Supplementary Submission to the Senate Standing Committee on Economics Inquiry into

Australia's Sovereign Naval Shipbuilding Committee

1 September 2020

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The question

During our verbal testimony to the Committee on Friday 14 August Senator Patrick made the following request:

> Senator PATRICK: I know you guys are expert at this, so if you could indulge: when Prime Minister Abbott, I think it was, announced the $89 billion shipbuilding program the program was made up of a number of capabilities, each with a cost assigned to them. We seem to have the sort of smokescreen put up in terms of constant dollars. I was wondering if you could look at where we are now in terms of the $89 billion for submarines alone and the $45 billion for the Hunter class. Could you spell out where we are in relation to that $89 billion announcement, converting them both back to constant dollars to see where the shift in budget has been, or what the shift to budget has been?
>
> Dr Hellyer: The $89 billion as far as I am able to determine came from
>
> Senator PATRICK: Could you take it on notice and maybe just provide us a table.

The short answer

The following two tables present the out-turned and constant costs of Defence's local shipbuilding programs. We have taken the out-turned costs as presented in Defence's strategic documents (Table 1) and converted them back into constant dollars (Table 2). Converting out-turned dollars back into constant dollars is a very assumption-dependent exercise, so the figures in Table 2 are indicative only.

Table 1. Cost of shipbuilding programs in Defence's strategic documents (out-turned $b)

Program	2016 IIP (p. 89)	2017 NSP (p. 80)	2020 FSP
Future submarine (SEA 1000)	>50	50	89.7
Future frigate (SEA 5000)	>30	35	45.6
Offshore Patrol Vessel (SEA 1180)	3-4	3-4	4.7*
Total	>83	89	140

** This figure likely includes around $1 billion in infrastructure works.*

Table 2. Cost of shipbuilding programs in Defence's strategic documents (constant $b)

Program	2016 IIP (p. 89)	2017 NSP (p. 80)	2020 FSP
Future submarine (SEA 1000)	30-32	30-32	50*
Future frigate (SEA 5000)	21-22	24	30-31
Offshore Patrol Vessel (SEA 1180)	3.1-3.2	3.1-3.2	4.0**
Total	>$54-57 bn	57-59	84-85

** This is based on Defence's statement at Senate estimates that the constant dollar cost estimate of the future submarine has remained at $50 billion since completion of the Competitive Evaluation Process. This would suggest that the figure in the 2017 NSP, which was released after the CEP was completed, was not correct.*
*** This figure includes infrastructure funding.*

The long answer

In the following section we look at some issues that provide context to the raw numbers presented above.

What's the difference between constant versus out turned dollars?

There's a lot of different dollars that can be used when discussing public sector finances, but they broadly fall into two categories.

The first category takes real world factors such as inflation into account. These dollars are termed nominal or out-turned. The Australian government works in out-turned dollars. That's because out-turned dollars are a better representation of what the government will actually have to pay for goods and services in the future. The problem with out-turned dollars is that it is hard to compare 2020 dollars directly with 2030 dollars; a 2030 dollar doesn't have the same buying power as a 2020 dollar, so buying the same thing in 2030 will require more dollars than in 2020.

The second category of dollars addresses this by setting a constant buying power for dollars across time. These are termed real, current day or constant dollars. Real dollars are, however, no more 'real' than nominal or out-turned dollars—and are in some ways more artificial since they do not represent the actual amount of dollars to be paid. Real or constant dollars do allow for a more direct comparison of costs at different points in time. Real or constant dollars will still change depending on the base year used; a cost estimate for a project done in constant 2020 dollars will be different from a cost estimate done in constant 2030 dollars.

Was the 2016 Integrated Investment Plan in constant or out-turned dollars?

All references to costs in the 2016 IIP are in out-turned dollars. It states, for example, that it 'allocates investment of approximately $195 billion (pre-ERC 2016–17 out-turned price basis) in the decade to FY 2025–26 to fund investment in support of the future force.' (page 9)

Furthermore, each of the six capability streams in the 2016 IIP has a table of 'key investment decisions' that provides an 'approximate investment value'. Each table is followed by a note that states 'all figures are calculated on an out-turned price basis.'

Therefore the '>$50 billion' figure in the 2016 IIP for the future submarine program was an out-turned figure, not a constant one.

Was the 2017 Naval Shipbuilding Plan in constant or out-turned dollars?
The 2017 NSP referred to more than $89 billion in investment in shipbuilding. It does not make a blanket statement about whether that is in constant or out-turned dollars. However, it does specify in several places that particular figures are out-turned and there is no reference to constant dollars. It also repeats the 2016 IIP's figure of $195 billion for the decade to 2025-26, which was an out-turned figure. It's reasonable to assume then that its figures were out-turned.

Is the 2020 Force Structure Plan in constant or out-turned dollars?
The 2020 Force Structure Plan contains this explanatory note:

> *Out-turned vs Constant Year dollars – The out-turned values within the 2020 Force Structure Plan are projections of expenditure over time based on estimates of when expenditure is anticipated to occur into the future, adjusted for inflation and foreign exchange. These expenditure projections are calculated using economic parameters that are periodically updated by the Departments of Finance and Treasury. While this Plan reflects only out-turned dollars, Defence projects may sometimes also be expressed in constant dollar terms. This is where the cost of a project is described in 'current day' dollars as opposed to its cost into the future*. (page 21)

This confirms that all costs in the FSP are in out-turned. While this note states that Defence projects may sometimes be expressed in constant dollars, we are not aware of any public Defence documents that do so.

Are any figures in constant dollars?
The only time Defence has used a constant dollar figure in the area of shipbuilding that we are aware of is when RADM Sammut informed Senate estimates in 2018 that the cost estimate for the future submarine program was $50 billion constant for acquisition and $50 billion constant for sustainment.

What is in the NSP's $89 billion figure?
The $89 billion figure in the NSP appears to have been reached by aggregating the cost estimates for the future frigates, future submarines and OPVs ($50b/$35b/$4b).

What is the equivalent figure based on the 2020 FSP?
Summing the same three programs in the 2020 FSP produces $140 billion.

However, this is not the total cost of the Naval Shipbuilding Program as the 2020 FSP adds several new classes of vessel to the program. It is not entirely clear which future ships will be built domestically. The FSP specifically states that some will be (future mine warfare and hydrographic vessels, additional Cape-class patrol boats, two new replenishment/sealift ships and the Pacific Step-Up vessel). These add around a further $8-11.5 billion to the original plan, bringing it to around $150 billion.

However, the FSP is silent on where several other new classes of vessels will be built, including the replacement for the ADV *Ocean Protector*, replacement Navy landing craft, a new 'salvage and repair vessel' and the Army's new watercraft. But they are included in fact sheet on naval shipbuilding accompanying the 2020 Defence Strategic Update, which explains the government's plans for continuous naval shipbuilding. In fact, *all* of the Navy and Army's future vessels are on the fact sheet, which could imply that all future ADF vessels will be built in Australia. In response to our request for clarification, Defence stated that there will 'further guidance' in the update to the NSP to be published later this year.

What's the difference between approved and unapproved funding?

The figures presented in Table 1 are the total acquisition provision for the projects, that is, the maximum amount that the government and Defence anticipate spending. However, Defence does not yet have government approval to spend all those funds. The entire budgets of the Offshore Patrol Vessel project and the Pacific Patrol Boat Replacement projects have been approved. The future frigate and future submarine programs are taking a phased, or incremental, approval strategy and so far, only a small portion of their total budgets have been approved. Actual expenditure to date is an even smaller portion. The approved budgets and expenditure to 30 June 2020 of shipbuilding projects is provided below

Table 3. Shipbuilding expenditure to 30 June 2020 ($m)

Program	Current approved budget	Expenditure to 30 June 2020
Future submarine (SEA 1000)	6,018	1,495
Future frigate (SEA 5000)	6,336	790
Offshore Patrol Vessel (SEA 1180)	3,748	603
Pacific Patrol Boat Replacement (SEA 3036)	506	190
Total	16,608	3,078

Source: Defence PAES 2019-20; Defence Annual Reports

Are those figures the whole cost?

Sustainment

The figures provided in Tables 1 and 3 are only acquisition funding. Sustainment funding is in addition to this. A general rule of thumb is that sustainment costs over a capability's life are around twice the acquisition cost (i.e. a one-third/two-third split). Defence itself uses a ratio like this with the NSP stating that 'the whole-of-life costs for capability are typically 30% in acquisition and 70% in sustainment.' (page 80).

Defence has however informed Senate estimates that in addition to the future submarine's acquisition cost being $50 billion constant, its sustainment cost will also be $50 billion constant, i.e. a 50%/50% split. In our view, this sustainment cost estimate should be regarded as an absolute minimum. Firstly, it is considerably lower than Defence's own 'typical' rule of thumb. Secondly, it means that the 'per tonne' operating cost of the future submarine would be about the same as the Collins-class submarine, which goes against the general rule that later generations of defence equipment cost more to sustain than their predecessors due to their greater complexity.

Since the last future submarine will retire around 2080 (assuming it remains a relevant capability), the $50 billion constant sustainment cost out-turns to around $145 billion.

To our knowledge, Defence has not made any sustainment figure public for the future frigate. Assuming a similar per tonne figure to the Anzac class, an annual constant figure in today's dollars would be around $900 million, or $27 billion over a thirty-year life. Again, this is significantly less than the one-third/two-third rule of thumb since the current constant acquisition cost estimate in the 2020 FSP is around $30 billion which would predict a sustainment cost of $60 billion.

Defence has informed Senate estimates that the sustainment cost of the OPV will be around $200 million per year. If this is a constant figure, it is better aligned with the one-third/two-third rule but still short. However, since the current sustainment cost of the Armidale-class patrol boats is close to

$100 million and the OPV is five time larger, $200 million again seems to be an absolute minimum estimate.

Facilities

Defence project budgets generally include funding to upgrade or replace the facilities needed to support the new capability. However, there are several caveats to bear in mind with regards to the OPV:

- Due to the scale of facilities enhancements required to operate the OPVs, a separate line was included in the 2016 IIP called 'Patrol Vessels Wharves and Port Facilities' - $750m-$1bn.
- The business case for OPV and future frigate facilities provided by Defence for consideration by the Parliamentary Standing Committee on Public Works (here) stated that 'the estimated total capital out-turned cost of the Project is $1.8 billion. No breakdown between the frigate and OPV components was provided.
- The capital equipment funds managed by Capability Acquisition and Sustainment Group are reported separately to facilities funds managed by Estate and Infrastructure Group in the PBS/PAES. That means the $3,748 million approved budget for the OPV in PBS/PAES doesn't include facilities expenditure.
- This accounts for the discrepancy between the PBS/PAES figure of $3,748 million and the $4.7 billion figure in the 2020 FSP (page 45) because the latter likely includes around $1 billion in infrastructure funding.

There are several caveats to bear in mind with regards to facilities the future submarine:

- Defence has informed Senate estimates that the IIP/FSP provision includes funding for facilities upgrades, but not for a potential east coast submarine base.
- There is broad consensus that in addition to the current west coast base an east coast base is needed for strategic and recruitment/retention reasons.
- The 2020 FSP includes a substantial new line called 'Undersea Warfare Support Facilities and Infrastructure ($6.8-10.2b).
- In response to ASPI question whether this line included an east coast submarine base, Defence replied: 'This includes upgraded and expanded facilities to support the doubling in size of the submarine fleet. Defence continues to conduct operational support modelling and studies to identify the most efficient and effective options for the submarine fleet, ensuring the facilities are best positioned to support the Australian Defence Force in the region.'
- This is not a definitive answer but considering the new funding line is around 4-5 times the expenditure planned for the OPV and future frigate, it does seem to be scoped for a substantial new facility.