

source revenue (\$797.5m). The net decrease in funding is made up of: a decrease of \$953.3m in departmental appropriations – resulting from an increase of \$5.7m associated with departmental budget measures, and a decrease of \$958.9m for other budgetary adjustments; a decrease of \$161.0m in return of equity to government related to the revised property disposal program; a decrease of \$188.4m in capital receipts for the revised property disposal program; and a decrease of \$16.9m in own source revenue.

In short, the Government's national Budget deficit calculations – as Global Financial Crisis (GFC)-related expenditures begin to turn down in the new calendar year – will accordingly benefit from Defence returning some \$909.2m over 2009/10, predominantly calculated on account of windfall gains being taken in regard to the quantum of Australian dollars required to fund Defence now being lower than when calculations were first made in the May 2009 Budget of likely movements in foreign exchange rates over the full financial year.

Over the current year and the 2009 Budget Forward Estimates, the PAES calculates a total of \$3,565.9m is to be returned to Government on the basis of the aggregate of foreign exchange liabilities (in Australian dollars) being around 10% less (ie: in the order of 72c), when compared to the A\$0.67 cents to the US dollar benchmark indicated in the Defence Materiel Organisation's (DMO) 2008/09 Annual Report as the baseline used to set 2009/10 budget parameters.

Suspected motives behind the revised Defence Budgetary outcome for the current financial year and the balance of the Forward Estimates (ie: rapid reduction of the Budget deficit) – are similarly consistent with ADBR's earlier examination of the re-programming of major new defence capability acquisition decision dates, and respectively, the large number of adjustments to time frames nominated in the 2009 Defence Capability Plan (DCP) for the introduction into service of a large majority of these new capabilities, when compared to the 2006 DCP.

Circulation of the 2009/10 Portfolio Additional Estimates Statements (without an accompanying press release) on the eve of the Christmas break appears to support ADBR observations in its last two editions – based on analysis of its 2009 'DCP at a Glance' spreadsheet – of Government sensitivity with the reality that the whole new military capability acquisition profile over the period of the Forward Estimates has been structured to 'tread water' until more prosperous economic times return, or, substantial (ie: unanticipated) savings of greater than \$2 billion each financial year are able to be garnered by Defence managers from the Strategic Reform Program (SRP).

THE DCP ON AN A3 PAGE: As outlined in our last two editions (*Vol.27, Nos.03 & 04/05*), ADBR researchers have undertaken a wholesale review of the 2009 DCP by charting all the new Plan's projects/project phases (and accompanying decision-making and in-service date metrics), to generate a spreadsheet tabulation that compares key schedule and budget performance factors contained in the July 2009 document, against those contained in the 2006 DCP.

In the main, ADBR's analysis found that of the roughly three-quarters of projects transited from the 2006 DCP and re-presented in the 2009 DCP, over half have had their 'second pass' (ie: Year of Decision) and/or expected Initial Operating Capability (IOC) dates pushed backwards by three to five years, on average, from their 2006 DCP dates.

ADBR researchers also re-modelled the DMO's Acquisition Category (ACAT) project cost-banding methodology to derive a more specific individual project nominal cost (A-DNPC) estimate, and used the results of the exercise to provide an indication of where changes in Rudd Government national security priorities have affected the prospects (ie: positive and negative) of individual projects.

Subsequent to Government new military capability acquisition announcements made through to 31 December 2009 (and reflecting the release of the 2009/10 PAES), ADBR's 'DCP at a Glance' spreadsheet has been further amended and is now in its third revision

Crawl, then walk, then run: strategy for JSF acquisition

The Royal Australian Air Force is to finally get its fifth generation fighter, but not in the timeframe or numbers first envisaged. Australian pilots won't begin taking off from local bases in Block III F-35s to undertake operational training until 2018, with the full transition of the fighting force now not likely to be completed until 2021 – twenty years after former Defence Minister, Robert Hill, was first sold on the idea at the 2002 Singapore Air Show.

■ Canberra Bureau Report

Since former Defence Minister, Senator Robert Hill, returned from briefings at the 2002 Singapore Air Show to declare 27 June that year the competition for a new air combat capability (NACC) would be short-circuited in favour of Australia joining the US armed force's tri-service Joint Strike Fighter (JSF) systems demonstration and development program, debate has raged over the wisdom of that decision.

Key areas of contention related to the suitability of the aircraft to sustain the nation's regional military 'superiority' mantra in light of other alternatives (such as the not-available-for-export F-22 'Raptor'), the ability of the manufacturer – Lockheed Martin Aeronautics – to deliver the aircraft on-time and to performance specification, and the willingness of the US Congress to fully fund program development to ensure deliveries would become available in time to meet critical ADF capability gaps as it retired its F-111s, and latterly, its F/A-18 'Hornet' fleet.

This all came to pass 2 May 2009 when a new Defence White Paper enthusiastically declared phases 2A/2B of the ACAT I-rated project Air 6000 would be advanced to acquire three squadrons of new fighters, comprising 'not less than 72 aircraft' in the initial buy. Subsequent elements of the project would then certify and acquire an initial inventory of JSF weapons (ie: AIM-9X, AIM-120C+, JSOW), ammunition and counter-measures.

Irrespective of the JSF still being in its early developmental and test phases – and with the adequacy of the test phase regularly assailed

by negative reports from the US General Accountability Office (GAO) – the Rudd Government, after having commissioned its own extensive two-stage Air Combat Capability Review – went on to repeatedly declare (through Ministers Fitzgibbon, Faulkner and Combet) that a Block III aircraft would be delivered on-time (ie: from 2014), and within the \$12-16 billion budget allocated for up to 100 aircraft.

Just how much Australia would pay for the Defence White Paper's vision of 'not less than 72' aircraft was left unclarified. Addressing a Joint Standing Committee on Foreign Affairs, Defence & Trade Defence Subcommittee in August, the Chief Executive Officer of the DMO, Dr Stephen Gumley, said that earlier attempts to achieve a cost saving 'consortium buy' of new F-35s had not materialised, due to insufficient interest amongst the various program partners. US Congressional procurement rules were also blamed for acting to prevent 'multi-year' purchases before certain technological development and test milestones were achieved.

Dr Gumley went on to re-confirm a prediction made two years earlier, that if the consortium buy (aiming for a unit price of \$75m) did not materialise, there was a commercial incentive for JSF program partners to "rush to the back of the (aircraft acquisition) queue." He also told the Committee that once the JSF program became more technically mature, Australia would be "in a better position ... a safer one, to buy the aircraft."

As it has subsequently turned out, the DMO Chief's view has ended up very attractive to a cash strapped Government focused on leveraging all available tools – including re-

(Version 130). A full poster-sized copy of this is included for magazine subscribers in this edition.

Further details in relation to the ‘DCP at a Glance’ spreadsheet and ADBR subscriber access (along with a free download of the accompanying ‘Index of 2009 Defence White Paper & DCP Acronyms’), are currently available at the www.adbr.com.au website. The balance of this article completes the project by project (or project phase) analysis of the whole 142 proposed new military capability acquisitions now reflected in ADBR’s V130 ‘DCP at a Glance’ spreadsheet and, in particular, comments on the balance of Air and Defence projects not covered in the last two editions.

AIR PROJECT PROPOSALS – (Ctd)

By way of introduction to the following proposed new military capability acquisitions, the May 2009 Budget papers described the objective of the Royal Australian Air Force as applying extant capabilities “to protect Australia and its national interests by providing a unique combination of flexibility, reach, precision and speed of response.” The Air Force’s fundamental capabilities were further said to “enable the conduct of offensive and defensive counter air operations, land and maritime strike operations, and offensive air support. Airlift enables quick deployment of forces over large distances and follow-on sustainment. Information superiority provides better situational awareness, enhancing the effectiveness of command and control systems.”

Over 2009/10, some \$4,201.1m is being provided by the Government to enable the maintenance of sufficient air combat forces to provide airpower response options as required in military preparedness directives, with a focus on continued support to the range of ongoing

ADF operations, the conduct of operational deployments as directed by the Government, and the provision of rapid disaster response when necessary.

Heading the list of capability management tasks in 2009/10 was: the consolidation of the B300 ‘King Air’ 350 fleet; full capability (including training devices) of the C-17A strategic airlifter fleet; managing without an air-to-air refuelling capability due to KC-30A tanker acquisition delays (project Air 5402); DHC-4 ‘Caribou’ tactical transporter retirement in December 2009; managing without an initial (for training only) airborne early warning and control capability due to accumulating B737 ‘Wedgetail’ acquisition delays (Air 5077); preparations for the introduction into service of the 24 F/A-18F ‘Super Hornet’ aircraft (Air 5439); and preparations for end-2010 retirement of the F-111 bomber fleet.

Now confirmed upon release of the PAES is a budget reduction for Air Force capabilities in 2009/10 of \$74.3m, taking the total funding to \$4,126.9m. As part of the budget revision, the rate of effort on PC-9 aircraft has been cut due to a reduction in training output requirements for 2009/10. The rate of effort for the C-17s has been reduced due to the impact of the 2009/10 and 2010/11 deeper maintenance schedule (and the transfer of training to the new ‘Globemaster’ III simulator), while the KC-30A rate of effort has been further reduced due to aircraft delivery delays. The ‘Caribou’ has been officially retired from service with the last flying aircraft going to aviation museums, whilst the rate of effort for the B737 BBJ VIP fleet was increased due to customer requirements. Availability of the ‘Hawk’ Lead-in Fighter has nevertheless been reduced due to the impact of a worldwide-experienced engine issue said to be “restricting aircraft tasking.”

Air 5431/1, 2 & 3 – Deployable Air Traffic (and Fixed Base) Management & Control System: Project Air 5431 seeks to procure a new deployable

structuring new military capability acquisitions – to secure an early elimination of the Budget deficit.

Having begun life as a tri-phase (2A, 2B, 2C) acquisition of up to 100 F-35s in the 2001 DCP, and next consolidated into a combined phase 2A/2B (with a later phase 2C) in the 2006 DCP, Defence Minister Faulkner confirmed 25 November the Government had given ‘second pass’ approval to just one component – a phase 2A (or Batch I) acquisition of only 14 F-35A Block III conventional take-off and landing (CTOL) aircraft.

Now costed at \$3.2 billion, the phase 2A component acquisition includes some large upfront investments in specialist infrastructure for the basing of the aircraft at RAAF ‘Williamtown’ (NSW), in the particular manner that is required to satisfy US technology transfer (ie: ITAR) requirements, along with support required for initial training and testing.

The first F-35As are to be delivered to the RAAF in the United States in 2014 from the 75-aircraft low rate initial produc-

tion (LRIP) Lot 6, and will initially be based at ‘Eglin’ AFB (Florida), where they will commence initial familiarisation training and test activities. Upon training, pilotage and global aircraft flight clearances having been secured through to 2017, Australia’s first operational squadron will then transit the Pacific Ocean to ‘Williamtown’ for further training consolidation and testing in 2018.

Senator Faulkner went on to advise that formal consideration of a Batch II acquisition – of up to 58 aircraft under phase 2B – would be put over until 2012, so that better information could be drawn upon in order to fulfil the Government’s DWP’09 commitment to acquire three operational squadrons comprising not fewer than 72 aircraft.

Subsequent to US JSF program developments, Defence anticipates it will have by this time (2012) much firmer cost estimates for the remaining aircraft (and necessary support and enabling capabilities). Batch II aircraft will be purchased from the 170-aircraft Lot 7, as part of a planned 2015 first multi-year buy comprising over 1,000 aircraft for

US forces, Australia and other program partners.

All three operational squadrons are thus planned to be in service by 2022. A ‘later date’ (unspecified) phase 2C acquisition of 28 (likely to be Block IV) aircraft, may ultimately bring total JSF numbers up to the original 2000 Defence White Paper commitment of 100 aircraft. This component is now proposed to be advanced concomitant with any decision to withdraw the F/A-18F ‘Super Hornet’ fleet from service.

The year 2009 closed with Lockheed Martin reporting the second F-35B short take-off/vertical landing (STOVL) version of the Joint Strike Fighter had arrived at NAS ‘Patuxent River’ (Maryland), in order to commence a four-year flight test campaign.

Like the first F-35B that had arrived at ‘Pax River’ in November, the second aircraft will also be supported by the F-35 Autonomic Logistics Information System (ALIS) that will ultimately support the global JSF fleet (including Australia), with test flights monitored by the related Autonomics Logistics Global Sustain-

ment (ALGS) Operations Centre in Fort Worth (Texas).

Over the coming year, an integrated government/industry test team will ramp up at the naval air station flight tests for the F-35B and F-35C (carrier) variants, whilst ‘Edwards’ Air Force Base in California will serve as the substantive test location for the F-35A conventional take-off and landing variant.

In a related development, UK forces received 23 December financial approval to go ahead with the purchase of a third STOVL JSF operational test and evaluation aircraft, set for production in LRIP 4. The US was also reportedly considering allowing Japan to take part in the multinational JSF project.

According to a ‘Kyodo News’ report, circles in Washington were considering allowing the Japanese to participate in the new fighter project, even without assurances that it will ultimately procure the F-35 for its self defence forces. The move appeared nevertheless intended to clear the way for

Defence Air Traffic Management and Control System (DATMCS) to replace the existing Australian Defence Air Traffic System (ADATS) acquired under project Air 5186 – which reaches life-of-type in 2015 – whilst also securing additional capability. The DATMCS is expected to comprise deployable and fixed surveillance sensors and command and control systems.

Phase 1 of the project intends to provide a number of deployable DATMCS, compared to the current single Tactical Airfield Surveillance Radar (TASR) capability. The 2009 DCP date for ‘second pass’ approval (YoD) of the phase 1 capability has fallen back at least six years (now 2012/13-2014/15) from the 2007/08 first anticipated in the 2006 DCP, with the follow-on effect on P-IOC achievement also falling back at least two years to 2014-2016, compared to the formerly indicated 2010-12. The now ACAT III-rated project budget has been increased (by around \$100m) from the \$75m indicated as the upper end of the 2006 DCP project estimate.

The \$425m (A-DNPC) phase 2/3 seeks to provide over 2013-2015 (IOC) Air Traffic Control (ATC) Surveillance Sensors to replace existing sensors at ADF fixed base locations. The ACAT III-rated phase 2 focuses on replacement of the existing ‘Alenia’ radars at RAAF Bases ‘East Sale’ & ‘Tindal’ and the Army Aviation Centre at ‘Oakey’, whilst also looking to replace the ADATS radars at RAAF Bases ‘Amberley’, ‘Darwin’, ‘Pearce’, ‘Townsville’ and ‘Williamtown’, and the Naval Air Station ‘Albatross’ (Nowra, NSW). The ACAT III-rated phase 3 seeks to acquire a fixed DATMCS to replace existing systems at eleven ADF fixed base locations, and a radar simulator at the School of Air Traffic Control (SATC) located at RAAF Base ‘East Sale’.

Air 5432/1 – Communications, Navigation, Surveillance/Air Traffic Management: This initial project phase aims to update ADF platforms and

ground surveillance and control systems to ensure continued optimal use of civil and military airspace. In response to plans for Australia’s adoption of the Automatic Dependent Surveillance – Broadcast (ADS-B) system for surveillance of en-route air traffic, phase 1 will focus on the introduction of an ADS-B construct utilising Mode S.

The ADF has agreed to aim for ADS-B compliance for all military aircraft by 2018. In parallel with project Air 5432 activity, Joint Project 90 is being developed to update ADF capabilities from Mode 4 Identification Friend or Foe (IFF), to Mode 5, with anticipation that common transponders and interrogators can be used for both projects. Future project phases are expected to address other aspects of evolving Air Traffic Management technology.

The 2009 DCP date for ‘second pass’ approval (YoD) of the phase 1 capability has fallen back at least four years (now 2014/15-2016/17) from the 2009/10-2011/12 first anticipated in the 2006 DCP, with the follow-on effect on P-IOC achievement also falling back to 2018-2020, compared to the formerly indicated 2013-2015.

The now ACAT II-rated project budget has thus been increased for anticipated inflation (by around \$30m) from the \$50m previously indicated as falling at the upper end of the 2006 Defence Capability Plan project estimate.

Air 5438/1A – ‘Hawk’ Lead-In Fighter Capability Assurance Program:

This ACAT III-rated \$300m (A-DNPC) phase 1A acquisition (listed in the 2006 DCP as Phase 1), intends to bring forward to 2015-2017 (P-IOC) – from the 2006 DCP envisaged 2017-2019 – activities to ensure the RAAF’s BAE Systems ‘Hawk’ Mk 127 Lead-In Fighter Training System (LIFTS) and ground based training support equipment (including flight simulators), remains effective, efficient and supportable until the aircraft’s planned withdrawal date.

Japan to position the F-35 as its future mainstay fighter, in light of the demise of the F-22 ‘Raptor’ program.

Japan had initially aimed to acquire the F-22 to replace its aging F-4EJs, but was stymied by the Obey amendment (a US law which prohibits F-22 exports), and latterly, the Obama administration’s decision to kill off the program at 187 aircraft. Japan had previously studied the F/A-18, the F-15FX and the ‘Eurofighter’ as possible F-4EJ replacements.

Lockheed Martin also began to transition at the close of 2009 its

JSF electro-optical targeting system (EOTS) from the system design and development phase, into low rate initial production (LRIP). The first production units have since been delivered to LM Aeronautics in Fort Worth for integration onto the aircraft now coming off the manufacturing line.

Embedded into the F-35’s fuselage (by way of a multi-faceted sapphire window), the low-drag EOTS sensor builds upon Lockheed’s earlier ‘Sniper’ advanced targeting pod, which was unsuccessful against Northrop Grumman’s ‘Litening AT’ in competing the upgrade of the

RAAF’s F/A-18 ‘Hornet’ fleet. The EOTS unit works to combine forward-looking infrared and infrared search and track functionality, thus providing pilots with air-to-air and air-to-ground situational awareness in a single, completely passive sensor. More than 3,000 are scheduled to be manufactured, with the production rate ramping up to 200 units a year.

The US FY2010 Defense Appropriations Bill signed by President Barack Obama 19 December included US\$465 million for the GE Rolls-Royce Fighter Team’s F136 engine, ensuring continued annual

competition with Pratt & Whitney’s F135 engine. The F136 is already more than 70% through its development.

With funding secured, the GE/RR team now enters an aggressive test period in 2010, with several production-configuration engines involved in the test program. F136 flight test engines are due for 2011 delivery. GE/RR submitted in September an unsolicited fixed-price contract proposal for JSF production engines – a unique approach for early F136’s shifting significant cost risk from taxpayers to the contractors. **ADBR**



FOUR AIRCRAFT FLEETS IN FIFTY YEARS: Even allowing for \$1 billion of project Air 6000 infrastructure costs, Australia’s Batch I F-35As are likely to cost around \$150m per unit – roughly double the \$75m average program unit flyaway cost (based on a 92c A\$/US\$ exchange rate – in 2008 dollars) estimate DMO Chief Gumley provided to Budget Estimates hearings October 2009. This estimate was said to apply only to the basic aircraft ex-factory, without weapons or the ferry cost to Australia, and without spare parts. Air 6000 Project Director, AVM John Harvey, estimates through life costs to operate the JSF weapon system for its prospective 30-year life will be closer to \$110m per aircraft (subject to exchange rates).

F-111 (far L), F/A-18 ‘Hornet’ (L), F/A-18F ‘Super Hornet’ (R) & F-35 JSF (far R) – DEFENCE, ADBR & LOCKHEED MARTIN PHOTOS