6

Joint Strike Fighter

Background

6.1 Australia signed on to the Joint Strike Fighter (JSF) project in 2002 to replace the ageing fleet of F-111 fighter jets and the F/A-18s.

6.2 The *Defence White Paper 2009* discussed the rationale behind the purchase of the JSFs:

> The [Air Combat Capability] Review concluded that a fleet of around 100 fifth generation multirole combat aircraft would provide Australia with an effective and flexible air combat capability to 2030. A further judgement of the review was that the F-35 Joint Strike Fighter (JSF) is the preferred solution for that requirement. Other fourth and fifth generation combat aircraft considered by the Review were judged to be less capable of fulfilling Australia's multirole air combat capability requirements.[1]

6.3 The Department of Defence *Annual Report 2010-11* states:

> [Phases 2A and 2B of the Joint Strike Fighter project] will deliver a new air combat capability comprising around 100 Conventional Take Off & Landing (CTOL) F-35 JSF and all necessary support, infrastructure and integration to form four operational squadrons and a training squadron.

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1 Department of Defence, *White Paper 2009*, Commonwealth of Australia, p. 78.

> The Government has adopted a phased approval approach to the acquisition of the JSF. Australia joined the System Development and Demonstration [SDD] phase in October 2002 and through project AIR 6000 Phase 1B (approved), undertook a program of detailed definition and analysis activities leading up to Government second pass (Acquisition) approval for Phase 2A/2B Stage 1 in November 2009.[2]

6.4 In its report *Review of the Defence Annual Report 2009-2010* tabled on 27 February 2012, the Committee reviewed the JSF and identified three main areas of concern:

- cost;
- schedule; and
- capability.[3]

6.5 Therefore, in this report, the Committee undertook to look more closely at these three areas.

6.6 In addition the Committee sought evidence from those outside Defence with an interest in, and contribution to make to, the debate surrounding Australia's purchase of the JSF. Air Power Australia (APA), RepSim Pty Ltd, and several individuals provided evidence to the Committee.

6.7 The Committee held three public hearings where the JSF was discussed at length. At these hearings, the Committee received evidence from APA, RepSim, Defence, and Lockheed Martin.

6.8 Committee members also visited the Lockheed Martin Production Facility at Fort Worth, Texas in April 2012.

6.9 The Committee also received a classified briefing on the JSF by Defence in June 2012.

Cost

6.10 During the course of this review, the Committee was presented with a number of different perspectives and numbers relating to the cost of the JSF.

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2 Department of Defence, *Annual Report 2010-11, Volume 2*, p. 41.

3 In this Chapter, it is also referred to as the F-35.

6.11 In 2011, the Australian Strategic Policy Institute (ASPI) noted that 'the data from the last few years shows that the F-35 program costs have escalated dramatically.'[4] ASPI noted that at the end of the tenth year of the program:

> . . . the projected average unit program cost has grown by 78% above the original estimate. Some care is needed here: the rapid increase in JSF cost at the nine and ten year marks is partly due to new US legislation (the Weapon System Acquisition Reform Act of 2009) that required an independent (and more conservative) cost estimate to be used rather than the previous project office estimates.[5]

6.12 According to ASPI, the 'more relevant' measure of cost for Australia is the procurement cost. They note that the latest cost data shows:

> . . . a 58% increase in unit procurement cost. . . Manufacturer Lockheed Martin has signed a fixed price contract for the fourth LRIP [Low rate initial production] batch at around $130 million per aircraft. While a long way from the initial promised sticker price of $55 million—those days are a distant memory now—it's well under the recent headline figures.[6]

6.13 APA told the Committee that affordability was a central concern from the beginning of the project, and that this would have an effect on the capability offered by the JSF.

> A third early intention in the Joint Strike Fighter was that affordability was to be the cornerstone of the JSF program. The aircraft was to be both cheaper to procure and cheaper to operate than any of its contemporaries, including the aircraft it was intended to replace. To accommodate this intention, the whole specification and design process was defined and constrained by an unrealistic and quite flawed idea known as CAIV [Cost as an independent variable].[7]

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4 Davies, *What's Plan B? Australia's air combat capability in the balance*, Policy Analysis: May 2011, Australian Strategic Policy Institute, p. 4.

5 Andrew Davies, *What's Plan B? Australia's air combat capability in the balance*, Policy Analysis: May 2011, Australian Strategic Policy Institute, p. 4.

6 Andrew Davies, *What's Plan B? Australia's air combat capability in the balance*, Policy Analysis: May 2011, Australian Strategic Policy Institute, p. 4.

7 Mr Goon, Airpower Australia, *Transcript*, 7 February 2010, p. 2 claims CAIV refers to the treatment of cost as a principle input variable in program structure, development, design and support of a weapons system, and involves the setting of aggressive yet realistic cost objectives when defining operational requirements and the capabilities required to satisfy them.

6.14 APA noted a similar increase in cost as that outlined by ASPI, stating that Defence has always offered advice on cost that was 'much less' than US Air Force price estimates.[8]

6.15 APA also stated that, between 2001 and 2003, Lockheed Martin estimated the unit price for JSFs to be US$37 million. APA noted that the US Government's unit price estimate in December 2010 was US$140 million, saying that this figure accords with their own 2006-2007 estimate, but that advice to that effect was ignored by Defence.[9]

6.16 The Committee also received data from APA relating to the overall costs of the JSF project. This data shows that the budget was originally US$199.7 billion in 2001-2, but had since increased to US$379.2 billion by June 2010. Again, this accords with APA's estimates, despite the overall planned number of JSFs to be purchased by the US having been reduced.[10]

6.17 Similarly, APA notes that there has been an increase in the cost of maintaining the JSF relative to legacy aircraft. According to the data presented by APA, the original 2002 estimate was that the cost of maintaining the JSF will be 50 percent less than legacy airplanes. However, by 2010, this estimate had changed to 150 percent of the costs of legacy aircraft such as the F-16.[11]

6.18 APA told the Committee that there 'is no historical precedent for such a growth on this scale'.[12]

6.19 Defence responded to these comments on cost, acknowledging that the restructure that has occurred in the program over 2010-2011, known as the Technical Baseline Review, has resulted in some delay of milestones and in increased cost estimates. However, it noted:

> . . . in particular, the system development and demonstration phase of the program remains fully funded. It was funded to $43 billion and the US has since added a further $7.4 billion from their own funds, so it is fully funded.[13]

6.20 Lockheed Martin also advised the Committee that Australia's development costs had not changed:

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8 Airpower Australia, *Submission No. 2*, p. 4.

9 Airpower Australia, *Submission No. 2*, p. 8.

10 Airpower Australia, *Submission No. 2*, p. 8.

11 Airpower Australia, *Submission No. 2*, p. 8.

12 Mr Goon, Airpower Australia, *Transcript*, 7 February 2010, p. 2.

13 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 52.

> For Australia, the government partnership and development of this next generation weapons system has required a fixed contribution of US$150 million spread over the 14 years of our development program. That contribution has not changed despite two major restructurings of the program and significant additional development funds from the United States.[14]

6.21 Furthermore, Defence maintained that at this stage 'the project is working within the cost... parameters that were set'.[15]

6.22 In relation to the unit price for JSFs as they enter production, Lockheed Martin stated that JSFs would be delivered at a fixed price:

> For all of our contracts from here forward—and the first Australian aeroplanes are part of the sixth production line—all of those production lines will be a fixed price. We are in a fixed-price contract today on the fourth production line. The international buy will be added to the US buy and will come to us in terms of a contract, and everybody in that annual buy pays exactly the same thing. So there is not a penny more or a penny less between Australia and the US government—the US Air Force—for that configuration of the aeroplane.[16]

6.23 At the public hearings, Lockheed Martin and Defence discussed how they were monitoring cost closely to ensure prices remained as low as possible. Lockheed Martin argued that keeping production numbers up was an important part of delivering cost reductions.[17] Defence noted that Australia and the other international partners in the JSF project were regularly raising cost issues with Lockheed Martin, and that many discussions were about cost and about what Australia and the other partners 'expect from Lockheed Martin and industry partners in driving out cost'.[18]

14 Mr Burbage, Lockheed Martin, *Transcript*, 20 March 2012, pp. 1-2.

15 Mr King, Defence Materiel Organisation, *Transcript*, 16 March 2012, p. 63.

16 Mr Burbage, Lockheed Martin, *Transcript*, 20 March 2012, p. 10.

17 Mr Burbage, Lockheed Martin, *Transcript*, 20 March 2012, p. 10.

18 Mr King, Defence Materiel Organisation, *Transcript*, 16 March 2012, p. 64.

Schedule

6.24 In one of its submissions, APA contended that the JSF project is currently a decade behind schedule.[19]

6.25 At a public hearing, Defence agreed that there had been 'some delay of milestones' in the 'past 18 months in particular'.[20]

6.26 However, Defence told the Committee that there had been 'good progress' in testing to date and that this had implications for the delivery schedule:

> There was pleasing progress on the mission system testing, arguably the most challenging part of the F-35 program, and they currently expect to have Block 3 software through development testing by mid-2017. That potentially would support an Australian IOC [initial operating capability] by as early as late 2018, should the government agree to that IOC.[21]

6.27 Defence elaborated on the expected timeframe for delivery of Australian JSF aircraft:

> At the end of 2009, the government said that the indicative initial operating capability would be the end of 2018. We are not funded to go to initial operating capability. . . When we go back to government—I do not think that will be before the end of the year; perhaps at a time when the government would like to see that proposal—we will put forward options for initial operating capability. It could still be as early as the end of 2018 or it could be a little bit beyond that, depending on the amount of risk we see in the program.[22]

6.28 When asked about the potential for further delays in schedule, Defence advised the Committee that this was unlikely, saying that the project has:

> . . . a realistic schedule at this point in time and they have full and, I would say, very adequate funding for the development and any issues that might pop up. They have factored in contingency in the schedule for software development for any problems that come up in flight test. For example, on flight test, there is about 30 per cent

19 Airpower Australia, *Submission No. 9*, p. 1.

20 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 52.

21 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 53.

22 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 58.

> extra contingency for any issues that arise that cause them to be delayed.[23]

6.29 Defence further advised that the first production JSFs had been delivered to Eglin Air Base in the US, however:

> . . . there was a slight delay in getting them a military flight release. That was more due to debate within the US Department of Defense between the Director of operational test and evaluation and the United States Air Force. They came to an agreement and they have issued a military flight release, and they are flying at this time down at Eglin Air Force Base.[24]

6.30 Lockheed Martin also elaborated on the testing schedule:

> . . . the United States Air Force variant, which is Australia's configuration, is more than halfway through its first lifetime of durability structural testing. [...] More than 80 percent of all our airborne software is flying today and all of our sensors are demonstrating the required performance.[25]

6.31 Additionally, Lockheed Martin told the Committee that production of the international jets had commenced:

> The factory is manufacturing F-35s at a rate of four per month and this year will deliver our first three international jets to the UK and the Netherlands.[26]

6.32 In 2010, the US Government Accountability Office (GAO) reported to Congress on the F-35 project's program cost, schedule and performance, manufacturing results, test plans and progress. The report concluded that:

> . . . JSF cost increases, schedule delays, and continuing technical problems . . . increase the risk that the program will not be able to deliver the aircraft quantities and capabilities in the time required by the warfighter.[27]

6.33 The GAO recommended:

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23 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 57.

24 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 57.

25 Mr Burbage, Lockheed Martin, *Transcript*, 20 February 2012, pp. 2-3.

26 Mr Burbage, Lockheed Martin, *Transcript*, 20 February 2012, p. 3.

27 GAO, *JOINT STRIKE FIGHTER, March 2010: Additional Costs and Delays Risk Not Meeting Warfighter Requirements on Time*, http://www.gao.gov/new.items/d10382.pdf, viewed on 20 June 2012.

- a new, comprehensive, and independent assessment of the costs and schedule to complete the program, including military construction, JSF-related expenses in other budgets, and life-cycle costs;
- warfighter requirements be reassessed and, if necessary, some capabilities be deferred to future increments; and
- Congress consider requiring the US Department of Defense (DOD) to establish a management tool to help Congress better measure the program's progress in maturing the weapon system in a variety of areas to include cost estimating, testing, and manufacturing.[28]

6.34 The US Department of Defense's (DOD) response to this report concurred with the majority of the recommendations, while noting that the DOD had already undertaken a range of corrective actions on this project.[29]

6.35 In May 2012, the Defence Minister Hon Stephen Smith announced that the first two JSFs will be delivered for training purposes some time in 2014-2015. The Minister also announced that the government had decided to 'delay the delivery of our first 12 Joint Strike Fighters two years after the previous estimates at a net benefit to the budget of $1.6 billion, putting us on the same timetable, effectively, as the United States.'[30]

Capability

6.36 The website of the Royal Australian Air Force (RAAF) states that the JSF will give Australia access to 'capability and technology a generation ahead of other contemporary aircraft'.[31]

6.37 When this Committee reviewed the *Defence Annual Report 2002-2003*, Defence elaborated on these capabilities, stating that the JSF will be 'superior to its competitors' due to:

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28 GAO, *JOINT STRIKE FIGHTER, March 2010: Additional Costs and Delays Risk Not Meeting Warfighter Requirements on Time*, http://www.gao.gov/new.items/d10382.pdf, viewed on 20 June 2012.

29 GAO, *JOINT STRIKE FIGHTER, March 2010: Additional Costs and Delays Risk Not Meeting Warfighter Requirements on Time*, http://www.gao.gov/new.items/d10382.pdf, viewed on 20 June 2012.

30 Department of Defence website, *Prime Minister, Minister for Defence, Minister for Defence Materiel – Joint Press Conference*, http://www.minister.defence.gov.au/2012/05/03/prime-minister-minister-for-defence-minister-for-defence-materiel-joint-press-conference-canberra/, viewed on 1 June 2012.

31 Royal Australian Air Force website, *Joint Strike Fighter F-35 Lightning II*, http://www.airforce.gov.au/Aircraft/jsf.aspx, viewed on 23 May 2012.

> . . . its stealth technology; its sensor suite; its capacity to carry a wide range of ordnance; its ability to network with other aircraft, particularly our AWACS [Airborne Early Warning and Control] Wedgetail aircraft; its ability to virtually be a broadcaster of sensor information to many other platforms; and its aerodynamic characteristics.[32]

6.38 Lockheed Martin characterised the capability offered by the JSF as 'transformational and essential to the future combat capability of the allied Air Forces'.[33]

6.39 Lockheed Martin noted that the JSF has been adopted by 'all three US services' as well as 12 other nations' services due the 'inherent technology and capability of the F-35 air system', noting that:

> . . . the F-35 weapons system is intended to provide unprecedented situational awareness to the fighter pilot and the flight and command and control infrastructure, while denying the same to the adversary.[34]

6.40 APA and RepSim both made submissions to this inquiry which questioned this view of the capability offered by the JSF.

6.41 APA provided their analysis of the air combat capabilities offered by current and emerging Russian and Chinese fighter jet technology.[35] They contended that, in light of this analysis:

> . . . the F-35 Joint Strike Fighter will be ineffective against the current generation of advanced Russian and Chinese systems. . . . In any combat engagements between the F-35 and such threat systems, most or all F-35 aircraft will be rapidly lost to enemy fire.[36]

6.42 APA elaborated further on their concerns at a public hearing, advising:

> . . . Russia and China are now well advanced in their production of advanced stealth fighters specifically intended to be competitive with the superior United States F-22A Raptor. The inferior Joint Strike Fighter, defined in aerodynamic performance and stealth only to attack lightly defended battlefield ground targets, has no

32 Joint Standing Committee on Foreign Affairs, Defence and Trade, *Review of the Defence Annual Report 2002-03*, August 2004, Commonwealth of Australia, p. 56.

33 Mr Burbage, Lockheed Martin, *Transcript*, 20 March 2012, p. 2.

34 Mr Burbage, Lockheed Martin, *Transcript*, 20 March 2012, p. 2.

35 Airpower Australia, *Submission No. 3*, pp. 3-7.

36 Airpower Australia, *Submission No. 3*, p. 2.

> prospect of ever successfully competing against these larger, more agile, higher flying and much faster foreign stealth fighters, which also happen to be better armed. Of no less if not greater concern is the proliferation of advanced long range surface-to-air missiles and modern counter-stealth sensors and detection systems.[37]

6.43 Mr Danny Nowlan, submitting in a private capacity, agreed with APA and RepSim's analysis of the capabilities offered by the JSF, noting that it will be 'incapable' of providing Australia with regional air superiority, due to the fact that:

> . . . its current performance renders it fundamentally uncompetitive with aircraft such as the Russian Su-35S, the T-50 PAK-FA, Chinese J-20 and modern Surface to Air Missile threats, all of which will proliferate globally.[38]

6.44 APA and RepSim were of the opinion that these perceived deficiencies in performance could not be fixed:

> The limitations in the F-35 design cannot be fixed by upgrades or modifications as they are inherent in the basic F-35 design. Even if the F-35 were to meet its mediocre performance specifications or *as-marketed* expectations, it would not be viable in combat against modern Russian and Chinese built threat systems.[39]

6.45 Defence countered this view at a public hearing, disputing APA's criticisms of the JSF's aerodynamic performance and stealth capabilities relative to its future potential adversaries, stating:

> . . . these are inconsistent with years of detailed analysis that has been undertaken by Defence, the JSF program office, Lockheed Martin, the US services and the eight other partner nations. While aircraft developments such as the Russian PAK-FA or the Chinese J-20, as argued by Airpower Australia, show that threats we could potentially face are becoming increasingly sophisticated, there is nothing new regarding development of these aircraft to change Defence's assessment.[40]

6.46 Specifically, Defence told the Committee that the JSF is performing well in a number of important areas:

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37 Mr Goon, Airpower Australia, *Transcript*, 7 February 2012, p. 2.

38 Mr Danny Nowlan, *Submission No. 22*, pp. 1-2.

39 Airpower Australia, *Submission No. 3*, p. 2, emphasis in original.

40 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 53.

> The range of the F-35A is about 30 percent greater than the F-18 legacy aircraft. The stealth is meeting planned requirements. The F-35 coating technology is being retrofitted to the F-22 because the coating is more effective and easier to maintain. The F-35 has reached its maximum design speed of Mach 1.6 during testing in 2011 and it has been tested to 9G. . . On radars and sensors, the APG81 radar exceeded expectations in real-world exercises in Northern Edge in 2009 and 2011 where it was presented with a modern, hostile electronic environment. The F-35 has very good electronic attack and electronic defence capabilities. Weight is not an issue in the program since 2005; for the F-35A it is well within specification. Eighty percent of full software capability is flying today.[41]

6.47 Defence also disputed the contention that issues with the JSF design and capability cannot be fixed. At the public hearing, Defence informed the Committee of an internal US Department of Defense report from November 2011 that made an overall assessment of the suitability of the F - 35 to continue in low-rate initial production.[42]

6.48 According to Defence, this report:

> . . . identified 13 key risk areas, but it concluded that there was no fundamental design risk sufficient to preclude further production. The report listed the risks, but it did not outline the steps that the JSF program office is going through to mitigate those risks. All of those risks are known by the program and are being worked on.[43]

6.49 As evidence for their contentions regarding capability, RepSim provided the Committee with an overview of a simulation that was conducted in 2008 for the RAND Corporation. This simulation was conducted using open sources and did not incorporate classified material.[44] The results of this simulation indicated that, when conducting mass attacks against a large number of Chinese fighter jets, only a small number of JSFs would survive.[45]

6.50 Mr Jack Warner, submitting in a private capacity, drew the Committee's attention to a statement made by RAND Corporation in response to the public reaction to the simulation:

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41 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 53.

42 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 53.

43 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 53.

44 Mr Mills, REPSIM, *Transcript*, 7 February 2012, p. 6.

45 Mr Mills, REPSIM, *Transcript*, 7 February 2012, pp. 6-7.

> RAND did not present any analysis at the war game relating to the performance of the F-35 Joint Strike Fighter, nor did the game attempt detailed adjudication of air-to-air combat. Neither the game nor the assessments by RAND in support of the game undertook any comparison of the fighting qualities of particular fighter aircraft.[46]

6.51 Defence advised the Committee of its view that APA and RepSim's analysis and simulations are 'basically flawed' due to the use of incorrect assumptions and a lack of knowledge of the classified F-35 performance information.[47]

6.52 Lockheed Martin agreed with this view, indicating that simulations of what a JSF or other fourth or fifth generation fighter are capable of can only be conducted if the simulator has access to all of the classified information about the aircraft. They stated:

> . . . trying to simulate something that you do not fully understand is based on false assumptions and false ground rules. If you go in with false assumptions and false ground rules, you will get false answers.[48]

6.53 The Committee notes that RESPIM Pty Ltd has vehemently disputed this contention.[49]

6.54 Defence noted that in its own simulations, which incorporate the classified material, the JSF was performing to an acceptable standard:

> When the classified capabilities are taken into account, we have had Australian pilots flying high-fidelity simulators and they have been very impressed with the combat capabilities of the aircraft. These pilots include fighter combat instructors from RAAF Base Williamtown and ex-commanding officers of fighter squadrons within Australia.[50]

6.55 Lockheed Martin provided details of the simulations that have been conducted, advising:

> . . . pilots from the Royal Australian Air Force, all of the participating nations' Air Forces and all three US Services have come into the manned tactical simulator, the pilot-in-the-loop

46 Cited by Mr Jack Warner, *Submission No. 23*, p. 2.

47 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 53.

48 Air Cdre (Retd) Bentley, Lockheed Martin, *Transcript*, 20 March 2012, p. 4.

49 RepSim, *Submission No. 12*.

50 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 53.

> high-fidelity simulation of an advanced high-threat environment. They have actually flown the airplane in that environment, and the results of those simulations show that the airplane is effectively meeting its operational requirements.[51]

6.56 Overall, Defence considered that when it comes to the outcomes of simulations:

> . . . if the F-35s are allowed to play to their strengths and use their better situational awareness and sensors . . . they can prevail in that situation and they do defeat that higher-end threat in those simulations.[52]

6.57 Lockheed Martin further noted that it was not attempting to excuse itself from detailed discussions by using security classifications, noting that these detailed discussions were happening, and were also the reason the JSF had been chosen by so many countries:

> All the Defence officials who are appropriately cleared in all of the nations that are participating in this know exactly what we have briefed, what those briefings entail and what the analysis entails, and they have chosen the [JSF]. . . Believe the nine best Air Forces in the world as far as their operators and analysts are concerned and . . . you will come to realise that it is not us telling the story; it is them telling the story to their governments and their governments making a decision to go forward with this aeroplane.[53]

6.58 RepSim disputed the views put forward by Defence and Lockheed Martin on the need to include classified material in simulations. They contended that it is a logical fallacy that if a simulation does not include classified material, it is *ipso facto* wrong.[54]

6.59 Furthermore, they stated:

> RepSim's unclassified simulations do include capabilities of the JSF that may be classified – Directed Energy Weapons for example.[55]

6.60 At this juncture, the Committee notes the following view on the difficulties of comparing the capabilities of modern fighter aircraft:

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51 Mr Burbage, Lockheed Martin, *Transcript*, 20 March 2012, p. 4.

52 Air Vice Marshal Osley, Department of Defence, *Transcript*, 16 March 2012, p. 55.

53 Mr Burbage, Lockheed Martin, *Transcript*, 20 March 2012, p. 6.

54 RepSim, *Submission No. 11*, p. 1.

55 RepSim, *Submission No. 11*, p. 1.

> In general, because of the lack of reliable information about the fighters themselves, and the lack of actual combat between them, it is extremely hard to judge how they will perform in combat. The bodies in the best position to know — aircraft manufacturers and air forces — keep secret much of the real capabilities of their aircraft, but simultaneously often try to present them in the best possible light by claiming superiority over other comparable vehicles.[56]

Alternatives to the JSF

6.61 Mr Erik Peacock, submitting in a private capacity, was supportive of RepSim and APA's position on the capabilities offered by the JSF, noting that, in his opinion, there were two other viable options to maintain Australia's regional air superiority.[57]

6.62 Mr Peacock considered the retention of the F-111 to be a better option than purchasing the JSFs, observing:

> . . . independent testimony stated that with a virtually infinite supply of spare parts in the USA, the F-111 could be maintained almost indefinitely and evolved into a modern interceptor. This would leverage the significant investment already made in the aircraft and pay significant dividends to Australian industry. The F-111 represented a third of the strike capability provided by the RAAF. There is no other aircraft that currently has the same capabilities apart from the Russian SU-34.[58]

6.63 However, the F-111 was retired from the ADF inventory on 3 December 2010.[59]

6.64 Additionally, Mr Peacock considered the F-22 to be a better and cheaper option than the JSF. Mr Peacock claimed that, in 2001, Australia was offered the 'export variant' of the F-22 – the F-22A - but that the US

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56 'Comparison of modern fighter aircraft', *DefenseTalk*, http://www.defencetalk.com/comparison-of-modern-fighter-aircraft-17086/> viewed on 2 February 2012.

57 Mr Erik Peacock, *Submission No. 6*, pp. 1-2.

58 Mr Erik Peacock, *Submission No. 6*, p. 2.

59 'Farewell F-111', *Defence News*, http://www.defence.gov.au/defencenews/stories/2010/Dec/1206.htm viewed on 5 June 2012.

delegation making this offer was 'turned back at the airport on arrival in Australia because Defence had already decided on the JSF.'[60]

6.65 Furthermore, despite the fact that production of the F-22 has ceased, Mr Peacock argued that it would cost US$300 million to restart production. As such, Mr Peacock considered it 'a matter of urgency' that Australia request US Congressional approval to export F-22s to Australia.[61]

6.66 APA also stated their opinion that they considered the F-22 to be a better option than the JSF.[62]

6.67 However, the Committee understands that export of the F-22 is banned under US law,[63] noting that the Committee has not been able to confirm whether such an offer was ever made by the US or a similar request was ever made by Australia. Further, production of the F-22 has ceased at this time.[64]

Conclusions

Cost

6.68 The Committee notes the following in respect of the cost of the JSF:

- There are a number of different cost definitions associated with the JSF.
- APA's longstanding concerns that the cost of the aircraft would be higher than originally estimated have been accurate.
- ASPI advises that the latest data shows a 58 per cent increase in unit price cost from original projections.
- Defence agrees that cost estimates have increased since 2010-2011 from original projections, but notes the SDD Phase is fully funded, and costs for the production phase are continuing to be monitored closely to ensure prices remain as low as possible.

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60 Mr Erik Peacock, *Submission No. 6*, pp. 2-3.

61 Mr Erik Peacock, *Submission No. 6*, p. 2-3.

62 Airpower Australia, *Submission No. 13*, pp. 1-2.

63 United States Library of Congress website, *Bill Summary and Status: 105th Congress (1997-1998), H.AMDT.295*, <http://thomas.loc.gov/cgi-bin/bdquery/z?d105:HZ00295:> , viewed on 1 June 2012.

64 Fox News, http://www.foxnews.com/us/2011/12/13/last-f-22-raptor-rolls-off-assembly-line/, viewed on 1 June 2012.

- Lockheed Martin observes that aircraft will be a fixed price in each aircraft 'buy' for all countries, and that keeping production numbers up is an important part of achieving cost reductions.

Schedule

6.69 The Committee notes the following in respect of the schedule of the JSF:

- All submitters agree that the schedule for the JSF has slipped from original dates.
- Defence and Lockheed Martin remain positive about future achievement of milestones.
- The Australian Government has now delayed the delivery of the first 12 JSFs for two years.

Capability

6.70 The Committee notes the following in respect of the capability of the JSF:

- There are significant differences of opinion among submitters to this Review about the capability of the JSF, with REPSIM advising their simulations indicated deficiencies in performance against other similar aircraft, APA advising their concerns, and Defence and Lockheed Martin advising they are very positive about the aircraft, particularly after current testing.
- There are significant difficulties with making judgements about the capabilities of modern fighter aircraft, particularly given some of these aircraft are still under development.

Alternatives to the JSF

6.71 The Committee notes the following in relation to alternatives to the JSF:

- While some submitters contend the F-111 or the F-22 would be suitable alternatives to the JSF, the F-111 has been retired from service, and the F-22 appears currently unavailable both in terms of production and in terms of Australia's ability to purchase the aircraft.

Committee Comments

6.72 The Committee makes the following comments about the review of the JSF as part of its Inquiry into the Defence Annual Report 2010-2011:

- The US GAO has found that cost increases, schedule delays and continuing technical problems increase the risk the program will not be able to deliver the aircraft quantities and capabilities in the time required by the warfighter.
- Given the GAO conclusion and the evidence provided during the Review, the Committee is concerned at the increased cost and the schedule delays associated with the JSF.
- The Committee is not in a position to make judgements on the technical aspects of the performance of the JSF relative to other aircraft. Rather, the Committee's objective is to ensure that Defence is taking all possible steps to ensure Australia's regional air superiority, and that this is secured at a reasonable price and within agreed timeframes.
- The evidence received on the capabilities of the JSF has been conflicting in nature. Airpower Australia and RepSim's contentions are fundamentally opposed to those of Defence and Lockheed Martin, and the Committee has no way to effectively test these contentions on the public record.
- Furthermore, Airpower Australia and RepSim have advised that their comments are based on an in-depth understanding of the capabilities offered by both the JSF and the emerging stealth fighter technology of Russia and China. Given that these emerging stealth fighters are still under development, and are not expected to achieve initial operating capability for some time, the Committee is uncertain as to whether judgements can be made with certainty that the JSF will be the inferior fighter, noting the difficulties of comparing modern fighter aircraft.
- In light of the conflicting perspectives presented and the uncertainties they raise, the Committee resolves to maintain a focus on the JSF project in order to ensure that it does, indeed, provide Australia with ongoing regional air superiority. In this regard, the Committee notes the recent decisions by the Australian Government to postpone acquisition of the first 12 JSFs by two years and to bring forward the next Defence White Paper to 2013. These two decisions will provide considerable scope for ongoing scrutiny and review both within and outside the context of this Committee.