



# EVOLVING FORCE:

ENHANCING THE DEFENCE CAPABILITY PLAN



SUBMISSION TO PARLIAMENT

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## **EVOLVING FORCE:**

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Defence Capability Plan**

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Caveat: This briefing is designed to put forward a set of general principles for parliamentary consideration illustrated with examples. The detailed rationale supporting the ideas contained in this proposal is available in a separate publication.

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## Summary

1 This briefing proposes an alternative ADF force structure than that which will be found in official Cabinet submissions. This proposal is operationally more flexible and significantly more cost effective than anything that is likely to emerge from the Department of Defence.<sup>ii</sup>

2 There are **four key points** made in this document:

*2.1 Strike, ISR and supporting capabilities should be made the top priority in ADF force structure planning<sup>iii</sup>.*

*2.2 A capacity for rapid evolution of existing and planned ADF military platforms should be the next key priority.*

*2.3 Some very innovative indigenous technological solutions exist for replacing or enhancing some ADF capabilities. Therefore Australian industry should be encouraged to engage in software, systems integration, and maintainability upgrades and development, over component manufacturing<sup>iv</sup>.*

*2.4 Much greater use should be made of available military surplus equipment and systems to supplement existing capabilities before deciding to buy new hardware.*

3 Finally, working from these four key points, a series of key capability recommendations are made in brief in Annex's 1 and 2. A longer and more detailed justification underpinning the arguments made here will be available under separate cover.



**4 The first key long term issue for ADF force structure is strike. Strike remains the defining military capability that ensures:**

- 4.1 *The credibility of foreign policy.*
- 4.2 *The most potent of all national deterrents, and if necessary,*
- 4.3 *The means to comprehensively defeat any adversary.*

5 History, even very recent history, proves that in terms of the use of conventional military force, strike is the only effective guarantor against a determined adversary, be they nation state, guerrilla force, or terrorist cell.

6 However the strongest sword in the world is useless if it is wielded by a blind man. Consequently, ISR, literally the senses of a modern military force, must be placed right next to strike in the force structure priority list. As General Colin Powell said during the first Gulf War 'if we can see it, we can kill it'.

7 Cold War period ADF force structure planning was based on two key principles that this proposal contends are no longer valid, namely:

- 7.1 *The roughly equal distribution of capital investment in major combat platforms and capabilities among the three services.*
- 7.2 *The ADF was designed to meet a generic set of regional conventional military capabilities, absent any thought regarding motive, opportunity, type of threat, or Australian vulnerability to attack.*

8 The course of contemporary armed conflict proves beyond doubt that the vast majority of both high value combat intelligence and concentrated strike firepower delivered to the battlespace are provided by aerospace assets.<sup>v</sup>

8.1 *Witness the 3<sup>d</sup> Armored Corps Commander on entering Baghdad, who when asked how many Republican Guard armored vehicles his tanks had destroyed, testily replied "none". This example is true for any form of land or sea combat.*

8.2 *Combat intelligence is gathered primarily from aerospace platforms, including satellites, and aircraft such as the AEW&C, JSTARS, P-3, RIVET JOINT, COBRA BALL, GLOBAL HAWK, PREDATOR, etc.*

9 Few would contest the proposition that the Armed Forces of the United States represent the most potent conventional military force in history. The vast majority of strike and ISR assets in the US military are aerospace platforms. The imbalance in force structure investment that this reflects is often erroneously considered a unique aspect of the US military and unaffordable for others to emulate. Recent military investments across Asia prove otherwise.



9.1 *Su-30 long range strike fighter variants have been or are planned to be purchased in the region China: 350-500, India: 180, Indonesia: up to 50, Malaysia: 18 or more, South Korea: 40 F-15K which are the nearest US built equivalent.*

9.2 *Asian strategic planners are as convinced as their US counterparts that long range aerospacepower should be prioritised over land and maritime power. For Australia to pursue a different path would be imprudent.*

9.3 *In the current strategic environment, the fact that the ADF recently canvassed the early retirement of the F-111 in the absence of a viable alternative strike capability is very alarming and raises serious questions about how well the Department understands the developing strategic environment.*

10 Consequently this proposal makes the following recommendation, which the authors recognize will be very difficult to impose on the ADF but will nevertheless be absolutely necessary to ensure such a small force maintains its relative regional superiority into the future.

**RECOMMENDATION 1**

That the long held tradition of equal distribution of funds between the services for the acquisition of major combat platforms be abandoned in favor of prioritizing STRIKE and ISR assets.

11 “Effects Based Operations” –prioritizes the ends created in the battlespace over the means used to create the desired effect. In other words, what matters in war is the net effect, not how it is created. Therefore recommendation 1 is in complete accord with the concept underpinning Effects Based Operations.



**12 The second key long term issue for the ADF force structure is its capacity for rapid evolution.**

*12.1 Coordinated joint operations are made possible by advanced Information Technology (IT). By definition, IT is the foundation of Network Centric Warfare. Moore's Law stipulates that IT computing performance doubles every 18 months. Defence acquisition programs almost always fail to account for the great benefits inherent in Moore's Law.*

*12.2 Many of the difficulties seen with the development of the combat system in the Collins submarines can be directly attributed to an inability to understand the impact of rapid IT evolution, resulting in the use of utterly antiquated computer processor chips. This forced an expensive redesign of the combat system.*

**13 The idea of buying a military system or weapon, using it for 10-20 years without change, then replacing it, is no longer valid.**

*13.1 The reality of the near future is that all military systems will end up in continuous back-to-back upgrade cycles simply to maintain effectiveness, with operators able to most rapidly evolve through upgrades ultimately prevailing in combat.*

**14 How can rapid evolution be best facilitated? Historical experience shows that platforms with higher performance and larger physical size can remain viable longer and have the internal volume and capacity to absorb more upgrades over time.**

**15 Platforms which need to be wholly replaced rather than evolved through upgrades will cost much more in the short, medium and long term.**

*15.1 The best contemporary example in Australia is the F-111, which evolved from a specialised nuclear bomber into a multirole land, maritime and battlefield strike system, with a precision weapons capability. The F-111 remains the most capable asset in its class, worldwide, and is capable of further evolution.*

*15.2 The ANZAC Class frigates have suffered considerable capability creep. Originally designed to supplement the patrol boat flotilla, they have been upgraded well beyond original specifications to undertake blue water tasks. .*

**16 In this context, the JSF decision is of considerable concern. A relatively small aircraft that is as yet to complete its development, the JSF is by size and intended performance limited in its ability to evolve into other roles. This exacerbates existing risks inherent in the JSF program, including (but not limited to):**

*16.1 Late delivery arising from development problems and Australia's 'place in the queue'.*

*16.2 Weight gain and consequent performance degradation as the aircraft's 'bugs are ironed out' and cost targets are met at the expense of performance.*



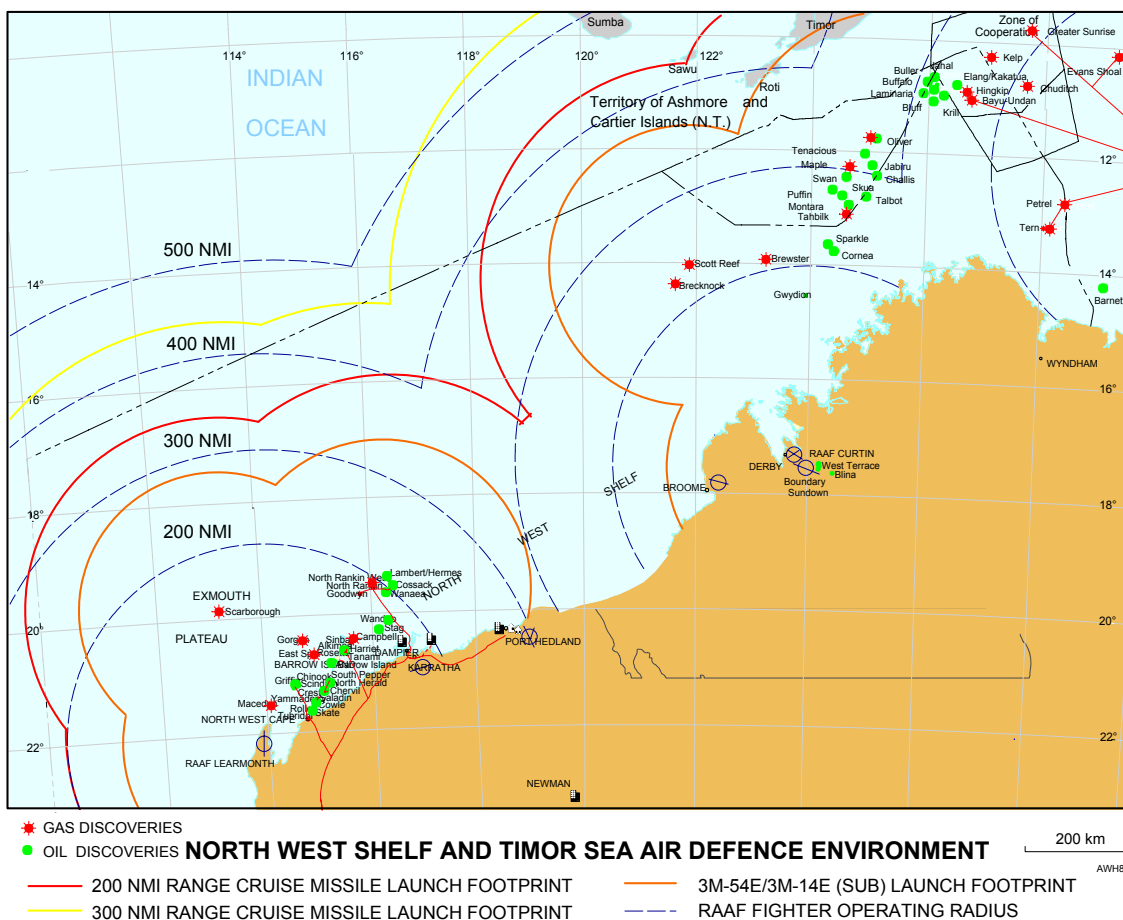
16.3 ADF performance/technology requirements at the time of signing on to the program (2002) will almost certainly be very different from ADF needs by the time the finished platforms are delivered (realistically 2018 to 20).

17 As a single type replacement for Australia's F/A-18A and F-111, any shortfalls in JSF performance or delivered technological capability would be catastrophic.

18 Therefore this proposal makes the following recommendation:

### RECOMMENDATION 2

All new ADF acquisitions must be designed from the outset for rapid and broad technological evolution. Consequently preference should be given to those platforms that allow a greater degree of scalability in their initial design and ADF contracts should reflect a desire to have the latest possible technology included in any new acquisition.





**19 The third key long term issue for ADF force structure, which flows from the second key point made above, is the composition, scope and role of Australian defence industry.**

20 There is currently a paradox operating in Australia defence policy. Australia suffers from a defence supply dependence which makes a mockery of the notion of defence self reliance operating in Australia.

21 What Australia needs, is largely what Australia does not have, namely,

*21.1 an ability to supply itself with key military consumables in a time of war, and*

*21.2 the ability to undertake very high level (and profitable) software engineering, systems integration, and maintainability upgrades and development.*

22 Instead, Australia often attempts to produce large scale military platforms that it cannot export to third parties, while relying on its suppliers to deliver highly classified source code.

*22.1 Moreover, because our guided munition war stocks are kept at artificially low levels for accounting purposes, Australia is at the mercy of its suppliers.*

*22.2 The recent disagreements among NATO members over the War in Iraq, let alone distant memories of the Falklands war, the Vietnam RAAF Mirage fighters dispute, or the tension between close WWII allies in the 1956 Suez crisis, should amply demonstrate that when the crunch comes those that supply Australia with critically important guided munition stocks may choose, for international political or domestic military-logistical reasons, not to resupply the ADF.*

23 The paradigm of major conventional war being about industrial attrition (as per the re-supply of Britain and Russia in WWII) is simply no longer valid.

24 In the next conventional war, there will not be time to attempt to out-produce the adversary in terms of ships, submarines, tanks, and fighters. Australia will go to war with what it has got on the day – nothing more and nothing less. *Ceteris paribus*, the challenge will boil down to which side has the most advanced military technology at the outset, and which side has the largest war stocks of guided munitions.

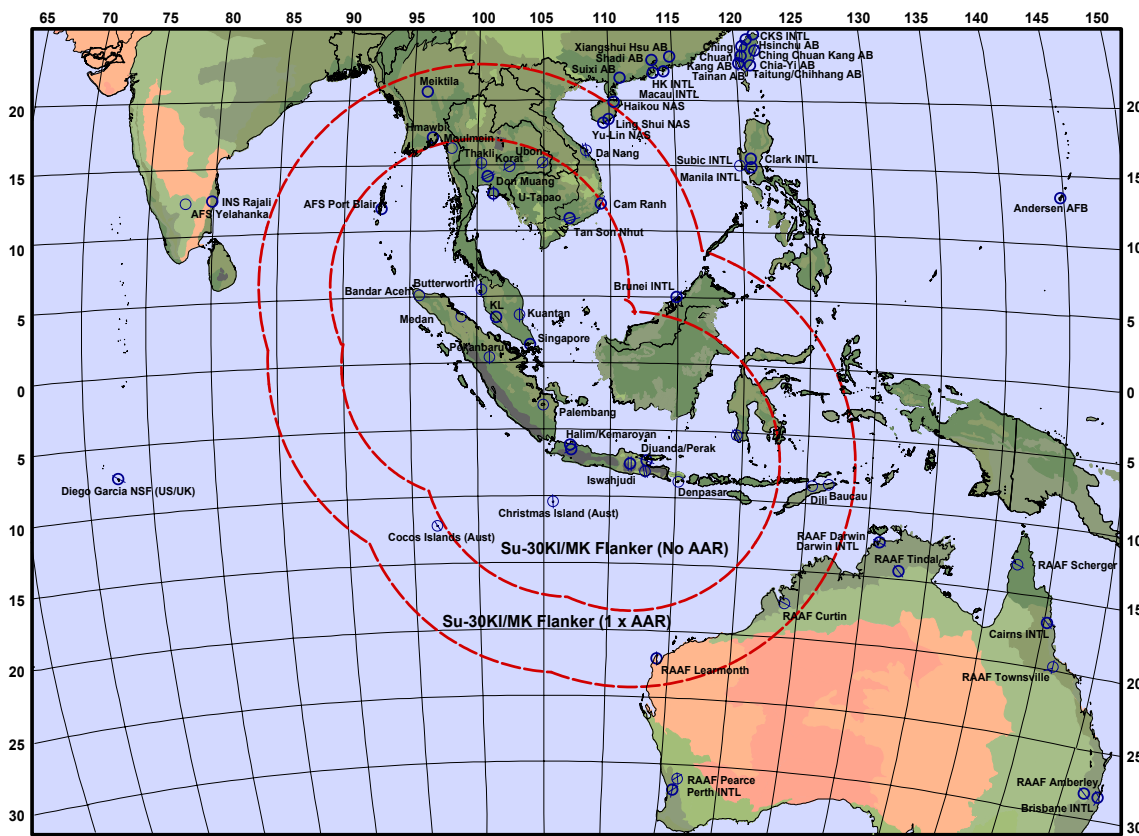




### RECOMMENDATION 3

Instead of attempting to produce large capital equipment no one else is allowed to buy, defence industry should be encouraged into the high profit margin areas such as software and systems integration in which Australia already maintains a considerable skill base and high levels of achievement.

The Israeli example is note worthy here. The Israeli Defence Force is one of the most capable in the world because it concentrates all its national resources into modification of existing major systems rather than component manufacture. Israel earns significant export revenue by using its skills base to upgrade other nations' military equipment.<sup>vi</sup>



**Strategic Impact of Su-30KI/MK Deployment in Malaya, Sumatra, Java**

Su-30KI/MK Flanker, UPAZ Pod Buddy Refuelling



25 **The Fourth key long term issue for ADF force structure, which flows from the second and third key points made above, is that much greater use should be made of surplus military and civilian hardware to supplement existing capabilities before deciding to buy costly new hardware configured for other, bigger, international customers.**

26 This approach offers important dividends.

*26.1 Large budgetary 'spikes' and negative effects on Australia's balance of payments associated with new equipment buys are ameliorated.*

*26.2 Overseas new-build products are typically designed for unique overseas customers, requiring extensive customization off-shore before delivery. All of this represents lost jobs, investment, intellectual transfer, and other opportunities for Australian Industry.*

*26.3 Customization within Australia not only reverses those losses noted above, it enables other important value-adds, such as the development of indigenous IP, such as software source code unique to our operating environment which, by definition, is known only to Australia.*

*26.4 Enhanced Australian Industry involvement would thus contribute to the Australian economy and meet the strategic industry imperative identified in the 2000 White Paper.*

27 There are two programs that serve as good examples, the F-111s and the Aerial Refueling tanker aircraft.

28 Contrary to emotive accusations recently made in the press, the F-111 fleet is very reliable. It provides ca. 50 percent of the Air Force's combat punch at a mere 3 percent of the total annual defence budget. Considering the volume of concentrated firepower and the speed with which it can be delivered over very long distances, the F-111 is Australia's most potent strike platform.

*28.1 Arguments claiming high costs do not hold up to scrutiny. The reality is that over the past 5-10 years the number and quality of upgrades to the fleet have now rendered the F-111 a world class capability, with additional upgrades to further reduce running costs. Today the F-111 delivers better "bang for buck" than the smaller F/A-18A does .*

*28.2 Uniquely flexible, the F-111's large size is conducive to long term upgrading. There are 200 surplus US F-111s available for spare structural parts. There are now no technological or financial reasons why the F-111 cannot be extended in service past 2035 – as the US plan to do with the older B-52 and larger B-1 bombers.*

*28.3 Deferring the F-111 retirement, defers the extraordinary costs of block replacement, while cheap surplus F-111s could be bought and refurbished in Australia to backfill the Air Force fighter fleet. If a squadron now flying F/A-18s is converted to fly F-111s, the remaining fatigue life of the F/A-18 fleet can be stretched by 25 percent without expensive rebuilds.*



Airborne refuelling tankers are a critically important capability which the government has committed to acquiring. The collapse in the airline industry presents an attractive alternative to purchasing new tankers.

*28.4 Australia could buy a batch of used late model airliners at a fraction of the cost of new aircraft, and progressively convert these into tankers over the next decade.*

*28.5 The cost of a refurbished used 747-400 including a full freight conversion is now US\$54 to US\$58 million, about the cost of a new build F/A-18E fighter.*

*28.6 With the prospect of ADF forces deployed globally on peacekeeping and coalition warfare duties, the 747-400 would be especially valuable as a dual role tanker/transport. It carries five times the payload of the ADF's C-130H transport at almost twice the speed.*

29 Therefore this proposal makes the following recommendation:

#### **RECOMMENDATION 4**

The ADF take advantage of surplus stocks for Australian industry conversion. Specific programs identified that would benefit from this approach are as follows:

- F-111 strike/reconnaissance
- EF-111A Raven electronic combat/reconnaissance
- 767-200ER/747-400 aerial refueling tankers / transports
- M113 armored vehicles
- Leopard 2A5 or M1 Abrams Tanks



## Annex1

### Specific Capability Recommendations

30 **F-111:** acquire low cost surplus F-111s, and upgrade these to extend the F-111 fleet until 2030 or later. Replace some portion of the F/A-18 fleet with F-111s to extend the Air Combat Capability fleet life without the need for costly F/A-18 structural upgrades. Limit new fighter buys to remaining F/A-18 replacement only.

31 **JSF:** defer contractual commitment to Joint Strike Fighter purchase until after 2012 to minimise risk. Fully evaluate the more capable F/A-22A as an alternative to provide a fallback position.

32 **ISR:** Imagery intelligence and Electronic intelligence to track mobile radars and eavesdrop communications are vital.

*32.1 Imagery intelligence: Acquire some number of RQ-4A Global Hawk unmanned ISR aircraft. Upgrade F-111s with a modern dual role reconnaissance and targeting suite.*

*32.2 Electronic intelligence: Acquire at least 8 surplus EF-111A Raven aircraft and upgrade these with a modern electronic reconnaissance suite. Acquire electronic reconnaissance payloads for the RQ-4A Global Hawk.*

*32.3 Acquire an airborne radar system for tracking moving ground targets, similar in concept to the US JSTARS and UK ASTOR. This system could be carried by the AP-3C, but also a modified F-111.*

33 **Aerial Refuelling/Airlift:** acquire at least 16 low cost surplus late build 767-200ER and 747-400 airliners for modification into aerial tanker / transports. Perform conversions over an 8 year period to spread conversion expenditures. Re-engine and upgrade the Caribou capability to extend its life to 2025.

31 **Armoured Vehicles:** acquire low cost surplus late build tanks and M113 personnel carriers as replacements for life expired Leopards and M113s. Upgrade these in Australia as required to suitable configurations, such as M113AS4.

34 **Littoral Warfare and Sealift:** Trial a high speed/capacity, long range/endurance, low crew/cost, wave piercing catamaran as a littoral warship capable of performing surface action and fast sealift.

35 **Air Defence Missiles:** split capabilities currently planned for the Air Warfare Destroyer between the Army and Navy to minimise the acquisition cost of the Air Warfare Destroyer project and improve the capability provided for deployed ground forces.

36 **Self Propelled Artillery:** A good case can be made for 18 to 24 self-propelled 155 mm artillery pieces to replace an equivalent number of towed systems. A wheeled design which is transportable by C-130 airlift would be essential for strategic mobility.



37 **Network Centric Warfare:** raise a Joint Project to implement Network Centric Warfighting capabilities across key ADF platforms. These capabilities should include but not be limited to the Link-16/JTIDS/MIDS and the Improved Data Modem systems.

38 These and other alternatives provide a force structure model which is better adapted to future needs than the model proposed in the existing Defence Capability Plan, and is significantly easier to fund than large block replacements of existing assets.



## Annex 2

# Force Structure Acquisition Check List

### ***RECOMMENDATION 1***

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## Platform Criteria Summary

**Flexibility in Roles:** Capabilities should be developed first and foremost for the Defence of Australia, and then adapted for use in counter-terrorism, coalition warfare and regional intervention operations. Capabilities which are optimised for unique roles other than the Defence of Australia should receive lower funding priority.

**Technological Evolvability:** Capabilities should be developed from the outset to be suitable for rapid technological evolution through upgrades over their operational life. Historical experience shows that 'lightweight' or 'second tier' platforms are generally less able to evolve rapidly, and should therefore not be favoured.

**Information Centric:** Capabilities with a greater ability to gather information in the battlespace should be favoured over capabilities with lesser abilities. This places a premium on 'smart' systems and sensors, over 'dumb' systems and sensors.

**Combat Persistence:** Capabilities with greater persistence in combat should be favoured over those with lesser persistence, but not at the expense of survivability, reach and firepower.

**Sustainability:** Capabilities which permit sustained delivery of firepower should be favoured over capabilities less able to do so. Sustainability reflects platform capabilities and required warstocks of munitions.



## Endnotes

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<sup>i</sup> The authors gratefully acknowledge the helpful advice, reviews, critique and comments from the many parties who contributed to this effort. Special thanks are owed to Peter Goon of AFTS Holdings Pty Ltd, for his advice on industry issues and provision of materials relating to unsolicited industry proposals to the Department of Defence.

<sup>ii</sup> It is well known in the Defence community that the DCP process within the Department of Defence is hampered with the difficulties identified in the FDATS, Kinnaird, and ASPI reports and is thus unable to arrive at the best force structure to meet the threats of the future. This proposal is presented to provide a genuine alternative in the national interest.

<sup>iii</sup> Intelligence Surveillance Reconnaissance –capabilities intended to gather information in areas of interest, esp. for targeting purposes.

<sup>iv</sup> Good examples of recent innovative Australian industry proposals to Defence include the 'Evolved F-111', 'Project Tango Charlie: Caribou Re-engine and Upgrade', 'AP-3C Multi Mission Sensor System', 'Metal Storm', wave piercing catamaran proposals, 'Surface Wave Radar' and a great many others.

<sup>v</sup> Including ship and sub-launched cruise missiles.

<sup>vi</sup> Israel Aircraft Industries employs 14,000 personnel, turning over US\$2.1 billion in 2002, with US\$4.5 billion in current orders.