

31 October 2017

The Chair  
Senate Economic References Committee  
Via email: [committee.sen@aph.gov.au](mailto:committee.sen@aph.gov.au)

Dear Chair

**Supplementary Evidence – Jon Stanford (Insight Economics)**

I provided evidence to the Committee in Adelaide on 13 October 2017. My supplementary evidence covers the following issues:

- The independence of the Insight Economics report on the future submarine (FSM)
- The pump-jet propulsion system
- Clarification of the Cabinet process on the submarine selection.

**Independence of the Insight Economics report on the future submarine**

This section of the submission follows a request from the Acting Chair of the Committee, Senator Kim Carr, for information on the background to the Insight Economics report and in particular whether either we or our sponsor have any commercial interest in the submarine acquisition or were aligned with any of the contenders in the CEP.

Insight Economics is a small consultancy firm focussing on economics and public policy. Its four principals are all former senior public servants and include two former departmental heads – Dr Michael Keating and Dr David Charles. None of the Directors of Insight Economics has any commercial interest in the submarine acquisition or any business connection to any of the three contenders for the FSM contract or other suppliers to the naval shipbuilding industry.

Our interest in the FSM acquisition was aroused when the selection of the Shortfin Barracuda was announced. First, it seemed that the government had allocated a greatly excessive budget (\$50 billion) to the acquisition. Secondly, it had selected an *ab initio* design concept that appeared to involve the highest possible risks and seemed to ignore all the painful lessons of previous procurement failures. Thirdly, it had accepted a delivery schedule that would make it highly likely that the RAN would experience a significant gap in submarine capability at a time when Australia's strategic situation may well be more threatening than it is today.

Our first initiative was to write some articles criticising the acquisition. These appeared in the Fairfax press and on John Menadue's policy blog, *Pearls and Irritations*. Following

the publication of these articles, a Sydney businessman, Mr Gary Johnston, agreed to sponsor an independent report by Insight Economics on the submarine acquisition. Mr Johnston owns a number of businesses, including Jaycar Electronics. He has assured us that he has no commercial interest in the submarine project. His main motivation is a legitimate concern about Defence's record in failed acquisitions, such as the Super Seasprite helicopters, and the consequent waste of taxpayers' money.

In addition, the authors of the report do not favour any particular design of submarine. Indeed, although we believe the selection process for the FSM to be flawed, we are not recommending that the government change any of the decisions it has made to date. Our recommendations instead focus on avoiding the capability gap and establishing an insurance policy in case the FSM design should fail in the sense that it could not provide the required capability in a timely manner and at an acceptable cost. Our recommendation to acquire six military off-the-shelf (MOTS) submarines is not designed to replace the FSM but to provide a less costly and less risky interim solution than a comprehensive life extension of the *Collins* class. We propose that fixed price tenders for the MOTS boats to be built either in Australia or offshore should be sought from submarine builders in France, Germany and Japan.

In terms of our credentials to undertake this task, Mr Gillis stated in his evidence that Professor Hugh White and I are not "experts in submarine technology". While true, this comment and similar ones made by the Minister for Defence Industry seem to imply that only experts in military technologies have the right to comment on public investments in defence capability running to many billions of dollars. Not only do we reject this view, but we would also note that the policy of 'leaving it to the experts' has not always produced high quality outcomes in previous defence acquisitions.

While the principals of Insight Economics have no background in naval technologies or in engineering more generally, in the course of this project we have consulted at great length with many experts including marine engineers, shipbuilders and retired Australian submariners. In particular, the project benefited from having two external associates, namely Professor Hugh White, a strategic policy expert and a former deputy secretary of the Defence department, and Rear Admiral (retired) Chris Stanford, Royal Navy, a former anti-submarine warfare specialist. Both Professor White and RADM Stanford provided advice throughout the course of the project and commented extensively on drafts of the report.

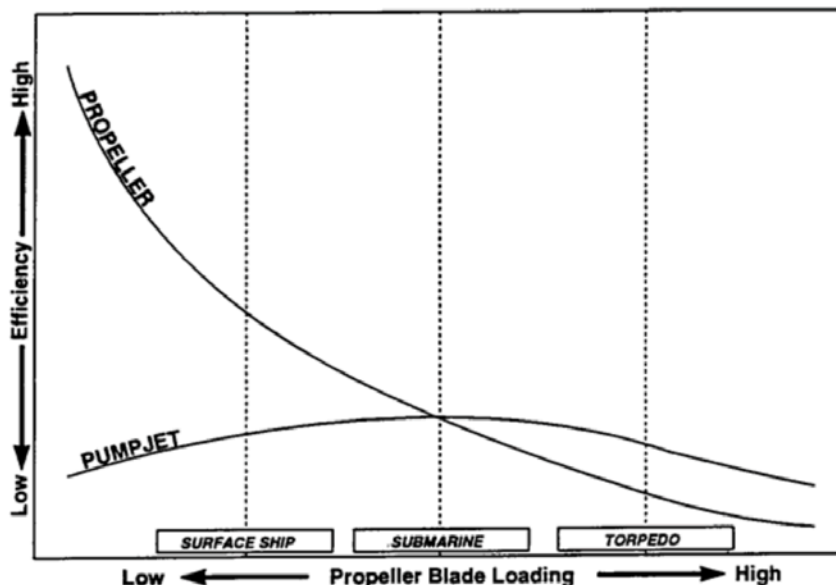
## **Pump-jet propulsion system**

This section of the submission is in response to a request from the Acting Chair that we provide any information we have comparing pump-jet propulsion systems and propellers for conventional submarines.

When the announcement was made that the Shortfin Barracuda was to be Australia's future submarine, one of its great advantages was said to be that it would incorporate pump-jet propulsion rather than a propeller. Indeed, the promotional material put out by Naval Group (then DCNS) at the time stated that propellers for submarines were now obsolete.

We consulted extensively with marine engineers on this point. Although significantly heavier, pump-jet propulsors are said to be quieter than propellers, particularly under acceleration, and are also more efficient at higher speeds. It seems indisputable that they are superior to propellers in nuclear submarines, which have almost limitless supplies of electric power and generally travel at a higher speed than conventional boats. We were provided with the following chart of German origin (Exhibit 6.5 in our report) that seems to have been widely circulated in Australia. While the chart lacks quantitative data, it suggests that propellers are more efficient at the low propeller loadings associated with the lower cruising speeds of diesel-electric submarines while pump-jets are more efficient at higher speeds.

#### RELATIVE EFFICIENCY OF PROPELLERS AND PUMP JETS



Source: Hauschildt, Peter, University of Hamburg

There have been some experiments with using pump-jets in conventional submarines. One Soviet Kilo-class submarine was built with a pump-jet in the 1980s and a French

*Agosta* class submarine was also fitted with one. These experiments appeared to be unsuccessful and pump-jets have not been fitted to conventional submarines subsequently. It is notable that Naval Group does not fit pump jets on its conventional export submarine the *Scorpène*.

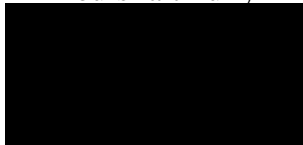
**Cabinet process**

I would like to amend my evidence on the Cabinet process on the future submarine.

In my evidence I stated there was only one meeting of the National Security Committee of Cabinet on the FSM. I meant to say there was only one meeting of the National Security Committee of Cabinet on the FSM *decision*. I understand (from the ANAO report) that the Minister for Defence wrote to the Prime Minister on 19 April to advise that she had reached a decision on her recommendation to Cabinet. I am advised that a meeting of the NSC was then held on Sunday 24<sup>th</sup> April. It is not clear that a Cabinet submission was circulated prior to this and, if it was not, it is difficult to see how agencies could provide detailed advice to their Ministers.

If the Committee would like any further information, I would be happy to provide it.

Yours faithfully



Director