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Department of Defence

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29 May 2006

Dr Kathleen Dermody
Secretary
Senate Foreign Affairs, Defence and Trade References Committee
Parliament House
CANBERRA ACT 2600

Dear Dr Dermody

I am pleased to advise you that Defence has completed the responses to questions on notice arising from the 28 March 2006 hearing for the Committee's *Inquiry into Naval Shipbuilding*. Enclosed are the responses to 74 questions taken on notice from the hearing. The responses have been approved by the Minister for Defence.

If you have any questions please contact Susan Oldroyd on (02) 626 56277.

Yours sincerely

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Senate Foreign Affairs, Defence and Trade References Committee
Public Hearing with Department of Defence
28 March 2006
Responses to Questions taken On Notice and during the Hearing

Overview

Defence has stated its needs for shipbuilding capability in short and medium terms. Defence's strategic aims for industry are centred upon having a sustainable and competitive Australian defence industry base able to support a technologically-advanced ADF (Defence 2000, p.99). To support the ADF's naval capability, this requires a viable maritime industry, and Defence believes there are a number of ways in which this can be achieved.

For a low to moderate technology basic platform like the Amphibious-LHD (as differentiated from a high technology AWD/Aegis or a Collins submarine) there is only a low correlation between Build capability and Sustain/Upgrade capability, as has been shown with current Naval programs and fleets. The key skills to nurture for the long-term in this technology area are in systems integration and upgrade. In this sense, the skills used during platform construction are of less important in the through life support phase of ships.

A viable naval shipbuilding industry can provide benefits for Australia, so long as this is not at the expense of other industry sectors. The skill-sets relevant to Defence's maritime industry requirements are not necessarily unique to the maritime industry. They are also in demand in related industries such as the mining and natural resources and construction industries. Given that these skill-sets are identified as being in short supply over the next decade, there is a risk that industries within Australia could find themselves competing for the limited skill-sets available.

Such competition could have the effect of limiting the capability and capacity of these industries in Australia, which are currently managing projects that are key to the wealth generation for Australia. This would have the effect of pushing up prices (and potentially making Australia less competitive on the global market), while still not guaranteeing that industries would be able to access the skills they need.

As to the wider economic benefits of the naval ship building industry, Treasury has advised Defence that "the construction of major naval ships in Australia may have multiplier effects through the rest of the economy. However, such second order effects are difficult to quantify both in terms of employment and income effects because the effects will depend on the particular circumstances pertaining at the time. For example, where resources are displaced from other productive sectors to support naval projects being undertaken in Australia, multiplier effects associated with the use of those resources in these other competing sectors can be negative".

For programs like the Amphibious-LHD, tenderers are developing their proposals on optimum build strategy and cost. Tenderers are required to show how cost-effective

involvement in the project by Australian industry has been maximised. Through the tender submissions, consistent with Government policy under the Defence Procurement Review (Kinnaird) of 2003, Defence will have the data required to evaluate the premium for a local build and offer Government options for its consideration.

The Defence Capability Plan does not include provision for any premium for LHD local build. Any supplementation would need to be sought from the Government. Any decision to support a broader economic agenda beyond Defence's whole-of-life needs would be one for Government.

Defence considers that there could be relatively few savings in whole-of-life cost from choosing to build locally. Modifying a standard (Military off the Shelf - MOTS) design will always involve a cost increase, wherever construction occurs. In terms of the ship itself, the functions of building yard and docking yard are quite different and require very different capabilities. Defence expects that the greatest savings over the life of the ship will come from full access to and use of ship design and intellectual property across the entire capability. This is a requirement of the Defence tender process.

Defence Responses

The responses to the questions taken on notice and during the hearing as recorded on the 28 March 2006 Hansard are provided below. To assist easy assessment of like topics, Defence has adopted a modified format in providing the responses by grouping like questions together into seven groups as per the Table below.

Group No	Group Title	Questions Assigned
1	Defence Industry Capability requirements	QON: 1, 9, 35, 36, 37, 41, 42, 43, 44, 47, 48, 49, 50 & 62; Hansard Pages: 19, 20, 25 & 26
2	Cost/Capability Considerations	QON: 2, 24, 25, 26, 27, 28, 29, 33, 45 & 46
3	Defence Processes	QON: 8, 30, 40, 53, 58, 59, 60 & 61; Hansard Pages: 21, 35, 39 & 48
4	Domestic Ship Building Industry	QON: 3, 4, 5, 6, 15, 21, 22, 23, 31, 32 & 34; Hansard Pages: 22 & 23
5	Strategic Industry Requirements	QON: 7, 10, 12, 16, 54, 55, 56 & 57
6	Broader Economics	QON: 17, 18, 19, 20, 38, 39, 51 & 52; Hansard Pages: 19 & 34
7	Export Control	QON: 11, 13 & 14

GROUP 1 – DEFENCE INDUSTRY CAPABILITY REQUIREMENTS

Questions-on-Notice

QON 1. Defence's submission notes the findings of the 2002 ASPI report that 'There is in fact no strong strategic reason to build the Navy's warships here in Australia'. The report goes on to state, however, that 'It is desirable to have a repair facility close to each naval operating base for practical reasons, and to provide strategic redundancy.' Defence broadly agreed with these findings. Submission 20 para 1.6 and 1.7.

- Is there a strategic imperative for Australia to have a viable ship repair industry?
- Is it possible to sever the connection between the construction of a naval vessel and the acquisition of the skills and knowledge necessary for its future maintenance, repair and upgrade? Could you provide reasons for your answer?
- What is meant by the term desirable in the quote above?

Answers:

(a). Yes. As stated at paragraph 1.3 of the Defence submission, it is a strategic imperative to sustain a vibrant, competitive, cost-effective Australian maritime industrial capacity able to, undertake not only repair and maintenance but also the upgrades and the associated integration of system changes to Navy's surface ships and submarine force.

(b). Yes. While, in many cases it is not the preferred option, it is possible to meet the strategic imperative to maintain and modify Navy ships in Australia without building ships in Australia. We have successfully done that on a number of occasions.

- For example, the first four FFGs were supported in Australia before the final two were constructed here; Navy operates the two LPAs constructed in the US and the Fleet replenishment ships HMAS WESTRALIA constructed in the UK.
- Major warship repair and maintenance is conducted by members of the ship repair panel. Of the four members of this panel (Tenix, ADI, Forgacs & United-WA) three have not previously conducted major warship construction.
- As highlighted in the Defence submission section 3, ship repair generates a significant demand for skills and knowledge regardless of the construction demand.

In summary, there is only a small linkage between the need to build ships in Australia and to maintain them when the ships are relatively simple. As complexity grows, the link becomes stronger. Patrol boats and the refit of the oiler SIRIUS are at the simple end, while the frigates, submarines and AWD are at the other end. The response to Question 51 and 52 are relevant in these circumstances.

(c). The quote is taken from a report prepared by ASPI, which is best placed to advise what they meant.

As explained in the Defence submission at paragraph 1.13, it is a Navy requirement that major support for its warships be conducted in or near the ship's home port.

Navy's requirement does not prevent maintenance being conducted at repair facilities that are not in the proximity of the ship's operational base. It is sometimes necessary to conduct maintenance at other locations. For example,

- Collins class Full Cycle Docking maintenance is conducted at Osborne in South Australia as a consequence of a Federal Government decision to retain the relevant skills developed during the build program. The disadvantages of conducting these dockings at Osborne include those Navy seeks to avoid as identified in the Defence submission at paragraph 1.13, and
- because warships can be deployed anywhere in the world, Navy has successfully conducted major repair activates at many facilities remote from the ships' home port.

In view of the above, and as per RADM Ruting's verbal response in the Hansard 28 Mar 06 page 11, it is not essential to have a repair facility close to a ship's home port but "desirable" to meet Navy's stated requirement.

QON 9. Defence's submission states that: 'Defence continues to implement strategies aimed at assisting industry to develop a vibrant, competitive, cost effective local maritime industrial capacity' (para 1.16).

- Could you provide concrete examples of these strategies?

Answer:

Over recent years Defence has put in place a range of strategies to develop and sustain the Australian maritime industrial capacity.

From an Australian Industry Capability perspective, Defence requires contractors to detail their strategies for sustaining critical indigenous capabilities and optimising the engagement of Australian industry. This requirement is embedded within the Australian Industry Involvement Program (AII), which is a mandatory requirement for all Defence procurements over $10 million (Question 44 refers).

From a contracting perspective, Defence has embarked on a program of continuous improvement to ensure that lessons learned and internal and external stakeholder feedback are considered in the development/review of procurement policy, practices and related tendering and contractual documentation.

In recognition of the need to ensure that Defence's standard contracting procedures and templates reflect commercial 'best practice' and the global nature of Defence procurement, a Procurement Improvement Program (PIP) was commenced in late July 2005 by DMO as Business Process Owner for Procurement and Contracting Policy and Practices across the Defence portfolio.

The PIP is a key change initiative which will benefit both Industry and Defence through:

- the reduction of unnecessary processes and documentation,
- placing Defence procurement and contracting on a commercial footing while remaining consistent with Government accountability frameworks, and
- providing increased attention to Defence and defence industry concerns to ensure a full understanding of Defence's capability requirements and full understanding of defence industry offers before entering into a contract.

Further details of the defence industry development strategies can be found in the answers to Questions 47 – 49.

QON 35. Figures on pp. 12–22 of Defence's submission trace the projected Defence expenditure by project from 2005–2025 and workforce requirements. A number of submissions have referred to the problems created by the peaks and troughs in demand.

- Could you take the committee through the graphs and members can ask questions as you proceed through the information?

Answer:

The graphs provide an indication of Defence demand and associated skill-set requirements. Defence would be happy to respond to any specific questions from the Committee with respect to this information.

QON 36. Could you indicate where on figure 9 demand for extra skills associated with any upcoming mid life refits occurs? What is the extent of demand spikes for these refits/upgrades?

Answer:

Figure 9 includes provision for extant upgrade projects associated with the FFGs and ANZAC frigates and the Collins submarine. The through life support requirements associated with current and future naval vessels also assume a degree of upgrade work. At this stage Defence has not programmed in any major upgrades for future vessels as no requirements have yet been specified.

QON 37. When is government intending to articulate its future naval ship demand beyond the current two major projects?

- After the completion of the AWD and Amphibious ship projects, could you indicate what you think the pattern of demand for naval shipbuilding services will look like?

Answer:

Defence's long term capability requirements and objectives are articulated through the Defence Update, the Defence Capability Strategy and the Defence Capability Plan (DCP). Defence also uses various Industry Councils to regularly discuss long term capability development programmes that are outside the ten year DCP time frame. These details are further elaborated in the response to Question 7 (in Group 5). The DCP provides some certainty to Australian Industry as a whole.

As foreshadowed in Figures 4 to 8 in the Defence submission, Defence anticipates industry being required to commence work on the next generation of frigate and undersea warfare (submarines) programs from about 2018 onwards. Planned acquisitions up to 2016 will be included in the next public DCP. This forecasts the prospect of an additional phase to JP2048 for a Strategic Sealift Ship requirement and to replace HMAS SUCCESS in 2017.

QON 41. Defence's submission provided the following table (para 5.2), which provides estimated Australian Industry Involvement in each of the project phases based upon historical information.

Project Element	Combatant Ship Build	Support Ship Build	Weapons Upgrades
Platform Design	2%	2%	2%
Hull, Machinery and Equipment	18%	15%	8%
Logistics support including Training	9%	14%	14%
Combat Systems	7%	5%	5-30%
Project Management	9%	10%	10%
Total	45%	46%	39-64%

TABLE 4.1: AUSTRALIAN INDUSTRY INVOLVEMENT

QON 42. An important aspect would be whether this involvement covered the important skills and knowledge critical to the maintenance, repair and upgrade of vessels.

- What percentage of those critical skills are reflected in the table?

Answer:

All of the skill-sets detailed in the table, except a proportion of 'Hull, Machinery and Equipment' are considered to be of strategic importance to the ongoing support of naval ships. On that basis, 27% of the combatant ship build, 31% of the support ship build, and 31-54% of the weapons upgrades are critical skills. Some knowledge of machinery and equipment installation and set-to-work are also important to through-life support and modifications.

QON 43. Earlier in Defence's submission, it observed that 'Critical to the ability to provide maintenance, repair, refitting and capability upgrade services is a shipbuilder's access to deep design expertise and a sound understanding of the source and history behind the design (para 1.19).

- What representation of 'access to design' is contained in the above figures?

Answer:

Approximately 2% of the acquisition cost relates to Australian industry engagement in design activities. This percentage allows for sufficient transfer of design skills to ensure that Australia retains the skills to meet follow-on through life support requirements provided that such access and involvement in the detailed or production design is provided to Australians.

QON 44. Defence's submission accepts that 'during any warship construction project a significant part of the work is undertaken by many second and third level suppliers and subcontractors. It states that 'These companies are a very important component of the nation's maritime capability. They can represent 70% by value of a project'.

- In its tendering and contracting for naval shipbuilding projects, does Defence require a certain level of local industry involvement?

Answer:

Local industry involvement in Defence projects is approached through a series of steps. First, Defence identifies the industry capabilities it considers important for strategic, logistical and other reasons. This typically involves the capability to repair, refit and modify equipment with aspects such as systems integration a higher priority than some production activities. These capabilities and opportunities are described in Industry Sector Plans, in particular the Defence Electronics Systems Sector plan. Second, the capabilities are described in tender documentation and addressed in subsequent bids from industry. Third, Defence assesses each bid and ranks potential suppliers in terms of the quality of their response to Australian industry and other tender requirements.

Important features of this approach are as follows:

- There is no uniform level of Australian industry involvement specified for each project. That is, fixed percentages specifying targeted values of Australian industry participation are no longer part of the tender process. Desirable levels of Australian industry involvement can differ from project to project, in response to strategic and other factors.

- The importance given to Australian industry involvement relative to other issues in the evaluation of tenders - like product or service price and quality - is determined on a project-by-project basis. In some projects, industry issues may attract a higher priority in the overall process of tender evaluation.

- Local industry involvement centres on work which will directly assist to support Defence projects. It does not normally extend to work with little connection to an industry capability relevant to Defence needs. Thus, local industry involvement is not a form of offset or counter-trade.

- Proposals for local industry involvement are evaluated on the basis of value for money. This does not always mean that goods and services sourced from local industry must be cheaper than those available from overseas. There may be instances where paying more for a local source of supply yields offsetting strategic or other benefits which mean that value for money has been achieved.

- A bidder's failure to satisfy all of the Australian industry involvement outcomes set out in a Request for Tender (RFT) may disadvantage that bidder relative to its competitors and potentially disqualify the bidder from contention.

- However, Defence retains the right to select a bidder whose approach may not satisfy all Australian industry involvement outcomes set out in the RFT if other aspects of its approach provide offsetting benefits. Thus, while Australian industry involvement outcomes are considered important by Defence, there may be instances where a preferred bidder is selected without these being satisfied fully.

In an audit of the management of Defence's Australian Industry Involvement (AII) Program in 2003, the ANAO reported "that Defence had set up a well structured approach to ensure that AII considerations are addressed in procurement phases of capital equipment projects".

In the four major capital equipment projects used as case studies, the ANAO found that "ANZ content targets were met and, in some cases, exceeded. Defence used the AII Program to develop and sustain capabilities in Australian industry which have provided strategic benefits to Defence in terms of better through-life support (TLS) by shorter lead-times in the procurement of parts, faster turn-around times for repairs, and the ability to carry out modifications to meet Defence operational and/or capability requirements."

QON 47. Defence's submission states that ' The Defence Materiel Organisation is conscious that repair and refit arrangements for major ships have a short-term focus that is detrimental to developing and sustaining a viable industry support base and is inefficient in delivering effective support outcomes'. (submission 20, para 1.23.)

- Could you by way of a concrete example explain what is meant by 'short-term focus', and whether more effective planning would address this problem?

Answer:

Currently, Defence contracts each major surface warship maintenance availability separately. About 20 availabilities are conducted each year. Each availability is unique and the work load can vary significantly between availabilities. The four members of the ship repair panel are therefore faced with the need to frequently prepare and submit tenders to achieve ship repair work. Both Defence and industry are therefore focused on the short term, undertaking the current work and preparing for the next maintenance tender.

QON 48. Defence's submission goes on to state that 'Defence's short-term focus has encouraged industry to focus on winning the next contract rather than delivering on outcomes'. (submission 20, para 1.23.)

- Could you elaborate on this statement?

Answer:

Defence considers that the current arrangements have a number of shortcomings. These include:

- The short term focus described at Question 47 does not allow sufficient time for industry (and Defence) to conduct adequate planning. Industry bids may therefore be based on inadequate planning and understanding of the outcomes Defence requires.

- Inadequate planning is a factor in the very high level of contract change proposals raised during ship repair availabilities to meet the outcomes of the availability.

Defence intends to combine a number of successive maintenance availabilities for a ship and the planning of these availabilities into one contract. Batching availabilities in this way will mean that the successful tenderer will be engaged for a much longer

period typically 3-5 years rather than just for the period of a single availability typically 2-4 months.

QON 49. Defence's submission notes that new arrangements are being implemented for the support of major surface ships. It states that 'Rather than contracting each ship repair activity separately a number of repair availabilities will be batched together. This will provide better continuity and skill development in industry, reduced logistics cost of ownership, improved system effectiveness, increased ship availability and reliability, improved industry relationships and ultimately, enhanced maritime capability.' (submission 20, para 1.24.)

QON 50. Could you explain this process in more detail? What do you mean by 'batched together'?

Answer: See answer to Question 48.

QON 62. With the current knowledge shortage, can the Australian industry meet the post-Defence Capability requirements for advanced platforms?

Answer:

Defence is confident that it can work together with industry to ensure that Australia has the requisite industrial capability and capacity to deliver and support ADF capability into the future past the end of the current 2005-15 DCP. Programs such as the Skilling Australia's Defence Industry (SADI) will be key to this.

Questions during the Hearing

Hansard Page 19: Senator FIERRAVANTI-WELLS—Where you build a vessel overseas, I would assume, Rear Admiral, that it is built to specifications. For example, if an amphibious ship were built by the Spanish, hypothetically, I would assume it would be built according to Spanish or other specifications. But, as far as future repair and maintenance is concerned, I would appreciate it if you could elaborate on what would happen. If, for example, a pump on the vessel were subsequently fixed in Australia and some substitute parts were put into the vessel which were not sourced from Spain or not in accordance with the original specifications, would that raise issues of liability for us—that is, if the replacement parts did not accord with the original specification? So, if you could develop that a bit more.

Answer:

The scenario postulated occurs frequently during in-service repair. There is often a requirement to substitute different parts or replacement parts into a ship that are not part of the original ship specification. This requirement occurs for a number of reasons, including non-availability of the original part, to achieve improvements or to reduce costs. In these cases the process would be considered a configuration change. Defence has detailed procedures for the management of these changes to ensure that the change does not compromise the fitness for service, safety and environmental compliance of the parent platform. These procedures consider liability issues but ultimately Defence is responsible for ensuring appropriate standards are followed.

Hansard Page 20: Senator FIERRAVANTI-WELLS—When you give the number of person hours to assemble the Collins class submarine, does that include all of the overruns and rectification of the quality of work that you had to do in order to rectify the Collins class submarine? In paragraph 1.9 you say there is a strong link between build and support regardless of where the ship is constructed. I would have thought that the strongest build would be where the ship was built in Australia. I would really like to see a bit more evidence on it regardless of where the ship has been constructed, rather than the rather bald statement that has been made in relation to that.

Answer:

(a). Defence understands that the ASC data was based on the actual build, not any subsequent modifications.

(b). Defence agrees that there can be a stronger tie between design and system knowledge when the build is conducted in Australia, but this is not absolute – See Question 1 (b) response.

Hansard Page 25: Senator FIERRAVANTI-WELLS—I think the figure does not do credit to the sort of analysis work that Defence has done. In the second phase it would be really useful to have a bit more of a breakdown, particularly of numbers and in the sorts of categories that we are talking about and in terms of skills that could be transferable. So, for figure 7 and others, perhaps we can have a little bit more analysis done.

That figure is very difficult to follow. I would really like to see it in numbers.

Answer:

The numbers for Figures 7 and 11 are provided below:

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Systems Engineers	139	155	155	160	155	170	210	215	205	170	130
Platform Engineers	146	136	99	90	80	96	141	161	146	113	88
Design	44	75	280	430	445	360	310	250	155	126	66
Integrated Logistic Support	206	192	185	210	262	274	277	257	217	125	100
Project Management & Planning	396	385	380	380	465	565	540	540	475	330	280
Hull Mechanical	332	264	320	390	445	620	752	775	803	716	560
Subcontracted Module Fabrication	0	0	0	0	520	900	1020	870	750	580	300
Total Construction / Upgrade	1263	1207	1419	1660	2372	2985	3250	3068	2751	2160	1524

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
130	115	95	105	150	190	240	260	270	260
63	58	80	100	110	160	200	200	195	170
71	96	115	200	305	440	490	470	340	230
50	55	45	85	150	200	210	230	220	210
146	142	145	160	250	330	380	410	410	380
419	176	125	130	240	260	420	590	630	630
180	150	170	250	300	460	480	420	380	280
1059	791	775	1030	1505	2040	2420	2580	2445	2160

Figure 7: WORKFORCE REQUIREMENTS (SKILL SETS IN NUMBERS) – CONSTRUCTION AND UPGRADE WORK (2005-2025)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Systems Engineers	436	448	444	454	449	464	504	509	499	464	419
Platform Engineers	408	404	368	354	344	360	405	425	410	377	352
Design	134	165	370	515	530	445	395	335	240	211	151
Integrated Logistic Support	364	348	339	364	416	428	431	411	371	279	249
Project Management & Planning	780	772	775	775	860	960	935	935	870	725	660
Hull Mechanical	859	838	886	966	1021	1196	1328	1351	1229	1292	1121
Subcontracted Module Fabrication	0	0	0	0	520	900	1020	870	750	580	300
Total Construction / Upgrade	2981	2975	3182	3428	4140	4753	5018	4836	4369	3928	3252

2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
424	419	409	429	469	519	564	574	574	564
332	342	374	394	404	464	509	504	504	479
156	191	210	295	400	535	580	560	425	315
209	219	214	254	314	369	379	394	384	374
541	532	565	560	645	725	780	800	790	745
970	704	668	683	818	833	983	1138	1128	1098
180	150	170	250	300	460	480	420	380	280
2812	2556	2610	2865	3350	3905	4275	4390	4185	3855

Figure 11: TOTAL WORKFORCE REQUIREMENTS (IN NUMBERS) BY SKILL SETS (2005-2025)

Hansard Page 26: Senator FIERRAVANTI-WELLS—I am looking for you to do a hypothetical on what effect it would have on your analysis if the scheduling shifted a year or two this way. I think that is all that I have for this evening—but I am sure I will have more questions later.

Answer:

Modified Figures 8, 10 and 12 with LHDs construction work delayed by two years in comparison with the original Figures are provided below.

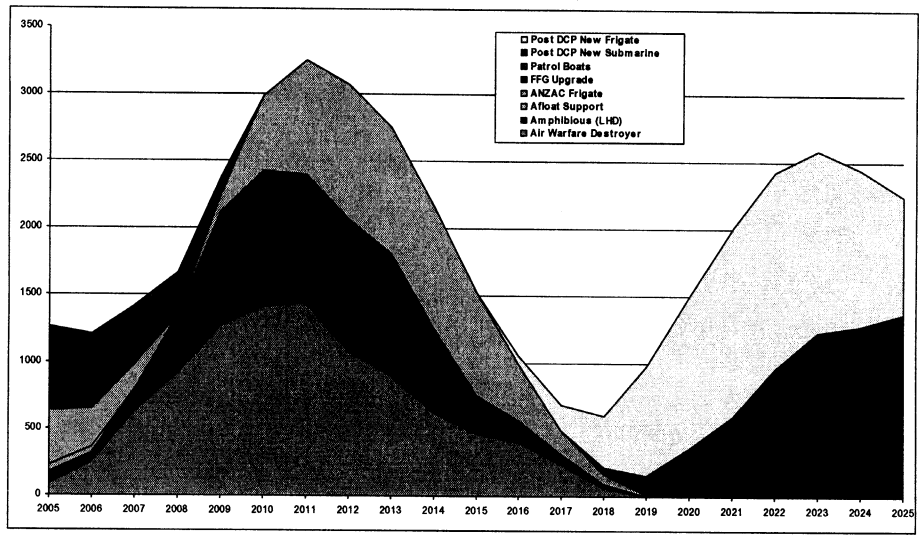

FIGURE 8 WORKFORCE REQUIREMENTS (PROJECT) – CONSTRUCTION AND UPGRADE WORK (2005 – 2025)

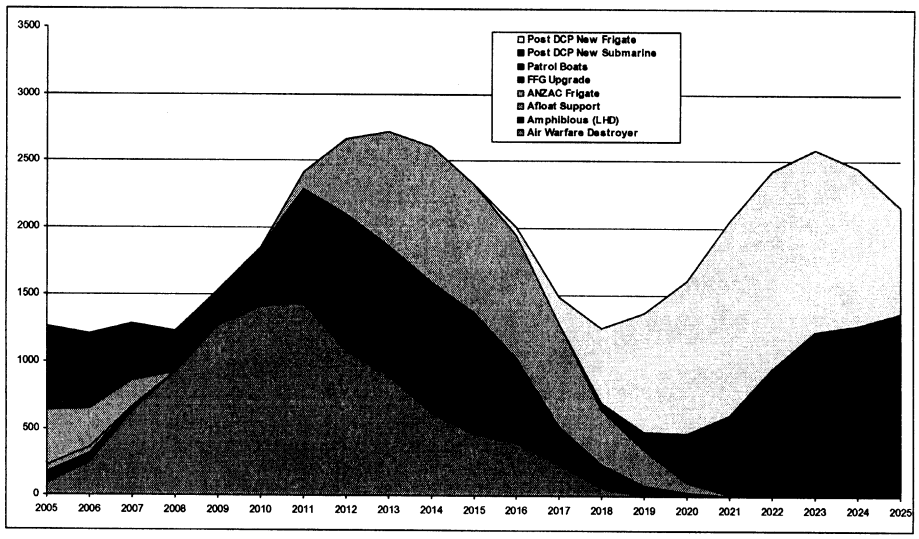

FIGURE 8 WORKFORCE REQUIREMENTS (PROJECT) – CONSTRUCTION AND UPGRADE WORK (2005 – 2025) <u>WITH LHD BUILD DELAYED BY TWO YEARS</u>

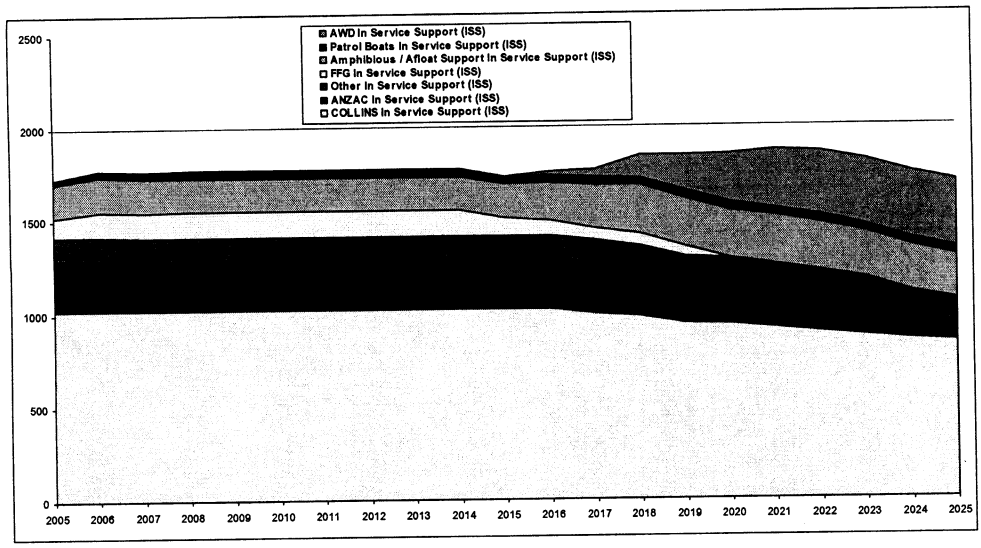

FIGURE 10: WORKFORCE REQUIREMENTS (PROJECT) – IN-SERVICE SUPPORT (2005 – 2025)

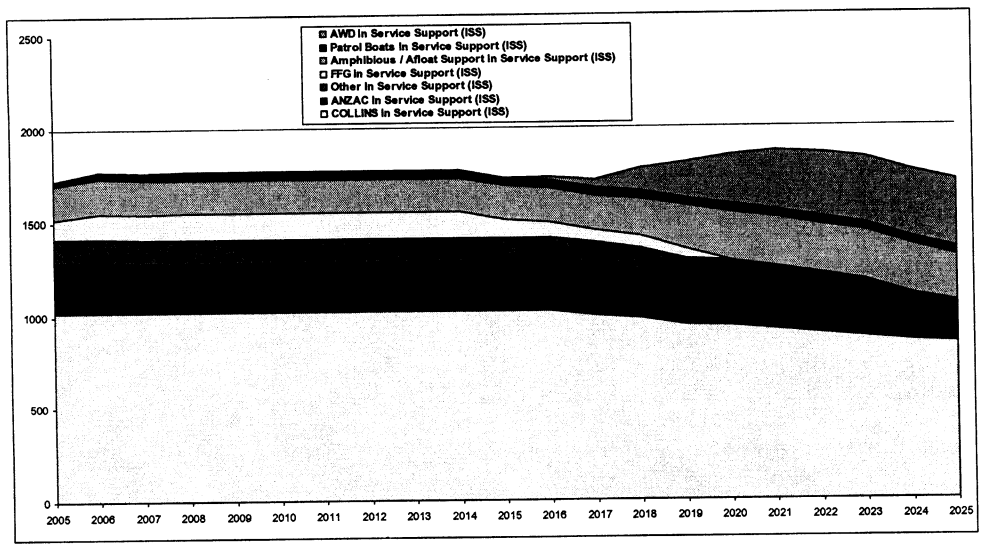

FIGURE 10: WORKFORCE REQUIREMENTS (PROJECT) – IN-SERVICE SUPPORT (2005 – 2025) <u>WITH LHD BUILD DELAYED BY TWO YEARS</u>

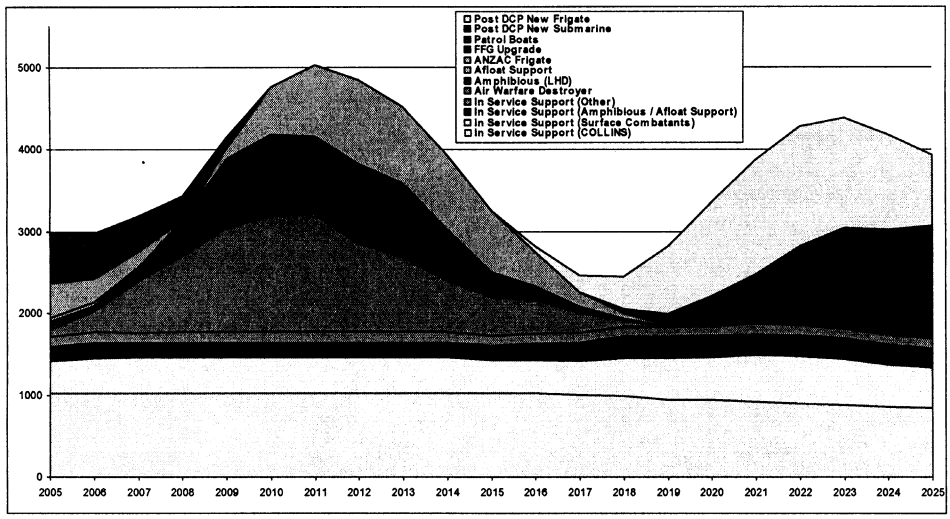

FIGURE 12: TOTAL WORKFORCE REQUIREMENTS BY PROJECT (2005 – 2025)

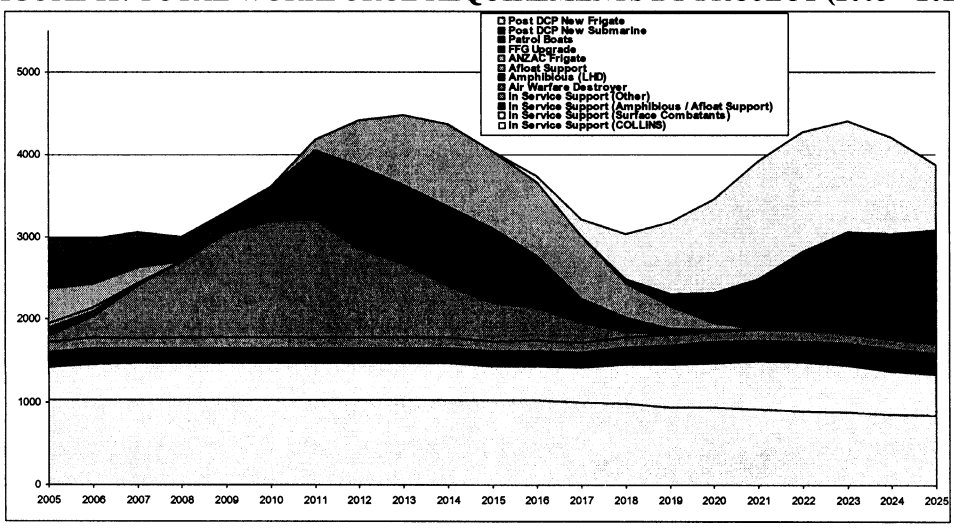

FIGURE 12: TOTAL WORKFORCE REQUIREMENTS BY PROJECT (2005 – 2025) WITH <u>LHD BUILD DELAYED BY TWO YEARS</u>

GROUP 2 - COST/CAPABILITY CONSIDERATIONS

Questions-on-Notice

QON 2. The committee's terms of reference include the matter of the capacity of the Australian industrial base to construct large Naval vessels over the long term and on a sustainable basis.

- What do you understand by the term 'large naval vessel?

Answer:

For Defence, a 'large naval vessel' is something above patrol boat and hydrographic ship size and include frigates, destroyers, tankers, afloat support ships and amphibious ships. Past examples would include the ANZAC and FFG class frigates, and HMAS SUCCESS . The AWDs and amphibious ships (LHDs) would fall into this category. These vessels can be built to both naval warship and commercial shipping standards.

QON 24. ASC's submission (no. 17) advocated the economies of scale and learning curve benefits of buying in excess of 2-4 ships in each class.

- Do you agree with their analysis? Would it be practical for a navy the size of Australia's to benefit from these production efficiencies?

Answer:

Defence agrees with the general principles of economies of scale and learning curve benefits. However, the acquisition requirements for Naval ships are driven by the strategic guidance in White Papers and the detailed capability development processes, which define the need and how it may be satisfied. With a small Navy it is unlikely Australia will have a need for a build of more than 2 – 4 ships in each class until the capability provided by the submarines and ANZAC ships has to be replaced. The numbers and types of ships required for Navy will be decided by this capability analysis. Defence will take into account of the economies of scale benefits when modelling capability acquisition options.

QON 25. The Australian Academy of Technological Sciences and Engineering (ATSE – submission 19) suggested the cost of building more ships with a shorter shelf life would be offset by:

1. not requiring a mid-life fit out
2. creating opportunities to export surplus ships
3. selling second hand 20 year-old ships to smaller navies.

- Could you comment on these assumptions?

Answer:

Defence considers the most cost effective option to deliver capability for every acquisition. Considerations include service life. Defence does not consider that there could be significant opportunities or benefits from the ATSE proposal. Chapter 14 of the draft Naval Shipbuilding and Repair Sector Plan provides details of Defence capability planning and demand management.

Mid life upgrades - A number of factors mean that major midlife upgrades may not be required in the future. This is because the rate of change of technology and nature of warfare has seen a need to conduct regular progressive modifications to Navy warships. Modern systems and warship designs including modular construction and more open systems are making it possible to conduct rapid upgrades at regular intervals. Defence prefers to conduct ongoing upgrades to maintain a capability advantage and to reduce risks by using approaches such as spiral development.

Another important consideration relates to technology transfer. Many Navy vessels include technology from overseas countries and there are strict provisions governing the follow-on sale of vessels to other countries. Specifically, Australia is not able to export military platforms without the prior consent of those countries that have control over the technology and capabilities embedded within the platform. This approval process can be very complex and is unlikely to provide reasonable return on investment.

As to the export of surplus ships, Defence has in the past engaged in cooperative shipbuilding programs, such as the ANZAC shipbuilding program with New Zealand. Such opportunities are limited, however, due to the particular requirements of individual navies around the world and their natural desire to build ships locally. That said, a number of Australian companies (eg Tenix and Austal) are successfully exporting small ships and patrol boats to overseas countries, and Defence is supporting these activities as a more flexible and appropriate means for increasing Australian shipbuilding activities.

As to the sale of second hand vessels, this is a limited option given that there are generally limited opportunities for selling second hand naval vessels on the world market, the ADF has relatively few ships to dispose of, and the fact that Australian naval vessels have generally had significant life extension by the time of their disposal. For these reasons, those countries wishing to purchase second-hand vessels generally look to large navies such as the UK, USA or Russia, rather than to smaller navies such as Australia is. Chile, for example, expressed some early interest in purchasing the two FFGs that were retired, but they purchased vessels from the Netherlands and UK instead. Similarly, there has been only limited interest in the purchase of the Fremantle Class Patrol Boats as the high operating and maintenance costs of the older equipment can be limiting to regional navies. The benefits realised through such sales, in any case, tend to be limited, and there can be potentially greater gains made through options such as sinking the vessels to provide dive sites attracting tourist income.

QON 26. Could you explain the purpose of having an overseas 'off the shelf' option for the design of the AWD ships? How have Kinnaird principles been applied to this approach?

Answer:

As a result of the Defence Procurement Review, a 'Two Pass Government Approval' system for Defence projects has been instituted to ensure that Government is provided the opportunity to make better informed decisions regarding the procurement of Defence systems. In considering the procurement of complex Defence capabilities, Defence is now required by Government to include an Off-The-Shelf (OTS) option or

options as an alternative way of meeting agreed capability need. The OTS option provide Government with a benchmark against which to measure the choices presented to them. The OTS option should be viable in meeting the broad capability gap and is defined as one *'that is available for purchase, and will have been delivered to another military or Government body or commercial enterprise in a similar form to that being purchased at the time of the approval being sought'.*

For the AWD program, the Government agreed at First Pass to evaluate a 'Military off-the-Shelf' (MOTS) variant based on the Spanish F100 design together with an 'Evolved' design option that will be developed by Gibbs & Cox, Inc as capability solutions. Defence will provide the two fully scoped and costed options to Government for its consideration at Second Pass Approval. The basis for comparison of an Evolved and MOTS option is to ensure cost-to-capability trade-offs play an integral role in ensuring value for money throughout the decision making process. Both these options are to be considered in the context of an Australian build.

Both ASC Pty Ltd and Raytheon Australia, together with the AWD Program Office, will contribute to the development of both options. In considering Second Pass Approval, which includes the decision on which of the two capability options to pursue, Government will take account of Business Cases developed by the AWD Program Office. The Business Cases will provide comprehensive detail surrounding capability, cost and schedule, together with significant risks and issues associated with both solutions, as the basis for choosing the preferred capability option.

QON 27. The Industry Group has expressed concern to the committee that the construction of the two new amphibious ships will be done overseas. The ships' design will be modified to meet Australian requirements and therefore the cost of construction in Australia will be larger than for overseas construction.

- Can you allay the Industry Group's concerns that Australian industry will not be penalised for tendering. Do you agree with the AiG that any perceived cost acquisition benefit by procuring offshore will be outweighed by a whole-of-life cost advantage by choosing to build locally?

Answer:

- The Request for Tenders for the supply of two ships was released on 28 April 2006, for return by 27 September.
    - Only Australian companies, Tenix and ADI, will be tendering as primes. These companies have announced that they will team with the two competing overseas designers to offer solutions. Tenix will team with Navantia (Spain) and ADI will team with Armaris (France).
- The proposals on what proportion to build in Australia as opposed to overseas will be one for the tenderers, not Defence, and Government will consider the proposals forwarded.
    - Strictly speaking, the decision on where they propose to build will be up to the tenderers. The Government decision will take that into account. So ultimately the decision on domestic build option will be up to the Government.
    - The question of penalising a local-build tender does not arise, but as with any government procurement, Australian build proposals will need to be competitive and to represent value for money.

- Government has allocated Defence over $50 billion for capital expenditure over the fifteen years of the Defence Capability Plan. Each procurement project in the Plan, including the LHD project, has a finite amount of money to spend.
    - Defence has not seen the analysis behind the AIG's statement, and so is unaware of the validity of the claim and the amount of savings claimed.
    - The project has no authority to increase capital expenditure, regardless of the reason.
    - We expect that the greatest savings over the life of the ship will come from full access to and use of ship design and intellectual property across the entire capability. This is a requirement of the tender.
    - In terms of the ship itself, relatively few savings flow through from building to support. This is because the functions of building yard and docking yard are quite different and require very different capabilities.
- Modifying a standard (Military off the Shelf - MOTS) design will always involve a cost increase, wherever construction occurs.

    - It is not Defence practice to base a source decision solely on cost; a primary consideration is value for money. In general terms, this means that once the baseline requirement is met, the tendered solution is considered in terms of capability versus cost, taking any incremental capability increases into account.
    - The ANZAC frigates, the Collins submarines and the HUON minehunters are all examples of overseas designs adapted to Australian needs.

QON 28. According to Defence the replacement for HMAS WESTRALIA which was sourced overseas in 2004 and to be commissioned as HMAS SIRIUS, 'was purchased at a fraction of the cost of construction of a similar vessel in Australia. Modifications to convert the ship to its military role are being conducted in Australia. This project will deliver a cost effective and capable replenishment ship to the RAN. The taxpayers probably saved over $50m and this strategy allowed the delivery of a replacement for HMAS WESTRALIA approximately 4 years ahead of an in country build option' (para 4.6).

- Can you envisage any disadvantages in purchasing this ship from overseas?

Answer:

No significant disadvantages have been identified as a direct result of the overseas build. This vessel is not a surface combatant and has been built to civilian tanker standards and specifications. The capability process applied in the purchase of HMAS SIRIUS is detailed below.

The Defence Capability Plan 2001 – 2010 (Project SEA 1654) sought to replace RAN's existing afloat support capability, which is made up of HMA Ships *Westralia* and *Success*. Planned withdrawal dates for the ships were 2009 and 2015 respectively. Project SEA 1654 originally sought two ships of similar design to provide underway replenishment of fuel, water, stores, ammunition and victuals while meeting International Maritime Organisation requirements.

However, as a consequence of MARPOL changes in 2003, the 2004 – 2014 Defence Capability Plan brought forward (to 2006) the requirement to replace HMAS *Westralia.* The International Maritime Organisation (IMO) regulates the international

convention for the prevention of pollution from ships (MARPOL 73/78). The convention's current regulations for the "prevention of oil pollution in the event of collision or stranding" for commercial tanker vessels require HMAS *Westralia* to comply with the regulations (double hulled) or be withdrawn from service by 2006. Under the same regulations HMAS *Success* could be retained until 2012. It should be noted that warships are not required to comply with MARPOL regulations, although non-compliance may limit operating areas, in particular sovereign states may deny entry to territorial waters. As a consequence of the requirement to replace HMAS *Westralia* in 2006, the 2004-2014 Defence Capability Plan was realigned into two separate phases.

- SEA 1654 Phase 2A to replace HMAS *Westralia* through the acquisition of another operating, but environmentally sustainable oiler. The RSL's comments in their submission are valid in that, the substitute oiler, *Delos*, which is expected to be in service Sept 2006, is a less ambitious (commercial design modified to meet underway liquid replenishment capability) replacement than that envisaged by the 2001-2010 DCP.

  - The vessel delivered under Phase 2A will in turn be replaced under Phase 2B with an indigenously built Auxiliary Oiler. The 2004-2014 DCP forecasts an in-service date of 2018-2020 for Phase 2B.

- SEA 1654 Phase 3 will replace the more capable AOR, HMAS *Success*, with a similar double hull vessel. The ship will be capable of transferring both liquids and solids, including ammunition, at sea via underway connected replenishment and vertical replenishment using embarked helicopters.

In summary, the in-service date of 2006 for the HMAS *Westralia* replacement could not have been achieved with an in country build. The full AOR capability will continue to be provided by HMAS Success until it is replaced by SEA 1654 Phase 3 in 2015. Further, the 2004 – 2014 DCP highlights the Government's strong preference to build the ships delivered under SEA 1654 Phase 2B and 3 in Australia.

QON 29. The RSL has a different perspective. It submitted 'By opting to purchase several second hand support vessels offshore thereby denying Australian shipyards the opportunity of tendering to supply these vessels, the Australian government reduced the capacity of the Australian industrial base.' It cited the case of HMAS Westralia which was purchased from Britain—'When this vessel had to be deployed to the Persian Gulf during the 1991 Gulf War it could not meet the 'one stop shop' need of the warships it was supporting. This operational shortcoming has been perpetuated by the second stop-gap measure of acquiring the foreign built tanker Delos to replace HMAS Westralia. Even after conversion in an Australian shipyard it will not have the 'one stop shop' AOR capability when it enters service as HMAS Sirius. The support ship will be unable to replenish ammunition and will lack some of the other features normally built in to an AOR.' (submission 6, p. 3.)

- Would you like to comment?

Answer:

No ship is able to meet every requirement. Shortcomings, where they exist, do not result from where the ships were built. Ship acquisition is always a compromise

between requirements and cost. Among other considerations, the object of the acquisition method is to obtain the best capability at an acceptable cost.

HMAS *Westralia* was leased by the Commonwealth from 1989 until purchased in 1994. In this period the Australian shipbuilding industry, having completed the AOR HMAS *Success,* two *Adelaide* class frigates and the *Fremantle* class patrol boats, was ramping up for the *Collins* and *Anzac* programs, for which contracts were let in 1987 and 1989 respectively. The last two were the biggest and highest-value naval programs ever attempted in Australia. In the same decade the industry was engaged in considerable restructure (sale and reorganisation of Williamstown Dockyard, establishment of the ASC facility, closure of Cockatoo, etc) and reorientation to the two-ocean basing policy. This last involved considerable investment by Government in support facilities, to the benefit of industry.

Far from reducing the capacity of the Australian industrial base, these programs were instrumental in aiding its transformation into a competitive national asset of which Australia can be proud.

At a distance of nearly two decades we are not able to determine whether, at the time of this transformation, the industry was also capable of attending to the competitive construction of a one-off tanker without extensive and expensive infrastructure investment. We note that Whyalla, the only shipyard with recent experience with vessels of this size, had closed some years earlier.

HMAS WESTRALIA was not intended to provide a 'one stop shop'. Like WESTRALIA, SIRIUS is an Auxiliary Oiler, or AO. An AO is a tanker specially equipped and rigged for replenishing other ships at sea. SIRIUS provides a bulk transfer capability in excess of 36,000 cubic metres. SIRIUS is not an Auxiliary Oiler Replenishment, or AOR, which in addition to being able to conduct underway replenishment, is a logistic ship used to transport and transfer liquids (cargo fuel and water), as well as having a significant percentage of total deadweight capacity for stores, provisions and ammunition.

HMAS SUCCESS is an AOR, and can provide a 'one stop shop'. However, SUCCESS's cargo fuel capacity is about 12,000 cubic metres, and is limited to specific tank capacities, and SUCCESS's crew size is around 200, as compared to SIRIUS's 55.

The mix of capability provided by an AO and an AOR ensures flexibility and makes best use of the limited resources available.

To replace WESTRALIA with a purpose-built ship would have meant either:

- continuing to operate WESTRALIA with increased maintenance cost and associated safety/regulatory risks; or
- accepting a gap in capability on removal of WESTRALIA from service until her replacement ship was accepted into service, creating a gap of about five years.

The modification package to prepare SIRIUS for service in the RAN is being conducted in Australia, thereby supporting our in-country repair and maintenance

capability. In fact, the cost of the conversion phase is greater than the bare tanker purchase.

QON 33. ATSE (submission 19, pp. 2-3) has suggested that it would be helpful if 'ship-procurement programs could be adjusted to ensure the timing of the order for the first in any class of ships allowed a sufficient interval before the rest were required, to allow full validation of design, construction and operating features, so avoiding costly later modifications'.

- Is this practicable?
- What might be some difficulties with this approach?

Answer:

This will depend on the complexity and the number of ships under construction. Having a sufficient interval between the lead ship and follow on ships would be most beneficial in a large and complex Naval ship programme, where most of the design related risks occur. But the interval for this class of ships would have to be long (eg. 3-4 years) to allow full validation of the risks and reap the benefits intended from this concept. Long intervals like this in the production of large naval vessels would require stop/start of production resources and supply lines, which would add significant complexity and cost to programme management and act as an economic deterrent to the sustainment of naval shipbuilding capability.

QON 45. Defence's submission states that 'It is estimated that the through life support costs of a typical warship will require approximately three times the initial acquisition costs'. (para 5.6)

- Generally, what is the acquisition timeframe compared to the through-life timeframe?

Answer:

Generally about ten years for major naval ship acquisitions with the ships providing about 30 years of through-life time.

QON 46. ASC's submission (p. 22) claims that after 29 years a ship refitted mid-life has only a 65% capability.

- Do you agree with their analysis?
- What does a 65% capability mean in operational terms?
- Has Defence considered abandoning mid-life refits?

Answer:

Defence has no visibility of the methods or approach adopted by ASC in determining the level of capability of ships during their through-life period or the sources or accuracy of the data used to draw the graph. Defence is assuming that the reference to the 65% capability could mean either that the ships are providing (after 29 years) only 65% of the capability that was required to be achieved through the mid-life refit ; or that only 65% of the capability that is required to meet the shifts in the strategic environment in that through-life period.

Defence addresses these scenarios by seeking through its industry requirements a vibrant and competitive Australian maritime industrial capacity able not only to

conduct repair and maintenance but also to undertake the upgrades and associated integration of system changes in order to maintain or enhance the capability baselines of the Naval ships so that they are fully capable to meet the mission requirements in the context of the evolving threat environment and strategic requirements.

The capability development processes allow Defence to consider various options including the use of mid-life refits or replacement options to achieve its force structure requirements. By way of an example, the patrol boat force requirement to sustain Australia's maritime surveillance capability was originally agreed to be met by extending the life of the fleet of Fremantle Class Patrol Boats (FCPBs). But the risks and cost-benefits assessed by Defence showed that the required capability enhancements could not be achieved and as a consequence a replacement strategy was pursued as a more appropriate course of action to provide the better value for money.

Further details on capability planning options can be found in the answers to Question 25.

Questions during the Hearing

Hansard Page 21: Senator FIERRAVANTI-WELLS— Staying on paragraph 1.8, I noticed that you seem to place quite some emphasis on this ASC brochure—'Hidden assets' by ASC Pty Ltd. That document has obviously been provided by ASC. I would like to see the source of that information. When you look at the figures for battle tank, the Boeing, the frigate—I assume 'frigate' means ANZAC frigate—and the Collins class submarine, I think that, in fairness to the committee, it would be good to see figures that have been sourced from the people who actually did the work rather than from an ASC document. In fairness, that may well have some nuances in it—and I am only putting a question mark on this—to benefit ASC. Perhaps we should get the statistics from their core source.

Answer:

Defence has sourced figures for the frigates from Tenix who did the actual work in constructing the Anzac frigates. Their figures in comparison with the 'ASC Brochure – Hidden Assets' are submitted below where they are substantially different from the ASC data.

Platform Complex Metrics	**Frigate – ASC Brochure**	**Frigate – Tenix Data**
Weight (tonnes)	3,600	
Length (meters)	118	
Number of systems	60	
Number of Suppliers	600	2,863
Crew size	163	
Patrol duration (hours)	340	
Number of parts to assemble	170,000	1,939,000
Number of person hours to assemble	1,200,000	1,800,000
Construction time (months)	22	61 (based on average of 10 ships)
Price (AUD #M)	600	

GROUP 3 – DEFENCE PROCESSES

Questions-on-Notice

QON 8. Defence's submission notes that 'before committing to an acquisition, Defence must independently assure that industry has the capacity to deliver on schedule and within budget the required capability (para 1.12).

- Could you explain how Defence goes about obtaining this assurance?

Answer:

Defence seeks extensive details from tenderers of their proposed build strategy to assess their capacity to deliver the project requirements. Tenderers are asked to describe the methodology, processes and information systems used to control the design and production engineering during detailed design and ship construction. Furthermore, this information includes identifying the design systems interfaces with production processes, production robotics, supply chain interfaces with production processes, security, engineering for build and integration elements, et cetera. Additionally, the tenderers are required to identify how the build programme relates to the existing and anticipated ship construction work load with respect to available manufacturing capacity and personnel resources and describe the infrastructure and facilities required to support the construction of the ships including any proposed improvements and upgrades to facilities to be used to facilitate the Contract.

Defence engages domestic and international consulting companies, depending on the complexity of the build programme, for analysis of this data and provide independent assessment of the industrial capacity. This assessment would also include the analysis of State Government initiatives and support packages to expand the capacity of industrial capacity. The companies engaged include BMT, KBR and Appledore, who are specialists in the areas of financial and commercial management, ship building and facilities and cost modelling.

QON 30. Noting its position in the market as a monopsonist, Defence stated that it 'remains vitally interested in ensuring that competition within the industry promotes innovation, efficiency and value for money in shipbuilding that flows through to the lifecycle sustainment of maritime capability.' (submission 20, p. 2.)

- How does Defence go about ensuring that it does promote innovation, efficiency and value for money?
- Does Defence have the level of skills within the organisation to be a catalyst or leader for innovation and efficiency?

Answers:

(a). Defence has many strategies to promote innovation, efficiency and value for money including:

- Promoting Competition,
- arranging the procurement method for the particular acquisition to accord with the Commonwealth Procurement Guidelines to ensure value for money,
- Rapid Prototyping Development and Evaluation program,

- Capability and Technology Demonstrator projects, and
- Unsolicited Proposal gate way.

Information of the last three programs is available at www.defence.gov.au.dmo.

In its procurements relating to naval shipbuilding and other areas of defence industry, Defence follows the principles set out in Commonwealth Procurement Guidelines, the Defence Procurement Review (Kinnaird) of 2003 and Australia's international obligations including the Free Trade Agreement with the United States.

Commonwealth Procurement Guidelines are unequivocal in their encouragement of competition as a vehicle for obtaining the goods and services required by Government in a manner consistent with a value for money objective. The Defence Procurement Review delivered a rigorous evaluation framework within Government through which an assessment of value for money and other procurement objectives can be made.

It is acknowledged widely that competition offers the advantage of stimulating managerial innovation, the development of new technologies and general cost consciousness among defence contractors. However, there are a few instances in which there are inefficient competitions or competition that may produce sub-optimal outcomes for Defence. In these cases, Defence must rely on direct regulation of supplier costs and profits to ensure that companies undertake production in an innovative and efficient manner. Effective regulation is critical to ensuring that the economic benefits generated by companies are passed on to Defence.

It is not generally appreciated that regulating defence companies is a complex and costly exercise. This is due in part to the large number of companies within defence industry, the diversity of the goods and services they produce, their differing risk appetite and profit expectations, the different ways in which companies approach production and the uncertainties that attend the development of sophisticated military equipment.

For these reasons, regulation is normally used to promote economic efficiency and innovation only when competition is either unavailable or clearly undesirable. It is very much the second best option, but if adequate competition does not exist, it must be used to protect taxpayers' interests.

(b). Defence maintains skills sufficient to fulfill its procurement responsibilities. It is able to create and implement procurement practices which encourage industry to be innovative and efficient. These policies cover competition and regulation. In addition, Defence has or obtains access to the skills to be a catalyst and leader of innovation such as:

- technology support from the Defence Science and Technology Organisation;
- skilled and experienced personnel in Defence with competencies in leading innovation and efficiency; and
- technical Readiness Assessment of technology initiatives instituted by the Defence Procurement Review.

There are limits to which Defence could or should go in influencing industry structure, conduct and performance. Innovation and efficiency in the production of

defence goods and services rests ultimately with companies. Defence's primary role is one of providing companies with adequate information on its needs, specifying clearly its technical requirements and establishing and maintaining contractual relationships which recognize and balance the needs of all parties concerned.

QON 40. In its submission, Defence stated that it 'must independently assure that industry has the capacity to deliver on time and to budget the required capability and accordingly must seek objective evidence that potential industry suppliers are able to deliver on time, on budget and at the required performance levels' (para 4.4).

- Does Defence itself have the trained and skilled personnel needed to accurately assess the capability of others to meet budget, time and performance requirements?

Answer.

The Defence Materiel Organisation is rigorous in its approach to assessing potential project performance. Performance benchmarks for schedule, technical solutions and cost are specified in the tender documentation and responses are subject to risk analysis during the tender evaluation. Tenderers will need to demonstrate that they can access all the required capability.

In short, tenderers have to justify their assurances and those justifications are subject to rigorous analysis by properly-trained project staff either from within Defence or sourced specifically for the task. In the case of the AWD Program independent domestic and international companies were engaged to assist the Program office to evaluate the industry proposals. These companies included specialists in the areas of financial and commercial management, shipbuilding and facilities and cost modelling.

Defence has also been actively recruiting experienced industry personnel to increase the skills available to conduct these complex tasks. See also response to Question 8.

QON 53. In its submission to the inquiry, Gibbs and Cox noted that an issue they are currently assessing is the availability of experienced naval ship engineers and designers with security clearances.

- Are you concerned that Gibbs and Cox may struggle to find qualified workers with Commonwealth security clearances?
- Do you have any objections to Gibbs and Cox using reach back to its parent company to staff their needs?
- Can you tell me what involvement DMO has in ensuring an efficient system of Commonwealth security clearances?

Answers:

(a). To our knowledge, Gibbs & Cox are not experiencing any problems recruiting skilled people in Australia for the Air Warfare Destroyer Program. Some candidates already have a Commonwealth Defence security clearance, some do not. The time taken to obtain a new security clearance on average at present is six months for high level clearance because of the increased demand for personnel screening.

(b). No. The AWD Program consider it is essential that Gibbs & Cox are able to reach-back to their operations in the USA to support the AWD design process. The ability for the Evolved Design Platform System Designer to be able to reachback to

their parent organisation to source the highly specialist skills and experience necessary to design a complex warship like the Air Warfare Destroyer was a factor in the evaluation process that selected Gibbs & Cox. The agreed plan is to build a significant Australian activity base to support the program.

(c). As soon as the requirement for a RESTRICTED, CONFIDENTIAL, SECRET or TOP SECRET security clearance is identified, the relevant Unit Security Officer in DMO or the Facility Security Officer of the Industry Company arranges for the clearance subject to access either an Electronic Vetting-Pack, or a pack of vetting forms appropriate to the level of security clearance sought.

On completion of the vetting forms and other supporting documentation, they are then sent to the Defence Security Authority which has responsibility for undertaking the vetting process. No other action is taken by DMO other than to ensure that project Unit Security Officers and Industry Facility Security Officers are properly trained to ensure that the appropriate level security clearance is identified.

QON 58. Rear Admiral (Ret'd) W.J.Rourke suggested that project managers should be selected on merit and have minimum tenures—usually of five years.

- What is the current practice within Defence for appointing project managers?
- How do you respond to Rear Admiral Rouke's views?

Answer:

Australian Public Service (APS) personnel are selected on merit or transferred into project management positions in accordance with the Public Service (PS) Act. They may be appointed into these roles on a ongoing or non-ongoing basis, as prescribed by the PS Act. The circumstances in relation to military personnel have changed in the last 12 months. In 2004-05, a new policy for the employment of military personnel was introduced in DMO. Under this policy, all military personnel nominated by their Service for project manager roles undergo a merit selection process, and compete against an open field. The tenure for military personnel posted into project management roles is 4-5 years.

A new certification framework is being introduced in DMO that will apply to civilian and military project managers. From December 2006, all project managers will be required to meet certification competency standards that will encompass three elements: independent assessment against peak body (Australian Institute of Project Management) and Australian Qualifications Framework; assessment of DMO knowledge and experience and satisfactory performance assessment. The certification framework clearly specifies the relevant experience required for project managers at all levels in the organisation, based on the Acquisition Category (ACAT) framework.

QON 59. Rear Admiral (Ret'd) W.J.Rourke stated that the Navy has an increasing need to increase its capabilities in regard to technological and engineering development. He suggested that its numbers of engineering officers are low, and it only trains a small proportion of its officers cadets in engineering or technology courses.

- In light of Rear Admiral's Rourke's concerns, could you inform the committee about the Navy's capabilities with regard to technological and engineering development?

Answer:

The RAN is currently experiencing a significant shortfall of engineers at the LEUT, LCDR, CMDR ranks across the three Engineering primary qualification's (Aerospace / Marine / Weapons Electrical). In combination with a major shortfall of engineers in the training pipeline, engineering officer numbers are considered CRITICAL (not likely to recover in a ten year time frame). To address the shortages a number of short and medium term retention initiatives have been put in place including retention allowances and 'up-skilling' opportunities.

The engineering and technological skills currently held by engineers in the RAN are of a high standard but measures are in place to improve these skills through improved Engineering Application Courses designed to bring all newly graduated engineers up to a minimum suitable level in preparation for their employment in the Defence maritime environment; the establishment of a Professional Development Program with Engineers Australia to encourage engineers to continue to develop their skills; and post-graduate opportunities to prepare engineers for future employment within capability development and project management positions.

QON 60. The Submarine Institute of Australia Inc was of the view that 'The ADF as an 'informed customer' has a significant role in maintaining an ongoing, viable and competitive defence industry capability (submission 3, p. 19).

- In your view, does Defence have the in-house level of technological and engineering knowledge and experience to be 'an informed customer'?

Answer:

One measure of technical and engineering knowledge and expertise is the level of professionalisation of DMO engineers and technical officers by comparison with industry organisations. Professionalism may be measured by the number of engineers and technical officers that have achieved professional status as recognised by the peak independent bodies, The Institution of Engineers Australia and the Royal Institute of Naval Architects.

Increasing the number of chartered engineers and technical officers is one of the key priorities of the DMO's professionalisation agenda. Since initiating the professionalisation program in April 2004 the numbers of engineers and technical officers who have achieved chartered status has increased from 125 to 218. There are a further 398 enrolled and working towards their chartered status.

DMO also has access to significant number of scientists and engineers in DSTO to provide specialised technological advice as outlined in the answers to Question 30.

QON 61. What measures are in place to ensure the ongoing meeting of costs and schedule, in light of ADI's performance?

Answer:

Assuming that this question relates to the current FFG Upgrade project, under the contracted payment schedule the contractor will not be paid in full until all products are delivered and accepted. That said, the contracted schedule will not be met and is being renegotiated as part of the overall reduction of two ships from the program resulting from the defence capability review of November 2003. This revised schedule will be embodied in a re-baselined contract that should provide greater confidence in the timely delivery of contracted capability. A change in the payment regime is also being negotiated with a re-emphasis of payment for achievement of capability milestones rather than earned value.

The experience and expertise gained by the Prime Contractor during the first FFG platform upgrade has provided a higher degree of confidence in their ability to complete the upgrade. Ascertaining the performance of the leadship, HMAS SYDNEY, systems during sea trials and operability demonstrations has enhanced confidence in the schedule and the capability to be delivered. The first follow-on FFG has commenced the docking installation and production activities for its upgrade. ADI has adopted a different approach for the conduct of this work and performance is being jointly assessed and monitored. Increased senior management review is being utilised to ensure cost and schedule is met.

Questions during the Hearing

Hansard Page 21: Senator FIERRAVANTI-WELLS—Given the recent contract that was awarded on the AWD, and going back, I think, to some questions that Senator Bishop asked, what would be useful is an outline—I am not asking for the specifics but for an outline—of the criteria that were used for the AWD.

Senator Bishop asked what was so prohibitive about one site as opposed to the other. The question could be asked in terms of objective criteria, whether that be by way of physical, environmental or economic analysis. I am not asking you to give me the analysis, I am just asking you to define for the committee the parameters that go into the decision-making process, in analysing the merits or otherwise of one or two or three contractors—whether it was for AWD or for any consideration of a future contract in relation to shipbuilding, whether that be a domestic or an overseas shipbuilder. Do you understand the parameters of the question? I am not asking for the actual information; I am merely asking for the parameters. I think, Senator Bishop, my question might pick up some part of the question that you were asking.

Answer:

Defence applied a number of essential and important evaluation criteria for the selection of the AWD contractor. The essential criteria included tenderers' ability to build ships and associated systems, covering Commonwealth's requirements for corporate structure, adequate financial asset backing, ability to provide unencumbered access to relevant classified information, data and/or technology that might be used in AWD construction, integration, testing, support, operation and maintenance throughout the life of the AWDs.

The important criteria covered a range of evaluation parameters in the areas of technical, financial & commercial, risks, IP & Technology, costs & rates, personnel, infrastructure, project management and through-life support.

The tenderers were assessed on their ability to carry out the role of shipbuilder through the detailed design, construction and through life support in a way that assures the highest achievable design and build quality and leading best practice, including a demonstrated ability to deliver breakthrough results in shipbuilding. Other technical assessment covered their ability to successfully install major sub-systems including understanding of combat system integration issues, proven capability and experience with simulation based acquisition throughout the system life cycle and ability to build a design that has a high level of technical, operational and logistic interoperability with other ADF units and for interoperability with USN ships.

The financial and commercial assessment covered the capacity of the companies to carry out the role of Shipbuilder for the Project including through arrangements involving provision of personnel, infrastructure, IP, technology, other resources, securities or other support in undertaking the Project by Related Bodies Corporate, Consortium Members, any proposed sub-contractors or other third parties. In particular, the assessment covered the commitment to the principles of a long term risk sharing relationship with relevant stakeholders.

The evaluation of risks included demonstrated ability to manage risk, Sub-contractors, SMEs and Australian Industry Involvement, demonstrated understanding of relevant industry issues, including capability needs and the Commonwealth's industry plans and objectives, and the willingness to provide the Commonwealth with transparency over sub-contractors. Willingness to comply with the requirements of IP ownership and access including a commitment to developing effective agreements with Australian industry partners throughout the life of the AWDs was also considered.

In the personnel area, ability and willingness to mobilise appropriately skilled labour force to meet the Commonwealth's design and construction schedule and commitment to ensuring appropriately skilled workforce and expertise in-country through the design, construction and through life support phases were assessed.

The infrastructure assessment included demonstrated capability to build the AWDs, including the existence of an infrastructure strategy and an achievable plan to meet the Commonwealth's objectives of maintaining and sustaining a naval shipbuilding infrastructure for the life of the AWDs.

Tenderers' ability to deliver the AWDs in accordance with the Commonwealth's schedule requirements, manage the Shipbuilding role for the Project, offer innovation in management techniques, including a flexible, adaptive and responsive approach to meet Commonwealth needs, and the credibility of the proposed Contract Work Breakdown Structure, schedule and staff skills profile were used in assessing project management ability.

Hansard Page 35: Senator GEORGE CAMPBELL—I have one final question: will the Commonwealth be required to fund any infrastructure in order to enable the construction of the air warfare destroyer?

Answer:

The Commonwealth is not funding the development of any infrastructure. The Government of South Australia is funding the development of a Common User Facility (approx $115m). ASC is funding approximately $69m of infrastructure development. The Commonwealth will reimburse ASC for the depreciation costs of

the new ASC infrastructure, which was taken into consideration in the comparative and value for money evaluation of ASC's offer against the other tenders.

Hansard Page 39: Senator MARK BISHOP—Rear Admiral, just finishing off that last discussion, you were telling us about the international benchmarks on the cost of naval hull construction and different variables. Could you take it on notice to provide the committee in writing with the calculation of costs of those comparable figures you have on benchmarking, to the extent that it is up-to-date? I would anticipate that you will be doing more exact work towards mid-2007.

Answer:

Early in 2005 the LHD Project contracted BMT/Appledore to conduct an independent cost estimation. The company's work was based on a body of work BMT had done on the UK LPDs (Albion & Bulwark). This gave the Project a reference point for its subsequent work with the French and Spanish designers which had been shortlisted for the Risk Reduction and Design Study (RRDS). Price estimates were obtained from the competing designers at the end of the RRDS. The committee will appreciate that most of the data obtained is governed by commercial confidentiality.

The AWD did undertake some benchmarking activities prior to releasing the Shipbuilding RFP. This material remains "commercial in confidence" as well as having international caveats and its release could materially impact on the costs being developed for Second Pass approval.

Hansard Page 48: Senator HOGG—Sorry, I am on the wrong doc. What I am looking for is something that simply outlines the projects that are related to this area so that people have some idea of the extensive nature of what you are involved in.

Answer:

Two spreadsheets are attached at Attachments 1 & 2, one covering the list of major projects and the second listing the minor projects, providing the requested project information.

Also attached are two organisational charts at Attachments 3 & 4 illustrating the Maritime Systems Division and the wider DMO organisation structures as requested by Senator Hogg.

GROUP 4 - DOMESTIC SHIP BUILDING INDUSTRY

Questions-on-Notice

QON 3. The RSL was confident that 'the Australian naval shipbuilding industry and its industrial support base have demonstrated the capacity to construct large naval vessels over the past three decades on a sustainable basis...With this track record there is no reason to believe it cannot continue to adapt. It stated further 'Given the high probability of the ongoing need to continue to replace all major Australian warships over the next half century, there is a clear opportunity to continue to grow a national industrial capacity to meet the need'. (submission 6, p. 3.)

- Would you like to respond to this view?

Answer:

Defence agrees that Australian Industry had demonstrated the capacity to construct frigates and conventional submarines. Defence provided an analysis for the future warship acquisition requirement at Section 3 of the Defence submission. Section 2 analysed the current make up of the Australian Ship building industry while Section 4 of this submission analysed the major challenges faced by the industry if it is to meet Defence's projected acquisition program as it is currently predicted.

QON 4. Austal's submission notes that Australia does not currently have the capacity to build naval vessels over 10,000 tonnes. However, it argued that if a specific naval program was to develop this 'very large' naval capability, long-term sustainability would require significant ongoing government support.

- Would you like to comment on this observation?

Answer:

Section 3 of the Defence submission analysed the demand on industry of Defence's projected demand for warship acquisition. This analysis showed the cyclical nature of the demand. The largest variations in workforce are in the fabrication workforce where there is a very low demand for this skill during in service support. As highlighted in section 1 of the Defence submission, the skills in these areas have much in common with requirements of other industry sectors.

Thus Defence warship acquisition demand is cyclical resulting in a cyclical demand on industry. The impact is greatest on demand for hull construction and fabrication skill as there is a very low demand for these skills during in-service support. It does not follow that these skills would need to be retained in ship building or that Government should continue to support this work force at the end of a project. All project work is cyclical in that projects only exist for a period to deliver an outcome. The cyclical demand of project work is a factor for all industry sectors not just shipbuilding.

Shipbuilding is no more or less cyclic than oil/gas or mining or construction. Those industries have coping strategies to mitigate expected cycles, as must Defence industry.

QON 5. The South Australian Government's submission identifies several factors that challenge the viability of the naval shipbuilding industry in Australia. They include: a plethora of builders and repairers; the absence of modern infrastructure; the high cost and availability of skilled workers; and the lack of long-term stable ship demand.

- Do you share the South Australian government's concerns? What does Defence see as the most important issues in sustaining the naval shipbuilding sector?

Answer:

The Defence submission provided Defence's view on the major challenges faced by the Australian Shipbuilding industry in meeting Defence's acquisition and support requirements. Section 1 of this submission outlined Defence strategic aims and highlighted that Defence assists industry to meet these aims.

With the exception of ASC the Australian Naval shipbuilding industry comprises privately owned companies that are responsible for their own commercial decisions. Issues such as competitors, infrastructure requirements, workforce pay rates and product demand are the normal considerations of any company.

QON 6. Defence's submission notes that 'Naval shipbuilding is significantly different to civil ship construction with unique requirements and skills impacting design, production and support' (para 2.6).

- In your view is there scope for Australian commercial shipbuilders to incorporate aspects of naval shipbuilding into their business and vice versa? Could you elaborate on your answer by providing examples of why or why not these two industries complement each other?

Answer:

With navies around the world now increasingly specifying civilianised international naval standards for the ship structures and machinery, there is scope for commercial shipbuilders to undertake hull and ship modules construction work subject to their industrial capability including suitable infrastructure and resources. But they are less likely to play a major role in the design, production and support of the weapon, combat and specialised communication system requirements which make up the primary systems in Naval ships. This work requires skills in advanced technology, innovation and system engineering techniques, which reside in the short term in the four naval ship builders ADI, Tenix, ASC and Austal and in the specialised defence companies such as Thales, Raytheon, SAAB, BAE Systems and in SMEs. Of these companies, Austal has demonstrated the ability to incorporate Naval patrol boat construction into what was predominantly a commercial multihull business.

Section 2 of the Defence submission analysed modern warship construction and provided an overview of the Australian Maritime industry. With the exception of Austal it could be concluded that there is no significant Australian Commercial ship builder currently involved in warship construction. However, such a conclusion would fail to recognise the nature of modern warship and commercial ship construction, e.g. total project scope and second and third tier suppliers' roles. NQEA (now AIMTEK) is the only other Australian shipbuilder to be involved in both commercial and smaller naval ship production (patrol boats and hydrographic ships) in the last 30 years.

Table 1 of the Defence submission has been used as the basis for the following table which provides a superficial assessment of the issues. Any meaningful assessment would require significant analysis that is currently beyond Defence's available resources. The views of our major industry participants are also relevant though such opinions can spark a wide range of potential conflicting views due to the wide variety of Naval and commercial ship complexities.

Project Element	**Warship**	**Commercial ship**	**Opportunities**
Platform Design	Minimal design capability mainly focused on capability to modify and upgrade ships and systems in service. All recent acquisitions have been based on foreign design	World competitive niche design capability eg: • High speed craft • Oil/gas Processing plant • World class 'Cottage' naval architects	Potential to build on cost competitive highly skilled design competence in industry to develop Warship design capabilities in niche areas
Hull, Machinery and Equipment :	See below	See below	
Fabrication/ construction	Cyclic and highly variable demand	Skilled industry workforce: • High speed light craft • Negligible steel ship construction but: – High demand for similar skills in Oil, gas and mining – Unlikely to have a cost advantage over low cost mass production in Asia	Defence's skill demand is similar to that of industry. As it is likely to be smaller and more cyclic Defence is likely to use skills developed and sustained by industry to meet commercial requirements.
Supply Chain	Small number of niche Australian commodity/ equipment suppliers eg: • Steel/Al • Industrial supplies • • Switch boards • Fittings • Logistics/IT system	Small number of niche Australian equipment supplier: • Ride control • Broad Marine Industry supplies	Defence demand is unlikely to be sufficient to warrant development of in country capability but should look for opportunities to use Australian suppliers competing in the global supply chain
Logistics support including Training	Strong Australian capability able to support internal demand and globally competitive	NA	NA
Combat Systems	Niche capabilities. For further analysis and opportunities see the Defence Electronics Sector plan.	NA	NA

QON 15. Austal argues that the Australian industry cannot compete in the naval market for very large naval ships. It argues that there are a large number of potential builders of these naval vessels worldwide who would be able to deliver within a similar or better cost delivery time that Australian industry. In this environment, Austal argues that Australian industry would struggle to secure export orders.

- Would you like to comment on this?

Answer:

Austal's assessment summarises the current state of the industry. Apart from Tenix's success in achieving orders for small and or less complex warships and Austal's success with the Littoral Combat Ships for the USN, Australian industry has been unable to secure orders for major warships construction from overseas. Industry might be best place to comment on why they have not been able to secure orders but Defence would observe that the market is very competitive and the Australian industry is unlikely to have a cost advantage in steel monohull ships or product advantage such as a unique design except in the high speed multi-hull sector.

QON 21. Defence's submission comments briefly on the four major companies engaged in Australia's naval shipbuilding industry—ADI, Austal, ASC and TENIX.

- Do you agree with the SA government that there is a need to rationalise the number of local shipbuilders in Australia?

Answer:

Defence is concerned primarily with the aggregate capability of Australia's naval shipbuilding industry rather than the number or individual capabilities of industry players. If a rationalisation of companies within the industry is required, the commercial realties of the market should ideally dictate the nature and pace of change. However, Defence strongly prefers a competitive marketplace to encourage management innovation in process, systems, and skills development. Defence would be concerned if only one capable builder remained because inevitably that would lead to inefficiencies and a mandatory need for high level of regulation.

Industry players are in stronger position than Defence to gauge the range of factors on which decisions to expand or contract their market presence should be made. These include their cost structure, minimum profit requirements, demand outlook, skills base and ability to engage in commercial work pending the emergence of new defence opportunities.

For practical purposes, Defence is the only buyer of military equipment in Australia. Its recommendations to Government decisions on where, when and how to purchase equipment largely determine the structure of Australian defence industry. Those recommendations are made principally on the basis of strategic considerations rather than any explicit desire to affect market changes.

QON 22. The South Australian government argues that the sale of ASC and its contract to build the AWDs should be a catalyst for establishing ASC as a focal point for infrastructure investment and skills development in the shipbuilding industry.

- Do you agree that establishing a hub of shipbuilding construction activity would enable government and industry to better concentrate investment in skills and infrastructure?

Answer:

ASC's contract to build the AWDs will facilitate an expansion in surface shipbuilding capability within South Australia. An expansion can be expected to facilitate improved levels of economic efficiency, as ASC is better able to defray its fixed costs and to gain from the increased specialisation that normally accompanies larger scale production.

This does not necessarily mean that South Australia will be the only location from which economically efficient naval shipbuilding can occur in the years ahead. Nor does it necessarily imply that new investment in defence industry within South Australia will yield a higher marginal return to Government or the private sector than if the same investment resources had been directed to other national locations.

There are a number of factors which need to be taken into account in comparing the relative regional costs and benefits of a given level of defence industry investment. These include the strategic importance of the location in which investment occurs, the capacity of regional labour markets to absorb additional demand, or soak up cyclical excessive supply, the commercial terms on which fixed regional infrastructure like dockyards can be utilised, the internal efficiency and ownership structures of companies receiving investment funds, the capacity of regionally-based companies to support local defence prime contractors, and the ability of a region to provide through-life-support for military equipment on competitive terms taking the costs of equipment transportation and other factors into account.

Defence is not aware of any work undertaken by the South Australian Government to support the view that its own State would rank above others when each of these issues are considered in a nation-wide evaluation of the overall competitiveness of potential naval shipbuilding sites.

QON 23. In 2002, DMO released a paper titled 'The Australian Naval Shipbuilding and Repair Sector Strategic Plan'. It suggested that the government should assist industry to rationalise, reflecting a one purchaser-one supplier model.

- Does the government now consider market mechanisms to be a more effective way to determine the structure of the industry?
- Is there still a role for government in facilitating industry rationalisation?

Answers:

(a). Defence's focus is on having an industry base that has the capability and capacity to provide value for money support to the ADF. How industry is structured may affect its ability to provide these outcomes to Defence. Defence believes that a monopoly supplier could lead to capability degradation. The draft Naval Shipbuilding and Repair Sector Plan 2002 (which was not accepted by Government) provided one avenue for achieving these outcomes – it was certainly never viewed as being the only avenue. Our view now is that this Plan , which preceded the current DCP (which gave better demand data), may have understated demand and overpromoted the

benefits of a highly regulated monopoly supply situation. Attention is also drawn to Defence's answers to Questions 21 and 32.

(b). As stated above, Defence's focus is on having an industry base that has the capability and capacity to provide value for money support to the ADF. This can be achieved through a number of ways. Indeed, it could be said that every Defence procurement decision goes some way to influencing the industry structure, and Defence examines the impact of its procurement options and strategies as part of the capability development process. Attention is also drawn to Defence's answers to Questions 21 and 32.

QON 31. Most submissions to this inquiry have stated that a viable naval shipbuilding industry requires smooth consistent demand. What are the practical or strategic issues that make this difficult to achieve?

Answer:

- Schedule and cost are two key components of the Defence Capability Plan, and changes in one impact on the other. In isolation, it might appear to be easy to rearrange the shipbuilding activities to smooth their effect on the shipbuilding industry, but this would have significant impact on the Defence budget and capability. Scheduling of high cost projects such as the Air Warfare Destroyer and the amphibious ships is influenced by funding considerations and must be cognisant of other major projects, such as the Joint Strike Fighter.
- Most ship acquisitions have relationships and inter-dependencies with other capability requirements, such as that which exists between the Main Battle Tank Replacement and the amphibious ships. To delay one could be to impact on the other. This extends to major platforms such as the AWD and LHDs whereby the whole capability – the ability to deploy an expeditionary force - is reliant on all of the component parts being available. To reschedule one capability would have a complex effect on the overall Defence capability which could result in considerable capability wastage with assets unable to be used effectively while related capability is delayed.
- Defence's prime need is for Australian Industry to be able to repair and maintain our ships. While the ability to build ships usually translates into an ability to repair and maintain them, the need to stimulate the economy is not a primary Defence consideration, although it may be valid for Government. The continuing need for repair and maintenance of existing platforms provides the basis for Australian Industry capability.

QON 32. Is there a reasonable case for direct government support to be provided to industry during periods of low or non-existent demand to ensure the retention of industry skills and infrastructure?

Answer:

As a general rule, Defence does not subsidise companies directly for the costs they may incur in maintaining production capacity during periods of low market demand.

In recognition of the inherent difficulties faced by industry in adapting to sometimes sharp fluctuations in Defence procurement activity, the Department adopts several strategies. These include supplying some specialised plant and equipment to

companies at low or no cost, advising industry in advance of Defence projects likely to emerge in the short-medium term, facilitating exports of defence manufactures, exploring ways in which related projects might be 'bundled' to offer successful companies greater continuity of work, preventing companies from engaging in anti-competitive market conduct which would damage the long term viability of defence markets, assisting companies in the development of their labour force skills and comparing future demand for Defence capability against what Australian industry can deliver to determine where gaps exist.

The historical costs of resource retention, release and attraction are factored into firms' long term costing and pricing strategies and eventually passed on to Defence as new projects emerge. Thus, Defence ultimately pays for successful companies to adjust to fluctuations in market demand each time a contract is signed. Thus it is in Defence's interests to minimise fluctuations of demand. Similarly, a large peak for non essential capability that is not sustainable could be very expensive to Defence and the long term national Defence budget.

While releasing and then attracting resources can be expensive, the overall costs for the Government are generally lower than if selected defence companies are paid to retain spare capability on an extended basis. In addition, several important shortcomings with directly supporting companies through troughs in demand need to be considered:

- support can reduce the incentive for companies to develop and apply least cost approaches to sustaining their capability throughout the business cycle;
- support for a small number of selected companies can limit the opportunity for new, more efficient players to enter a market;
- once support is provided to companies it is often difficult to remove, even if the rationale for its provision has changed;
- support would impose a heavy regulatory burden on Defence to ensure that funding is set at appropriate amounts and used properly;
- Defence may pay for sustaining capability within a company whose services may not be needed in the longer term; and
- the sometimes high costs of support may extend the Defence budget to unsustainable levels. This means that non-subsidised areas of defence industry and the Australian Defence Force may receive insufficient funding unless Government makes additional supplementation for such non-essential costs.

QON 34. The South Australian government's submission expressed concern that after the construction of the AWD and amphibious ships, 'there will be insufficient ship demand to sustain the industry'.

- Do you agree with this view? Is Defence concerned that the local industry could suffer if there are not major shipbuilding projects after the AWDs and amphibious ships?

- Do you think it would have been preferable not to build the AWDs and Amphibious ships at the same time?

Answers:

(a). No. There will be a cyclical decline that Defence and industries like oil/gas, mining and construction have dealt with for the last 50 years. The exception is a limited range of high end skills areas, which could be mitigated and accommodated by advancing some design task (beyond the DCP time frame) by a few years.

(b). In terms of Defence capability, delaying either the AWD or LHDs would have delayed achievement of the full Amphibious capability.

Questions during the Hearing

Hansard Page 22: Senator FIERRAVANTI-WELLS—I appreciate that. Perhaps it would be useful for a breakdown to give a broader picture—even a table that sets out the nature of the subcontracting at that second and third tier. Certainly that would be useful for me.

Page 22: Senator HOGG—Senator, could I interrupt, because this might be able to help you out. Could the admiral draw to our attention any ANAO audits that might have covered what Senator Fierravanti-Wells is talking about rather than us having to dig around for them? We probably could, but I would be surprised if there were not some audits that did not dig down into that second and third tier, and that will assist the committee.

Answer:

The ANAO audit into the management of Defence's Australian Industry Involvement (AII) Program in 2003 is relevant in this regard. The objective of the audit was to assess the extent to which the AII Program has achieved its two policy objectives, which are to: develop and sustain strategically important capabilities in Australian industry to support Australian Defence Force operations and Defence capability development; and maximise Australian industry involvement in Defence's procurement of goods and services, consistent with the government procurement policy objective of achieving best value for money to the Commonwealth. These findings are published in the ANAO Report No. 46, Year: 2002/2003, Tabled: Friday, 6th June 2003.

Hansard Page 23: Senator FIERRAVANTI-WELLS—Yes. Thank you. I will move on, as I am conscious of the time. Paragraph 2.3 picks up the point we were looking at before, when you look at the assembly sites. I think that in fairness we should probably look at that analysis and look at the reasons why it was done at Newcastle or New Zealand, and I think we covered that before. In paragraph 2.5 you look at what the expenditure profile for a typical combatant ship will comprise and you give a breakdown. I would like a bit of an analysis. For example, if you look at the previous ships that we have built, I would like to know where the metal preparation for hull occurred, where the metal fabrication of modules occurred, where the hull consolidation occurred. That would give a better picture of what it is we have

done in the past and where those activities have been done in Australia. If possible, I would like names.

Answer:

BHP Port Kembla provided 95% of the steel for the Anzac Ship build Project. CIGWeld provided the welding consumables. Module Fabrication was undertaken at Transfield - Newcastle, Tenix - Whangarei, NZ and Tenix - Williamstown

A listing is provided at Attachment 5 showing the distribution of the work over some 120 tier two companies who have been involved in the Anzac Ship build Project spread across Australia and New Zealand is attached. Details of over 1,000 companies provided work for this project at the third tier and below can be provided if required.

Hansard Page 23: **Senator FIERRAVANTI-WELLS**—When you look at Defence expenditure and you look at the sorts of moneys that are spent locally, that then takes us on to where that is actually spent. The sort of analysis I am asking for would highlight where in Australia in previous projects that sort of money was spent. It gives us an idea of the sort of money that was spent and where Australian jobs are to enable that sort of spending to occur.

Answer:

The relevant analysis for the Anzac Ship build Project is provided below.

Region	**Amount in $AM (April 1988 Price Basis)** [(1)]
Victoria	1,070
Newcastle & District	100
Rest of NSW	489
ACT	266
South Australia	490
Queensland	35
Western Australia	15
Tasmania	5

(1) Sourced from the ANZAC Ship Project – Special Quarterly Report Dec 1999.

Hansard Page 23: Senator FIERRAVANTI-WELLS—Going to figure 3.7, I mentioned these graphs before. I think it is important to take those graphs back to previous years—certainly when you look at what happened in ASPI—as that would be very useful for this sort of analysis. I would have thought Defence would want to go back and have a look at past experiences, the trends that happen and how we have coped with it in the past.

Answer:

The data for previous years are not readily available and would take considerable time to prepare.

GROUP 5 – STRATEGIC INDUSTRY REQUIREMENTS

Questions-on-Notice

QON 7. ASC (submission 17, p. 10) has told the committee that policy clarity from the government is critical: 'clear statements concerning the national government's strategic requirements for naval research, design, development, construction, modification, repair and support make a positive impact'.

- Is this possible to do, given changing governments and shifting strategic priorities?

Answer:

Australian industry plays a crucial role in the acquisition and through-life support of new Defence capabilities. Future capability and operations will rely on Defence having access to the required skills, products and infrastructure provided by industry. It is important that Defence keep industry abreast of its further requirements so that industry is able to align its planning and development to meet Defence's needs into the future.

Key documents which provide direction to industry on the Government's strategic requirements include the Defence 2000 White Paper *Our Future Defence Force* which outlines the strategic environment, and the Defence Capability Plan which provides a ten year outline on Defence capability requirements.

To keep these documents in line with shifts in the strategic environment, they are regularly updated, such as through the recent *Australia's National Security: A Defence Update 2005* and the annual updates to the Defence Capability Plan.

Defence also engages with industry on key projects to articulate expectations in relation to Australian industry capability outcomes. These expectations are then embedded within RFT documentation, as part of the Australian Industry Involvement (AII) Program. Issues addressed in the AII requirements include capability areas where indigenous industry capability outcomes are sought, research activities, workforce development, SME participation and global engagement strategies (see Question 44 refers).

QON 10. What is the current export focus of Australia's naval shipbuilding industry? Would you agree that if the Australian naval shipbuilding sector is to be internationally competitive, government will have to fund contracts that are not open to international competition?

Answer:

This is a question for Minister, not for Defence. Only Government can determine priorities for the use of public funds. See also responses to Questions 3, 4, 11, 14, 15 and 25.

QON 12. Given the subsidies that are available to overseas shipyards, what are the opportunities for the export of Australian-built naval ships?

Answer:

See response to Questions 11, 14 and 25.

QON 16. Defence's submission concludes by saying: 'Constructing the ships identified in the DCP in Australia has the potential to impact adversely on the overall wealth of the nation. Given the competition for scarce, skilled resources these may be better focused on non-Defence projects (such as export orientated investments) aimed at the long term good of the nation and wealth generation rather than being employed in new ship construction'. (para 5.7)

- This statement seems to contradict the views of a number of other submittors who argue strongly that with good planning and better management Australia does have a viable naval shipbuilding industry, especially considering the many less tangible benefits that accrue from having such an industry including the development of skills, innovation and improving export opportunities. Would you like to respond?

Answer:

The skill-sets relevant to Defence's forthcoming shipbuilding and support requirements are not necessarily unique to the maritime industry, and are also in demand in related industries such as the mining and natural resources and construction industries. Given that these skill-sets are identified as being in short supply over the next decade, there is a risk that various industries within Australia could end up competing for the limited skill-sets available. This would have the effect of pushing up prices (and potentially making Australia less competitive on the global market), while still not guaranteeing that industries would be able to access the skills they need. Such competition could have the effect of limiting the capability and capacity of a number of industries in Australia, including the mining and construction industries which are currently managing projects that are key to the wealth generation for Australia.

A viable naval shipbuilding industry can provide benefits for Australia, but care must be taken to assess its impact on other industry sectors. Defence's primary concern is to have a maritime sector with the requisite capability and capacity to be able to support the ADF's naval capability. This requires a viable maritime industry, and Defence believes there are a number of ways in which this can be achieved to meet its needs.

With an intended life of around thirty years it is likely that the Navy will have a requirement to replace a major class of surface combatants every fifteen years. Other major ships such as amphibious ships and oilers will have a similar life. For smaller ships, such as patrol boats the expected life will range from fifteen to twenty five years dependent on the type of vessel selected. The skills needed to build these smaller classes of ships are very different, it is a far more complex matter than planning and management, it is recognition of the very different types of vessels, their complexity and the building techniques required.

QON 54. Defence's submission referred to the Government's Skilling Australia's Defence Industry (SADI) program.

- Could you provide the committee with a progress report on this program and the concrete benefits that have come out of this initiative?

- How effective has the Government's Skilling Australia's Defence Industry in addressing the domestic skills and knowledge gap?

Answer:

In late 2004 the Government committed to invest around 0.5 per cent of the money spent on major defence capital equipment projects and their maintenance (an estimated $215m over ten years) to generate additional skilled positions, up-skill existing employees and improve the quality of skills training in Australian defence industry. Funds for the program became available on 1 July 05.

To date, 30 companies have been invited to submit, or have expressed interest in submitting, SADI proposals. Formal agreements have been established with five companies and another two agreements are expected to be finalised by the end of April 2006. Two more proposals have been received and are being reviewed and refined. SADI proposals are expected from fifteen other companies in coming months.

Companies in receipt of SADI funding are required to report progress against agreed targets and outcomes twice a year. The first reporting and invoicing period for the SADI Program closed on 31 January 2006. The one company required to report for that period achieved all their projected intakes and expenditure. The second reporting and invoicing period will close in mid June 2006. Seven companies will submit reports and invoices for that period.

The SADI initiative shares the responsibility for skills growth and development between industry and government and represents a win - win solution to Defence and Australian industry. A defence industry that invests in growing its skilled workforce demonstrates a real commitment to Australia's future industrial capability. Defence project risks will be reduced and Australian defence industry will continue to be globally competitive. The long-term benefits of making that commitment and investment include:

- increases in both the quality of the existing workforce skills and the quantity of skilled personnel available to industry;

- delivery of the capability required by the Australian Defence Forces on time, on budget and to the required standards;

- growth in Australia's specialised skills base by enlarging the pool of qualified engineers, technicians, trades people and project managers through the creation of additional 'smart' jobs;

- the provision of opportunities for rural and regional Australia, where many major Australian Defence Force platforms (and their components) are constructed and/or supported through life; and

- enhanced opportunities to participate in the development of a range of innovative defence technologies.

At this very early stage of the SADI Program, it is difficult to gauge its overall effectiveness. The single company that was required to report by the end of January 2006 met the targets set in their formal SADI agreement. Initial reports from other companies are due in June 2006.

QON 55. Austal commented in its submission that the construction of 10,000 tonne plus naval vessels may have negative effects on the existing shipbuilding industry through the pressure that such activities would have on the existing skilled workforce.

- Would you like to comment on this? To what extent do skills and training issues feature in DMO's thinking on naval shipbuilding?

Answer:

The competition for skilled production/fabrication workforce across shipbuilding and resource sectors such as mining and oil/gas industry appears to be a topical issue although the AUSCLAD statements in Perth on 4 April 2006 may indicate a slight easing. Skills and timing are a vital part of shipbuilding including for Naval ships. Defence submission and answer to Questions 16 and 54 are relevant.

QON 56. The Australian Industry Group commented in its submission that it has been working with the DMO on the federal government's "Skilling Australia" initiative.

- Can you comment on the types of practical measures that DMO wants to see come out of this initiative?

Answer:

See answer to Question 54 above.

QON 57. The South Australian government's submission recommends a national skilling and shipbuilding infrastructure plan.

- In principle, would you support such as plan?

Answer:

Yes. Defence note that the Department's Skilling Australia's Defence Industry (SADI) initiative is nationally based and that the Department's defence industry policies, including those pertaining to naval shipbuilding, at all times adopt a national perspective.

GROUP 6 - BROADER ECONOMICS

Questions-on-Notice

QON 17. The RSL argued that: 'The contention that economic considerations should be the primary consideration when deciding whether to purchase warships constructed in the shipyards of other nations or to build them in Australia is entirely dependent upon accurate and detailed proof that one option is more economically beneficial than the other. With so many variables and intangibles involved it is virtually impossible to obtain such proof'. (submission 6).

- Would you like to comment on this statement?

Answer:

Defence's considerations are necessarily focused on sustaining strategic defence industry capability. Those considerations are explained in the Defence submission.

Where a broader economic analysis is needed to assess the second and third order economic benefits (such as potential GDP growth and social advancement), then that would be complex. Treasury advised Defence that:

"The construction of major naval ships in Australia may have multiplier effects through the rest of the economy. However, such second order effects are difficult to quantify both in terms of employment and income effects. Treasury has not sought to quantify them, noting that the effects will depend on the particular circumstances pertaining at the time.

For instance, much of the focus tends to be on positive multipliers, and these may well be associated with naval projects being undertaken in Australia. However, where resources are displaced from other productive sectors, multiplier effects associated with the use of those resources in these other competing sectors might be expected as well.

It is possible for second order effects to be negative. Generally, where labour and capital are displaced from more productive to less productive sectors, lower national income can be expected to result. If there were skill shortages, then in the process of competing for skilled labour, nominal wages would be bid up as these resources were drawn away from other naval projects and/or the oil and gas sector. In these situations, economic activity is simply shifted rather than increased, and not necessarily shifted to its most productive use.

If, alternatively, the skilled labour drawn on consists of temporary migrants, any multiplier or second order effects may be limited by the extent to which they seek to repatriate their wages to their home country."

In the case of the LHDs, the Prime Minister advised the Australian Industry Group in his letter on 21 September 2005 that "While the Government's preference is for the LHDs to be built in Australia, the Government is also committed to adhering to a responsible process for defence acquisitions that ensures that projects are delivered on time and on budget, in accordance with the recommendations of the Defence Procurement Review 2003 (the Kinnaird Review)." He went on to indicate "..... Government consideration of this matter will be informed by well coordinated advice that takes into account key issues including capability requirements, affordability,

value for money, industry and workforce impacts, skills formation and retention, scheduling issues and the overall national interest."

QON 18. Rear Admiral (Ret'd) W.J.Rourke submitted that the productivity of local shipbuilders is practicable and appropriate. He argued that local construction can usually compete well with US construction costs and those of Europe. He cited the Tasman Asia Pacific 'Impact of Major Defence Projects: a Case Study of the ANZAC Ship Project'. It found that the ANZAC program made substantial contributions to Australian GDP and also provided substantial savings in increased participation in through-life support. submission 1, p. 4.

- Could you provide some background to this study, (it should be noted that a number of submittors have referred to it) assess some of its findings and whether they have relevance to matters before this inquiry?

Answer:

In 1999, the Australian Industry Group's (Ai Group) Defence Council commissioned Tasman Asia Pacific to examine the impact of major defence projects on the Australian economy. Tenix Defence Systems, the Victorian Department of State and Regional Development, ISONET and the Industry Division of the Department of Defence sponsored the study. The Ai Group and Tasman selected the ANZAC Ship Project for an in-depth case study.

See response to questions 17, 19 and the question on notice on page 34 of the Hansard regarding multiplier effects.

QON 19. The Australian Industry Defence Network Inc also cited the findings of the TASMAN ASIA PACIFIC study into the ANZAC ship Project to indicate the savings that can be made by building navy ships in Australia. (submission 2, p. 2.)

- How do you reconcile the conclusions reached by Defence in its submission with the findings of the study into the ANZAC ship project?

Answer:

Defence notes and agrees with Treasury advice that the construction of major naval ships in Australia may have multiplier effects through the rest of the economy. Such second order effects are difficult to quantify both in terms of employment and income effects due to their dependency on the particular circumstances pertaining at the time. See the Treasury advice in the response to the question on notice on Page 34 of the Hansard.

QON 20. The Australian Industry Group's submission noted that the ANZAC frigate project at Williamstown increased annual GDP by as much as $500 million, increased annual consumption by over $300 million and saw the creation of 8,000 full time equivalent jobs.

- Can you comment on what you see as the main reasons for the success of the ANZAC frigate project?

Answer:

There is a wide range of reasons, of which, the more significant relate to the sufficiently large number of ships (10) that generated substantial learning/improvement, and the size of program (in the order of $7Billion in current dollars) that warranted Industry, State and Federal Government investment, training incentives, etc.

QON 38. Your submission (p. 23) indicates the possible benefits to availability of skilled labour of smoothing demand by building the Amphibious ships (LHDs) overseas.

- Will the impact of 'ramping up and ramping down' (p. 23) workforce requirements be taken into account during the upcoming tendering process?

Answer:

The committee will appreciate that for reasons of commercial confidentiality we are not able to discuss the content of the Request for Tender (RFT). However, it is normal for tenderers to be required to demonstrate their ability to meet the workforce requirements of their proposal. (See also response to Question 17).

The schedule in the RFT will reflect the imperatives of the Defence Capability Plan. The Project has no authority to address wider matters on its own.

While Defence is monitoring the workforce effects of its demand, it is not appropriate to include the broad economic effects of a requirement in the conditions of a tender. To do so would distort the tender requirements and detract from the value for money assessment which Defence will be required to make. Decisions beyond that could be for Government.

Tenderers will assess their own ability to cope with the surge and the tender evaluation process will examine their judgment.

QON 39. Do you agree with ASC's submission (p. 24) that their proposed demand management would represent 'not net cost' to the public?

- Have you undertaken your own analysis on this?

Answer:

While Defence has not analysed the specific data provided by ASC, we note that the concept is not dissimilar to that proposed by Defence in the draft Naval Shipbuilding and Repair Sector Plan 2002 Chapter 14. Defence's response to Question 17 is also relevant.

QON 51. The committee's terms of reference included the broader economic development and associated benefits accrued from undertaking the construction of large naval vessels

- In your experience, what are the benefits that accrue from undertaking the construction of large naval vessels?

Answer:

These benefits are described in attachment 1 (relating to Question 52) in the Questions-on-Notice for Department of Defence issued on 28 March 2006. Further detail is provided at Question 52.

QON 52. A number of submittors provided a long list of what they considered significant benefits that accrue from the construction of naval vessels in Australia. They included technology transfer, development of valuable new skills, manufacturing techniques and processes, improved potential for exporting, creation of capability to support vessels throughout their operational lives, shorter turn around for repairs with in-service support. See attachment 1.

- Would you agree that such benefits do accrue and, if so, have you any others that you could add?
- How does Defence take account of these less tangible gains to the Australian economy in the tendering process and final decision making?

Answer:

Defence agrees that all of the benefits listed can accrue to some extent from the construction of naval vessels in Australia. In this sense, construction covers all aspects of the vessels including the hull and all its systems and extends to construction and support facilities. It includes design and fabrication of the structure, manufacture of equipment and components, systems integration, project management, test and trials and setting up the integrated logistics support system including training, facilities, technical documentation, etc.

In addition to the benefits listed, other benefits include:

- establishing through close collaboration with Original Equipment Manufacturers (OEMs), especially overseas OEMs, long-term relationships that facilitate entry into global supply chains and opportunities for work on other projects;
- better access to intellectual property and a greater amount of IP held in Australia;
- greater awareness of world best practice through dealing with overseas companies;
- enhancement of Australian industry's reputation as being capable of producing world-class naval vessels and associated systems;
- development of facilities that could be used in the construction or support of non-naval vessels; and
- helping to develop and sustain skills and capabilities that spin off to the Australian shipbuilding and repair industry and other sectors of Australian industry.

Defence specifies industry capability outcomes for new projects, i.e., the outcomes Defence wants in terms of support services, in the Request for Tender (RFT). These industry capability outcomes may cover specific requirements, such as the ability to modify command and control system software, or they may be more general, such as the ability to undertake deeper maintenance of systems in Australia. Tenderers are

required to submit proposals in their tenders showing how they will meet the industry capability outcomes. Tenderers are also required to show how cost-effective involvement in the project by Australian industry has been maximised.

The principal criterion against which the proposals are evaluated is how well tenderers' Australian Industry Capability proposals meet the industry capability outcomes required for the project and specified in the RFT. The percentage or dollar value of Australian content is but one factor. Direct benefits such as capabilities for support and savings resulting from shorter repair times are taken into consideration in evaluation against these criteria. Some of the less tangible benefits, such as technology transfer and access to intellectual property, are achieved through the activities proposed for Australian industry and form part of the evaluation of these activities. Others, such as potential spin-offs to industry at large and wider benefits to the economy, such as increased employment, may be recognised but play little or no part in the numerical evaluation. Such benefits will be noted in advice to Government. (see also Treasury advice at the response to Question 17).

Questions during the Hearing

Hansard Page 19. Senator FIERRAVANTI-WELLS—With regard to paragraph 1.8, I would like you to develop this concept. If you build ships in Australia then surely that is the best way of having the knowledge to then maintain, repair and have all of the support that goes with the vessel subsequently. I would like to see a little bit more of that developed as well as the economic benefits. If I am not mistaken, there was also a report done for the Victorian government after the building of the ANZAC frigates. It may have been the Allen report. If there has been some analysis of the in-country benefits of building in Australia then perhaps that would be a useful document to have available to us. I do not think it was in the pile of documents that we received. I think that would be useful.

Answer:

See the Treasury advice at the response to Question 17.

The Victorian Government commissioned Allen Consulting Group report in February 2005 "*Building the Air Warfare Destroyers: How does Williamstown rate?*". *This* is a public information. It actively promotes Victoria as Australia's centre for defence manufacturing, research and development, and reflects the Victorian Government's strong support to Tenix Defence's proposal to build Australia's proposed Air Warfare Destroyers (AWD) at Williamstown. The Allen Consulting Group's report states that, under all relevant criteria, the Tenix operation at Williamstown offers a superior capability for building the AWDs and argues that these findings strongly demonstrate that it would be in the national interest to build the AWDs at Williamstown. This report can be found at:
http://www.business.vic.gov.au/BUSVIC/STANDARD/1001/PC_60371.html

There is also a further Allen report commissioned by the Victorian Government in May 2005 titled "*Future of Naval Shipbuilding in Australia - Choices and Strategies*". This report focuses on the longer-term issues and strategic choices that will determine the future of the naval shipbuilding industry.

Hansard Page 34: Senator MARK BISHOP—Could you then take on notice whether Finance, Treasury, Defence or DMO have done any work on the multiplier for sourced domestic work in Australia arising from the AWD contract? If they have done that work, what is the multiplier and what are any caveats on the multiplier that they have provided to you as to its accuracy?

Answer:

Defence has no forward "multiplier" analysis particular to AWD or Amphibious Ships programs. We are aware that this sort of information has sometimes been derived retrospectively. For instance "Impact of Major Defence Projects: A Case Study of the Anzac Ship Project", previously referred to in this inquiry, was commissioned by the Defence Council of the Australian Industry Group and performed by Tasman Asia Pacific.

Advice from Treasury is quoted in the response to Question 17.

GROUP 7 – EXPORT CONTROL

Questions-on-Notice

QON 11. What, if any, are the difficulties with selling our Australian-built ships to other navies? What are the restrictions Australia faces in selling ships using overseas technology, eg Aegis weapons systems? Would Australia require security clearances to do so?

Answer:

There are many issues that impact the ability to sell Australian built warships to other navies. The following might be the more significant:

- Foreign Policy. Sale and supply of a major weapon system to a foreign Navy would be a foreign policy matter for both Australia and the receiving nation. Foreign policy considerations could act to restrict the possible market size.

- Capability fit. Australia seeks warships that meet its requirements. Australian requirements include long range blue water capability with the ability to integrate with the forces of its major allies. These requirements might not be applicable to other navies seeking to purchase warships.

- Design Capability. Australia has limited demonstrated ability to design and adapt warships to a customers requirements with most Australian warships being derivatives of foreign design.

- Cost. Australia is unlikely to have any significant cost advantage over other potential suppliers.

- Export Controls. Australian built warships contain design, systems and equipment that are subject to the export controls of supplying nations in particular the US. These products can only be transferred with the approval of the originating nation and experience indicates that approval is difficult to obtain.

QON 13. Gibbs and Cox state in their submission: 'It is our intent to negotiate with the Commonwealth use of our design for international marketing.

- In principle, does DMO have any objections to Gibbs and Cox using the AWD project for exporting opportunities?

Answer:

Subject to the limitations imposed on the export of Defence equipment for national and international interest, DMO supports Australian defence industry initiatives in developing export markets. In relation to the AWD program DMO would not object in principle to Gibbs &Cox using the Australian AWD design for export markets subject to:

a) normal defence export restrictions;

b) negotiations of commercial terms; and

c) involvement of Gibbs &Cox in any required design changes to sustain in country design capability.

QON 14. The Australian Association for Maritime Affairs Inc (AAMA) wrote that 'the failure to sell the ANZAC frigate to the South East Asia region is seen as a failure of government' (submission 13, p. 2).

- Could you comment on government initiatives to sell Australian-made ships in Asia? What are some of the difficulties faced when attempting to export Australian naval ships into this region?

Answer:

Because of limited Defence requirements and the costs of vessel design, development and risk, Australian shipbuilders do not have their own major naval ship designs but build to foreign designs with the associated licensing restriction on third party sales.

The Anzac Class Ships are based on the Blohm and Voss Meko 200 design and were built in Australia under licence. That licence does not permit selling the vessel to third parties (other than New Zealand). Like most Intellectual Property owners, Blohm and Voss wish to retain the marketing rights for its designs.

Australian shipbuilders also find it difficult to compete against heavily subsidised foreign ship building yards and the aggressive marketing by European firms who have the advantage of owning ship designs that have been sold to other navies.

However, Australian companies like Tenix have been successful in selling smaller vessels into South East Asia eg six Search and Rescue vessels (56 metre) to the Philippines, six 31.5 metre patrol craft to Hong Kong and two 36.5 metre landing craft to Brunei.

Austal, with its relatively recent entrance into naval shipbuilding and successful sales of patrol boats to Yemen and the Royal Australian Navy, is actively pursuing opportunities in Asia and the Middle East in addition to its design being chosen for one set of prototypes for USN Littoral Combat Ship project

Defence supports the efforts of Australian shipbuilders by providing reference and entrée to key decision makers in the military and governments of South East Asia. It also assists Australian shipbuilders in promoting their capabilities at regional trade shows and exhibitions where ADF's reference is a valued discriminator. The appointment of Major General Molan as the Defence Materiel Advocate in early 2005 was a major Government initiative to specifically assist Australian companies in the export of Defence products and services.

Attachments:

1. Navy Major Approved Projects.
2. Navy Minor Approved Projects.
3. Maritime Systems Division Organisation Chart.
4. DMO Organisation Chart.
5. ANZAC Subcontracts Vendor List.

NAVY MAJOR APPROVED PROJECTS ***ATTACHMENT 1***

Project Id Roman	Project Name	Project Description
SEA01102PH3A	Airborne Laser Bathymetry System	The aim of SEA01102 Phase 3A is to provide the means to conduct hydrographic survey using Airborne Laser Bathymetry. The project will replace the current Laser Airborne Depth Sounder Mk 1 system.
SEA01114PH3	New Submarine	This project is for the provision of six COLLINS Class submarines and associated infrastructure and support services.
SEA01348PH2	ANZAC Ship	This Project involves delivery of 10 ANZAC Class Ships, shore facilities and logistic support. Two of the ten Ships are for the Royal New Zealand Navy. To date, nine ships have been delivered, and four Shore Support Facilities have been completed.
SEA01348PH3	Underwater and Surface Warfighting Upgrade Program	This Project enhances the ANZAC Class frigates surface and sub-surface warfighting capabilities. This Phase includes the acquisition, integration and installation of Harpoon anti-ship missile capability together with Harpoon Canisters for the RAN ANZACs
SEA01348PH3C	Mine & Obstacle Avoidance Software (MOAS)	Phase 3C acquires and installs the Mine Obstacle and Avoidance Sonar (MOAS) capability as part of the ANZAC Underwater and Surface Warfighting Upgrade.
SEA01390PH2.1	FFG Upgrade Project PH2 Implementation	The FFG Upgrade now seeks to regain the original relative capability of the four FFGs to ensure they remain effective and supportable through to their end of life 2013-2021.
SEA01390PH4A	FFG SM1 Missile Replacement Test Station	Purchase of the Mk698 Test Set for logistic support of the Standard Missile 2.
SEA01390PH4B	FFG SM1 Missile Replacement	Acquire and integrate the SM-2 missile into four FFGs and the acquisition of initial ship outfit and inventory stock missiles.
SEA01401PH2	Hydrographic Ship Acquisition	This project is to deliver two purpose-designed and built LEEUWIN Class Hydrographic Ships to provide the ADF with an offshore hydrographic capability. Vessels have been provisionally accepted by Operational Release remains outstanding.
SEA01401PH3	Upgrade of Survey Motor Launch Hydrographic System	This project will upgrade the Hydrographic Survey Systems in the four RAN Survey Motor Launches. The upgrade will significantly increase the survey rate of effort of the Survey Motor Launches and provide an additional route survey capability.
SEA01412PH2	Maritime Warfare Training Centre	Enhance the existing simulation capability at the Maritime Warfare Training Centre at HMAS WATSON to provide extensive and more complex maritime warfare training, and thereby enhance the operational capability of fleet units.
SEA01420PH1	MILSATCOM for ANZAC and COLLINS	Installation of MILSATCOM capability in all of COLLINS Class and RAN Anzac Class.
SEA01424PH1A	Australian Acoustic Generator (AAG)	Procurement of 18 Australian Acoustic Generators and associated support.
SEA01428PH2A	Evolved Sea Sparrow Missile	The AOR for SEA 1428 Phase 2A has now been replaced by the AOR for SEA 1428 Phase 2B/3 in the DC Pack. This Project Phase (2A) provides for the installation of the ESSM capability into ANZAC Class ship 05-07 and the purchase of missiles.
SEA01428PH2B/3	Evolved Sea Sparrow (ANZAC 01,03,08-10)	Phase 2B/3 covers continued acquisition of ESSM, and the ESSM integration on ANZAC Class ship 08-10 and backfit to HMAS ANZAC and ARUNTA.

Project Id Roman	Project Name	Project Description
SEA01429PH2	Replacement Heavyweight Torpedo System	To acquire a replacement Heavyweight Torpedo for the Collins-class submarine to replace the United States Navy Mk 48 Mod 4 Heavy Weight Torpedo currently in service with the Royal Australian Navy.
SEA01432PH2	Acoustic Mine Imaging	Project SEA01432, Acoustic Mine Project SEA01432, aims to provide a high resolution sonar to enable maritime mines to be identified in low visibility conditions frequently experienced in Australian coastal waters.
SEA01436PH1	Advanced Mine Warfare Sonar (CTD)	CTD to improve RAN ability to find/deal with buried and smart mines.
SEA01439PH3	Collins Submarine Platform Systems Improvements	SEA1439 Phase 3 is a program of upgrades to Collins-class platform systems to improve the Class' reliability, sustainability, safety and capability.
SEA01439PH4A	Replacement Combat System	To provide COLLINS-class submarines with the USN Tactical Command and Control System; minor improvements to the Combat System Augmentation sonar and shore facilities for integration, testing and training.
SEA01439PH4B	Weapon and Sensor Enhancements	Acquire Director General Maritime Development (DGMD) endorsed supplies to address deficiencies identified in the McIntosh/Prescott report in the area of Submarine weapons and sensors.
SEA01444PH1	Armidale Class Patrol Boat	SEA01444PH1 is to deliver a Patrol Boat system, replacing the current Fremantle Class patrol boat capability in the RAN. The system initially comprised 12 vessels, contractor support and crew training. The May 05 budget approved two extra Patrol Boats.
SEA01446PH1	Collins Class Interim Minimum Operating Capability (IMOC)	Combat System Augmentation and a number of platform system modifications to two submarines and shore infrastructure.
SEA01448PH1	ANZAC Anti-Ship Missile Defence (ASMD) Upgrade Studies	This Project conducts studies into the capabilities required for the ANZAC Class to defence themselves against anti-ship Missile threat. Also includes detailed costing of recommended capability level and investigation into Phased Array Radar options.
SEA01448PH2A	Anti Ship Missile Defence (ASMD)	This Project will provide the ANZAC Class frigates with an initial ASMD capability. Ph2A will upgrade the Combat Management System and install an Infrared Search and Track (IRST) equipment solution. Ph2A will later integrate with Ph2B.
SEA01448PH2B	ASMD Phase 2B (CEA)	This project will complete the ASMD suite in the ANZAC Ship by delivering phased array CEA-FAR target indication and tracking together with CEA-MOUNT target illumination.
SEA01555PH2	Minehunter Coastal Acquisition	Project SEA01555PH2 involves the acquisition and initial support of six HUON Class Minehunter Coastal Vessels and associated supplies.

NAVY MINOR APPROVED PROJECTS ***ATTACHMENT 2***

Project Number	Project Title	Project Description
NMP1304	Submarine Launched Communication Buoys.	Submarine Emergency Rescue Beacons for COLLINS Submarines.
NMP1640	Seahawk Acoustic Data Recorder.	Acoustic intelligence gathering capability for Seahawk Helicopters.
NMP1644	SATCOM for Major Fleet Units.	Satellite communications capability for FFGs, HARMAN, STIRLING, SUCCESS, TOBRUK, COONAWARRA, CERBERUS, Comms School, Maritime Command Centre, MANOORA and KANIMBLA.
NMP1671	Direction Finding (DF) Capability for Fremantle Class Patrol Boats (FCPB).	To provide a communications direction finding capability primarily for search & rescue on VHF & UHF frequencies for FCPBs.
NMP1687	Maritime Intelligence Dissemination and Analysis System (MIDAS).	Automated command, support & intelligence system for Major Fleet Units and selected shore establishments, including HMAS WATSON for training.
NMP1692	Tactical Environmental Support System (TESS 2).	PC-based system for the analysis and prediction of the effect of the environment on ships' sensors, weapons and communications for Major Fleet units including COLLINS class submarines, plus HMAS STIRLING and HMAS WATSON for training.
NMP1700	Global Positioning System (GPS) Data Loader/Recorder.	To provide enhanced operational usage of RAN GPS for Fleet (excludes submarines and ANZACs), HMAS WATSON (Bridge Simulation), HMAS WATSON (Nav Fac) and MOTU-WE.
NMP1704	Direction Finding (DF) capability for nominated Major Fleet Units (MFU).	To provide a communications direction finding capability primarily for search & rescue on HF & V/UHF frequencies for FFGs, LPAs, WESTRALIA, SUCCESS and TOBRUK.
NMP1723	UHF-VHF Radio Equipment for Fleet.	To provide portable (for MFUs) and fitted (for FCPBs and LCHs) UHF-VHF radios to overcome Search and Rescue communications capability deficiency.
NMP1724	Crash Data Recorders.	To acquire and integrate a crash data recorder capability in RAN helicopters for incident and accident analysis.
NMP1728	LPA External Communications Fit.	To provide LPAs - HMA ships KANIMBLA and MANOORA with a RAN standard external communications capability appropriate to air capable ships.
NMP1733	Upper Air Sounding System (UASS.)	Provides a capability for FFGs, HMAS SUCCESS, LPAs, NAS NOWRA & FFH's to measure in-situ atmospheric conditions and to analyse electromagnetic propagation and ballistic conditions.
NMP1734	Digital Voice Recording Equipment for MFUs.	Provides a capability for FFGs, SUCCESS, LPAs & TOBRUK to record and replay internal and external voice communications for incident and exercise analysis.
NMP1735	High Speed Fleet Broadcast.	To improve the transmission speed of fleet broadcasts and to comply with AUSCANNZUKUS interoperability requirements for Major Fleet Units (excluding ANZACs and COLLINS) Shore Radio Stations & HMAS CERBERUS (training system).
NMP1737	Portable Fire & Salvage Pumps.	To provide an enhanced capability fire and salvage pump for MFUs.
NMP1740	Mine Counter Measure Underwater Computer System.	To provide an underwater Mine Underwater Countermeasures Computer System for navigation, mission planning, depth sensing and data recording.
NMP1743	Underwater Searched Area Marking System.	Diver-delivered buoyage system to mark approaches to landing points for amphibious reconnaissance.
NMP1746	Slew Arm Davit (SLAD) Upgrade.	Provides replacement davits to enhance onboard lifting operations and to support full SOLAS compliance on FFGs.
NMP1768	Installation of RAVEN Radios on Major Fleet Units (MFU).	Installation of a RAVEN based Combat Net Radio (CNR) system to provide a more viable secure voice communications capability for the conduct of Naval Gunfire Support (NGS) and amphibious operations onboard FFGs, SUCCESS, WESTRALIA, TOBRUK & HMAS CERBERUS (training system).
NMP1770	Flight Deck Low Light TV System.	To provide a low light TV system to enable remote surveillance of flight deck operations for FFGs, HMAS SUCCESS & HMAS TOBRUK.
NMP1772	Wide Area Network & Local Area Networks at Sea.	Install computer-wide area networks and local area networks on major fleet units.
NMP1777	Global Maritime Distress Safety System (GMDSS) VHF Radios.	Provides the fleet with a digital selective calling capability VHF radio to comply with Safety of Life at Sea Convention requirements.
NMP1778	Beecroft Weapons Range Communications Upgrade.	To install RAVEN radio equipment and reconfigure cabling etc at Beecroft Weapons Range to overcome mutual interference problems.
NMP1780	Wide Area Differential Global Positioning System.	Precision positioning for hydrographic survey and mine warfare.
NMP1782	Mine Detonation Detection System for Minesweeping Drone Boat.	Provide mine detonation detection system for minesweeping drone boats.
NMP1783	Operations Room & Support Container for Minesweeping Drone Boat Unit.	Operations Room and Support Container for Minesweeping Drone Boat Unit.
NMP1785	INMARSAT B.	To provide Inmarsat B and video teleconferencing (VTC) for Major Fleet Units, deployable Mine Warfare HQ and Clearance Diving Teams.
NMP1787	Night Vision Gyro-Stabilised (NVGS) Binoculars for Helicopter Flights.	Provides a capability to helicopter flights to carry out effective surface surveillance at night.
NMP1789	Sound Projection System.	To acquire a portable sound system for the fleet that can project voice communication up to 1km during boarding operations.
NMP1791	Combat Helmets	To acquire a ballistic combat helmet for the fleet, for protection including active hearing protection (AHP) during ship weapon firings and ship defence activities.
NMP1794	Weapon Training Simulation System (WTSS)	Simulators for small arms training at HMAS CERBERUS and HMAS STIRLING
NMP1795	ANZAC Multi-Function Console.	To enhance ANZAC class SS2000 Combat System training support capacity at HMAS WATSON
NMP1801	Muzzle Velocity Measuring Equipment (MVME).	To acquire new MVME for all ANZACs and FFGs.
NMP1806	General Purpose Machine Gun (GPMG) MAG 58 Mounts for S-70B-2.	To provide mountings capable of supporting the MAG 58 General Purpose Machine Guns (GPMG) when fitted to the S-70B-2 helicopters.
NMP1809	Naval Aviation Night Vision Capability - Aircraft	To provide a night vision (NV) capability to support low level, night helicopter operations.
NMP1810	Aust CD Modular Weapon System.	To procure a modular weapon system for Navy Clearence Divers (M4 Carbine) that can operate after having been immersed in water.
NMP1815	Pirate Infrared Decoy Rounds for FFGs and FFHs	To provide anti-missile protection against IR-based seeker heads for FFGs and FFHs
NMP1817	Four Man Recompression Chamber.	Enhanced RCC capability for RAN Diving School (HMAS PENGUIN)
NMP1820	GID 2A - Chemical Detection System.	To procure and install GID 2A Chemical Detection Systems on All ANZACs and FFGs, both LPAs, all MHCs, both HSs, TOBRUK and SUCCESS.
NMP1821	Combat Body Armour.	To procure combat body armour (CBA), to overcome deficiencies in personal protection of RAN members, when conducting maritime operations and force protection operations.
NMP1823	Ocean Modelling Software System	To bring into service a superior oceanographic modelling software system for all TESS2 users, to provide accurate oceanographic environmental intelligence to warfare planners and commanders.
NMP1824	RHIB Modifications.	Conversion of selected existing 7.2m RHIBs to "Super RHIBs" and purchase of six new RHIBS fitted for but not with the Super RHIB modifications. Additional two new Super RHIBs have also been procured, following a change of scope to the project.

NAVY MINOR APPROVED PROJECTS ***ATTACHMENT 2***

Project Number	Project Title	Project Description
NMP1827	Ballistic Protection (BP) for Upper Deck Personnel	To provide protection for exposed personnel during interception and boarding activities, as part of Maritime Interception Force (MIF) operations onboard AO, AOR, LPA and LSH.
NMP1830	12.7mm - Quick Change Barrel (QCB) and Combined Recoil Booster (CRB)	To upgrade the existing 12.7mm machine gun for the fleet, by fitting a quick change barrel (for firing live ammunition), and a combined recoil booster (for firing blank ammunition). Includes the procurement of 168,900 rounds of blank ammunition.
NMP1831	Photo Imagery Equipment	To standardise RAN imagery equipment for "evidence recording" purposes.
NMP1836	Passive Link Tap (PLT)	To provide a PLT capability for FFGs, FFHs, LPAs and SSG to enable display of Link 11 data on systems such as GCCS-M
NMP1837	Force Protection and Boarding Party Equipment.	To provide necessary equipment for force protection and boarding parties.
NMP1840	INMARSAT High Speed Data Services for RAN and Other ADF Units	To provide enhanced voice, fax and data services via INMARSAT for FFGs, ANZACs, HYDRO, AMPHIBIOUS, and HMAS CERBERUS.
NMP1843	Portable Radio Communications for RAN Ships	To provide portable radios to the fleet for damage control and boarding party operations.
NMP1844	Naval Transmitting Station Sale - Very Low Frequency Transmitter Upgrade	Improve the VLF transmission system to increase reception ranges at NTS Sale
NMP1845	Amphibious Situational Awareness Tools	To provide the Amphibious Task Group Commander with a C2 Support System and amphibious warfare tools.
NMP1852	RAN Specialist Boarding Party Ladder	To provide lightweight boarding ladders, that allow safe and efficient boarding of vessels, with freeboard of up to 4.5 metres.
NMP1857	Personal Locator Beacons	To provide a capability to locate personnel who have fallen overboard undetected and have not been rescued immediately.
NMP1863	Fleet Information Environment Upgrade	To upgrade existing Unclassified IS to a Restricted security level, and improve existing Restricted IS encryption to new standards.
NMP1874	Surface Combatant Force Protection Upgrade	Provide Mini-Typhoon mounts and Toplite Electro-optical sight for selected FFGs and FFHs.
NMP1880	Submarine Internet Protocol (SIP)	To enhance HMAS RANKIN's data message transfer with an IP communication

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  02 6266 0133
- **ANZAC System Program Office Director**
  Mr Chris Eggleton
  08 9553 1850
- **FFG System Program Office Director**
  Mr Mal Adams
  02 6265 3425
- **Amphibious and Afloat Support System Program Office Director**
  Mr Jos Blanslaar
  02 9359 6077

Director General Minor War Vessels
Mr Phill Brown
02 6265 2957

- **A/g Deputy DGMWV Executive and Support**
  David Ramsden
  02 626 57575
- **Minewarfare and Clearance Diving SPO Director**
  CAPT Lili Bradley
  02 9926 2235
- **Patrol Boat System Program Office Director**
  Mr Peter Davey
  08 8924 2222
- **Hydrographic Ship System Program Office Director**
  Mr John Barton
  07 4035 8425
- **Pacific Patrol Boat System Program Office Director**
  CMDR Mike Sander
  02 6265 2744
- **Minor Capital Projects (Navy) Director**
  Mr Alan Arnold
  02 6268 3005

Director General Submarines
CDRE Boyd Robinson
02 6266 7011

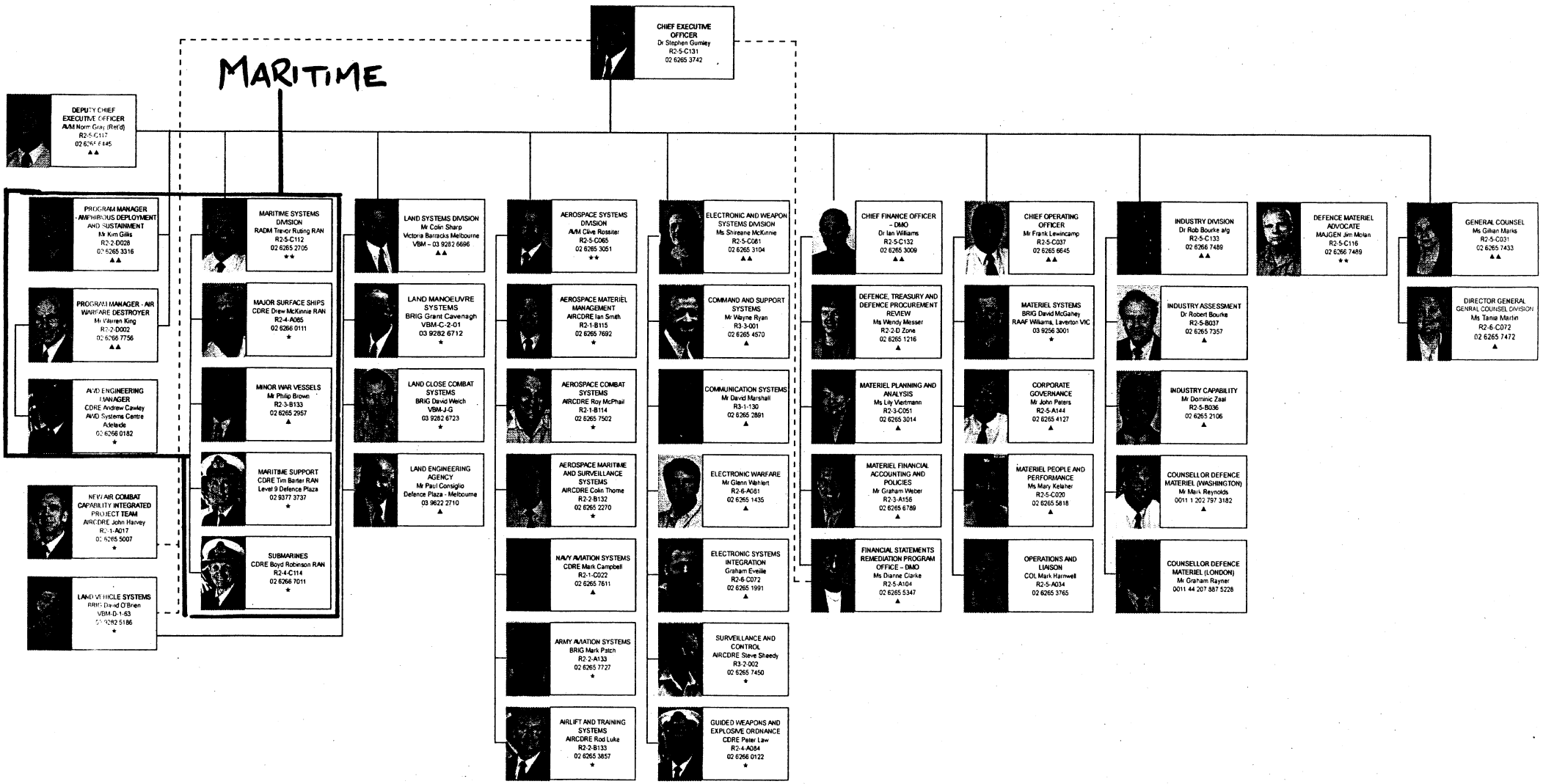
- **Deputy DGSM & Chief of Staff**
  Mr Colin Cooper
  02 6265 7540
- **COLLINS System Program Office Director**
  CAPT Bronko Ogrizek
  08 9553 2494
- **Submarine Engineering Director**
  Mr Paul Tuck
  02 6266 7021
- **Combat System Program Office Director**
  Mr Bob Clark
  02 6266 7051
- **Maritime Ranges System Program Office Director**
  Mr Chris Donald
  02 6265 2341

Director General Maritime Support
CDRE Tim Barter
02 9377 3737

- **Logistic Support Agency - Navy Director**
  Ms Susan Mohr
  02 9377 3130
- **Logistic Management Group Director**
  CAPT Andrew Smith
  02 9377 3748
- **Centre for Maritime Engineering Director**
  Mr David York
  02 9377 2335
- **Directorate of Business and Systems Improvement**
  Mr Peter Lucey
  02 6266 0142
- **Joint Fuels & Lubricants Agency A/g Director**
  Mr Gary Black
  02 9377 3252
- **ADF Disposals & Marketing Agency Director**
  Mr Michael Epps
  02 9377 2356
- **Maritime Capability Support Director**
  Mr Stuart Knibbs
  02 9377 3743

ATTACHMENT 3

Defence Materiel Organisation - Organisational Chart



ATTACHMENT 4

ANZAC SUBCONTRACTS VENDOR LIST			*ATTACHMENT 5*
TIER	SUPPLIER	LOCAL/ OVERSEAS	SUPPLIES
1	ADI (Stanilite)	LOCAL	Internal/External Communications
1	Bird Johnson	OVERSEAS	Zero Thrust Propellors (Cost included in PMS013)
1	Bird Johnson Co	OVERSEAS	Propulsion Shafting & CPP
1	Blohm & Voss	OVERSEAS	Bower Anchors / Anchor Shackles
1	Blohm & Voss GmbH	OVERSEAS	Structural Closures (Doors WT & GT & Hatches)
1	Blohm & Voss Industries	OVERSEAS	Oily water seperators
1	Brown Brothers	OVERSEAS	Fin Stabilisers & Steering Gear
1	Cossor Electronics	OVERSEAS	IFF System
1	CSC Australia	LOCAL	CSSC/CSTT/CSSF
1	EADS Ewaiton (Daimler Benz Aerospace)	OVERSEAS	Comms Electronic Support Measures
1	Frequency Engineering Laboratories Corp.	OVERSEAS	Torpedo Decoy System
1	G.E.Marine	OVERSEAS	Propulsion Gas Turbine Engines
1	Honeywell	LOCAL	Echo Sounder
1	Honeywell	LOCAL	HVAC Controls
1	Honeywell	LOCAL	Helo Visual Landing Aids
1	Indal Technologies	OVERSEAS	Hangar Door & RAST
1	Maag	OVERSEAS	Propulsion Reduction Gearboxes & FLC
1	Mc Taggart Scott	OVERSEAS	Helo Landing System RNZN
1	MTU Australia	LOCAL	Propulsion Diesel Engines
1	MTU Australia	LOCAL	Generators & Diesel Engines
1	Racal Radar (Aerospace Division)	OVERSEAS	Electronic Support Measures
1	Raytheon Systems Company	OVERSEAS	2DR Radar
1	Saab Systems	LOCAL	C2/FCS/TIR/CSI
1	Siemens	LOCAL	Control & Monitoring System/Platform Electrics
1	Sperry Marine	OVERSEAS	Ships Navigation Data System
1	STN Atlas	LOCAL	Navigation Radar
1	Thales Underwater Systems	LOCAL	Hull Mounted Sonar/MOAS
2	A&G Price	OVERSEAS	Ops Room Pallets
2	A&G Price	OVERSEAS	Deck Machinery-RAS/Mooring/Anchor
2	Alfa Laval	LOCAL	Fuel & oil Purifiers
2	Aqua Signal	LOCAL	Ships ,Lighting
2	BAE	LOCAL	ESSM study
2	BAE Systems (GEC Marconi)	LOCAL	Global Positioning System
2	Baker & Provan	LOCAL	Boat Cranes 01,03, 05 - 10
2	British Aerospace	LOCAL	ESSM Modelling
2	CAE	LOCAL	Platform Shore Installation
2	CompAir	LOCAL	Gas Turbine RB Compressors
2	CompAir	LOCAL	Propeller Masking Air Compressors
2	Drager Australia	LOCAL	Divers Compressors
2	Edson (R Edmonds & Sons)	LOCAL	Ship Hot Water Heaters
2	Evac Oy	OVERSEAS	Vacuum Collection System
2	Exceltec International Corporation (Eltech)	OVERSEAS	Sewage Treatment Plant
2	Frontline Ultramare	LOCAL	Garbage Comminuter
2	GEC Alstrom	LOCAL	Food & Ammunition Lifts
2	Goninan/Newcastle Eng.(Close Out Comp).	LOCAL	Rudder Stock & Pintal
2	Hale Hamilton	OVERSEAS	Compressed Air Receivers
2	Hill's Defence Products	LOCAL	New Galley Equipment
2	Hollandse Signaalapaarten BV	OVERSEAS	Helo Transponder
2	Industrial Acoustics Company	OVERSEAS	Gas Turbine Air & Exhaust Silencers
2	Industrial Control Technolgy	LOCAL	Fire Alarm Distribution System
2	James Hardie/Wormald	OVERSEAS	Fire Extinguishing Equipment (Halon/Foam Sys)
2	JP Sauer & Son	OVERSEAS	LP Compressors
2	JP Sauer & Son	OVERSEAS	Hand Compressors
2	Laguna Aerospace	OVERSEAS	Chaff Fixed Launcher
2	NPD Technologies (Republic Electronics)	OVERSEAS	Radar Simulator Test Set
2	Oceanfast	LOCAL	Boat Cranes 01 - 04
2	Sitep Spa	OVERSEAS	CCTV
2	Sitep Spa	OVERSEAS	Wind Speed & Direction Indicator
2	Sitep Spa	OVERSEAS	Mil SAT COM
2	Sofma	OVERSEAS	Helo Landing Grid RNZN

TIER	SUPPLIER	LOCAL/ OVERSEAS	SUPPLIES
2	Thomson Valves	OVERSEAS	Air Reducing Station/Compressed Air Valves
2	TYSCI	LOCAL	Boat Crane Mods 01 - 04
2	Unidynamics	OVERSEAS	Air Weapons Magazine
2	Zodiac Distribution	LOCAL	Rigid Inflatable Boats
3	Air-Met	LOCAL	Gas Detection System
3	Arcus	LOCAL	Ward Room Fridge
3	Brandon Industries	LOCAL	Fridge Captains Cabin
3	Colpro Diesel Services	OVERSEAS	Diesel Exhaust/Up/Downtake
3	Comcater	LOCAL	Conveyer Toaster
3	Cookon	LOCAL	Salad Bar Fridge
3	Elephants Foot	LOCAL	Garbage Compactor
3	ES Rubin Group	LOCAL	LSO Wipers
3	F W Hercus	OVERSEAS	Work Shop Equipment
3	Fantech	LOCAL	Infra Red Suppression Fan
3	Fehrmann	OVERSEAS	Bridge LSO Windows & Port Lights
3	Food Service Equipment	LOCAL	Conveyer Toaster
3	Fuelquip Services	OVERSEAS	GT Fuel Filters/ Separators
3	Hechelmann	OVERSEAS	Bridge Window Wipers
3	Ingrams Bright	LOCAL	Ships Time
3	Jacobs Radio	LOCAL	Otto Fuel Monitor Power Supply
3	James Hardie/Wormald	OVERSEAS	Emergency Life Support RNZN
3	Lloyds	OVERSEAS	Anchor Chains
3	Lovelock Luke	LOCAL	HVAC Controls
3	MEI (Close out Complete)	LOCAL	Ice Making Machine
3	MSA	LOCAL	Breathing Apparatus Damage Control equipment
3	National Valve & Engineering	LOCAL	Helo Refuelling/Defuelling Station
3	Owens	LOCAL	Otto Fuel Monitor
3	Pacific Aerospace Corporation	OVERSEAS	Combat System Containers
3	Pall Rochem	OVERSEAS	Fresh Water / Chlorine Injection units
3	Perry Engineering	LOCAL	Helo Fuel Tanks
3	Saft	OVERSEAS	Batteries
3	Stainless Tech (Austenitk 209344)	LOCAL	VLS Deluge & Sprinkler Accumulators
3	Stainless Tech (Austenitk 209650)	LOCAL	Gas Turbine Wash Tanks
3	Stoddart	LOCAL	Commissary Equipment
3	Walkers Limited	LOCAL	Structural Castings
3	Weir Engineering	LOCAL	Salvage Pumps
3	Weir Engineering	LOCAL	Centrifugal Pumps
3	Zollner	OVERSEAS	Ship Sound Signal System
NZ 1	Noske Kaeser	OVERSEAS	Heating Ventilation & Air Conditioning System
NZ 2	MACE Engineering (Close out Complete)	OVERSEAS	Positive Displacement Pumps
NZ 2	MACE Engineering (Close out Complete)	OVERSEAS	Hanger Crane
NZ 3	Safe Air Ltd	OVERSEAS	HVAC Containers
NZ 3	Safe Air Ltd	OVERSEAS	VLS Pallets
NZ 3	Safe Air Ltd	OVERSEAS	Gun Containers
NZ 3	Steelfort	OVERSEAS	Laundry Equipment
NZ 3	Steelfort	OVERSEAS	Commissary Equipment
NZ 3	Total Aircare (Papworth Engineering Ltd)	OVERSEAS	Combustion Air Filters/GT Emergency Air Flaps
NZ 3	Vega	OVERSEAS	Searchlight
NZ 3	Safe Air Ltd	OVERSEAS	Communication Containers