



Submission to the Senate Inquiry into Australia's Sovereign Naval Shipbuilding Capability

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Background

Weld Australia is the peak body representing welding in Australia, the Australian representative member of the International Institute of Welding (IIW) and Authorised National Body for the training of engineers, technologists, welders, supervisors and inspectors. It is also the recognised body for the certification of welders to ISO9606 and companies to ISO3834.

Through its Defence Industry Group, which includes ASC, BAE, Naval Group, TAFE SA and NSC, Weld Australia has been working for the past 4 years on the challenges of delivering sufficient qualified and skilled welding staff for naval projects. To date it has successfully established a national network [Fig 1] of Advanced Welder Training Centres [AWTC] capable of delivering welders qualified and certified to ISO9606. This Standard is regarded by defence primes as the minimum entry requirement for recruitment of welders into the shipyard. We anticipate the network expanding in 2020 as shown in Fig 2.



Fig 1



Fig 2

Weld Australia is currently working in partnership with BAE to develop an assessment and training program for welders, welding supervisors, inspectors, technologists and engineers. In addition, Weld Australia has worked closely with Austal Ships in developing the welding procedures for the Guardian Class Pacific Patrol Boats.

Job roles in the sector: welding engineering

Weld Australia's research shows that there are already significant shortages of qualified welding engineers in Australia. This is anticipated to get worse as major projects come online and the demand from companies requiring AS/ANZ/ISO3834 increases. At this stage it is difficult to estimate how many welding engineers will be required but, judging from Weld Australia's experience in developing Welding Procedures for the Guardian Class PPB, it will be significant. A key strategy that has been used to address this required ramp up and potentially address the current gap in document training standards is the use of the International Welding Engineers and Technologists.



Table A shows the number of International Welding Engineers and Technologists [IWE/IWT] Weld Australia has trained or qualified through alternative routes. We estimate that this represents approximately one half of the IWE/IWT currently practicing in Australia with the balance having migrated from Europe or South Africa.

It is important to understand that both BAE and Naval Group have experience with the IWE and IWT and understand how these international standards align to their existing workforce requirements.

It would be Weld Australia's proposal to use these international standards to complement existing National Training Packages to bolster the current entry level work readiness of graduates, but critically to also support the growth in demand for 'grey collar' para-engineers (IWT).

Table A: Locally trained and qualified IWE/IWT

Engineering			
Route	IWE	IWT	Total
Training	47	14	61
Transition	16	37	54
Alternative	2	0	2
Total	65	51	117

If we are to meet this demand from Australian engineers and technologists we recommend the following:

- ✓ **Short Term:** Commence a program of training IWE/IWT now. On the basis that there are some excellent welders qualified to International Welding Specialist it is recommended that the balance between IWE/IWT should be approximately 30:70.
- ✓ **Medium – Long Term:** Reintroduce Masters of Welding degree into the university system.

Welding operations

Weld Australia notes that this high-level job family needs to be broken down into its sub sections to be able to provide the detail needed to support the workforce development. It is proposed this grouping is divided into 3 groups:

- ✓ Welding technologist [IWT]
- ✓ Welding supervisor and inspector [IWS/IWI]
- ✓ Welder/Heavy fabricator/Light fabricator/Pipe fitter welder [ISO9606 certified].



Welding supervisor and inspector: Feedback from ASC and BAE indicates that they have identified this employment group as one of the most likely to cause critical shortages. Weld Australia support this view because:

- ✓ The overall number of supervisor and inspectors trained to IIW standard since 2012 has been in steady decline [Fig 3]
- ✓ These individuals are highly sought after across all industries
- ✓ Experience is required to become competent; cannot be quickly trained
- ✓ Demand will increase across primes and supply chain

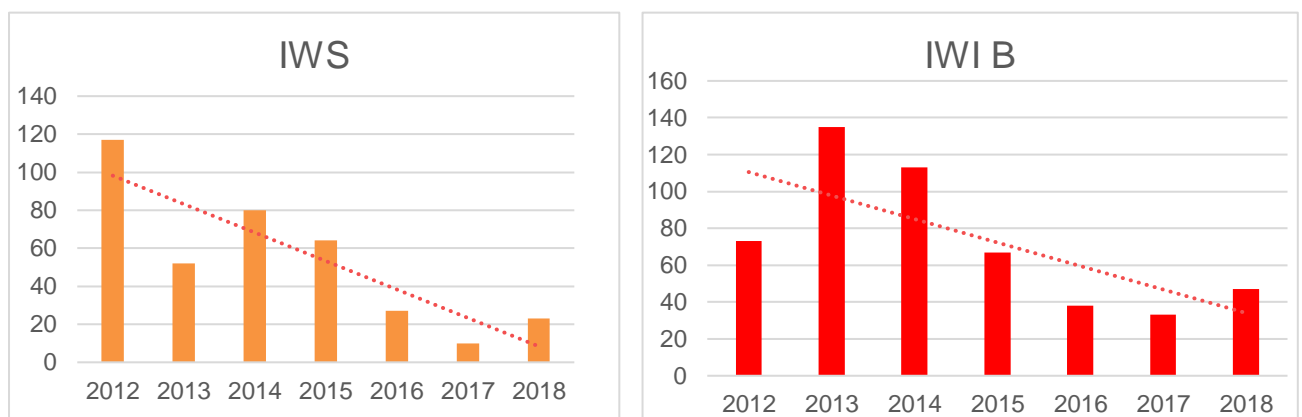
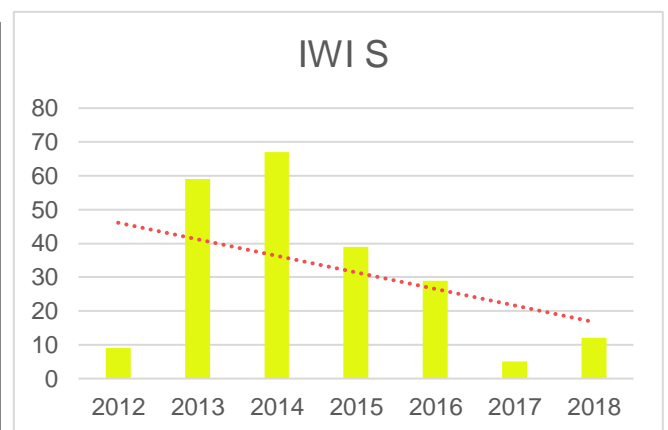


Fig 3

To maximise the opportunity for locally trained specialists and inspectors we recommend that Defence Shipbuilding Primes identify their requirement for supervisor and inspector qualifications and start to map a pathway to achieve their manning levels. To assist with this Weld Australia and BAE have developed a career flowchart to act as a startpoint for planning.



Welder/Heavy fabricator/Light fabricator/Pipe fitter welder: Weld Australia believes that by the end of 2019 there will be capacity in the AWTC to train sufficient welders to ISO9606 to meet the short-term demand. The use of ISO9606 is a critical standard that is being used internationally to assess and accredit welders to a internationally recognised standard. This is a significant extension to the existing national training package standards used within Australia to deem competence and will directly address the concerns raising after the AWD ramp up.



This process will be managed nationally through the Australian Welder Certification Register which will provide both a record of all certified welders and an aid to welder recruitment. However, critically this outcome will not be of the same welding skill standard as would be expected of a traditional trade apprentice. Feedback from BAE, and others, indicates that the quality of current Certificate III welding apprentices being produced in Australia is totally unacceptable and not of the required standards for the Defence Industry. For example, most Certificate III apprentices are unable to read or interpret a welding procedure, set up a welding machine or weld a coupon to the required acceptance criteria, all critical requirements within the Shipbuilding industry. Furthermore, the MEM curriculum is so out of date that the modern welding processes are not adequately covering current and future industry trends.

To meet the objective of creating a globally competitive naval shipbuilding industry the welding trade must be re-established and a modern, internationally acceptable, curriculum delivered to students.

Welding operations training gap

Weld Australia concurs with the findings of NSC in relation to identifying substantial gaps in current welder training. Weld Australia considers there are 2 separate issues:

- ✓ Basic trade training
- ✓ Specialist ship welder training

Basic trade training: As identified by NSC and previously stated here, the current trade structure and curriculum is totally inadequate. During a visit to BAE's Glasgow Shipyards, where the first Type 26 Frigate is currently being built, and Clydebank Technical College it became clear that apprentices are trained to a much higher standard than in Australia.

Further there is a critical need to significantly increase the size of the welding pipeline feeding the industry. While at the lower entry levels it is relatively easy to be able to train a person to weld, at the higher more advanced levels identified by NSC there is an element of 'master craftsman' that cannot be taught.

This broad pipeline is one of the key objectives of the Advanced Welder Training Centre (AWTC) as they put the development of welding understanding and muscle memory within the reach of a much broader range of people.

To fulfil the industry demand for welders there need to be 2 streams:

- i. Unqualified or transitional welders trained and qualified to ISO9606
- ii. Apprentices undergoing a modern training course which prepares them for immediate start in the shipyards and has a career path to International Welding Technologist.

Weld Australia recommends that action be taken to address this issue as a matter of priority.



Specialist ship welder training: Australia has only a veneer of welders with significant ship welding experience. To create a continuous pipeline of ship welders to deliver projects over the next 50 years, whilst simultaneously maintaining and up-dating the existing fleet, specialist courses must be created covering the practical skills required to build a ship.

As mentioned above the existing international standards are a critical foundation upon which specialist shipbuilding welding programs can be constructed. They are not only recognised by the existing shipbuilders but will also create a point of competitive international advantage for Australian Industry going forward.

Weld Australia recommends the creation of the trade of Ship Welder to be achieved after the successful completion of a specialist training course.

Robot Welding: Weld Australia believes that the new Australian shipyards have the opportunity to be the most automated of any in the world. In fact, we consider it to be essential if we are to overcome the disadvantages of our relatively new entry into the market.

Currently there is no VET robot welder training facility in Australia, no curriculum and no qualified trainers. Weld Australia will be pursuing this need further.

Weld Australia is in the process of writing a robot welder training course for TAFE. This is funded by the Victorian Skills Commission. There are currently no robot welder training facilities in Australia.

Labour Supply

Recently retrenched workforce: Weld Australia has examined the opportunity to capture the workforce recently made redundant from the automotive industry. Our feedback is that those looking for employment have already found it.

Demographics: Weld Australia currently working on the following:

Indigenous Welding Australia: the first, in partnership with the Indigenous Defence and Infrastructure Consortium [IDIC], and Indigenous Professional Services [IPS] is to establish a number of Indigenous Welding Schools targeted at training Indigenous, and other disadvantaged groups, to become welders for the NSB.

Women in Welding: It is the opinion of Weld Australia that the only way that sufficient welders will be recruited and trained is if the primes target their recruitment strategies to a 30:70 gender split. Welding is a skill that is not gender specific and while the majority of welders are men this traditional male dominance needs to be addressed. Weld Australia needs support for its schools outreach program to support female apprentice recruitment.



Youth initiative: Weld Australia, would like to launch a youth initiative in 2020. The concept is to introduce welding to high school children using augmented reality simulators, thereby growing the size of the initial pipeline feeding the industry. This program is now well underway in Caboolture thanks to the Commonwealth funding of an AWTC.

Additionally, it is hoped to establish a number of training centres in technical schools focused on the more advanced welding techniques found within Industry.

International workforce: Weld Australia believes that in the short term it will be necessary to rely on the international workforce, but strongly believes that it is up to all stakeholders to maximise the opportunities for Australians from the outset. There is no reason why Australians can not be developed and supported to meet all the welding requirements to service the Naval Shipbuilding Program.

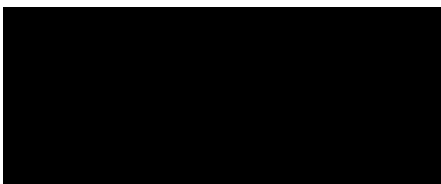
To execute these initiatives Weld Australia, need support and funding from the Commonwealth

Summary

The Commonwealth has underestimated the size of the task of establishing 2 internationally competitive modern shipyards side by side in a state with negative population growth. Furthermore, it has overestimated the capability of the Australian welding industry to meet the demand for qualified welders, supervisors, inspectors, technologists and engineers in a rapidly tightening market.

This problem is well understood by all the primes but to date repeated submissions to consecutive Defence Industry Ministers have been ignored.

Weld Australia respectfully suggest to the Senate that it will be much more cost effective to address the issues outlined in this submission now, rather than wait until production deadlines are due.



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