

**Senate Standing Committee on Environment and Communications
Legislation Committee**

Answers to questions on notice
Environment and Energy portfolio

Question No: 163
Hearing: Budget Estimates
Outcome: Outcome 3
Program: Australian Antarctic Division (AAD)
Topic: Icebreaker – Cost Drivers
Hansard Page:
Question Date: 05 June 2017
Question Type: Written

Senator Xenophon asked:

Was analysis carried out to identify cost drivers amongst the unique Australian requirements

a. If so:

i. What were the cost drivers?

ii. What analysis was carried out in respect of those cost drivers from a value for money perspective

iii. Were any requirements eased as a result of the analysis

b: If not, why not?

Answer:

a. Yes

i. *Cost drivers*

Due to the vast distance across the Southern Ocean between Hobart and our stations in Antarctica, our voyages are lengthy in duration, challenging in nature, and logistically complex. As a result, the major cost driver in the Australian context is the multi-role nature of the ship itself and the environment it has to operate in.

To meet the resultant requirements, the new research supply icebreaker is required to be:

- an ‘icebreaker personnel transport vessel’ which can break through ice up to 1.65 metres thick over extended distances, in order to transport up to 116 expeditioners on a voyage to and from our Antarctic research stations, which is greater than the requirements of most other national Antarctic programs.
- an ‘icebreaker marine science research vessel’ which can break through ice up to 1.65 metres thick over extended distances, and which provides the flexible and adaptable marine science platform (replicating the science research capability of CSIRO’s *Investigator*), to support the broad range of globally important science research conducted within the ice around Antarctica.
- an ‘icebreaker cargo re-supply vessel’ which can break through ice up to 1.65 metres thick over extended distances, with sufficient storage capacity, lifting capability, and ship-to-shore vessels to deliver the considerable amount of cargo, plant, equipment, and liquid fuel, which each of our four research stations rely upon being delivered each summer in order to continue to operate year-round. The unique location of each research station requires differing logistics solutions and options during each summer season, such as over-ice resupply at Davis Research Station, open water ship-to-shore

resupply at Macquarie Island, or even a limited ship to shore resupply by helicopter due to occasional heavy ice conditions at Mawson Research Station.

- an 'icebreaker helicopter support vessel' which has sufficient landing area and hangar facilities to accommodate up to four helicopters and operate them safely, efficiently and simultaneously as part of complex multi-model logistics operations.

ii. Analysis

In early 2012, the Department commissioned global maritime consultancy BMT Technology & Design to develop a capability development document, including a preliminary operational concept document, a preliminary functional and performance specification, and to then subsequently develop a parametric life-cycle cost estimate model.

The Department and BMT explored various options early in the capability development phase of this project and concluded that a single multi-purpose research supply icebreaker capability was the most appropriate long-term solution to support Australia's Antarctic Program. It was also concluded that Industry operating and maintaining the new capability would be preferable.

The key functional requirements were initially set at 1.8 metre icebreaking capability, 1,200 tonnes dry cargo storage, and 1.6 million litres bulk fuel storage.

Following the submission to Government in 2012, the Department undertook further cost modelling analysis with the support of BMT Technology & Design to explore three key drivers of the capability requirements: icebreaking, dry cargo capacity and bulk fuel capacity.

This resulted in the decision to incorporate a capability matrix in the request for proposal, as noted in the ANAO Report. The key capability requirements were for a research supply icebreaker with an icebreaking capability of 1.65 metres; 1000 tonnes dry cargo storage; and 1.3 million litres bulk fuel storage. In addition to this, the request for proposal sought supplementary costing information from respondents regarding variables to the key capability options to assist the Department in making its final decision as to capability requirements.

iii Change in requirements

Responses to the capability matrix included in the RFP did help understand the cost impact of a limited set of the requirements (in relation to icebreaking capability and cargo capacity). The analysis demonstrated that the total cost was not disproportionately impacted by an increase in the requirements and the Government supported an increase in capabilities over the nominal mid-point on the basis that the vessel would need to meet the requirements of the Australian Antarctic Program over the next 30 years. The information gathered from both these elements did highlight that the multi-purpose nature of the platform was the major cost driver rather than individual systems or capabilities.

During the tender evaluation process, the Department identified that the tenderer had retained some of the requirements set out in the original request for proposal in their proposed design. For example a 'snow-flushing system' which was assessed as being overly complex and that removing this from the design would reduce technical risk without any material loss of capability.

In finalising the contract through the negotiation phase, a number of the ships systems were assessed as to their effectiveness and this was measured against the cost. Some changes were made and the savings used to offset against the wider design improvements. This could only be undertaken on an individual system basis and not across all systems.

b. See answer above.