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Major projects

2.1 During the 2008-09 financial year the Defence Materiel Organisation (DMO) expended $4.8 billion 'on major and minor capital acquisition projects.'[1]

2.2 According to the Australian National Audit Office (ANAO), keeping major projects on schedule remains a major challenge for the DMO. In its *2008-09 Major Projects Report*, the ANAO examined the history of the 15 major projects[2] noting that:

- eight project schedules slipped by a total of 378 months against original dates for achieving final operational capability (FOC); and
- seven projects have experienced in year schedule slippage totalling 119 months or an average seven per cent increase in the FOC schedule.[3]

2.3 This chapter examines a number of joint major acquisitions as well as major acquisitions for the Navy, Army and Air Force focussing on the current status and challenges of each project.

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1 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 15.

2 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 16.

3 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 19.

Tri-Service

High Frequency Modernisation Project

Background

2.4 The High Frequency (HF) Modernisation Project, JP 2043 Phase 3, provides:

> …for the procurement of a Modernised High Frequency Communications System for Defence long–range communications. The Fixed Network component comprises four High Frequency stations, one station in each of the Riverina (New South Wales), Townsville (Queensland), Darwin (Northern Territory) and North West Cape (Western Australia) areas together with primary and backup Network Management Facilities in Canberra. The project will also provide upgrades to selected Australian Defence Force [ADF] sea, land and air mobile platforms to make them compatible with the top–level capabilities of the modernised network.[4]

2.5 The first stage of Phase 3, completed in 2004, 'replaced the existing Navy and Air Force High Frequency networks and is now supporting Australian Defence Force operations.'[5]

2.6 The second stage of Phase 3 'will provide increased levels of automation, improved capability, enhanced security and survivability, reduced reliance on staff and will incorporate the new equipment into selected mobile platforms.'[6]

2.7 The project has been subject to significant delays. In its *Defence Annual Report 2008-09*, Defence noted the difficulties experienced by the prime contractor with 'certain complex elements of design, integration and testing' and pointed out that a revised schedule had been agreed with the prime contractor.[7]

2.8 In its *2008-09 Major Projects Report*, the ANAO noted the schedule slippage and was of the view that these 'delays, together with platform availability

4 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 133.

5 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 102.

6 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 45.

7 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 45.

problems, mean that the Mobiles program[8] may extend to 2016.'[9] Of particular risk to the mobiles program is:

> The tasks of integrating the HF upgrade equipment with existing communications systems of varying levels of maturity and sophistication, and accommodating the new equipment within the spaces available…[10]

2.9 The ANAO did note that, despite the delays, the 'Core System is currently providing a highly reliable service in support of operational ADF platforms, meeting or exceeding the specified availability.'[11]

Current Status

2.10 At the public hearing, Defence highlighted that the delivery schedule had been delayed and as a result the Commonwealth had sought compensation stating:

> We completed the negotiations on 25 April last year and that adjusted the schedule in return for a net amount of compensation, both monetary and in kind, to the Commonwealth valued at $13 million. The new schedule, as a result of that, is that final system acceptance is due to occur in July 2010. At the moment Boeing is ahead of that schedule, with the contract completion due on 20 August.[12]

2.11 Defence also noted that extensive delays in the project's schedule have required Defence to undertake a review of which platforms require upgrades to HF. Defence stated:

> The platforms that are currently on the list are based on what was originally approved in the mid to late 90s. Now that we have demonstrated the system and we know what it is capable of, it provides us the opportunity to look at those platforms that can truly benefit from the additional level of functionality provided by the network versus those that just would benefit from straight HF

8 The second stage of the program incorporating new equipment into mobile platforms such as ships, aircraft and military vehicles.

9 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 237.

10 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 103.

11 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 237.

12 Ms McKinnie, Department of Defence, *Transcript*, 30 March 2010, p. 52.

> communications. That review is currently underway by CDG [Capability Development Group].[13]

2.12 The Committee asked for Defence's views on whether recent acquisitions, such as the Armed Reconnaissance Helicopter (ARH) and the Multi Role Helicopter (MRH), have an equal or better communications capability than platforms retrofitted with HF communications.

2.13 Defence were of the view that the communication suites in the new ARH and MRH were both comparable and compatible with the upgraded HF communication suites in the Black Hawk and Chinook helicopters, stating:

> The ARH Tiger and MRH90 helicopter fleets have an improved suite of communications over current helicopters. The High Frequency (HF) communications capability of these two aircraft fleets is as capable as the HF upgrade to Black Hawk and Chinook, and is compatible with the modernised high frequency communication system. The ARH and MRH also have integrated satellite communication systems to assist with non line of sight communications (this is required, for example, for long range flying and in mountainous terrain). ARH and MRH also have data link systems which can operate via HF and satellite.[14]

2.14 Defence added that the contractor, Boeing Australia Limited, will deliver most of the requirements to the technical specifications of the system.[15]

2.15 On 12 May the Government announced that the 'final Fixed Network system has recently been formally accepted from the prime contractor, Boeing Defence Australia.'[16]

Multi Role Helicopter

Background

2.16 The Air 9000 MRH Program will provide forty-six MRH-90 helicopters and support systems for the Army and Navy to replace the existing Black Hawk and Sea King fleets.[17]

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13 Ms McKinnie, Department of Defence, *Transcript*, 30 March 2010, p. 54.

14 Department of Defence, *Submission no. 2*, p. 3.

15 Ms McKinnie, Department of Defence, *Transcript*, 30 March 2010, p. 53.

16 The Hon Greg Combet MP, Minister for Defence Personnel, Materiel and Science, 'Boost for ADF communications capability', 12 May 2010.

17 Department of Defence, 'Multi Role Helicopter (MRH) AIR 9000 Phase 2', viewed on 13 April 2010, <http://www.defence.gov.au/dmo/lsp/Multi_Role_Helicopter_Program.cfm>

2.17 In the *Defence Annual Report 2008-09*, Defence stated that:

> Six MRH-90 helicopters have been accepted and are in service with the Army 5th Aviation Regiment in Townsville. A further nine MRH-90 helicopters are expected to be delivered during 2009-10.[18]

2.18 Defence added that training of Army and Navy Aircrew and maintenance and support personnel is being conducted in training facilities but that a less than planned MRH-90 flying rate has resulted in some training delays.[19] In particular, Defence highlighted that the 'Army Initial Operational Capability (IOC) of a troop of four aircraft is now expected to be achieved in late 2011, six months later than originally scheduled.'[20]

2.19 The ANAO, in its *2008-09 Major Projects Report*, also observed the need to increase the rate of flying in order to train sufficient crews and complete aircraft role validation.[21] The ANAO did note that despite the 'six month slip in achieving IOC for Army, although at risk, the schedule forecast for achieving the IOC for Navy and FOC remains as per the original plan.'[22]

Current Status

2.20 Defence advised, at the public hearing, that the MRH Program was about 20 per cent complete and that 11 aircraft had been accepted, of which six were accepted in the current financial year (July 2009 – June 2010).[23] Defence elaborated on the status of the aircraft stating:

> Five of those are in the intermediate level, with a next level of software load in particular that addressed some concerns we have had with it. It is true that we have not achieved the flying rate with this aircraft that we would have liked. The aircraft is still developmental, and some of the systems are portraying that developmental status.[24]

18 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 68.

19 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 68.

20 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 49.

21 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 69.

22 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 69.

23 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 39.

24 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 39.

2.21 The committee sought Defence's view on news reports quoting an internal German Army report that there were serious deficiencies in the MRH-90 helicopter.[25]

2.22 Defence stated that it shared the German Army's concerns and that it is 'taking action with the contractor and the multiple organisations that make up NATO helicopter industries to get these addressed.'[26] Defence noted that it had been in communication with Germany who provides a base level of certification of the helicopter.

2.23 Defence advised the committee that it had concerns about the MRH's floor being too thin for Australian requirements and the physical location of the door gun mounts.[27] Defence indicated that a newly redesigned floor for the MRH that was trialled recently did not meet Defence's requirements and that more work was to be done. Defence added that the floor may need to be retrofitted.[28]

2.24 Defence was of the view, however, that the MRH engine was 'performing exceptionally well in the UK Apaches at the higher level compared to some different engine performance in some other craft';[29] and that its weather radar and forward-looking infrared were particularly strong compared to other aircraft.[30]

MRH's role in counterterrorism

2.25 The committee questioned the MRH's role in counterterrorism (CT), and in particular when the Black Hawk helicopters would be phased out for the MRH.

2.26 Defence advised that the Black Hawk will continue to be used until the MRH has been assessed as suitable for the task. Defence added that the MRH would first be introduced into standard unit operations and forecast that the MRH will replace the Black Hawk in the CT role by about 2015.[31]

2.27 The committee also sought Defence's advice on the current differences between the MRH and Black Hawk in the CT role.

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25 Murdoch L, 'Defence's new choppers are duds: report', The Age, 28 February 2010, p. 1.
26 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 40.
27 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 40.
28 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 41.
29 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 41.
30 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 42.
31 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 42.

2.28 Defence stated that fast-roping devices had yet to be developed for the MRH and that the entry and exit ramps still required certification. Defence noted that the Black Hawk and MRH were comparable in speed but that the MRH had additional internal endurance.[32]

2.29 While Defence was of the view that both the Black Hawk and MRH were very capable and could undertake a CT role, it acknowledged that Defence had 'not yet tested whether they can actually get to the same task, at the same time.'[33]

2.30 The committee raised the question on whether the air and ground crew have any concerns about the transition from the Black Hawk to the MRH.

2.31 Defence advised that:

> The onus is on us to get the reliability right on the MRH90 before we ask our users to operate the aircraft, and particularly CT, where everything has to work exceptionally precisely and right. We have seen the demands and we have lost people over time when it has not worked correctly. The work we need to do is to still not mature enough for them. I have asked the project team to mature our relationship with the end users and take the aircraft in and demonstrate to them. I have asked them to find the time, though, to make sure that we show how capable the aircraft is and work through the issues so that, collectively, we can develop a full CT capability using the MRH90.[34]

Air Force

Joint Strike Fighter

Background

2.32 In 2002 the then government became a partner of the Joint Strike Fighter (JSF) project, at a cost of $US150 million. In 2006, the then government gave first pass approval to join the JSF project's next phase.[35]

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32 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, pp. 42-43.

33 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 43.

34 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 44.

35 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 7.

2.33 In the 2009 Defence *White Paper*, the government announced its intention to acquire around 100 F-35 JSF aircraft, along with supporting systems and weapons.[36] In the *White Paper,* Defence also announced that the first stage of the acquisition would acquire:

> …three operational squadrons comprising not fewer than 72 aircraft. The acquisition of the remaining aircraft will be acquired in conjunction with the withdrawal of the F/A-18F Super Hornet fleet, and will be timed to ensure that no gap in our overall air combat capability occurs.[37]

2.34 The first decision to acquire the first 14 JSF aircraft occurred in November 2009.[38]

2.35 As stated in the committee's previous report on the *Review of the Defence Annual Report 2007-2008*, the JSF acquisition will be the most expensive single acquisition in Defence's history. As our sole or principal air fighting platform, it is also arguably our most important defence acquisition.[39]

2.36 In its *Defence Annual Report 2008-09*, Defence was of the view that the JSF program made good technical progress but identified key risks for the project such as 'cost immaturity and the prospect of technical issues and delays arising in the final development phase and the extensive ground and air test program.'[40]

2.37 Defence was also of the view that the project's risks were mitigated stating:

> These risks are mitigated by NACC [New Air Combat Capability] project provision allowing for cost growth in excess of 2008-09 US [United States] Government estimates and aiming to achieve IOC [Initial Operational Capability] a number of years after the USAF [United States Air Force]. Additional schedule buffer is provided by the acquisition of 24 Super Hornet aircraft.[41]

2.38 Defence also noted, in its *Defence Annual Report 2008-09*, that it is working on 'shaping the future JSF workforce (aircrew, ground crew and project

36 Department of Defence, *Defence White Paper 2009, Defending Australia in the Asia Pacific Century: Force 2030*, p. 78.

37 Department of Defence, *Defence White Paper 2009, Defending Australia in the Asia Pacific Century: Force 2030*, pp. 78-79.

38 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 7.

39 Joint Standing Committee on Foreign Affairs, Defence and Trade, *Review of the Defence Annual Report 2007-2008*, October 2009, Commonwealth of Australia, p. 30.

40 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 54.

41 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 54.

staff) and has commenced detailed facilities design for RAAF Williamtown, Tindal and forward operating bases.'[42]

Current Status

2.39 The committee noted testimony that Dr Ashton Carter, US Under Secretary of Defense (Acquisition, Technology and Logistics), made before the US House Committee on Armed Services that the average price of the JSF would be more than 50 per cent higher than it was projected to be when the program began in 2001.[43] The committee sought Defence's views on what it means for the costs that Australia is likely to incur.

2.40 Defence acknowledged that the total cost of the program had gone up by 50 per cent since the program started but stated that, as Australia does not pay a proportionate share of the aircrafts development, the average cost per aircraft is lower than the US average cost.[44] Defence added that as Australia is buying only the conventional take-off and landing (CTOL) version of the JSF, the cheapest of the three JSF variants, the average price is a little less.[45]

2.41 The committee sought information on how Defence formulated its initial cost projections. Defence advised that:

> We look at the annual reports that the US program office delivers to congress, called selected acquisition reports, and they started as early as 2001. Every year we look at those reports as the basis for our estimates. We have looked at the trend in those prices year by year. We have also done our own analysis on the history of aircraft projects and how price has tracked over time. We did some sensitivity analysis on the key drivers for the cost of that. We put all those things together and we always had quite a higher estimate than the US estimate for our own provisions for a project. Then we explicitly carry contingency on top of that for unknown risks as well.[46]

2.42 Defence also noted that, up till 2009, the US and Australia costed major programs differently:

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42 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 54.

43 Dr Ashton Carter, Testimony before the US House Committee on Armed Services, 24 March 2010, p. 9.

44 Dr Gumley, Department of Defence, *Transcript*, 30 March 2010, p. 2.

45 Dr Gumley, Department of Defence, *Transcript*, 30 March 2010, p. 3.

46 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 3.

> The Americans tend not to use contingency in their project costs. We have always traditionally used contingency in our project estimates. So, because major projects do increase in cost, what we do at the beginning of a project, like we have in the NACC project, is estimate a contingency, and it gets burnt down bit by bit as things happen to projects. The Americans tend to report their project increases year by year.[47]

2.43 Defence advised that the expected recurring fly-away price for 100 JSF CTOL aircraft,[48] without including any broader project or development costs, 'was A$75 million in 2008 dollars at a 0.92 exchange rate.'[49]

2.44 The committee questioned whether Australia would incur any additional upfront costs for the research and development or engineering aspects of the program.

2.45 Defence pointed out that the US 'were going to put an additional US$2.8 billion into the project to essentially build an additional test aircraft and an additional software test line and to cover the extra time involved in the 13-month extension to the test program' and that the US had not asked Australia to contribute any funds.[50] Defence added that the US were withholding US$614 million of potential award fee from Lockheed Martin but that Lockheed Martin would have the opportunity to win some of it back providing that the project is on cost and schedule.[51]

2.46 The committee also sought Defence's views on a current assessment of the JSF's capability.

2.47 Defence stated that:

> We continue to review the capability of the JSF, as it is contracted to be delivered against likely threats, and our assessment of that has not changed. We believe it can do the job for a considerable time into the future, but we note that we will have to continue the upgrade program, which is built into the program, and continue to deliver new weapons as they come into service, and the DCP [Defence Capability Plan] has provision for those.[52]

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47 Dr Gumley, Department of Defence, *Transcript*, 30 March 2010, p. 3.

48 Dr Gumley, Department of Defence, *Transcript*, 30 March 2010, p. 4.

49 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 4.

50 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 5.

51 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 5.

52 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 6.

2.48 When commenting on the current anticipated delivery date for the first JSF to Australia, Defence advised the committee that:

> …at second pass approval for the first 14 aircraft, the plan is to achieve initial operational capability, with the first squadron ready for deployed operations, towards the end of 2018. To achieve that, we are looking at acquiring our first two aircraft for training in 2014. The initial aircraft will stay in the US for training and then the last four of those 14 will come out to Australia in 2017 to do our Australia specific operational tests.[53]

2.49 Defence also advised the committee that there are many factors that influence when the JSF will become available stating:

> So the question of availability of aircraft (1) goes to cost—the earlier you buy, the more it costs you—and (2) goes to slots, or which ones on the production line a particular customer can buy. All the countries are looking at the age of their current fleets. All of the partner countries have combat aircraft at the moment, and they are ageing, so we have got an optimisation question to look at between the cost of keeping the classic Hornets going and the cost of buying Joint Strike Fighters either ahead or behind particular dates. Those business cases are being worked on during 2010 so that we will have a much better piece of advice to offer government early next year.[54]

2.50 The committee questioned whether Defence will be able to retrofit the JSF aircraft back through block 1[55] to ensure that each aircraft has a common capability and common line of parts.

2.51 Defence advised that there were three blocks of capability in the JSF development program and stated that:

> The hardware basically freezes at block 1, so block 2 and block 3 are purely software upgrades. The plan beyond that is another block every two years. The vast majority of that is in software. But about every four years you might do some minor hardware change, which would flow back through the fleet. But the plan is to keep all aircraft throughout the fleet at the same block standard, primarily through software but also through some hardware upgrades throughout their life. … One of the benefits we get is that we pay three per cent of the cost of those development

53 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 9.

54 Dr Gumley, Department of Defence, *Transcript*, 30 March 2010, p. 9.

55 'Block' refers to the capability level of a JSF.

> upgrades as a partner in the program but get 100 per cent of the benefits.[56]

2.52 The committee asked Defence for an indication of how much extra noise impact there will be from the JSF compared to the current generation aircraft of F-111s or F/A-18s.

2.53 Defence advised that it had undertaken extensive testing in the US which showed that the JSF is noisier on takeoff using the afterburner but that it was less noisy in the circuit and approach than the current generation aircraft.

2.54 Defence added that it released a draft Public Environment Report (PER), incorporated community feedback and would release the final PER, with community comments, shortly.[57]

2.55 Defence advised that it had also released the Australian Noise Exposure Forecast (ANEF) which contained the best estimate of likely usage of the JSF, stating:

> We have put that out based on the best estimate of likely usage of the aircraft with some noise mitigation procedures put in place. Now we have got the feedback, the report will go out and again we will engage with the community and the Air Force to see what other mitigation actions might be able to be put in place for those affected by the noise. We are engaging with the community and the councils to work through that.[58]

2.56 Defence added that it was considering a number of options to mitigate the noise impact, including runway extensions, flight paths and conducting exercises away from the Williamtown base, and would conduct a full environmental impact study in the future with the Department of Environment, Water, Heritage and the Arts.[59]

2.57 In responding to the question of whether Defence would acquire farmland in the vicinity of the Williamtown base to protect its approach and departure points, Defence highlighted that it 'generally does not acquire noise affected properties unless there are exceptional circumstances'.[60] More specifically, Defence stated:

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56 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 11.
57 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 12.
58 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 12.
59 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 12.
60 Department of Defence, *Submission no. 2*, p. 2.

> For properties in the vicinity of RAAF Base Williamtown and Salt Ash Air Weapons Range, these exceptions exist to support operational or training requirements, to expand the boundaries of the base, and to acquire properties in very close proximity to the runway and effectively within the boundaries of the base.[61]

2.58 Defence noted that a decision about extending the runway would not be made until 2012, 'when the majority of funding comes for the facility.'[62]

2.59 The committee noted that there are noise monitoring devices at the Williamtown base and asked when Defence would have an assessment of the actual noise impact on the area.

2.60 Defence pointed out that 'actual noise levels are currently being measured for existing aircraft and will continue to be measured when new aircraft are introduced.'[63] Defence added:

> Actual noise levels for all aircraft currently operating at RAAF Base Williamtown were included in the draft Public Environment Report for the proposed introduction of the Joint Strike Fighter to the base.[64]

Airborne Early Warning and Control Aircraft

Background

2.61 Project Wedgetail, AIR 5077, will provide Australia with an Airborne Early Warning and Control (AEW&C) capability. Wedgetail is an AEW&C facility based on the Boeing 737-700 which carries a phased–array radar that can scan through 360 degrees.[65]

2.62 In December 2000 a contract was signed with the Boeing Company to supply four aircraft, associated supplies and support. In 2004 the contract was amended to include an additional two aircraft.[66]

2.63 In February 2007, Boeing announced that there was a two year slip in the program's schedule. In May 2008, Boeing made a further announcement

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61 Department of Defence, *Submission no. 2*, p. 2.

62 Air Vice Marshal Harvey, Department of Defence, *Transcript*, 30 March 2010, p. 14.

63 Department of Defence, *Submission no. 2*, p. 1.

64 Department of Defence, *Submission no. 2*, p. 1.

65 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 161.

66 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 161.

that there would be an additional 10 month schedule delay due to ongoing problems with the radar, electronic support measures development and system integration.[67] The project is over 48 months behind schedule.[68]

2.64 In December 2008 the Commonwealth entered into a standstill deed of agreement with Boeing:

> …to enable the company to undertake a modified program of test and evaluation to determine the extent to which the aircraft system meets the specification and how well it will perform operationally.[69]

2.65 Under the deed, the Massachusetts Institute of Technology's Lincoln Laboratories conducted an independent assessment of radar performance which was completed in April 2009. An operational utility demonstration was also conducted in April and May 2009 during Exercise Arnhem Thunder.[70]

2.66 In the *Defence Annual Report 2008-09*, Defence stated that 'IOC is currently planned to be achieved by end 2011 and FOC by end 2012.'[71]

2.67 In its *2008-09 Major Projects Report*, the ANAO was of the view that the 'overall technical and schedule risk remains high to very high', noting in particular technical challenges such as integration of the Radar and Identification Friend or Foe subsystem, radar, electronic support measures, communication systems and data links.[72]

Current Status

2.68 At the public hearing, Defence advised that it had taken initial delivery of two aircraft and that it had commenced flight crew training. Defence added that it is expecting initial acceptance in late April or early May and that Boeing was forecasting final acceptance in December.[73]

2.69 Defence also highlighted the findings from the independent assessment of the radar undertaken by Lincoln Laboratories and noted that they would

67 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 161.

68 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 19.

69 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 43.

70 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 43.

71 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 43.

72 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 162.

73 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 18.

be seeking compensation as the assessment indicated that the existing technology could not deliver the intended capability at this time. Defence stated:

> ...we had an independent group, Lincoln Laboratory from the US, look at that radar. They advised us two things which were very important: one was that the radar was a sound basis for moving forward; and the second was that existing technology could not deliver that element of capability at this time. So our compensation is one to allow us over time to introduce that technology and get that capability; in fact, we are hopeful it will even improve the capability beyond the original specification.[74]

2.70 Defence advised that the Wedgetail is expected to achieve a vast majority of its technical specifications, of which there are approximately 10,000. However, Defence indicated that the electronic support measures performance, the electronic system, and the deficiency in pulse Doppler radar performance remain problematic.[75]

2.71 The committee sought Defence's view on reports that the Wedgetail's system was failing mid-flight.

2.72 Defence acknowledged that there were system stability issues predominantly due to software problems and that the system had different failure modes, stating:

> It has a mode where, if there are elements not working, elements of, say, the complete radar—would you call it gradual degradation—you can keep operating. On other occasions you can get a hard shutdown…[for] significant periods—I think, more than 20 minutes to restart it.[76]

2.73 Defence also indicated that there were certain hardware issues with the transmit-receive modules.[77] Defence, however, stressed that the Air Force considered that all the other matters were at an acceptable standard prior to initial acceptance, with the exception of the pulse Doppler radar performance. Defence added:

> We anticipate 98 per cent compliance with spec at final acceptance. And radar stability is now at around 10 hours. But obviously we

74 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 18.
75 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 19.
76 Mr King, Department of Defence, *Transcript*, 30 March 2010, pp. 19-20.
77 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 20.

> welcome the opportunity to brief the committee on the full aspects of the performance.[78]

2.74 The first two Wedgetails were officially accepted by the Government on 5 May 2010.[79] However, the Electronic Support Measures and Electronic Warfare Self Protection Subsystems have yet to be delivered and improvements need to be made to the radar performance and integrated system performance before the aircraft reaches its full capability. This is likely to occur over the next 12 months.[80]

Classic Hornet upgrade

Background

2.75 The project to upgrade the F/A-18 fleet, Air 5376, is being conducted in three phases:

> …the first enabling the aircraft to more effectively perform its air defence role; the second enhancing pilot situational awareness; and the final stage providing additional aircraft self protection. Each stage also includes an upgrade to the aircraft software for ground support and training systems.[81]

2.76 Phase 1 (modification of the air defence role) and Phase 2 (enhancing pilot situational awareness systems) were 'completed in August 2003 and December 2008, respectively.'[82]

2.77 In addition to upgrading the Hornet's performance, Defence is starting to encounter some fatigue management issues due to the age of the Hornet fleet. As a result, Defence has taken steps to replace the centre barrels[83] of

78 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 57.

79 The Hon Greg Combet MP, Minister for Defence Personnel, Materiel and Science, 'Big boost for Australia's Defence surveillance capability', 5 May 2010.

80 The Hon Greg Combet MP, Minister for Defence Personnel, Materiel and Science, 'Big boost for Australia's Defence surveillance capability', 5 May 2010; The Hon Greg Combet MP, Minister for Defence Personnel, Materiel and Science, 'Wedgetail Initial Acceptance Ceremony', 5 May 2010.

81 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 89.

82 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 89.

83 The centre barrel is the primary load bearing structure in the Hornet fuselage for the transfer of flight loads from the wings to the fuselage, and is the most significant component of the Hornet airframe in terms of aircraft life.

selected aircraft and undertake other structural refurbishment work to extend the fatigue life of the Hornet.[84]

2.78 In its *2008-09 Major Projects Report*, the ANAO noted:

> In May 2008 an engineering study showed that the fatigue life of Hornet Centre Barrels could be extended beyond the current limits. As a result only 10 aircraft will require Centre Barrel Replacement. Additional discrete structural modifications are being undertaken on 42 aircraft to address fatigue damage, corrosion and other emergent ageing aircraft issues; 19 of these aircraft have been completed as at 30 June 2009.[85]

2.79 More specifically, the ANAO report noted that:

> As at 30 Jun 09, the first two prototype and one production centre barrel replacement aircraft have been returned to the fleet. The 4th - 6th aircraft have had the centre barrels replaced and are undergoing final rebuild at RAAF Base Williamtown. The 7th - 10th aircraft have had the centre barrel replaced and are undergoing initial rebuild in Canada, before being transported back to Williamtown for final rebuild and delivery[86]

2.80 The ANAO was also of the view that the project to replace the centre barrels remained within budget and on schedule to be completed by December 2012.[87]

2.81 However, the ANAO noted that both projects contained the following challenges:

- The key risks relate to the development and integration of aircraft and system software, as the systems have not previously been integrated and installed in other F/A-18 Hornet fleets;[88]
- The nature of structural refurbishment of an ageing aircraft is such that unknown conditions may be revealed in the process of disassembly. This may result in more extensive

84 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 96.

85 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 96.

86 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 96.

87 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 96.

88 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 202.

refurbishment work becoming necessary and its unpredictable nature poses a challenge to the production schedule;[89] and

- …additional parts may be required to replace those that are found to be unserviceable. Obtaining these parts in time to maintain the production schedule is a major risk confronting the project.[90]

Current Status

2.82 At the public hearing, the committee focused on the project to replace the Hornet's centre barrel and questioned the projects status, its cost, and the expected operational life of the Hornet.

2.83 Defence noted that the project was largely complete, having replaced seven out of ten Hornets[91] at a total cost (for 10 centre barrel replacements) of $292 million.[92]

2.84 Defence was quite confident that the Hornet's would have an extended life up to 2020, with an official withdrawal date of 2018, and that no further centre barrel work would need to be undertaken for fatigue reasons. Defence did note that the aircraft still required some additional corrosion work to get to 2020.[93]

2.85 The committee also queried whether any additional centre barrel testing work would be undertaken in Australia if it were required and whether L-3 Communications MAS Inc in Canada[94] (L-3) would have the capability for an international requirement of keeping centre barrels operational.

2.86 Defence advised that L-3 would most likely undertake any additional testing if it were required, stating:

> In all likelihood we would probably do those in Canada. As you can imagine, it is a very complex modification. It involves breaking the aircraft apart and taking the wings off. It involves very complicated jigs and fixtures, for which L-3 have that expertise. So I would imagine that would be the case. Of course, if we were doing a very large number—indeed, when we were

89 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 222.

90 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 222.

91 Air Vice Marshal Thorne, Department of Defence, *Transcript*, 30 March 2010, p. 9.

92 Air Vice Marshal Thorne, Department of Defence, *Transcript*, 30 March 2010, p. 21.

93 Air Vice Marshal Thorne, Department of Defence, *Transcript*, 30 March 2010, p. 9; Air Vice Marshal Thorne, Department of Defence, *Transcript*, 30 March 2010, p. 21.

94 Prime contractor for the removal and replacement of centre barrels.

> looking at that in the first instance with 49 we were looking at the business case for doing that in Australia, possibly using overseas expertise to augment our local capability.[95]

2.87 However, Defence pointed out that while L-3 still had the capability, it had closed the centre barrel replacement (CBR) production line and that the Canadian Forces were 'retaining one CBR jig until 2017.'[96] Defence added:

> Re-establishment of the capability would be possible; but would be costly due to re-installation of the jig, engagement of trained technicians and engineers, and the associated logistics and support infrastructure for this large and complex modification. It would also take at least several months to restart the CBR production line, but as L-3 MAS is the CF deeper maintenance contractor and will be until its planned withdrawal date, the capability to do so should still exist.[97]

2.88 Defence were of the view that any additional CBR could be carried out by the United States Navy (USN) if required, stating:

> CBR production lines at Fleet Readiness Centre South West (North Island) and Fleet Readiness Centre South East (Jacksonville) will continue for several years, with the Jacksonville line planning to be open until 2017. Due to the existing continuity this may be the best option if CBR is required for additional RAAF aircraft; although the modifications carried out by the USN differ slightly to those that L-3 incorporated on RAAF aircraft.[98]

Super Hornet

Background

2.89 In May 2007, the Australian Government announced its intention to acquire twenty-four F/A-18F Block II Super Hornet multi-role aircraft, Project Air 5349.[99]

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95 Air Vice Marshal Thorne, Department of Defence, *Transcript*, 30 March 2010, p. 21.

96 Department of Defence, *Submission no. 2*, p. 2.

97 Department of Defence, *Submission no. 2*, p. 2.

98 Department of Defence, *Submission no. 2*, p. 2.

99 The Hon Dr Brendan Nelson MP, Minister for Defence, 'Super Hornet Bridging Air Combat Capability', Media Release, 8 May 2007, p. 1.

2.90 The acquisition is intended to give the ADF a bridging air combat capability during the transition from Australia's current air combat capability (the F/A-18 Hornet and F-111) to the acquisition of Australia's new air combat capability (the Joint Strike Fighter).

2.91 In the *Defence Annual Report 2008-09*, Defence stated that:

> The program remains on schedule with the first four aircraft to arrive in Australia in the second quarter of 2010. IOC will be achieved in December 2010 and FOC will be achieved in December 2012.[100]

2.92 On 26 March 2010, Australia received the first five Super Hornet's which will be based at the Royal Australian Air Force (RAAF) Base Amberley in Queensland.[101]

Current Status

2.93 Defence highlighted that it had recently signed a Super Hornet training schedule with Raytheon Australia Pty Ltd and that training had commenced. Defence was of the opinion that it was a fairly low risk exercise adding that:

> Raytheon Australia, who took on that contract, also do the training for the classic Hornets under contract. They have an experienced subcontractor, Milskil, who also do training for Super Hornets. They have a lot of experienced former Australian and former US instructors in that program, and we believe it is a fairly low risk enterprise.[102]

2.94 The committee sought Defence's view on whether the Super Hornet was less susceptible to corrosion than its predecessor.

2.95 Defence noted that there were structural differences between the two aircraft, with the centre barrel being the most significant, but that all aircraft are susceptible to corrosion stating:

> …the centre barrel on a Super is titanium, not aluminium, so it has a fundamentally stronger core. It has more composite in it, but it still comes down to aluminium. Yes, you can coat it, bond it and

100 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 43.

101 Department of Defence, 'Super Hornets are here', Media Release, 26 March 2010.

102 Air Vice Marshal Thorne, Department of Defence, *Transcript*, 30 March 2010, p. 22.

> do those sorts of things, but fundamentally, in the normal wear and tear of operations, it will corrode.[103]

2.96 The committee also asked Defence to provide a status report on the current scheduled delivery dates for the remaining aircraft.

2.97 Defence advised that the current production rate was one aircraft a month which were being batched and tested in the US. Defence added that the aircraft would be delivered in six waves, comprising of four Super Hornets at a time, with waves two and three arriving towards the middle of 2010, wave four in early 2011, wave five in mid 2011 and wave six in late 2011.[104]

2.98 Defence was of the opinion that it did not think there was a need to acquire any more Super Hornets[105] but noted that it would cost 'at least $1.5 billion to $2 billion or more to acquire an additional squadron of Super Hornets.'[106]

Navy

Guided missile frigate upgrade

Background

2.99 The project to upgrade four Adelaide Class Guided Missile Frigates (FFGs), SEA 1390, involves both upgrading and integrating the:

> …combat systems, sensors, missile launchers and associated platforms systems, an onboard training system to the ships' combat system, and improvements to the reliability of the ships' platform systems.[107]

2.100 The project, which commenced in 2009, has undergone significant delays and is now over four years behind schedule.[108]

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103 Air Vice Marshal Thorne, Department of Defence, *Transcript*, 30 March 2010, p. 23.

104 Air Vice Marshal Thorne, Department of Defence, *Transcript*, 30 March 2010, p. 24.

105 Dr Gumley, Department of Defence, *Transcript*, 30 March 2010, p. 10.

106 Dr Gumley, Department of Defence, *Transcript*, 30 March 2010, p. 24.

107 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 93.

108 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 211.

2.101 In its *2008-09 Major Projects Report*, the ANAO provided an indication of when each FFG was upgraded, stating:

- Provisional Acceptance of HMA (Her Majesty's Australian) Ships Sydney, Melbourne and the Team Trainer were achieved in December 2006, October 2007 and November 2007 respectively;
- HMAS Darwin achieved Provisional Acceptance in August 2008; and
- HMAS Newcastle achieved Provisional Acceptance in May 2009. [109]

2.102 In the *Defence Annual Report 2008-09*, Defence stated that HMA Ships Sydney, Darwin, Melbourne conducted trials, evaluation, and training activities and that there continue to be high risks associated with the project:

> The high risk to achieving contemporary capability effectiveness of the electronic support and torpedo defence systems is being mitigated by a remedial action program that will continue on through 2009-10.[110]

Current Status

2.103 Defence informed the committee, at the public hearing, that it had accepted all four FFGs from the contractor, Thales Australia, and that:

> The Chief of Navy has provided initial operational release for the vessels and I think that project, which you know was troubled for many years, has been removed from the projects of concern list, as announced by Minister Combet. They are now in the hands of the Chief of Navy and are being used as operational units.[111]

2.104 The committee noted the comments Defence made at the 16 April 2009 public hearing into the *Defence Annual Report 2007-08* that the electronic support measures system was a major area of concern[112] and questioned whether the issue was resolved.

2.105 Defence acknowledged that there were problems with the electronic support measures system and in particular that there were problems with

109 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 212.

110 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 51.

111 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 46.

112 Mr King, Department of Defence, *Transcript*, 16 April 2009, p. 46.

the antennae and reliability and software problems,[113] but that the problems had been corrected, stating:

> It also required a lot of testing and trialling to understand the issues, which is a thing we often find. We went through that structured campaign, found the problems and corrected those problems.[114]

Air Warfare Destroyer

Background

2.106 In the 2000 Defence *White Paper* the ADF announced that it would replace the Navy's FFGs with a class of at least three air defence capable ships.[115]

2.107 On 11 August 2004 the Federal Government announced that it had 'selected the Aegis air warfare system as the core of the combat system for Australia's new air warfare destroyers' (AWD).[116] The Aegis system is comprised of the radar, the central command and control and the missile control system.[117]

2.108 On 21 April 2005 the Federal Government announced that Raytheon Australia Pty Ltd had been selected as the 'preferred bidder for a major electronic engineering contract in support of the combat system design and maintenance for the Air Warfare Destroyer.'[118]

2.109 A month later, on 31 May 2005, the Federal Government announced that ASC Shipbuilder Pty Ltd would be the preferred shipbuilder for Navy's Air Warfare Destroyers.[119]

2.110 The AWD Program is being delivered under an Alliance based contracting arrangement between ASC AWD Shipbuilder Pty Ltd, Raytheon Australia Pty Ltd and the Commonwealth of Australia.[120]

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113 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 47.

114 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 47.

115 Department of Defence, *Defence White Paper 2000, Our Future Defence Force*, p. XIV.

116 Senator The Hon Robert Hill, Minister for Defence, 'Aegis Combat System for Air Warfare Destroyers', Media Release, 11 August 2004, p. 1.

117 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 49.

118 Senator The Hon Robert Hill, Minister for Defence, 'ASC Chosen to Build Air Warfare Destroyers', Media Release, 21 April 2005, p. 1.

119 Senator The Hon Robert Hill, Minister for Defence, 'ASC Chosen to Build Air Warfare Destroyers', Media Release, 31 May 2005, p. 1.

120 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, pp. 52-53.

2.111 Defence stated, in the *Defence Annual Report 2008-09*, that the preliminary design review was achieved in December 2008 and the critical design review was on schedule for December 2009.[121]

2.112 In the Annual Report, Defence also stated that:

- the majority of combat and platform systems equipment selections were complete;
- infrastructure work was ahead of schedule at South Australia's Common User Facility (Techport) and the ASC Shipyard; and
- steel fabrication for the hull blocks was scheduled to commence in late 2009.[122]

2.113 On 21 January 2010 the ASC shipyard was officially opened.[123]

Current Status

2.114 In responding to a question on the status of the AWD project, Defence noted that despite the initial difficulties, overall progress was still good, stating:

> There [were]…difficulties encountered with the letting of the block subcontract, in particular with NQEA. That process was terminated for a number of reasons and, subsequently, that part of the block contract was let to BAE Systems operating out of Williamstown in Melbourne. I am able to report that blocks are under construction now at BAE Williamstown, Forgacs in Newcastle and fabrication work has started at ASC in Adelaide.[124]

2.115 Defence added that it had completed the critical design review in December 2009 and opened the ASC shipyard and common user facility in Adelaide.[125]

2.116 The committee questioned whether Defence had taken all steps to exercise due diligence when analysing the financial status of NQEA.

2.117 Defence advised that ASC, not DMO, conducted due diligence of NQEA prior to acceptance which was confirmed by the AWD alliance board.

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121 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, pp. 52-53.

122 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 53.

123 Prime Minister, 'Address at the opening of the ASC shipyard', 21 January 2010.

124 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 47.

125 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 47.

NQEA subsequently amended its financial structure after the offer was accepted.[126]

2.118 The committee asked Defence to provide an update on the project's next phase to integrate the communications systems and sensors onboard the AWDs and identify any risks or challenges.

2.119 Defence advised that the first system completed trials in November 2009 and is ready to be shipped to Australia, adding:

> We called it the Australianised combat system so that we could add some features that were particular needs for Australia. The first element selected with the sonar. That work is progressing satisfactorily. We are just about to complete the EW, electronic warfare, system down select and should be in the process in the next week or two of informing the minister of the alliance's decision process. So I would say at this stage of the program we are obviously working very closely with the US on that integration. Kongsberg is doing what we call the Australian tactical interface, the interface into the Aegis system.[127]

2.120 Defence was of the opinion that the technical performance measures and financial progress of the project was satisfactory and that the project was on schedule to deliver the first AWD in December 2014, despite the loss of some scheduled progress.[128]

2.121 The committee sought Defence's view on acquiring a fourth AWD and whether the additional acquisition would become more or less financially viable overtime.

2.122 Defence advised that they had not undertaken any assessment of how much a fourth AWD would cost but noted that the cost of acquiring a fourth Aegis system for one more AWD would be particularly expensive. Defence added:

> America has just announced it is going to restart its DDG 51 [US Arleigh Burke class guided missile destroyer] construction, and that would lead to them buying more Aegis combat systems. As our fourth one at that time would have been the very last Aegis after a break, it would have been potentially quite expensive. But it is possible now that the Americans will restart the Aegis production line the costs of that will come down. On the other

126 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 48.

127 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 49.

128 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 49.

> side, you start to introduce inefficiency on the ship construction side of it. We have not done any detailed costing work on that for some time.[129]

2.123 Defence acknowledged that there will still be an opportunity to acquire a fourth AWD within the next two years as the AWDs should be delivered up until 2018.[130]

Amphibious ships

Background

2.124 Under the Amphibious Deployment and Sustainment Project, JP 2048, Australia will acquire two amphibious ships, two landing helicopter decks (LHDs) and associated supplies and support.[131]

2.125 The contract between the Commonwealth and BAE Systems Australia Defence for the acquisition of the two Spanish designed Canberra Class LHD ships and support systems came into effect in November 2007.[132]

2.126 The ships hulls will be built and fitted out in Spain prior to being transported to Australia where they will be integrated with the superstructures in Melbourne. L3 Communications is subcontracted to provide the communications system and Saab Systems Australia will provide the combat system and integrate the combat management system.[133]

2.127 In the *Defence Annual Report 2008-09*, Defence stated that:

> The hulls will arrive in Australia in July 2012 and February 2014 respectively. Delivery and acceptance of the ships is to occur in December 2013-January 2014 and July-August 2015. An in-service support strategy is currently being developed. The initial support contract is to be in place 12 months before first ship delivery.[134]

129 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 50.

130 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 50.

131 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 169.

132 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 169.

133 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 53.

134 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 53.

Current Status

2.128 Defence advised the committee that 30 per cent of the modules of the first ship are now on the slipway in Navantia, Spain, and that it expects the ship to launch in the first half of 2010.[135]

2.129 When asked about the integration of the combat system on the ship, Defence advised that the core combat system is a derivative of the ANZAC class frigates combat system and that the challenge would be to integrate the system.[136]

2.130 Defence was of the view that the project had no significant delays or cost overruns at this stage but that they were closely monitoring the design process.[137]

Armidale Class patrol boats

Background

2.131 In December 2003 the Government announced that Defence Maritime Services Pty Ltd had won the contract to provide 12 Armidale class patrol boats.[138] In May 2005 additional funding was provided for an additional two patrol boats.[139]

2.132 The ANAO, in its *2008-09 Major Projects Report*, stated that 'all 14 vessels have been delivered, achieved IOC and commissioned into the Navy, with the 14th vessel achieving Initial Operational Release in November 2007 and commissioned in February 2008.'[140]

Current Status

2.133 At the public hearing the committee highlighted recent reports alleging that the Armidale class patrol boats were commissioned with design defects.[141]

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135 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 50.

136 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 51.

137 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 51.

138 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 245.

139 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 245.

140 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 245.

141 McKenna M, 'Navy failures blamed for gassing of four sailors on Armidale patrol boats', The Australian, 26 December 2009; McKenna M, 'Gas risk remains for navy boats', The Australian,

2.134 Defence advised that the patrol boats had two issues, water in the fuel and toxic gas in the accommodation compartment, which delayed their formal operational release but that the issues had been resolved.[142] Defence added:

> Both issues have now been resolved through implementation of a number of design changes. They have been proven in [HMAS] Glenelg and will be fitted to all of the ships in the fleet with a view to them being able to meet Navy's full operational release requirements by the end of 2011.[143]

Collins-class submarines

Background

2.135 In 1985 a contract was signed with the Australian Submarine Corporation, now ASC Pty Ltd, to supply six Collins-class diesel-electric submarines.[144]

2.136 Construction on Australia's first Collins-class submarine, HMAS Collins, began in 1990 and construction on Australia's sixth and final Collins-class submarine, HMAS Rankin, began in 1995. HMAS Rankin was launched in 2001 and commissioned in 2003.[145]

Current Status

2.137 The committee examined the progress of replacing the generator in the Collins-class submarines and asked Defence to provide an update.

2.138 Defence informed the committee that the windings on the generators had failed and was of the opinion that the vacuum impregnation was 'not done properly when they were originally manufactured.'[146]

2.139 Defence advised that it had initially estimated that repairing the generators would take around 23 weeks and noted the size of the task:

> Just due to the physical dimensions, the requirement to get them in and out was a very big task. The Submarine Program Office—a

2 January 2010.

142 Ms McKinnie, Department of Defence, *Transcript*, 30 March 2010, p. 51.

143 Ms McKinnie, Department of Defence, *Transcript*, 30 March 2010, p. 52.

144 Department of Defence, 'Collins Class construction complete as 6th and final submarine HMAS Rankin commissioned into the Royal Australian Navy', Media Release, 29 March 2003.

145 Department of Defence, 'Collins Class construction complete as 6th and final submarine HMAS Rankin commissioned into the Royal Australian Navy', Media Release, 29 March 2003.

146 Mr Gillis, Department of Defence, *Transcript*, 30 March 2010, p. 57.

> combination of ASC, the Navy and the DMO—have worked collaboratively to produce a much better system of getting them in and out.[147]

2.140 Defence added that it is working with Hofmann Engineering, a confined-space engineering company, who are repairing the generators, stating:

> Hofmann undertook the challenge to have them removed, repaired and put back in a period of approximately 57 days. They are currently on track. The first of the generators will actually go back into Farncomb today and will then go through a process. We are very pleased with the work that has been undertaken to date. It has been an excellent example of the cooperation between the whole team, as well as of getting the best of breed within Australian engineering to help us get these Collins-class submarines back into operations.[148]

2.141 The committee asked whether Defence had any indications that generators on other submarines were likely to fail.

2.142 Defence noted that the original generators that were manufactured in France are very solid but that the 'generators manufactured in Australia are susceptible to this particular failure.'[149]

2.143 Defence pointed out that it was monitoring the generators and examining ways to reduce the failure rate, stating:

> We are looking at the way in which we can ensure that we do not get the same sort of failure. We do have three generators on each submarine. The normal requirement is to only operate two. So what you can do is: by operating them at about 80 per cent of their normal operating profile, you restrict the likelihood of a failure. We have now also been able to prove a world's best practice way of doing this work.[150]

2.144 Defence also advised that it would be changing out the complete set of generators in its Collins-class submarines.[151]

2.145 The committee also sought Defence's views on whether the original supplier of the faulty generators would be liable.

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147 Mr Gillis, Department of Defence, *Transcript*, 30 March 2010, p. 57.
148 Mr Gillis, Department of Defence, *Transcript*, 30 March 2010, p. 57.
149 Mr Gillis, Department of Defence, *Transcript*, 30 March 2010, p. 57.
150 Mr Gillis, Department of Defence, *Transcript*, 30 March 2010, p. 57.
151 Mr Gillis, Department of Defence, *Transcript*, 30 March 2010, p. 57.

2.146 Defence commented that the original warranty period had lapsed and that it would not have a case to seek recompense from the original manufacturers.

Replacement of the Navy's combat helicopter capability

Background

2.147 The project to replace the Navy's tactical helicopter fleet comprised of Seahawks and Super Seasprite helicopters, AIR 9000 Phase 8, is in the early stage of development.[152]

2.148 On 25 February 2010 the Government announced that the project had been given first pass approval, and that 'the new helicopter will be either the Sikorsky-Lockheed Martin built MH-60R [Romeo] sourced through the United States Navy, or the NATO Helicopter Industries NH90 NFH [Nato Frigate Helicopter] sourced through Australian Aerospace.'[153]

2.149 On 28 April the Government announced that the DMO released the tender for the supply of a new naval combat helicopter, stating that:

> Under this project, the Government will acquire sufficient helicopters to provide at least eight helicopters concurrently embarked on ships at sea, which under the White Paper requires a fleet of 24 helicopters.[154]

2.150 A decision about which naval helicopter will be acquired is expected to be made in 2011.[155]

Current Status

2.151 At the public hearing, the committee briefly examined Defence's intention to replace the Navy's combat helicopter capability. In particular, when comparing the two aircraft the committee put forward the view that:

- the advantages of the Romeo are cost and risk - the risk is lower because it is a fully developed and proven aircraft; and

152 Department of Defence, 'Air 9000 Project details', viewed on 28 April 2010, <http://www.defence.gov.au/Capability/AIR9000/Project_Details.asp>

153 Senator the Hon John Faulkner, Minister for Defence, 'New Naval Combat Helicopter', Media Release, 25 February 2010, p. 1.

154 Senator the Hon John Faulkner, Minister for Defence, 'New naval combat helicopter tender release', Media Release, 28 April 2010.

155 Senator the Hon John Faulkner, Minister for Defence, 'New naval combat helicopter tender release', Media Release, 28 April 2010.

- while the NH90 NFH was more expensive, the aircraft was constructed from composite materials and offered greater capability because it can also operate as a ship-to-shore aircraft.

2.152 Defence acknowledged that it was 'a fair summation of what has been publicly described'[156] and that:

> The task for us in Defence is to develop and gain the information for a full and accurate picture of both types.[157]

2.153 The committee also questioned the cost differential between the two aircraft.

2.154 Defence acknowledged that there was a cost difference as they are very different aircraft, stating:

> One has different maintenance requirements to the other—that is, time taken to conduct that maintenance.[158]

2.155 On the differences in the ongoing maintenance costs between the two aircraft, Defence added:

> We are measuring this across the 30-year, whole-of-life cost. It is the acquisition and the through-life costs, particularly where you can move them between one or the other to a degree. From a Defence position, our recommendations will be on the information gained for the total, whole-of-life costs for the aircraft.[159]

2.156 Defence also advised that purchasing the aircraft 'off the shelf' would keep costs down and noted that:

- …for the Romeo it is to take the benefits of the US Navy; and
- …for the European benefits it is to keep it as close as we can to the most common one, which is the French Navy variant in this case, and they are in the process of accepting their first aircraft,…which is only fitted for search and rescue. It does not have the weapons systems or a lot of the mission systems in it at this stage. That is not due to be delivered until sometime late in 2011.[160]

156 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 44.

157 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 44.

158 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 45.

159 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 45.

160 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 45; Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, p. 45.

2.157 Defence advised that it had engaged a contractor to examine the cost differences between the two aircraft and 'to look at alternative, innovative ways of approaching it.'[161]

Army

Light Protected Vehicle

Background

2.158 On 29 October 2008, the Government announced that it had given first pass approval to replace the ADF's Land Rovers with a fleet of Light Protected Mobility Vehicles (PMV-L), project LAND 121 Phase 4.[162]

2.159 At that time, the Government also announced its intention to 'participate in the technology demonstration phase of the US Joint Light Tactical Vehicle (JLTV) Program, which is expected to replace over 60,000 vehicles in the US Army and Marine Corps from 2012 onwards.[163]

2.160 On 12 June 2009 the Government released a request for proposal seeking Australian manufactured and supported PMV-L. The Government also announced that the request for proposal would run concurrently with Australia's participation in the US JLTV Program.[164]

2.161 While no decision has been made, the Government is considering three different options to acquire a PMV-L:

- simply purchase a Military Off The Shelf vehicle;
- develop and manufacture a vehicle in Australia; or
- continue in the developmental US Joint Light Tactical Vehicle program.[165]

2.162 The project is currently at the pre-first pass approval stage.

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161 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 45.

162 The Hon Joel Fitzgibbon MP, Minister for Defence, 'Australia to Join US Light Vehicle Program', Media Release, 29 October 2008.

163 The Hon Joel Fitzgibbon MP, Minister for Defence, 'Australia to Join US Light Vehicle Program', Media Release, 29 October 2008.

164 The Hon Greg Combet MP, Minister for Defence Personnel, Materiel and Science, 'Opportunity For Australian Defence Industry', 12 June 2009.

165 The Hon Greg Combet MP, Minister for Defence Personnel, Materiel and Science, 'Address to Australian Business Defence Industry Unit Canberra', 20 November 2009.

Current Status

2.163 The committee examined Australia's involvement in the US JLTV Program and enquired about the cost of participating in the program, the estimated cost of the vehicles, and whether Australian industry was consulted prior to deciding to participate in the program.

2.164 Defence advised that Australia spent US$30.6 million to participate in the current phase of the program and that while Australia is not committed to continue in the program, it could cost an additional US$100 million to be involved in the next phase. Defence stated:

> In the middle of next year, the Americans will be thinking about the next phase. If they were to proceed and if we were to become involved, it could be up to $100 million. But it really does depend—and this is the subject of ongoing negotiations between Australia and the US—on what we will know at the end of the phase that we are in now, on what the objectives are in their phase and on what information we get from it for what levels of investment.[166]

2.165 Defence also noted that, to date, it had not expended any money in Australia on developing an Australian JLTV but that it would be making suggestions how it could be manufactured and supported:

> In the advice that we will be presenting to government, the results of the RFP, we will be making suggestions such as: what could be done if it were manufactured and supported in Australia—what you would call the Australian JLTV; and what options could we explore in Australia so that decisions concerning the JLTV program are made with appropriate information about what is possible in Australia? There are basically two streams of development.[167]

2.166 Defence was also of the opinion that there was a potential for the engineering, manufacturing and development (EMD) phase of the US JLTV program to align more closely with the Australian phase noting that:

> I think that might also give you a level of assurance, perhaps, or comfort that, if we just follow the JLTV program, around the middle of the year [the US] will make a decision about progressing to the EMD phase and…they will re-tender. A whole bunch of new companies may come in to pick up the requirements that we

166 Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, pp. 27-28.

167 Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, p. 28.

> get from this test development phase and build brand new prototypes that might look nothing like the ones that we did the original work on. And around middle to late 2013-ish is when they expect to get to the end of the EMD phase to make a choice on the vehicle to buy. So if you take that as one stream, quite different but parallel, if the government proceeds with the MSA [manufactured and supported in Australia] version, there is a peg in the sand down here around 2013-14 where America will have got to the end of its development and will go: 'This is our vehicle.' So, if you like, that is a choice down here and that is a time line for the manufacture and support in Australia to also achieve some level of development so that the government of the day could make a comparison between what Australia is able to produce and what the American line produces. In around 2013-14 they will have a very good idea alternative to look at, provided the MSA can develop a vehicle that meets the requirements clearly.[168]

2.167 When commenting on the unit cost for a JLTV, Defence indicated that it was unable to provide any costings given the project was in the technical development phase, and that:

> It is a long time before we know the precise requirements and we know who is going to build it, what it will be built of, the level of integration and the sorts of things that will be on the vehicle.[169]

2.168 Defence advised that the total cost of the program, as stated in the Defence Capability Plan, would be greater than $1.5 billion.[170]

2.169 On the question of whether Defence had consulted with Australian industry prior to agreeing to participate in the JLTV program, Defence advised that industry was consulted 'through the Land Environment Working Group and direct approaches before first pass on the JLTV program to see if anyone had any plans.'[171]

2.170 The committee asked how Defence initially undertook an assessment of the PMV-L, and in particular asked why the Thales Australia vehicle, the Copperhead Bushmaster, was not shortlisted.

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168 Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, p. 31.
169 Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, p. 29.
170 Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, p. 29.
171 Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, p. 29.

2.171 Defence advised that the project had gone to tender twice and noted that the Thales Australia vehicle was not ready prior to completion of the first tender process. Defence stated:

> We selected a preferred tenderer for that project, from memory back towards the end of 2007. That vehicle, which is an American vehicle, did not pass all its tests on the proving range, so we went out to re-tender. The first time round the Bushmaster Copperhead, or that variant produced, the Thales, was not ready. By the time we had gone through the re-tender, Thales had done a lot more development work and it was ready and it was included.[172]

2.172 The committee noted reports that the US JLTV program was experiencing difficulties and asked Defence for an update.

2.173 Defence advised that the JLTV program is currently in the technical development phase and that Australia should receive its test vehicles by August-September 2010 with testing to complete around May 2011. Defence added that 'there was no indication that that program was going to be delayed or is in trouble.'[173]

2.174 When questioned whether there would be an Australian variant of the JLTV that meet Australia's requirements, Defence advised that it was still making an assessment of its requirements as part of the technical development phase, stating:

> We are participating in the technical development phase to test what is physically achievable balanced between protection, cost, the laws of physics and transportability and then we will have a set of requirements that we will know, with the Americans, is achievable.[174]

2.175 Defence noted that the request for proposal process would be completed within a couple of months after which it would be 'providing government with advice on the outcomes of those assessments and recommending a way forward.'[175] Defence added that advice would be given to the Minister and subsequently referred to the National Security Committee of Cabinet which would lead to a request for tender process.[176]

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172 Dr Gumley, Department of Defence, *Transcript*, 30 March 2010, p. 25.

173 Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, pp. 25-26.

174 Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, p. 26.

175 Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, p. 27.

176 Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, p. 27; Mr Gibbons, Department of Defence, *Transcript*, 30 March 2010, p. 27.

Armed Reconnaissance Helicopter

Background

2.176 In August 2001 the Government announced that it would acquire 22 'Tiger' ARH under Project AIR 87.[177]

2.177 The first four ARH were manufactured and assembled in France by the European Aeronautic Defence and Space (EADS) Company and the remaining ARH were manufactured in France and assembled in Brisbane by a subsidiary of EADS, Australian Aerospace.[178]

2.178 In July 2007 Defence stopped payment to Australian Aerospace under the ARH acquisition contract due to extended delays in 'achieving the IOC[179] critical contractual milestone.'[180]

2.179 In its *2008-09 Major Projects Report*, the ANAO stated that several factors contributed to the delay 'which in turn resulted in insufficient numbers of aircraft, training devices and logistics support in service to enable the required training outcomes.'[181]

2.180 In April 2008, Defence and Australian Aerospace agreed to:

> …a revised Acquisition Contract Price and Delivery Schedule, a revised Through Life Support Contract pricing structure that transitioned it to a Performance Based Contract, and established networks for work done by third-party support subcontractors.[182]

2.181 On 6 August 2008 Defence received the first three ARH[183] and on 1 October 2009 the ARH reached the initial operational test and evaluation readiness milestone which 'marks the point where the project transitions focus from individual flying, maintenance and support qualifications to

177 The Hon Peter Reith MP, Minister for Defence, 'Armed Reconnaissance Helicopter', Media Release, 8 October 2001, p. 1.

178 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 177; The Hon Peter Reith MP, Minister for Defence, 'Armed Reconnaissance Helicopter', Media Release, 8 October 2001, p. 1.

179 Initial Operational Capability for the Tiger ARH Project is defined as the ability to conduct training.

180 Department of Defence, 'Defence Stops Payment on Armed Reconnaissance Helicopter Acquisition Contract', Media Release, 5 July 2007.

181 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 177.

182 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 178.

183 The Hon Warren Snowdon MP, Minister for Defence Science and Personnel, 'Tigers Land in Darwin', Media Release, 6 August 2008.

collective training and development of Army Aviation war fighting skills.'[184]

2.182 At 9 July 2009 Defence had received 16 ARH. All 22 aircraft are to be delivered by 30 September 2010 'with final supplies acceptance due 30 June 2011.'[185]

Current Status

2.183 Defence advised that the ARH project was about 80 per cent complete having accepted 17 aircraft which have achieved weapons certification, noting:

> The plan is to have all aircraft accepted either at the end of this year or early next year. Some will undergo a retrofit program, but, importantly, we achieved the end of September milestone…where they were ready for operational test and evaluation, which means the aircraft were then migrated into the operational unit to allow them to conduct the collective training—the multiple aircraft type training—and develop their war fighting skills.[186]

2.184 The committee asked when the ARH would have full operational capability.

2.185 Defence responded that the DMO is recommending that the ARH have a 'deployable troop capability for a benign environment' and once the Chief of Army has made a decision the 'objective is to then build up the operational capability, the war fighting status, gradually as we continue to develop aircraft and these systems.'[187]

2.186 Defence also advised that before the ARH can be deployed in higher threat environments some additional work needs to be completed, which includes work on the helmet-mounted sight and display, training for the trainers and crews, and improved logistics support for the aircraft.[188]

2.187 Defence noted that it was working closely with the French who have deployed three aircraft in Afghanistan since August 2009. Defence added that the weapons system and reconnaissance sensors on the French aircraft were reported to be performing well noting that:

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184 The Hon Greg Combet MP, Minister for Defence Personnel, Materiel and Science, 'Tiger Achieves Major Milestone for Army', Media Release, 1 October 2009.

185 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 3.

186 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 37.

187 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 37.

188 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, pp. 37-38.

> …the reliability of some elements of it has been much better than were forecast. Some others elements still need some work. It is still a new aircraft, relatively, in testing but the French are exceptionally pleased and I think, overall, we are all pleased with the performance of Tiger on operations in Afghanistan.[189]

2.188 Defence indicated that Australia is about 18 months behind the French in operational capability.[190]

Self-propelled guns

2.189 The Artillery Replacement program, LAND 17, will provide the Army with new protected self-propelled guns,[191] new lightweight towed guns, and a digitised, networked Battle Management System.[192]

2.190 On 26 September 2007 the Government released a 'Request for Tender for the acquisition and support of protected self-propelled howitzers.'[193]

2.191 At the public hearing, the committee explored the acquisition of self-propelled guns and asked Defence to provide an update.

2.192 Defence advised that it was currently examining two tender responses and that it would be in a position to advise 'Government about which self-propelled gun might be the recommended gun.'[194]

2.193 Defence noted that the project had been deferred for around 15 months until the offer-definition period is completed, stating:

> At the moment, the self-propelled howitzers are planned for consideration for source selection by government in late 2010. It was going to be considered for second-pass approval back in July 2009, so it is probably about 15 months.[195]

189 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 38.

190 Major Gen. Fraser, Department of Defence, *Transcript*, 30 March 2010, p. 39.

191 A self-propelled gun is a gun mounted on a motorised wheeled or tracked chassis.

192 Department of Defence, 'Projects: LAND 17 - Artillery Replacement - 105mm & 155mm', viewed on 3 May 2010, <http://www.defence.gov.au/dmo/lsd/land17/land17.cfm>

193 Department of Defence, 'Projects: LAND 17 - Artillery Replacement - 105mm & 155mm', viewed on 3 May 2010, <http://www.defence.gov.au/dmo/lsd/land17/land17.cfm>

194 Vice Adm. Tripovich, Department of Defence, *Transcript*, 30 March 2010, pp. 54-55.

195 Dr Gumley, Department of Defence, *Transcript*, 30 March 2010, p. 55.

2.194 Defence added:

> The original tender process did not result in a conclusive assessment of either of the offers, so we went into this offer definition period before going to government to make a recommendation for the preferred tenderer. That has involved a number of tests and trials.[196]

2.195 **The committee is mindful of the dramatic improvement in capability self propelled artillery provides over traditional towed weapons. Whilst this new platform includes some sophisticated systems, it is far from a complex acquisition in the context of many other ADF acquisitions. The 15 month delay is therefore of concern.**

2.196 The committee also notes that not all potential suppliers engaged in the tender process.

Committee conclusions

2.197 The committee is aware of the significant challenges in managing very complex, sensitive and technical projects. However, the committee agrees with the ANAO's assessment that keeping major projects on schedule remains a major challenge for the DMO.[197]

2.198 Two projects in particular have experienced extensive schedule slippages: the High Frequency Modernisation Project and Project Wedgetail.

2.199 **While the committee is encouraged to hear the ANAO's assessment that the core system of the HF Modernisation Project is reliable and meeting Defence's requirements, it notes that this project is over 6 years behind schedule[198] and will not meet all of the projects technical specifications. The schedule slippage is so extensive that Defence has needed to reassess which platforms currently require upgrades to HF.**

2.200 Project Wedgetail is at least four years behind schedule, with FOC currently planned to be achieved by December 2012,[199] and it will not deliver the intended capability at this time.[200]

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196 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 55.

197 Australian National Audit Office, *2008-09 Major Projects Report Defence Materiel Organisation*, November 2009, p. 19.

198 Australian National Audit Office, *Defence Materiel Organisation Major Projects Report 2008–09*, November 2009, p. 19.

199 Department of Defence, *Defence Annual Report 2008-09 Volume Two*, p. 43.

2.201 A 2009 review by The Helmsman Institute, commissioned by the DMO, comparing project complexity between Defence and other sectors, found that the more complex the project, the greater the risk in delivering within budget, on schedule and to the required capability.[201]

2.202 In its *2008-09 Major Projects Report*, the ANAO was also of the view that 'the more developmental in nature a project, the more susceptible a project is to schedule delays compared to MOTS solutions.'[202]

2.203 The extensive delays experienced in both the above projects has been a concern to the committee and supports the views previously expressed by the ANAO and The Helmsman Institute.

2.204 The Joint Strike Fighter, another major developmental project, is currently experiencing delays due to a number of complex developmental issues.

2.205 In the previous report on the *Defence Annual Report 2007-08*, the committee noted the following about the JSF project:

> This is a highly complex acquisition with inherent risks that have been highlighted by the GAO [US Government Accounting Office]. When such issues are raised within the United States Government there are concurrent reassurances from the manufacturer and those involved in the project. From an Australian perspective, such inconsistencies are, at times, difficult to reconcile.[203]

2.206 **The committee's initial concerns with scheduling have proven to be valid in light of the recent reports that the JSF program is now facing some significant issues. It is hoped that other concerns raised by the committee and others in recent years about cost and performance prove to be less accurate.**

2.207 **The committee is aware that Australia has cost and schedule buffers built into the project but is all too aware that such buffers on large and complex acquisitions, such as the JSF, can slip considerably.**

200 Mr King, Department of Defence, *Transcript*, 30 March 2010, p. 18.

201 The Helmsman Institute, 'A Comparison of Project Complexity between Defence and other Sectors', April 2009, p. 12.

202 Australian National Audit Office, *Defence Materiel Organisation Major Projects Report 2008–09*, November 2009, p. 17.

203 Joint Standing Committee on Foreign Affairs, Defence and Trade, *Review of the Defence Annual Report 2007-2008*, October 2009, Commonwealth of Australia, p. 35.

2.208 Defence's current aircraft fleet is ageing rapidly making it all the more critical that Defence manages the inherent risks of this project to ensure that Australia is not left without a vital capability.

2.209 It is important that Defence acquire the needed capability in the shortest time practicable and at an appropriate cost.

2.210 The unique nature of Australia's security environment sometimes requires tailored or special design assets and solutions. That said, many Australian defence needs can be properly met with appropriate Military-Off-The-Shelf (MOT) acquisitions. The adoption of high-risk first-of-type acquisitions should only be entered into where it is clear that such an outlay, in terms of time and money, can be clearly justified by Australia's defence requirements. In the absence of a clear strategic case for such purchases, MOTS should be the default option.

2.211 **The committee will pay close attention to Defence's ability to complete these projects and ensure that they all meet final operational capability.**

2.212 **More generally, the committee will still require Defence to demonstrate that the post-Kinnaird reforms (Defence Procurement Review 2003) are sufficient, have been well-implemented, deliver projects on time and on budget, and with required levels of capability.**