

**Submission
No 14**

**INQUIRY INTO THE DEFENCE INDUSTRY IN NEW
SOUTH WALES**

Name: Mr Christopher Skinner

Date received: 18 June 2017

Submission to the NSW Legislative Council Standing Committee on State Development Inquiry into Defence industry in New South Wales

Executive Summary

This submission is made on a personal basis by **Christopher Skinner** BSc(Eng) MEngSc MIET MIEAust MACS CPEng Captain RAN (retired), who is an active participant in defence and engineering institutions in NSW. The contribution of Mr Terry O'Brien is also acknowledged.

The key issues discussed in this submission follow the Inquiry terms of reference:

- Opportunities arising from Department of Defence Investment Programming and for export
- Defence research, development, test and evaluation in NSW
- Defence workforce development in NSW
- Specific programs and projects relevant to NSW
- Location of defence bases and facilities in NSW
- Some other related matters
- Summary of opportunities to incentivise and grow the defence industry in NSW

Contents

Executive Summary.....	1
References	2
Abbreviations.....	2
Inquiry Terms of Reference	2
Opportunities arising from Department of Defence Investment Programming and for export	2
Defence research, development, test and evaluation in NSW	3
Defence workforce development in NSW	3
Specific programs and projects relevant to NSW	3
Location of defence bases and facilities in NSW	3
Some other related matters	4
Robotics	4
Inland Railway and Western Sydney Airport	4
National Broadband Network.....	4
Future Submarine Base in NSW	4
Thinking ahead to Nuclear Power.....	4
Summary of opportunities to incentivise and grow the defence industry in NSW	5
Further information	5

References

1. NSW Government 2017. New South Wales: Strong, Smart and Connected Defence and Industry Strategy 2017. NSW Government.
2. Australian Government 2017. Naval Shipbuilding Plan. Commonwealth of Australia

Abbreviations

ACFR	Australian Centre for Field Robotics	
ADF	Australian Defence Force	
DSTG	Defence Science and Technology Group	
DWP	Defence White Paper 2016	
FBE	Fleet Base East	
IIP	(Defence) Integrated Investment Program	Companion to DWP
NBN	National Broadband Network	
NSP	Naval Shipbuilding Plan	[2]
NSW	New South Wales	
PWR	Pressurised (light) water (nuclear) reactor	
RANRL	Royal Australian Navy Research Laboratory	Located in Sydney until closed
RDT&E	Research, development, test & evaluation	
SMR	Small modular (nuclear) reactor	
STEM	Science, technology, engineering & mathematics	
WSA	Western Sydney Airport	

Inquiry Terms of Reference

The inquiry, which references the NSW Defence and Industry Strategy [1], is focusing on terms of reference including:

- Maximising opportunities for NSW-based companies from the Department of Defence's growing investment and exports in defence capability, in both acquisition and sustainment
- Encouraging defence industry innovation, research and education including developing the future workforce
- Identifying targets, programs and projects for defence spending in NSW
- Maximising the economic benefits of locating defence force bases and defence industry in NSW regions
- How to establish and sustain defence supportive communities
- How to further enhance collaboration between the NSW Government and Commonwealth agencies; and any other related matters.

Opportunities arising from Department of Defence Investment Programming and for export

The Defence Integrated Investment Program 2016 provides an overview of major Defence spending over the next decade and many components and sub-programs are primarily focussed on New South Wales. It is incumbent on the newly established Defence NSW to address all of these components to relate them to the NSW Defence and Industry Strategy as an immediate work task., to be completed within 2017.

Export of defence materiel is now being discussed but there is no concerted marketing or business development activity. This presents an opportunity for NSW

Defence research, development, test and evaluation in NSW

The scope of Defence research, development, test and evaluation [RDT&E] in NSW has diminished over the past decades for example the work previously performed by the RAN Research Laboratory [RANRL] is now located in South Australia at the Maritime Division of Defence Science and Technology Group [DSTG].

In terms of opportunities for Defence Investments and exports there is a range of support and other manufacturing industries that tend to 'cluster' therefore it comes as a 'package'. For example, South Australia with the shipbuilding stimulus other industries will also grow. Some of the industries (for example robotic equipment) will hang off not only Defence also have input and stimulus to other non-Defence areas.

Defence research may also 'hang off' and give added depth to a range of University research efforts. There are for example a number of junior navy officers studying or conducting research as part of masters and PhD programs in oceanography, robotic sub-sea equipment etc based at Sydney naval locations. As well, even related areas such as food preparation and storage have a Defence impact. Therefore it is important to undertake a full 'stock take' of all research activity in NSW and what institutions are supporting it.

Defence workforce development in NSW

The lack of emphasis on Defence workforce development is epitomised by the closure of the UNSW Naval Architecture program when there is a chronic lack of such graduates for the resurgent naval ship and submarine building programs.

NSW has excellent tertiary educational resources that should be catalogued by Defence NSW and explicit encouragement applied to build the Defence industry workforce as quickly as possible. There is a great opportunity to emphasise the advanced STEM skillsets that are involved which provide expertise relevant in all areas of future technological development. They enhance career prospects no matter where the student decides to work, or to whatever new enterprise or innovation they create.

The Defence workforce training issue are critical and is an area where both TAFE and the Universities require guidance. I received a report of a colleague who runs a repair business who lamented his major problem was finding qualified and experienced metal and paint workers let alone anyone else. TAFE used to produce them.

Specific programs and projects relevant to NSW

The Integrated Investment Program mentions the larger programs, all of which are relevant to NSW in some way or other. However, Defence NSW should look beyond the IIP to identify areas for which growth can be predicted and for which NSW has inherent strengths. A clear example is in the growing use of autonomous vehicles of all kinds, and increasingly in multiple teams or 'swarms'. NSW has inherent strengths in these areas of advanced development

Location of defence bases and facilities in NSW

The most pressing need for investment in Defence bases is to move Fleet Base East out of Sydney Harbour. Port Kembla has the space, easy access from the ocean and proximity to HMAS ALBATROSS Naval Air Station and to offshore and onshore fleet exercise areas.

There are some RAN activities that can usefully stay in Sydney Harbour but the majority of operating units could be better placed elsewhere in NSW. Thales depot level maintenance could continue on Garden Island but with a smaller footprint that would permit public access to the northern area along the eastern perimeter road and would then permit a new cruise ship terminal to be created there.

Location of other Defence bases in NSW is also important. There is a variety of inland 'joint services' facilities that if recognized/identified could assist NSW industrial and regional development. To give some examples the 'Mulwala' explosives and cordite site in Southern NSW. NSW 'lost' the St Mary's site to Victoria. Defence 'dumps' and minor facilities (Lithgow) need to be reviewed. Also the old artillery and air force 'drop' ranges at Holsworthy and Singleton are becoming obsolete. Defence NSW could well do a stock take and set up 'options' for redeployment within the State rather than elsewhere – before it happens.

Some other related matters

Robotics

NSW leads Australia in robotics technology at the Australian Centre for Field Robotics [ACFR] and in quantum computing. These technologies are of critical importance in Defence RDT&E and should be emphasised in the operational planning by Defence NSW.

Inland Railway and Western Sydney Airport

The proposed inland railway from Melbourne to Brisbane through central NSW, and the Western Sydney Airport [WSA] logistics and industry precincts provide great opportunities for better use of Defence materiel. Defence NSW should address these opportunities in advance of the Defence departmental processes.

National Broadband Network

The National Broadband Network [NBN] has significant Defence potential. It is unrealistic to expect that wireless communications will ever be sufficient. This is an area in which NSW can excel if given the appropriate emphasis.

Future Submarine Base in NSW

The Australian Defence Force [ADF] strategic submarine force is to expand to double its present size. The focus of that force will expand to cover the Pacific Ocean for which an east coast base is needed. This should be in NSW to optimise other resources and be clear of cyclone risk areas. However, it should not just be aggregated with Fleet Base East [FBE]. As HMAS PLATYPUS in Neutral Bay, amply demonstrated there are significant benefits to morale and security to have a dedicated submarine base in a secure location.

Thinking ahead to Nuclear Power

No matter what is decided about renewable energy it is unlikely to replace non-renewable energy completely. This makes the consideration of clean nuclear power a valid option. However, to avoid the fear of large scale contamination from an accident in a traditional monolithic nuclear power station an alternative is small modular reactors [SMR] which are road-transportable. One option for SMR technology is the pressurised (light) water reactor [PWR] which happens to be the most widely used reactor in nuclear submarines.

Therefore, for both civil and naval uses the NSW Government should advocate the installation of a Small Modular Reactor at Lucas Height using Pressurised Water Reactor technology.

Summary of opportunities to incentivise and grow the defence industry in NSW

There are some obvious areas of opportunity for early consideration by Defence NSW:

- The opportunities from the Defence Integrated Investment Program and from the more recent Naval Shipbuilding Program
- The opportunities for relocation of Fleet Base East and the creation of an east coast submarine base
- The networking of communications and information systems for Defence that derives from the National Broadband Network
- The development of the Defence workforce based on the extensive educational resources in NSW
- Start the process to install a small modular nuclear reactor at Lucas Heights

Further information

For further information relating to this submission, please contact:

Christopher Skinner