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2 of 30

Page 1 of 3



GARY RAMAGE

A heavily armed Royal Australian Air Force F/A18F Super Hornet flies over northern Iraq this month, in a combat mission with another Super Hornet and a KC-30A refueller

## The new minister brings to the role a long experience with the issues

**BRENDAN NICHOLSON**

DEFENCE EDITOR



Australia's new Defence Minister faces decisions on \$87 billion worth of naval shipbuilding, submarines to be chosen for the navy, a fully costed policy white paper to be reviewed and released, and a restructuring of the defence effort that is already under way.

And while all this is happening, the air force's jets are bombing in Iraq and Syria with the dangerous complication of Russia's intervention there and the Taliban is threatening to roll back gains made in Afghanistan.

Marise Payne, the first woman

to hold the job, brings to it a passion for defence and national security issues and a deep knowledge of the area that comes from more than a decade working on parliamentary committees overseeing them.

Senior members of the defence and security establishment who have dealt with Payne are confident that experience has equipped her well to deal with the information avalanche coming her way.

She chaired the Senate committee inquiry into the first tranche of the Howard government's counter-terrorism laws in 2003 and 2004, and security and intelligence officials say she demonstrated then that she was well informed, intelligent, highly organised and "ideally equipped to take on the major and very complex defence decisions in the weeks to come".

Straight after her appointment in September, Payne reaffirmed the Turnbull government's commitment to the alliance with the US and its concerns about the dangers posed by land reclamation in the South China Sea.

She stressed the importance of sustaining the nation's naval shipbuilding industry and the need for greater strategic diplomacy to avoid conflict, which is expected to be a key part of the defence white paper.

Payne met her US counterpart, Defence Secretary Ash Carter, in Boston in October at the annual AUSMIN talks between US and Australian defence and foreign ministers.

"They hit it off well," a senior US official tells *The Weekend Australian*. "Both recognised we have a strong alliance that is getting stronger."

"We have significant common interests, not only in the Asia-Pacific but in the Middle East and the Gulf."

"Your new minister has a reputation for being very capable and



very effective, and that's how it turned out to be."

Payne could become exactly

what this year's exhaustive review of the structure of the Australian Defence Force called for — someone with a strong interest in defence and security who was likely to remain minister for years, depending on election outcomes, to provide badly needed continuity at the top.

The review, carried out by a team led by former Rio Tinto Australia head David Peever, identified as a root cause of resistance to change in the Defence Department and ADF a "leadership

churn from 1998 to the present resulting in nine ministers with an average tenure of two years".

Payne tells *The Weekend Australian* the relationships she built during her time on parliamentary committees are already bearing fruit and people she worked with on inquiries in Australia and abroad are now leaders of the ADF.

"I'd like to think they'd be absolutely fearless in saying 'I don't think that's the right thing, Minister,'" she says. "They certainly were very ready to say: 'I don't think that's the right thing, Senator.'"

As she became Defence Minister, the significance of the role change was quickly noted by Defence Department secretary Dennis Richardson and Chief of the Defence Force Mark Binskin.

"Dennis and the CDF and I did smile that for the first time we'd be sitting on the same side of the table," Payne says.

An early task will be to release the defence white paper, the strategic blueprint for the defence of the nation in the next two decades. It is expected before Christmas.

When Malcolm Turnbull became Prime Minister, Christopher Pyne, the South Australian Liberal touted as likely to replace Kevin Andrews in defence, was made Industry Minister. While that reduced the perception of pork-barrelling in a state hungry for defence industry jobs, it still

leaves Pyne with a significant role in the development of infrastructure needed to ensure the nation gets the best flow-on benefit out of construction of the submarines

and surface warships.

At AUSMIN, Australia and the US signed a defence co-operation agreement that will lead to more joint naval training and exercises, increased intelligence sharing and improved defence industry engagement.

A key focus will be on the South China Sea, a potential hot spot for the Royal Australian Navy.

The Obama administration is considering the legal implications of a plan to demonstrate its determination to maintain full freedom of navigation by sending a warship through the 12 nautical mile territorial limit claimed by China around artificial islands it has created.

If the US goes ahead with that gesture, the Turnbull government will have to decide whether to support its ally, at the risk of angering its main trading partner, by sending an Australian vessel through waters China wants to control around islands built on reefs.

Payne says that because two-thirds of the nation's sea trade passes through the South and East China seas, it is vital for the navy to be in that region too.

*Continued on Page 7*



REUTERS

**Marise Payne and Ash Carter at AUSMIN in Boston**



# Watchword is 'stability' with tensions abroad

*Continued from Page 1*

"We have ships sailing in the area at the moment who will actually engage with the Chinese, quite formally," she says.

At AUSMIN, the US said it was committed to its "rebalance" to the Asia-Pacific and by the 2020s it will have 60 per cent of its naval and air force strength in the Pacific.

By then the number of US marines rotating through Darwin for several months of each year will have increased to 2500, comprising a full and self-sufficient marine air ground taskforce available for exercises with Australian and regional defence forces and also for disaster relief operations if needed.

US officers have said the marines also could be used if needed in a military crisis, and they would have with them all the helicopters and vehicles they required to carry out operations.

A priority for the new minister will be to sort out the mess created by the ongoing perception that Tony Abbott and Japan's Prime Minister Shinzo Abe had a contract to build the navy's new sub-

marines in Japan. It's likely there was never any such contract, but the widely held view there was caused the then Australian prime minister significant political strife in South Australia, where failure to build the submarines locally was seen as a major election promise broken.

It looks increasingly likely now that most, and perhaps all, of the submarines will be built in Australia.

Under the competitive evaluation process, each contender must submit by November 30 scenarios to build the submarines in

Australia, overseas or a mix of both, known as a hybrid.

All three of the competing corporations, German, French and Japanese, have said they are willing to build them here.

Herve Guillou, global chairman and chief executive of the French DCNS group, went so far as to say submarines were such a vital defence asset that it was strategically crucial for Australia to build them here to ensure they could be maintained and modernised as needed.

"This is not an option," Guillou said. "If Australia wants to maintain its sovereignty, at the end of the day we have to build in Australia. There is no way Australia should need to rely for 50 years on another nation to maintain its submarines."

DCNS wants to build the navy a conventionally powered version of its Barracuda nuclear-powered submarine, to be called the Short-fin Barracuda after a predator found in local waters.

Germany is preparing to use equipment tested in dozens of smaller submarines to build a new 4000-tonne Type 216, to be called Endeavour.

Japan is offering an as yet unnamed submarine that will be an evolved version of its Soryu-class boat enlarged with the addition of a 6m section just behind the conning tower to carry additional fuel to provide the range the navy needs.

Japanese and Australian scientists are already in a joint study of hydrodynamics, specifically on how the shape of the submarine can ensure water flows quietly over it.

In Syria, the Russian intervention makes the complex and tangled conflict even more

dangerously crowded. The Russians pose a particular threat because their goals are clearly different from those of the US-led coalition fighting the Islamic State terror group.

That Moscow's main goal is to save President Bashar al-Assad and his regime was quickly confirmed by Russia's airstrikes on areas held by groups opposed to Assad that were also fighting Islamic State.

Specialised Russian ground-attack aircraft were accompanied to Syria by Sukhoi Su-30 jet fighters designed for air to air combat.

As Islamic State has no aircraft, it appears the Kremlin may intend to use the fighters to prevent the US and its allies enforcing a no-fly zone. RAAF pilots have been told to avoid aggressive actions if they encounter the Russians.

Payne stresses that she is in the job for the long haul and rejects the notion that defence is an end of career graveyard for ministers.

Some who have had held the portfolio have gone on to do extraordinary things, she says.

"My current plan is to do extraordinary things while I'm in it," she adds.



# Services as good as their people

MARK THOMSON

The Australian Defence Force is midway through a multi-billion-dollar modernisation program. But unless the right people with the right training are available to crew the next generation of military platforms, the huge investment will fall short of expectations.

Navy's long struggle to fully crew the Collins-class submarine fleet clearly demonstrates that the availability of suitably qualified personnel cannot be taken for granted. Moreover, it can take many years for military personnel to accumulate the skills and experience needed to operate effectively.

At first glance the ADF appears to do a good job training and developing its personnel. In recent years all three services have managed to crew newly acquired platforms while fulfilling diverse operational commitments. But there look to be problems on the horizon for the next tranche of new capability.

The ADF cannot train people it does not have, and over the past four years the size of the force has fallen short of its planned strength by between 1000 and 2000 people. The permanent ADF complement earlier this year was about 57,000 with about 45,000 reservists.

Several factors have been at play, including higher than anticipated separation rates, and bottlenecks in navy's training system that curtailed recruitment. It is noteworthy that the ADF's inability to reach planned personnel targets came despite unemployment edging upwards as the resources boom abated.

With a raft of new capability slated to enter service during the coming decade, the ADF needs to be training people now to ensure suitable crews are available. It is all too easy for today's personnel shortfall to turn into tomorrow's capability gap.

It won't be easy sailing for the ADF on the personnel front during the next few years; as a result of the 2 per cent a year salary increase foisted on the military, the salaries of ADF members will decline in real terms.

The rigours of military life stand in ever-greater contrast to the comforts of civilian employment. Consequently, without a competitive wage offer, it remains to be seen whether ADF personnel numbers can be maintained let alone expanded.

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*Mark Thomson is a senior analyst at the Australian Strategic Policy Institute. These are his own views.*



# Ready to cope with a stressed customer

The dress code was but one pleasant surprise for BAE Systems' British boss

**JULIAN KERR**

Sometimes it is the smaller things that make a strong first impression. For BAE Systems Australia's chief executive Glynn Phillips, it was the fact most of his new colleagues didn't wear a tie: "a little bit different to the UK".

Then it was finding that he would be working in an open-plan area rather than having his own office: "Again, something quite different to the UK, but different in a positive way; you're much more approachable."

Phillips, 47, arrived in Adelaide in January as the company's finance director, and three months later he was named acting chief executive following David Allott's return to Britain.

In August, he was confirmed in that position. He now heads Australia's biggest defence company, with more than 4000 personnel operating at sites across the nation and annual revenue of more than \$1 billion.

While Australia is Phillips's first country management position in his 25 years with BAE Systems, he says his experience in senior financial management roles associated with major British and European defence platforms has helped.

"From a business point of view, the challenges are very similar, as is the approach taken to business relationships and the customer," he says.

After a stint as group financial controller for BAE Systems PLC, Phillips was appointed finance

director for the Hawk aircraft, then performed this role for the international programs team within the BAE Systems' military air and information business,

which included the pan-European Typhoon fighter program. In 2011, he became finance director for naval ships, a business unit with contracts that included the Type 45 destroyer, Queen Elizabeth-class aircraft carriers, and bidding for the Royal Navy's Type 26 frigate. Three years later, this role was expanded to take on responsibility for the company's nuclear submarine and maritime services businesses.

Notwithstanding BAE Systems' prominent position in Australia's defence industry, Phillips wants "to transform BAE Systems into Australia's leading capability partner across all domains".

So, taking this ambitious mission statement at face value, what needs changing?

"We've got a customer organisation which is going through a considerable change with the (Defence Department's) First Principles Review, the forthcoming defence white paper and the Defence Investment Plan that will lay out a forward program, particularly in the maritime sector," Phillips says.

"So we're making sure we operate an organisation that is fit for the future. That's in terms of being effective and organised to maximise our chances of success in the major campaigns we're looking to prosecute over the next two to three years."

Phillips says these Defence Department projects are Joint Strike Fighter sustainment in Australia and the region; the Land 400 combat reconnaissance

vehicle; the Jindalee over-the-horizon radar capability upgrade; and the Sea 1180 (Offshore Patrol Vessel or OPV) and Sea 5000 (Future Frigate) programs.

"So it's equally around transforming the business to get a focus on those programs so we can succeed, and having the appropriate people and organisational response to deliver them if we are successful," he says. "We've already started on some of the changes and we'd hope to mature those over the next 12 to 18 months. We'll develop more priorities as we move on, but all businesses should be in a continuous improvement cycle."

Phillips is satisfied that the Australian company has a strong footprint in all areas he believes will be strategically important, and he is looking for opportunities to expand its commercial footprint in adjacent markets.

But he acknowledges a current focus on those land and maritime programs with a construction element. "The UK company is currently building River class OPVs for the Royal Navy and clearly that's a design we believe would be relevant to the requirements of Sea 1180. And we're confident that our Type 26 Global Combat Ship would be a relevant choice for the Sea 5000 requirement.

"Having successfully handed over the RAN's first Landing Helicopter Dock amphibious ship, and being about to do the same with the second ship, it's probably fair to say we know what we're doing in the maritime sphere.

"We've got nearly 1000 people who do sustainment and upgrades at Henderson on the west coast and Garden Island in Sydney, and



a significant number of engineers and supply chain capability at Williamstown (in Melbourne).”

With work on Air Warfare Destroyer blocks (sections) being done at Williamstown due for completion in the first half of next year, no further work is in sight for the 350 shipbuilding personnel still employed there.

Yet Phillips says there is no fixed time for a decision to be made on the facility’s future, particularly with the defence white paper still to be released.

“Clearly, we need to make sure that all decisions are supported economically,” he says.

The company’s bid for the Land 400 Phase 2 combat reconnaissance vehicle requirement is based on Finnish group Patria’s 8x8 Armoured Modular Vehicle and involves technology transfer to Australia, local manufacture in partnership with Patria and Saab Australia and involvement of its Australian supply chain.

This would draw in part on the company’s experience (via its takeover of Tenix) in carrying out a major upgrade for the army of 431 M113 armoured personnel carriers to the standard known as M113AS4.

However, as with this bid, as well as the maritime projects and beyond, Phillips envisages a continuing flow of international technology transfer into BAE Systems Australia from the parent company and others to help it capitalise on domestic opportunities, rather than any significant outward push in the near term.

Finance executives can be rather serious individuals, so it is reassuring to learn that Phillips is a frustrated chef and will miss the Isle of Wight rock music festival.

Sensibly, his two university-age daughters will time their first visit to Australia to coincide with the height of the British winter.

**‘It’s probably fair to say we know what we’re doing in the maritime sphere’**



**Glynn Phillips**



## Frigate role may assume heavier purpose and more weaponry

JULIAN KERR

The role of the navy's Future Frigate, as the replacement program for its Anzac-class workhorse is known, may be evolving.

It is shaping up more as a quasi-version of the new Air Warfare Destroyers, the first of which was launched in Adelaide last May, than only a mid-range surface combatant, although it is early in the program.

According to the government's 2012 defence capability plan, the new frigate class to be constructed under the navy's Sea 5000 purchase program was to be larger than the eight 3900-tonne Anzacs and would be designed and equipped with an emphasis on anti-submarine warfare.

While the focus remains on an enhanced ASW capability, the maturing of the Defence Department's force structure review has confirmed the need for the Future Frigate program to contribute to the overall warfighting resources of a naval task group.

This has moved likely displacement into the 6000-tonne to 7000-tonne range, a development confirmed by Commodore Rob Elliott, director-general maritime development in the department's Capability Development Group, at a European warships conference this year.

He also confirmed top-level requirements would include task-force-level ASW capacity. Also needed were a stand-off maritime strike capability that could be fully integrated into what is termed a joint fires network — involving more than one branch of the services — and missile defence.

These may drive a requirement for long-range surface-to-air missiles, enhanced short-range surface-to-air missiles and sensor-netting as used in the US co-operative engagement system.

Other mandated needs included accommodation for two MH-60R helicopters and unspecified unmanned aircraft, and a Mark 41 vertical launch system. The number of missile cells has yet to be defined

by detailed modelling of the Future Frigate.

While use of the long-range CEAFAR2 active-phased array radar under development by Canberra company CEA Technologies is also anticipated, this ultimately will depend on the out-

come of trials that will not be completed until 2018.

Consideration of the Saab 9LV combat-management system is a further requirement, together with the use of modular mission payloads and an efficient propulsion system, presumably electric,

to reduce the cost of ownership and the ship's acoustic signature.

Also, modelling is under way on possible deployment of the SM-2 long-range surface-to-air missile.

And the Future Frigate starts to resemble something very similar

to an updated AWD. Much industry conjecture followed reports — unconfirmed but not denied — of debate within Defence that the Future Frigate should be smaller than the 6500-tonne AWDs.

But a revised capability-needs statement yet to be released is understood to make no mention of ship displacement, only the capability effect of the platform from a naval task-group perspective, as much as from that of an individual ship.

The statement is also understood to have downgraded

the requirement to carry two helicopters from mandatory to desirable — of the six known contenders, only Fincantieri's FREMM frigate has a double hangar.

The updated requirement is the ability to house at least one MH-60R and drones.

While the acquisition strategy involves a military-off-the-shelf or an Australianised MOTS platform and construction centred on ASC in Adelaide, the government's determination to advance the Anzac replacement program by three years and begin production in

2020 has fuelled concerns that capability could be sacrificed for schedule.

The government has stated the ship's designer also must be its constructor and prime contractor, but details of the intended relationship with ASC and the ASC workforce are unclear.

As matters stand, in the first phase of a competitive evaluation process contenders have begun supplying data to the RAND Corp research company to assist in an analysis of international design alternatives.

Some sensitive information will bypass RAND and be delivered on a navy-to-navy basis.

Without making any recommendations, the RAND analysis will inform government and the navy during their selection by March next year of three designs that will proceed under Phase 2 to a one-year risk-reduction study partly funded by Defence.

During this time, shortlisted contenders will present ship specifications and proposals for construction and workforce training, as well as a five-year support plan.

The government then will agree with each party on a design baseline and, under Phase 3 of the competitive evaluation process, institute a competitive request for tender for eight or nine frigates, emphasising the need for as much local content as possible.

It is understood that Defence accepts trade-offs may be necessary to meet a schedule in which flexibility is unlikely.

With construction due to start in 2020, procurement of long-lead materiel will need to be made in 2018, putting pressure on the selection process and contract negotiation.

The six known contenders comprise the Italian and French ASW variants of the FREMM European multi-mission frigate, built respectively by Fincantieri and DCNS; BAE System's Type 26 global combat ship; Thyssen-Krupp Marine Systems' MEKO A400RAN; the light combat frig-



ate built by Damen Schelde for the Royal Dutch Navy; and a development of Navantia's F-100 design on which the RAN's three Hobart class AWDs are based.

Navantia says government-funded engineering studies have confirmed modifications to the F-100 would enable it to meet Sea 5000 requirements.

The extent of such modifications and the impact on cost and schedule is not known.

An additional complexity is the interest shown by Navantia, BAE Systems, Damen, DCNS and Fincantieri in Project Sea 1180, under which an initial tranche of 12 offshore patrol vessels is to be built in Australia.

With offshore patrol vessels construction mandated to begin in 2018, several companies are understood to be seeking an assurance from the government that success with Sea 1180 will not affect their prospects with the larger Sea 5000 program.

**Trade-offs may be necessary to meet a schedule in which flexibility is unlikely**



AIR WARFARE DESTROYER ALLIANCE

**Hobart, the first of three destroyers in the AWD program**



# Tough Hawkei protects the troops

KYM BERGMANN

The Australian Army has an enviable reputation of looking after the safety of soldiers in the field, and having ordered the new Hawkei four-wheel-drive it will have one of the best-protected vehicles in its inventory.

Prime contractor Thales Australia already builds the lifesaving 12-tonne Bushmaster vehicle, but the smaller and lighter Hawkei version of a protected mobility vehicle, as both are known, is even tougher.

Even more remarkably, it will be the best-protected vehicle in the army inventory except for the 62-tonne Abrams M1A1 tanks, until the Defence Department's LAND 400 program eventually delivers replacements for another carrier, the Australian Light Armoured Vehicles, or ASLAVs.

The \$1.3 billion order for 1100 Hawkei vehicles — a 60-40 mix of troop transports and two-seat utilities — and trailers is not only great news for the army but also for the workers of Thales. With the domestic car industry shutting down in 2017 and the Bushmaster production run coming to an end — barring a further major export order — the future was looking bleak for a facility that has been producing high-grade military equipment for the Australian Defence Force since 1942.

However, the company and its network of Australian subcontractors now can start to gear up for Hawkei, which will see work continue until the end of this decade.



The Hawkei, above, is even tougher than the Bushmaster

The Hawkei achieves its high level of protection through a combination of smart design and advances in material technologies.

It draws on the Bushmaster heritage through features such as a V-shaped hull to deflect blasts and armour plating that can be added or removed by the use of quick fasteners.

Most important, its designers and the army decided they could sacrifice the engine of the vehicle and its rear section in the event of a major explosion and instead concentrate on protecting the people inside. This has been done by the use of a heavily reinforced compartment that can carry up to five fully armed soldiers, two in the front and three in the back.

To further enhance troop safety, all of the seats are suspended from the ceiling of the cab rather than being anchored to the floor, meaning the effects of a blast are much less likely to be transmitted to the people inside.

It became clear more than a decade ago that the nature of warfare was changing and that sol-

diers had to be prepared for combat not only against conventional forces but also against well-armed irregulars and insurgents in a variety of environments.

Experience in Iraq and Afghanistan demonstrated that sending soldiers into conflict areas in previous generation thin-skinned vehicles was often tragically a death sentence.

This was the genesis of the Bushmaster, which is credited by the army with saving the lives of at least 30 Australians who would have been killed if they had been on the receiving end of improvised explosive device or land-mine blasts in something that was less well protected.

Indeed, a Dutch soldier who recently survived an attack when travelling in a Bushmaster — The Netherlands has bought 106 of them — travelled to the Thales factory in Bendigo that makes them to thank the factory workers personally for saving his life.

However, the history of the Hawkei might have been different if the Defence Department bu-

reaucraty had its way in 2008 when it informed the defence minister of the day that Australian industry lacked the ability — and were uninterested in — developing a lightweight 4x4 to replace the ageing and unprotected Land Rover fleet.

The extraordinary position that we should instead import something from the US was initially accepted and it was only through concerted lobbying from Australian industry — supported by the media — that the decision was reversed and development of the Hawkei started.

While the international military vehicle market is intensely competitive and often parochial and protected, Thales believes it will have a product it can export — following in the footsteps of Bushmaster, which has been sold to five other countries.

This is not only because of the Hawkei's high level of protection but also because it is fast and can be carried by air assets such as ubiquitous CH-47 Chinooks, as well as a large variety of fixed-wing transport aircraft.

Into the bargain, it has been "future proofed" by designing in communications systems and computers — all supported by a huge 57kW of generating capacity — a vital feature as all armed forces become increasingly reliant on electrically powered devices.

When the ADF is importing unprecedented amounts of hardware, it is heartening to see Australian designers and manufacturers can still develop world-beating military equipment when given the chance.



# Driven to destruction in quest for the best

The toughest test is yet to come for those vying to replace army's ageing fleet of ASLAVs

JULIAN KERR

To prove their ability to safeguard Australian lives, at least two sophisticated armoured vehicles, each worth several million dollars, will be tested to destruction.

This testing, late next year or in early 2017, will be the end-phase of risk-mitigation activities involved in choosing two or three shortlisted contenders to replace the army's ageing fleet of Australian Light Armoured Vehicles (ASLAVs) under the Defence Department's Project Land 400.

Costed at about \$10 billion, the overall project is the army's largest acquisition program and will provide replacements under its Phase 2 for the 257 ASLAVs and, under Phase 3, for 431 upgraded M113AS4 armoured personnel carriers, 140 of which are in storage.

These next-generation platforms, collectively dubbed the Land Combat Vehicle System, will comprise combat reconnaissance vehicles (CRVs) to take over the role of the ASLAVs, and infantry fighting vehicles (IFVs) backed by manoeuvre support vehicles, to replace the M113AS4s.

The CRVs and IFVs will more effectively carry the fight to an enemy, able to operate in or much closer to a direct-fire zone than current armoured assets, apart from the 59 Abrams M1A1 main battle tanks.

Priority is being given to the CRVs to ensure their introduction before the hard-worked ASLAVs reach their life-of-type in or about 2021.

A request for tender for 225 CRVs was issued in mid-February and closed on September 3.

This represented a dramatic escalation in pace for a program where the first request for information was released in 2006.

Even the completion date for Phase 2 tender responses was

pushed back twice to allow for 20 addendums.

According to the request for tender, the CRV requires a level of lethality capable of pinning down enemy forces and neutralising enemy armour; very high levels of operational mobility; and long-range communications.

Proposed platforms must be military-off-the-shelf or MOTS-plus, with a clear definition of differences between the two solutions.

Delivery of the first batch of vehicles to training establishments is required by May 2020, with initial materiel release to cavalry units in July 2021. Final deliveries are set for 2024.

Defence will not disclose the number or name of Phase 2 participants; however, the four known contender groups include BAE Systems Australia, teaming with Patria of Finland and Saab Australia, and offering the eight-wheel-drive AMV35 CRV.

This combines Patria's Armoured Modular Vehicle hull and a BAE Systems-Hagglunds 35mm turret.

Rheinmetall Defence of Germany, teaming with Supacat Australia, is proposing the latest version of its Boxer 8x8 multi-role armoured vehicle fitted with a Lance 30mm turret and a fifth-generation Northrop Grumman command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) architecture.

Team Sentinel, primed by Elbit Systems of Australia, is offering the Sentinel II. This is described as an integrated combination of the latest-generation Singapore Technologies Kinetics Terrex 8x8 armoured fighting vehicle, a networked combat system that is the next generation of the army's current battle management system, and Elbit Land System's MT30 30mm turret.

Manufacture would take place "in the Geelong area" and with the Elphinstone Group at Burnie in

Tasmania.

Another contender includes the ASLAV and Abrams manufacturer, General Dynamics Land Systems Australia, which has confirmed it is partnering with Australia's Thales. Its proposed

platform has not been disclosed although, as with the other three contenders, it will certainly be wheeled. Manufacturing would be at Thales' Bendigo facility.

According to Defence, the tender evaluation period will take about six months to complete and a shortlist of contenders — which will progress to 12 months of risk-mitigation activities — is due to be announced in March.

Again, Defence will not comment, but this is expected to involve at least two and no more than three contenders, should there be difficulty in delineating between bids two and three.

Shortlisted companies will be required to provide and maintain three of their proposed platforms in their reconnaissance role configuration.

One vehicle will be retained by the tenderer and used for the integration of mandated government-furnished equipment.

The other two will be managed by Defence and undergo a mix of non-destructive and destructive testing. Defence says this destructive testing is crucial in ensuring Australian commanders can make the correct operational decisions.

Who pays for this?

The shortlisted contenders — and only those shortlisted contenders — will each receive \$25m towards their tendering costs, including the production of the test vehicles.

In the overall evaluation process, protection has a higher priority than lethality; lethality has a higher priority than mobility; and mobility has a higher priority than C4ISR, sustainability or suitability — all three of which are of equivalent import-



31 Oct 2015

12 of 30

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Page 2 of 3

ance.

Further discrimination will then be achieved by categorising individual requirements within the so-called consolidated operational needs as “very important”, “important” and “desirable”.

While Land 400 Phase 2 is an attractive prize for industry on its own, further benefits could eventually accrue from the emphasis in the overall program on the advantages of commonality between the CRVs and IFVs.

Army anticipates a start in 2025 to the replacement by IFVs of the Vietnam-era M113AS4s, but confirmation of this timing, vehicle numbers and their anticipated cost at a time of heavy spending on air force and navy capabilities awaits the forthcoming defence white paper and associated defence investment plan.



# How the pitch plays for top three bidders

The race appears open for the biggest defence project

CAMERON STEWART

ASSOCIATE EDITOR

For the past eight months, the three participants in the so-called competitive evaluation process have been putting together their bid to build the navy's future submarines, a project likely to be worth up to \$20 billion.

By the end of next month, Germany's ThyssenKrupp Marine Systems, France's DCNS and Japan will all have lodged formal submarine proposals under the project known as Sea 1000, and it will be up to the Defence Department to evaluate these and choose a path forward.

In theory, this is still a race among equals in that neither Defence nor the Turnbull government has conducted any formal analysis of the rival bids.

But much has occurred in recent months to give a sense of how each party is approaching the competition.

Each bidder must in effect create a new submarine design to satisfy the navy's requirement of a 4000-plus-tonne, conventionally powered, long-range submarine.

Japan would develop a long-range enhanced version of its 4000-tonne Soryu submarine; France would build a conventional version of its 4700-tonne Barracuda nuclear-powered submarine; and Germany would build a 4000-plus-tonne Type 216 sub, based in part on its smaller Type 212A model.

Each bid has its strengths and weaknesses, yet there has been a vast difference between how the

Japanese have approached their bid and how the experienced submarine exporters, the German TKMS and the French DCNS, have handled it so far.

TKMS and DCNS have mounted a sophisticated marketing and public affairs campaign to complement their bids and explain the relative strengths of their proposals to the media, the public and politicians.

By contrast, Japan mostly has operated behind the scenes, engaging with Defence and the defence industry. The Japanese did not open up to the media or the public about their bid until the

Pacific 2015 naval conference in Sydney this month.

This partly reflects Japan's desire to keep a lower public profile on defence issues, but it also suggests Tokyo was caught flat-footed by the announcement of the nine-month CEP process by the Abbott government in February under the Sea 1000 program.

Unlike France and Germany, Japan has never exported submarines, and as such has had to construct its bid from scratch, without tried-and-tested procedures to follow.

Japan's bid appears to have suffered two political setbacks.

The first was the demise of Tony Abbott as prime minister, when it was he who had promoted the notion of Japan as the front-runner in the competition.

The second was the related change in the political climate whereby neither side was going to be willing to risk seats in South Australia by promoting the concept of building the entire fleet of submarines offshore.

From the day Malcolm Turn-

bull became Prime Minister, the concept of a complete overseas build of the submarine fleet was dead in the water.

Japan was slower to react to this change than France and Germany, and it was only last month that Tokyo finally stated publicly it was willing to build the entire fleet in Australia.

But Japan now appears to be pushing its proposed solution — an evolved 4500-tonne longer-range version of its Soryu Class sub — with more openness and transparency. Its submarine will be the only one in the world to operate high-capacity lithium-ion batteries and it will have an all-weather snorkel system.

Japan also is proposing dual-design, support and training centres in Japan and in Australia.

It plans to create a mock-up boat to learn and train on before building the first submarine.

The biggest strength of Japan's bid is that the Soryu is in the water and is a proven performer.

The weakness is that Japan has never built a submarine overseas.

Germany has been arguably the most proactive bidder in selling its Sea 1000 vision of building a 4000-plus tonne Type 216 submarine for Australia, evolving from its smaller Type 212A boats.

TKMS has held roadshows in capital cities and sent several high-level German delegations to Australia. It has promoted the notion of creating a long-term sustainable shipbuilding base in Adelaide along with local jobs.

The biggest strength of the bid is that Germany has a proven and impressive track record of building submarines for foreign navies.

The weakness is it has never



built a 4000-tonne submarine.

The French firm also has been proactive in marketing and developing its bid. DCNS argues that it would not be difficult to use its know-how to create a 4500-tonne conventional submarine, to be called the Shortfin Barracuda, based on its new similar-sized Barracuda nuclear attack subs.

The Shortfin Barracuda would have pump-jet propulsion rather than propellers.

France has said it is willing to build all the submarines in Australia but that it would be faster and cheaper to pursue a hybrid option where the first boat is built in France and the rest of the fleet in Australia.

It says its bid would create 2900 jobs nationwide.

The biggest strength of the French bid is that DCNS already is building the 4500-tonne Barracuda nuclear boats and so has a solid platform on which to base its similar-sized conventional Shortfin Barracuda. The weakness is the uncertainty over the technical challenge of effectively converting a nuclear platform into a conventional submarine.

Regardless of what now happens, it is clear that each bidder has invested enormous effort in developing a serious bid for Sea 1000.

Despite what some may claim, there appears to be no clear front-runner at this stage for what will be the nation's largest defence project.



REUTERS

Japanese representatives answer questions on their bid in Sydney this month



# Most risk, cost, complexity lies in boats still over the horizon

KYM BERGMANN

With all three bids for the Future Submarine closing next month, thoughts are turning to what happens after that.

According to the Abbott government's informal timetable, the selection of a design partner will be made early next year — probably March — for the project also known as Sea 1000.

However, it is far from clear whether the new Turnbull cabinet will feel the same need to rush a decision worth tens of billions of dollars and with enormous implications for the capabilities of the Royal Australian Navy.

It seems the competitive evaluation process was invented to give Tony Abbott the outcome he personally wanted: the purchase of submarines manufactured in Japan.

Indeed, if it had not been for his political near-death experience in February, when he needed to reassure nervous South Australian MPs of his commitment to local industry, this option might already have been approved by cabinet.

The basis for the then prime minister's enthusiasm for what became known colloquially as Option J remains a secret — as is the evidence for his assessment that Japan builds the best large conventional submarines in the world.

The stated purpose of the competitive evaluation process is for Australia to find a strategic partner for the design and build of a future submarine — and the bidders from France, Germany and Japan have been given the opportunity to argue their case.

Their responses will be in the form of 22 separate "deliverables" requirements such as cost, timetable, Australian industry involvement, combat system integration and so on. However, all of these responses are being written not for a specific, well-defined product but, rather, against a notional "pre-

concept" submarine that seems based on a wish list of what the RAN ideally would like to have.

While the Department of Defence will receive a huge amount of interesting and valuable information when the bids close on November 30 — it took delivery of interim responses last month — the big question is whether it will be wise to make such a momentous selection choice so early in the process.

To do so would be against the letter and the spirit of the bipartisan Kinnaird-Mortimer reforms to the acquisition process more than a decade ago.

Essentially, these changes require bidders to do a great deal of work upfront to reduce the risk in high-technology projects before a contract is signed — and they were based in part on lessons learned from the Collins program.

There is nothing else on the horizon that is riskier, costlier, more complex and more important than the acquisition of a new generation of submarines.

The department can proceed only on the instructions it has received from government — and these have not been changed, at least not publicly.

There is the private view of some senior Defence officials that a decision of this magnitude should not take place without a lot more fidelity on final price, which needs the use of competitive pressure to get the best possible deal.

As things stand, the RAN pre-concept design has led bidders to produce on paper a huge submarine of about 5000 tonnes — a design larger than many nuclear-powered vessels.

To be fair, the department has not so much asked for a price for this but information about methodologies, practices and assumptions that will allow it to understand how submarine builders make their calculations. In par-

allel, the department has requested information about submarine costs from the three parent governments and so hopes to have a thorough understanding of how companies operate and at what profit margins. However, understanding how prices are derived does not necessarily guarantee that bidders can be held to any particular figure in the future.

If a selection is made for a single partner in March and work begins on producing a detailed design through an interactive cost-benefit process — something that will take about three years — in the end the price offered to Defence still may be too high. But by then it may be too late to do anything other than accept.

The department has recently added in a similar competitive evaluation process to find a combat system integrator — and this will be a choice between two US defence electronics giants, Raytheon and Lockheed Martin.

Again, this does not look like an easy choice and may benefit from further analysis in accord with Kinnaird-Mortimer principles.

The government is under some time pressure because of the neglect of the Rudd-Gillard years, when little useful work was done on Sea 1000. But the Collins submarines will not need to start being replaced until a decade from now, and even then the life of some or all of them could be extended without difficulty.

The problem is that Abbott promised everyone a quick decision, and all three designers signed up on the basis only one would be selected, and swiftly.

It will be a test of nerve for Malcolm Turnbull and new Defence Minister Marise Payne as to whether they should honour previous commitments or if they can change the process to achieve a better long-term outcome.



## It will be a test of nerve for Malcolm Turnbull



Germany's Type 216 submarine concept, top, is based on its smaller 212A, near right, while Japan's Soryu would be an enhanced version of the boat at far right. Above, a Shortfin Barracuda concept by France's DCNS



# Life extension proposed for Collins, just in case

## Upgrade could guard against next-gen delays

NIGEL PITTAWAY

Amid the three-way competition to build Australia's next submarine, Sweden's Saab Kockums is quietly proposing a new lease on life for the Royal Australian Navy's existing Collins-class boats.

A mid-life upgrade is being suggested as a means of insurance against delays in the Future Submarine program, also known as Sea 1000, as the next-generation contract process is termed.

If Future Submarine boats are not in service by about the end of the next decade, a service life extension program for the Collins class may be necessary anyway to avoid a gap in capability, caused by the earlier boats in the class reaching their design lifespan.

A competitive evaluation process to select the preferred design for the Future Submarine is under way and due to be completed at the end of November.

However, government inaction on Sea 1000 in the past few years has placed the competitive evaluation process under pressure to select rapidly a design that best will meet Australia's sovereign requirements and be delivered in the necessary time.

At the recent Pacific 2015 maritime exposition in Sydney, Warren King — former head of the Defence Materiel Organisation (now the Defence Department's Capability and Sustainment Group) — called for a one-year extension to the evaluation process to allow more time for an informed decision to be made.

Andrew Davies, a senior analyst with the Australian Strategic Policy Institute, says a Collins life

extension would not be easy, as it would take the boats beyond their design life.

"The engineering work to plan

for that really should be under way now," he says. "We know studies have been done and that there are now show stoppers, but I don't think any serious work has been done. It really needs to start now and the full-cycle-docking (refitting) periods of the remaining boats could benefit from it as well."

Davies says a "serious technological refresh" also would be required to keep the Collins submarines competitive until the end of the decade.

In Sweden, Saab Kockums is undertaking the design and construction of a new-generation submarine, known as the A26 class, but is simultaneously upgrading two of its three existing Gotland-

class boats. Last June, the Swedish government's Defence Materiel Administration (FMV) signed an 8.6 billion Swedish kronor (\$1.46bn) contract with Saab Kockums for delivery of the two upgraded Gotland boats — seen as Collins cousins — in 2018 and 2019 and of two A26 next-generation submarines between 2022 and 2024.

Gunilla Fransson, head of Saab security and defence solutions, said at Pacific 2015 that she saw a similar Collins MLU as a cost-effective measure to maintain capability in the interim.

"In Australia, you have decided on a new submarine program, which is fantastic, but it's not going to be here for a number of years and it is a very big undertaking," she said. "I think there is an opportunity to make sure that the Collins is as close to a modern and new submarine that you can get by increasing its capability and delivering a cost-effective solution for your underwater capabilities."

The Gotland and Collins submarines share a similar heritage; both were designed and developed by Kockums AB in the late 1980s and early 90s.

They entered service in parallel about five years later.

Each Gotland MLU will take two years to complete and will encompass the recertification of the pressure hull as well as upgrades to machinery and engineering systems.

The sonar system and other sensors and the combat management system will be upgraded or replaced, along with the replacement of the existing optical periscope with a mast-based optronic sensor.

"The Gotland is a cousin of the Collins class and it's been a quality submarine that the customer has been very happy with," Fransson said.

"And I think that the MLU is very much in line with the necessity for the Collins class. In my view you have an opportunity here to not only sustain Collins but to upgrade it to a submarine that is modern and new, like we are doing with Gotland."

Saab Australia has had a team of engineers from its Adelaide headquarters embedded in Saab's Malmo submarine design office for the construction phase of the A26 and Gotland MLU since July, to gain experience with modern submarine design and development.

If an MLU of the Collins class were to find favour, Fransson said that Saab would prefer the work be undertaken in Australia, making use of the expertise of the government enterprise ASC in Collins sustainment and the experience gained by Saab's engineers on the Swedish programs.

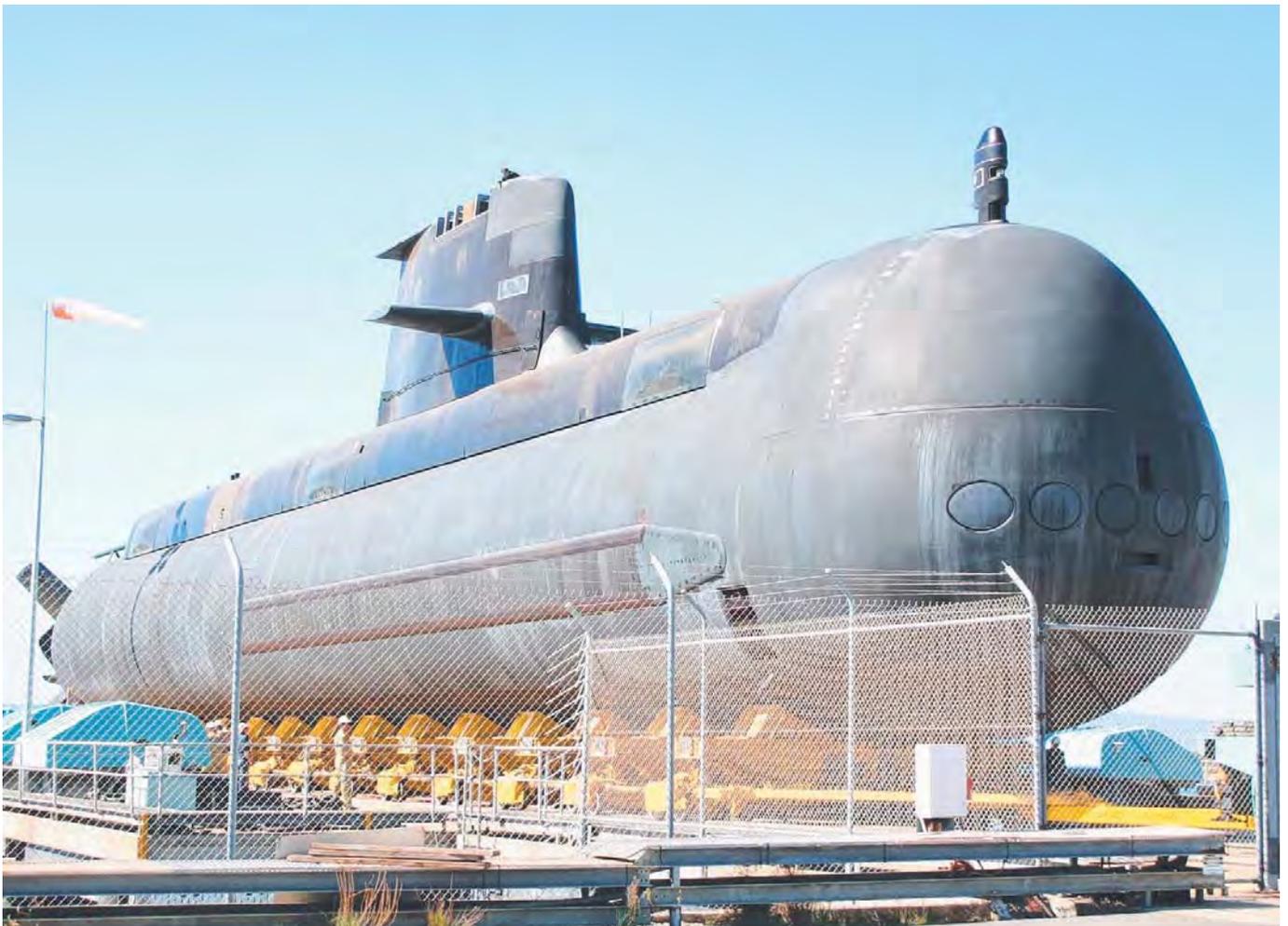
"Saab would certainly like to position ourselves to support Australia in an extended Collins life-of-type. You have a very capable local submarine company in ASC, which certainly has the capability to perform the work, together with Saab Kockums and other local Australian companies," she said.

"You sustain the Collins boats here in Australia and I don't see any reason why you could not upgrade them here."



**'You have an  
opportunity ... to  
upgrade (Collins)  
to a submarine  
that is modern'**

**GUNILLA FRANSSON**  
HEAD OF SAAB SECURITY AND  
DEFENCE SOLUTIONS





# A 'fresh appetite' for sharing science

Defence's research chief is pushing collaboration as an export stimulus

**NIGEL PITTAWAY**

The government's Defence Science and Technology Group head, Alex Zelinsky, has called for closer ties between his organisation, industry and academe to nurture and commercialise innovative work done in Australia with a view to export.

Speaking to representatives from industry and academia at the Pacific 2015 international maritime exhibition in Sydney in October, Zelinsky, also Chief Defence Scientist, said the government leadership change had resulted in a "fresh appetite" for science, technology and innovation to reset the economy.

"When you change the prime minister, you basically change the government, and we regard this as very much a new government," he said.

"You can see from the new team and the fresh talent that the government narrative has changed and it is now firmly focused on innovation.

"Our new ministers in the Defence portfolio are very supportive of the priority for innovation. And that is good news for all of us.

We should take advantage of the new mood and the new thinking."

Formerly the Defence Science and Technology Organisation, DST Group was created in the wake of the recent Defence First Principles Review, which recognised the organisation was a capability manager, advising and assisting, rather than an enabler.

But a recommendation that DSTO become part of the newly formed Capability Acquisition and Sustainment Group within the Defence Department was not accepted by the government.

"We were seen to be sitting on the edge of the department and one of the considerations of the review was to potentially outsource us," Zelinsky said.

"But in the end that was not considered the right thing to do in terms of the nation.

"We are very much a central cog within the Department of Defence.

"We have just completed our value proposition and in fact it was accepted ... by the Department of Defence and the First Principles Review team.

"Essentially our role is to help manage the department, manage

and reduce strategic risk and operational risk, while creating a capability edge, and maintenance and sustainment."

A recent independent review, which examined 10 DST Group capabilities, concluded that the organisation had yielded more than \$5.2 billion worth of value to Defence which, when fully extrapolated, equated to the delivery of between \$20bn and \$25bn of value since 2003.

"But the value proposition is not just about money, it's about managing risk and creating a capability edge, but based on partnerships with others — academia, industry and international partnerships," Zelinsky said.

DST Group has formed nine strategic alliances with industry and has 37 collaborative research and development projects in place, involving 11 organisations.

Nine of these projects have already begun and 14 more will start before the end of the year, following the finalisation of scoping studies. A further 14 projects are progressing through the approval process.

At Pacific 2015, DST Group also announced a three-way agreement with Siemens and Queensland University of Technology to do research into high-temperature-superconducting technology, with a view to eventual commercialisation.

"We certainly think this is revolutionary technology which



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20 of 30

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Page 2 of 3

could have a big impact, certainly in the maritime space, reducing the size of energy storage and energy transmission," Zelinsky said.

He said his organisation had enjoyed good relationships with Australian universities but at a high transactional cost, with every agreement being unique.

DST Group had negotiated a standard agreement, which had already been signed with nine universities.

"A lot of detail had to be negotiated, particularly intellectual property, and there was no consistency," Zelinsky said.

"Over a year ago we decided to sit down and negotiate a standard agreement for all universities. We worked with nine universities and we were able to get all of them to agree to exactly the same terms and conditions."

Zelinsky said Malcolm Turnbull, Defence Minister Marise Payne and Defence Materiel and Science Minister Mal Brough were "very much on-board" with innovation and commercialisation of intellectual property, and had encouraged DST Group to extend IP to Australian industry and ultimately export it.

"If we are to realise the Prime Minister's vision for innovation, we must work together on projects and technologies that will make a difference to the country and that includes defence and national security," he said.

"At DST we began on that path two years ago and I look forward to building on the partnerships and successes we have achieved so far.

"Collaboration is the key and we're particularly looking forward to working with small to medium enterprises."



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21 of 30

Page 1 of 1

# Gremlins delay satellite's ground network

KYM BERGMANN

The ability of the Australian Defence Force to get full value for money from a billion-dollar investment in a US satellite network remains in doubt, with ongoing problems with one of the important phases of the project.

Known as JP 2008, this multi-phase project is key to the ability of the Australian military to communicate with far-flung assets via high-capacity satellites.

The satellites in question make up the US Wideband Global Satcom system, which has just introduced its seventh satellite into service.

In addition to the very expensive hardware in geostationary orbit about 38,000km above Earth, what every such network needs is supporting ground infrastructure — in particular, ground anchor stations capable of handling the vast quantities of data being beamed up and down.

The rollout of the ADF's ground infrastructure has made steady progress, with the exception of what is termed Phase 3F, which is about two years behind schedule and was placed on the Defence Department's list of troubled undertakings, the Projects of Concern, in February.

The purpose of this phase is to provide a very-high-capacity ground station at Geraldton in Western Australia.

Without it, the ADF is unable to make full use of the WGS constellation.

Compounding the issue is the fact the satellites have a finite life and eventually succumb to gravity and become unusable.

Australia signed a deal with the US to gain access to the system in 2007 and paid the cost of the sixth satellite in the series, which was



**A Wideband Global Satcom satellite rocket takes off**

launched into orbit on August 7, 2013.

Despite paying for it, this satellite — and all of the others — remain strictly US property.

Since that time some other nations, including New Zealand and Canada, have paid to get access to the satellite constellation, which is now able to provide close to complete global coverage in the Ka band (a spectrum group that can be used for satellites).

One of the arguments for the buy-in to the network was that it would be cheaper to do so than to rely on commercial systems, as the ADF and many other militaries have done in the past.

If it is unable to make full use of WGS because of a large missing piece of the ground segment, then presumably it is continuing to pay much more than it wants to private suppliers, or it is putting up with inadequate communications.

The Defence Department has named prime contractor BAE Systems, saying the company had not meet its own standards for systems engineering and as a consequence had failed several major design reviews.

The company itself says it is doing its best to meet the requirements of the federal government.

Both Defence and the company say they expect the ground station to be ready by late next year.

To understand in detail what has gone wrong is not easy because of the highly classified nature of military communications — especially when the US is involved — to which can be added the prospect of litigation.

However, what can be deduced is that the company has been experiencing problems not so much with the technology being used but rather with the certification (approval for use) of the hardware and software.

This gets back to the US ownership of the constellation, meaning that the US government has to agree that the Geraldton facility can gain access to WGS as needed.

The quite reasonable concern is that if any elements in the Australian part of the system prove to be incompatible with the network, then they could introduce interference into satellite signals, which then potentially would degrade the performance of the entire constellation.

This means that certification is an essential part of the project.

This risk should have been foreseen by Defence, but its explanation is that it had hoped to mitigate it by awarding the contract for the ground station to an experienced US contractor that was already involved in WGS.

According to Defence, no US

companies were interested and so it turned instead to Australian industry.

At one level that is not a bad thing because there are plenty of local companies, including BAE Systems, that have been successfully involved in other satellite communication projects.

However, this overlooks the essence of the problem, which is not so much about technology as it is about US procedures, paperwork and testing.

Defence might wish to consider why no US companies were prepared to step up to the plate.

As life teaches us, a sure way to make a complex task such as technology acquisition far worse is to add lawyers to the mix — and this is precisely what Defence has been doing for more than a decade.

Australia has become a disproportionately expensive country for military business because of our contracting formats and insatiable demands for vast quantities of documentation that is very expensive to generate.

Big companies that are familiar with Australia are used to it and pad their prices accordingly — but many new entrants are scared off because lawyers used by Defence have added in contractual conditions such as unlimited liquidated damages in the event of non-performance, which could potentially bankrupt even the largest suppliers.

Another factor is that in the US, business is done on a cost-plus basis, which usually guarantees contractors a healthy level of profit.

In Australia we operate on a firm fixed-price basis, which makes the private sector carry a larger share of the risk.

As in the case of JP 2008, that is not always a good idea.



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22 of 30

Page 1 of 1

# Poseidon adventure to begin in 2017

NIGEL PITTAWAY

The Royal Australian Air Force will take delivery of the first of an initial eight Boeing P-8A Poseidon Multi-Mission Maritime aircraft on order in early 2017 and preparations are well under way for their entry into service.

The first aircraft will have its maiden flight in the northern summer of next year and all eight of the initial order will be delivered by the end of 2018.

The eight aircraft are being acquired under the Defence Department's Project Air 7000 Phase 2B and the federal government also holds options for a further four P-8As.

These are expected to be exercised with the release of the defence white paper, due by the end of the year.

Australian crews are being trained in the US and major infrastructure works will be undertaken at the P-8As main operating base at RAAF Edinburgh outside Adelaide and at forward operating bases around the country.

According to government sources, this work will be worth about \$1 billion to local industry and comes on top of about \$8.5 million of work won by Australian businesses in the program so far.

However, Australia's involvement in the Poseidon reaches back to 2009 when it became a strategic partner in the US Navy program, with a view to influencing the "spiral upgrade" development path of the capability to better meet sovereign requirements.

In March 2012 the Air 7000 project office entered into a memorandum of understanding with the US Navy for production, sustainment and follow-on develop-

ment of the P-8A, which included the establishment of a joint program office at Naval Air Station Patuxent River in Maryland.

The JPO is a co-operative arrangement between the US Navy and the Air 7000 project office and is responsible for acquiring the P-8A aircraft and associated support systems on behalf of Australia and the US.

Fifteen Australian staff, including nine RAAF members and three public servants from the Capability Acquisition and Sustainment Group and three from the Defence Science and Technology Group, are embedded in the organisation.

"Australian staff... are performing key roles in the areas of engineering, logistics support, test and evaluation, requirements development and project management," a spokesperson for the Air 7000 project office said.

"The co-operative nature of the JPO gives Australia a very high level of access to information regarding P-8A production and sustainment and the opportunity to influence program decision-making and the future development of the P-8A systems.

"This assures Australia that the ongoing development of the P-8A aircraft is consistent with our capability objectives."

The spokesperson said Australian team members had proposed some significant design changes to the P-8A, which would be incorporated into USN and RAAF P-8A aircraft.

One example of this is the development of a search and rescue kit, which will allow the P-8A to drop inflatable rafts and survival supplies to maritime vessels and individuals in distress.

A SAR kit has been an Australia-

lian requirement from the outset and a similar capability is in use on the AP-3C Orion, but USN experience during the search for Malaysia Airlines MH370 in the Indian Ocean has seen this become a joint requirement.

As a result, Australia is leading the design, development, procurement and testing activity for the kit, which will be used by RAAF and US Navy P-8As.

Tenders for the supply of the kit were released to Australian industry at the beginning of September.

"This level of Australian involvement, and potential for Australian industry to design and supply equipment to the USN, has been enabled as a direct result of the co-operative program," the spokesperson said.

Australian staff in the JPO also have been instrumental in the ongoing development of a logistics support system for the US Navy Poseidon fleet aircraft, and there are plans to support the joint Australian and USN fleets in future.

"Australia's insight into the USN's real-life experiences operating the P-8A has allowed a significantly more advanced understanding," the Defence Department has said.



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23 of 30

Page 1 of 3

# Set for electronic supremacy in the sky

## New Growler planes will make RAAF 'much more lethal'

NIGEL PITTAWAY

Australia has taken a big step towards its goal of having what is termed an airborne electronic attack capability.

This came with the unveiling in the US in July of the first Boeing EA-18G Growler aircraft for the Royal Australian Air Force.

The Growler is a development of the F/A-18F Super Hornet operated by the RAAF, with the ability to jam the electronic sensors of aircraft, ships and land-based radars.

It also can jam communications systems and, anecdotally, was used by the US in Afghanistan to jam mobile telephone networks, preventing the remote detonation of improvised explosive devices.

Twelve Growlers are being acquired by the RAAF under the \$3 billion Project Air 5349 Phase 3, with Australian crews and maintenance personnel already training and gaining experience with the US Navy.

The first aircraft begin arriving in Australia in early 2017, and when the Growler program is in its mature state it will represent the only tactical airborne electronic attack capability outside the US Navy and Marine Corps.

Representing the air force chief at the unveiling in St Louis, recently retired air marshal Geoff Brown said the Growler capability was in many respects the final piece of a jigsaw puzzle in the transformation of the RAAF to a full-spectrum force.

"It is an extremely important milestone in the development of the RAAF," he said.

"The ability to shut down surface-to-air missiles or other electronic emissions across the battlespace is a truly unique capability. I predict it will have one of the biggest strategic effects on the RAAF since the introduction of the F-111 in the 1970s.

"Growlers will complement our existing and future air-combat capability and we will be much more lethal with this airborne electronic attack capability. We will always pursue a technical edge over a regional competitor."

In their present configuration, Australia's Growlers are more capable than their US Navy counterparts, having additional sensors and weapons, a result of operational lessons learned during recent campaigns.

Australian aircraft will have the option of carrying Raytheon's ASQ-228 advanced targeting forward-looking infra-red pod, already a standard sensor on RAAF and US Navy Super Hornets but yet to be taken up by the Americans for their Growlers.

The ATFLIR pod combines infra-red and electro-optical sensors with a laser target designator

and has been used successfully by RAAF Super Hornets against Islamic State targets in Iraq.

The RAAF decided to integrate the pod with the Growler after US Navy experience during Operation Odyssey Dawn in Libya in 2011 and 2012.

"The decision to clear the ATFLIR on the EA-18G was an operational lesson from the Libyan campaign which would have enabled the aircraft to visually confirm target identification, to enable more rapid hand-off of targets to strike assets," a Defence Department spokesperson said.

"Growler will use ATFLIR to provide visual identification of targets located by its other sensors, enhancing its ability to contribute to the 'find, fix, track, target, engage' cycle, as well as to discriminate or prioritise potential targets.

"ATFLIR will also be an invaluable sensor when operating in support of land forces in the electronic warfare close-air support environment."

The precise target co-ordinates detected by ATFLIR can be passed via data-link to other strike air-

craft and prosecuted with precision guided munitions such as laser-guided bombs or joint direct attack munitions.

Australia's Growlers will also be capable of carrying Raytheon's AIM-9X Sidewinder infra-red-tracking, short-range air-to-air missile for self-defence.

The AIM-9X is also in use on the Super Hornet, but until now the Growler has relied on the beyond-visual-range Raytheon AIM-120C advanced medium-range air to air missile for self-

protection. Two AIM-9Xs can be carried by Australian Growlers on underwing weapons stations, albeit at the expense of other stores.

The wingtip launcher rails used by the Super Hornet are not available on Growler because of the installation of tactical jamming receivers on the wingtip stations.

Defence said AIM-9X would not be used on every Growler mission and the configuration of external stores would be tailored to maximise effectiveness with regard to each particular mission.

"The carriage of AIM-9X provides more flexibility in weapons options to maximise effectiveness to the relevant mission scenario," a spokesman said.

"ATFLIR and AIM-9X carriage does not adversely affect the Growler's mission capability; both stores enhance the aircraft's performance in its extant roles."

The US Navy's "spiral upgrade" road map for Growler capability had identified ATFLIR and AIM-9X as desirable, but their integration was considered a lower priority.

However, with the work done for Australia, there is a real possibility the US will follow suit in the near future.

"As a close partner with the US Navy, the RAAF discusses all capability upgrades and operational requirements with the relevant USN program offices," the Defence spokesperson said.



31 Oct 2015

24 of 30

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Page 2 of 3

“This relationship enables us to share the burden of funding important upgrades where it makes sense to do so to meet specific (Australian Defence Force) requirements.”

At the Australian Growler ceremony, Rear Admiral Don Gaddis, the US Navy program executive officer for tactical aircraft programs, arguably gave the best clue to the intentions of the US Navy.

“I think we learned a lot during the Libya operations,” he said.

“Growlers are the cutting edge of electronic warfare.

“As the US Navy and RAAF continue to train and operate together, we welcome Australia’s strategic step to advance the capabilities of our joint partners for years to come.”



**The first EA-18G Growler for Australia is unveiled in Boeing’s St Louis, Missouri, plant**



# Now to regain credibility for grand policy

It is a pivotal time for the new white paper, which needs to be convincing

ANDREW DAVIES



The forthcoming defence white paper will be the third in a little more than six years, after two that have had very little lasting impact.

Given that white papers are supposed to be long-term planning documents that guide the development of projects that can run for decades, that's a pretty rapid production rate.

So perhaps the most important thing the next white paper needs to do is to restore credibility to the entire process.

Australia's first defence white paper in 1976 had a shelf life of more than a decade.

It was a significant statement of policy at a time of great flux in defence and strategic matters. The Vietnam war had ended, and with it the wave of communist insurgencies across Southeast Asia that had concerned successive Australian governments since the 1950s.

Australia also had to grapple with the ramifications of then US president Richard Nixon's "Guam doctrine", which told us that, while we had broad security assurances

and a nuclear umbrella from the

US, we'd have to take responsibility for our own local security.

Those were two significant changes to Australia's security externalities and it was appropriate to take stock and do some serious planning. It marked the end of the "forward defence" era and the beginning of "defence of Australia" as the nation's defence doctrine.

That shift was further cemented by the 1987 white paper, which built on the 1986 Dibb report.

Collectively, those policy documents led to big changes to the way the Australian Defence Force was postured with the goal of addressing a new security environment. The downside was that the funding required to properly implement the changes never eventuated; the result was a gradual hollowing out of the ADF.

Those chickens came home to roost when the thinness of the ADF was exposed in the 1999 East Timor intervention.

The wake-up call of having to lead a local security intervention (as the Guam doctrine told us we would need to do), and the recognition that the ageing force structure required recapitalisation, led the Howard government in 2000 to produce the only defence white paper of its 11-year tenure.

Spurred along by the Septem-

ber 11 attacks in 2001 in the US and bankrolled by a mining boom, this time the money flowed, and the 2000 white paper remains the only defence white paper that was funded at the promised level.

As a result, the combat aircraft, Air Warfare Destroyers and other platforms planned at that time have been delivered (or, in the case of the Joint Strike Fighter and AWDs, will be delivered).

The 2000 version was Australia's most successful defence white paper.

In stark contrast, the Rudd government's 2009 white paper talked a big game but did not deliver.

A rising China was the stated motivation for a shopping list of muscular maritime platforms and other force structure augmentation: \$130 billion of additional spending across the next two decades was promised, but it lasted three weeks as a credible plan.

The 2009-10 budget reduced promised defence spending substantially, a trend that accelerated under the Gillard government.

For the defence industry, the 2009 white paper raised all sorts of expectations that turned to deep cynicism when nothing happened.

The 2013 white paper was even worse. Produced when defence spending was nearing its lowest share of national wealth since 1938, it kept the force-structure promises of its predecessor and then added costly items to the shopping list (such as 12 Growler electronic warfare aircraft) — without any extra money. Planned funding remained well below the



promises of the 2009 white paper.

It is hard to avoid the conclusion that it was a purely political exercise and photo opportunity (the launch was grand) rather than a serious attempt to wrestle with the strategic problems of the day.

The net result of the last two efforts is that the currency of defence white papers has been severely devalued.

The 2013 version was the last straw. The defence industry ignored it as a basis for planning investment. Even those academics who regard white papers as akin to stone tablets carried down from the mountain in order for every word to be carefully examined for nuance could not get interested.

So the new white paper has its work cut out for it. To restore confidence in the genre, it has to be a credible attempt to evaluate Australia's strategic circumstances and it has to contain an achievable force structure with a realistic allocation of resources.

The Abbott government's rhetoric certainly talked it up, describing it as a "credible, fully costed white paper" with an "integrated investment plan".

There is no shortage of strategic challenges for it to grapple with. The demographics of Australia's near neighbourhood portends badly for regional stability. A bit farther away we see China's destabilising quasi-annexing of the South China Sea. The Middle East, North Korea and Ukraine do not improve the global picture.

Technologically, the capability advantage that the US and its close allies have enjoyed over would-be challengers is steadily being eroded. For Australia, the

relative decline of US power in the Asia-Pacific region is one of the most important security issues in decades.

There is every indication the Defence Department has taken the costing instruction seriously.

At last count Defence had spent \$14.5 million on work by eight firms, including accounting houses Ernst & Young and Deloitte Touche Tohmatsu, and de-

fence specialist enterprises Qinetiq and RAND Corporation.

That does not guarantee that all (or any) of the costings will be accurate. Indeed, given the uncertainty in any project for which the detailed systems engineering breakdown has not yet been done, they cannot be.

The best we can hope for is that errors will be equally on the high and low sides — noting that such

an outcome would be a big step forward from the systemically optimistic predictions of the past. Having reliable costings matters. As Mark Thomson points out elsewhere in these pages, the government's financial situation does not lend itself to largesse on defence.

In short, the new white paper comes at a pivotal time for Australia's security. There are many strategic problems with few obvious solutions and money is likely to be tight.

After two duds, we need a defence white paper that gets it right.

*Andrew Davies is a senior analyst with the Australian Strategic Policy Institute and a member of the Defence Minister's expert panel on the forthcoming defence white paper. These are his personal views.*

**The relative decline of American power in the region is one of the most important security issues in decades**



# More than \$1 trillion, but why put a figure on it?

MARK THOMSON



In the final days of the 2013 election campaign, Tony Abbott promised to boost defence spending to 2 per cent of gross domestic product within a decade. The move was unexpected.

Spending that much of GDP on defence previously had been raised only as an aspiration — something to be achieved if and when circumstances allowed.

Even for a mid-sized economy such as Australia, 2 per cent of GDP is a lot of money. Across the 20-year planning horizon of the forthcoming defence white paper, it amounts to more than \$1 trillion, based on present estimates of inflation and growth.

For more than 18 months, the Department of Defence has been drafting a new defence white paper to explain why this prodigious amount of money is needed and how it will be spent. By all accounts, the document and its 20-year capability plan were close to completion when Malcolm Turnbull replaced Abbott as prime minister. So what now?

Despite continuity in some areas — such as border security and same-sex marriage — it's increasingly clear that the tone and focus of the government is shifting under Turnbull. The rapid convening of a mini-summit on economic reform was no accident, as the new Prime Minister appears to have adopted Bill Clinton's political maxim from the 1990s: "It's the economy, stupid."

And well he may. The latest International Monetary Fund global economic outlook has once again downgraded its growth projections for the world — continuing a trend of downward revision that began in 2010.

Perhaps more important for Australia, China's short to medium-term growth is more uncertain today than at any time since the 2008 financial crisis.

Quite apart from the worrying prospects for the global economy, Australia has yet to adapt to lower commodity prices and reduced mining investment. There's no point pretending that our terms of trade are going to improve soon. The resources boom left Australia with a structural deficit that demands hard choices about spending and taxation.

But while the economic challenges facing Australia continue to mount, the strategic environment remains just as volatile and uncertain. From Ukraine to Syria, and from the South China Sea to North Korea, developments are as concerning as they are unexpected.

To make matters worse, the will and capacity of the US to keep the peace is increasingly under question. With US debt mounting and partisan gridlock engulfing Washington politics, it's hard to be optimistic.

The challenge for the Prime Minister is to find a balance between the competing demands of growing strategic and economic risks. The common thread is money. Whether it's paying down debt, or smoothing the transition to a more efficient tax regime, or expanding the size of the navy, money will be required.

Turnbull and new Defence Minister Marise Payne so far have avoided any mention of the 2 per cent target. And why would they do otherwise? It's early days yet and they probably haven't had a chance to study the draft document and discuss it with their colleagues on cabinet's national security committee.

Nor has the Turnbull government had a chance to formulate the broader economic and fiscal strategy within which defence funding has to be accommodated. Almost certainly, no final decision has been made about future de-

fence funding.

From one perspective, it would be good to see the 2 per cent target abandoned. Planning a defence strategy on an arbitrary percentage of GDP is poor policy. It explicitly gives priority to the consumption of resources rather

than the delivery of military capability; it puts the cart before the horse. On the other hand, there would be some eye-rolling from our friends and allies if we repeated the events of 2009 when grandiose promises about defence funding were abandoned almost as quickly as they were made.

In the medium term, there may be only limited flexibility to cut back on planned spending growth. Although the white paper remains under wraps, many capability decisions have been disclosed.

Recently announced P-8 maritime patrol aircraft, additional C-17 transport aircraft, anti-submarine capable frigates, offshore patrol vessels, submarines and protected mobility vehicles will soak up cash in the years ahead. For better or worse, Abbott already may have spent a good share of the promised 2 per cent of GDP.

Nonetheless, savings are still possible in the multibillion-dollar shipbuilding program.

Having entered office with an economically rational approach to defence procurement, the Abbott government embraced "nation building" when the politics of South Australia turned against it.

The resulting promise to rapidly establish two continuous shipbuilding programs — one for surface combatants and another for smaller vessels — is likely to be as inefficient as it is risky.

If you want to know what the result might look like, check out the Air Warfare Destroyer project under way in Adelaide — more than 30 months delayed and \$1.2 billion over budget.

It remains to be seen whether Turnbull rubber-stamps Abbott's



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28 of 30

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Page 2 of 2

plans for the Australian Defence Force.

If he does, he'll have less money available to seed economic reform and retire debt. If he doesn't, he'll have to expend some political capital rolling back Abbott's shipbuilding largesse and pruning the military's shopping list. As always, the iron rule of budgets applies; each and every dollar can be spent only once.

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*Mark Thomson is a senior analyst at the Australian Strategic Policy Institute. These are his own views. According to the Parliamentary Library, the last time the defence budget was at 2 per cent of GDP was in June 1995. Last financial year it was about 1.8 per cent, or about \$30bn.*

**The challenge for the Prime Minister is to find a balance between the competing demands of growing strategic and economic risks.**



# How to plan for ADF without territorial threat

We face a new set of strategic demands that needs a serious rethink of priorities

PAUL DIBB



The biggest challenge the defence white paper faces is how to articulate strategic priorities for force structure planning.

This is a problem that all preceding defence white papers, since the first in 1976, have addressed with varying degrees of success.

The critical intellectual problem here is that Australia has faced no direct military threat since World War II more than 70 years ago.

Without an identifiable military threat or clear identification of potential adversaries, it is extremely challenging to develop a sound conceptual basis for deciding force structure priorities.

When a country confronts a heavily armed neighbour with malicious intent, the military planning preparations are fairly straightforward.

In the Cold War, Australia was distant from the centres of global military confrontation.

We were relatively secure in our maritime surrounds with our ally New Zealand to the east, Antarctica to the south and the vast expanses of the Indian Ocean on our western flank.

The proximity of Southeast Asia to our north, particularly the Indonesian archipelago, and the South Pacific, especially Papua New Guinea, were areas of abiding concern.

From the 1950s through the 70s, we had developed the concept of forward defence for fighting communism in Asia, which influenced the type of forces we devel-

oped for counterinsurgency wars in Malaya and Vietnam.

In 1969, US president Richard Nixon articulated the Guam doctrine that set out America's expectation that its allies would take the primary responsibility for their own defence, short of an attack by a major power.

Australia was ill-prepared for this challenge and the defence organisation wasted more than 15 years arguing the pros and cons of how to establish priorities for structure planning.

Confrontation with Sukarno's Indonesia had taught us that the US would not necessarily come to our assistance if it had other priorities.

In 1963, we ordered the Oberon-class submarines and the F-III strike bombers because we faced a neighbour that had the third largest Communist Party in

the world and was armed by the Soviet Union with far better weapons than ours.

After the US defeat in Vietnam, and with a pro-Western Suharto as president of Indonesia, Australia turned for the first time in its history to consider how to defend itself.

This centred on two crucial concepts that in various guises have endured until this day. First, the unique characteristics of Aus-

tralia's geographical approaches and regional setting and, second, the need for Australia to maintain a clear margin of technological superiority over any comparable regional military forces.

There was also the expectation that, if a serious threat were to emerge, the Australian Defence Force would be expanded.

By the late 80s, this concept involved moving significant elements of the ADF to the north of

Australia, including an army brigade in the Darwin area, air force bases in Tindal, Learmonth, Curtin and Weipa, and moving the navy's main submarine base from Sydney to Fre-

mantle to be much nearer to likely operating theatres.

There was considerable resistance from some elements of the ADF to these moves to the north and west of the continent.

The Howard government developed a hybrid approach recognising Australia's "most important strategic objective" was to be able to defend our territory from direct military attack.

It also gave priority from 2001 to expeditionary operations in Afghanistan and Iraq. This led to views in Defence that "come as

you are" expeditionary wars in the Middle East should determine the ADF's force structure and operating priorities.

But we now face a whole new set of strategic demands that require a serious reorientation of the ADF's priorities.

The build-up of highly capable military forces in the region to our north and rising geopolitical tensions should dictate the return of geography to the centre of our force structure planning.

Our area of primary strategic interest should extend from the eastern Indian Ocean to the South Pacific and from Southeast Asia (including the South China Sea) to the waters of Antarctica.

This amounts to about 20 per cent of the Earth's surface, which is a nontrivial task for an ADF of less than 60,000 people.

It should strongly influence the range and endurance of the equipment to be acquired for the defence force, as well as numbers of platforms required for sustained operations. This means we need to develop a maritime strategy with a heavy investment in having the most technologically advanced navy and air force in our region.

It also demands a change to army, with more focus on our own region of direct strategic concern.

Contrary to the views of some commentators, this does not mean identifying any particular country as a military threat.

In any case, which country



would that be?

Not Japan or India, which are democracies. Neither is it any of our neighbours, although we will always need to keep a close eye on developments in Indonesia because of its proximity.

So that leaves China, and are we really going to develop a defence force to fight China?

There are, however, credible contingencies in which we might have to contribute to allied military efforts to counter Chinese coercion, particularly in Southeast Asia, and if necessary to support US-led military operations in northeast Asia.

There will also be a requirement to develop further our military bases in the north of Australia and to put more effort into our military presence in the west.

And while it will be increasingly difficult — and more expensive — for us to maintain a clear technological lead, there is no reason we should not have the most potent military force of any medium-sized power in the Asia-Pacific region.

This next white paper must deliver on a bold new maritime strategy for Australia's defence planning. It can do so by refocusing on the relevance of our regional geography and the need for a clear margin of technological advantage in key elements of the ADF's force structure.

*Paul Dibb is emeritus professor of strategic studies at the Australian National University. He was the principal author of the 1987 defence white paper.*



**Clockwise from top left: An army ASLAV during the Afghanistan role; a welcome in Townsville for Australia's 2nd Cavalry; taking cover in a simulated rocket attack in Queensland; soldiers in ceremonial role; an RAAF Hercules releases flares and ASLAV cavalry (combined); Australian, US and Chinese troops in the Northern Territory; the 2013 navy review in Sydney. Centre: Army helicopter flares**