack*-class submarine, and that design effort is underway.

However, the size and complexity of the contemporaneous *Hunter-* and *Attack-*class builds will require careful government attention.

We thank you again for the opportunity to speak with you today. We would be glad to answer any questions you may have about our research supporting Australia's naval shipbuilding programs.