

10th September 2021

Senate Economics References Committee Inquiry into the Australian Manufacturing Industry

- Australian Steel Institute submission

About the Australian Steel Institute (ASI)

The ASI is the nations peak body representing the entire steel supply chain, from the primary producers through to end users in building and construction, resources, heavy engineering and manufacturing. The ASI membership base includes approximately 6,000 individuals that are associated with more than 500 corporate memberships and over 350 individual memberships.

A not-for-profit organisation, the ASI's activities extend to, and promote, advocacy and support, steel excellence, standards and compliance, training, events and publications. The ASI provides marketing and technical leadership to promote Australian-made steel as the preferred material to the resources, construction, and manufacturing industries, as well as policy advocacy to government.

Submission Summary

Steel is the backbone of the Australian construction, resources, infrastructure and manufacturing sectors. It is a vital and sustainable source of innovation, skilled employment and technical capability in our cities and our regional communities.

In recognition of the strategic importance of the steel industry, the ASI recommends that every effort needs to be made to ensure that all of the remaining domestic manufacturing capabilities are retained. Looking to the future, Australia needs a large and diverse traditional manufacturing base in order to nurture and support new and emerging industries. Given the significance of energy cost in the economics of steel manufacturing, the ASI further recommends that Commonwealth government energy policy needs to act to continue to drive a reduction in the cost of energy.

In order to improve overall competitiveness, the ASI strongly recommends that the existing Modern Manufacturing Initiative or related funding schemes be expanded to include merit criteria that are focussed on assisting existing, traditional industries to invest in automation to improve labour productivity. Finally, it is recommended that the ARC Steel Research Hub model of collaborative co-funded academic research and development continue to be supported by the Commonwealth, and ideally expanded to a broader range of steel industry subsectors.

Overview of the Australian Steel Supply Chain capability and capacity

Overall Capability

Australia's primary steel producers and steel product manufacturers together form a strategically important value chain that has the capability to supply in excess of ninety percent of the steel grades and qualities required in this country. If special categories such as very large diameter oil and gas pipe, stainless steel, electrical steel, and tinplate are excluded, then the capability is significantly closer to one hundred percent.

Overall Capacity

In terms of national requirements, depending on the demand in any given year, Australian steel production has the potential to be completely self-reliant. According to the World Steel Association, in 2019 Australian crude steel production was 5,493,000 tonnes. This does not take into account the additional production capacity of facilities that are being operated at below maximum capacity or currently idled. From the December 2017 Senate Inquiry into the steel industry, it was estimated (Figure 2.2) that the net theoretical crude steel capacity for the local industry if all facilities were operated at 100% would be 8,100,000 tonnes. So, whilst the 2019 domestic steel production was approximately 90% of apparent consumption, the local industry has idle capacity that is well in excess of requirements.

Further to this point, it should be noted that exports from Australia of semi-finished and finished steel comprised 1,149,000 tonnes in 2019 (World Steel Association). In the main, export steel markets are less profitable than domestic markets, and it is reasonable to assume that a large proportion of current exports could be readily used to replace imported steel if this was economically favourable.

Economic and Social Benefit

The domestic steel industry creates significant economic benefit and a large number of skilled manufacturing employment opportunities. According to the Australian Bureau of Statistics, the Australian steel supply chain, from basic iron and steel production through to downstream steel users such as fabricators, employed nearly 110,000 Australians in 2017-2018¹ and generated annual revenue in the order of \$29 billion.

Manufactured Products Capability

Australia has world leading manufacturing capability in many areas of steel product application. Some examples include wear resistant and ballistic plate steels for mining and defence applications, grinding media for mineral processing, strata control products for underground mining, wire rope for open cut mining, wheels, rail, and sleepers for both mainline and heavy haul railway applications, strapping for

¹ ABS 81550DO003_201718 Australian Industry, 2017-18 (Manufacturing Industry Data Cube)

load restraint, engineered bar and resultant products such as automotive springs and specialty fasteners, high pressure gas storage tanks, racking and shelving for automated warehouse solutions, highly durable coated steel water pipe for infrastructure, and a myriad of specialised components for building, construction and defence industry applications. Essential components for transport infrastructure such as highway guard rails, safety barriers, overhead signs, stanchions, light poles, and fences are all made by a number of local producers. The rural economy is well supported by domestic manufacture of fencing products such as wire and posts.

In the area of steel intensive consumer products, Australia has diverse capability in applications such as hot water heaters, and rain water tanks. There is also domestic production of household appliances such as ovens and stoves. Unfortunately, with the closure of domestic vehicle production from 2016 onwards, the ability to manufacture new cars was lost, along with associated manufacturing processes such as engine assembly, panel stamping and pressing, and drivetrain component production. Vehicle accessories and suspension components such as leaf and coil springs are still produced, albeit mainly for aftermarket support and export markets.

In the residential building sector Australia is relatively unique in having a very high proportion of domestic detached dwellings with a steel roof. As a consequence of this strong consumer preference and market share, the local industry has been able to continually invest in world leading innovation in the manufacturing, product design and installation of steel building materials for residential construction. Examples of this innovation include development of highly corrosion resistant coatings for long exterior life, highly weather durable paint systems that are specifically engineered for high UV environments, and prefabricated steel frame and trusses that reduce construction time and improve accuracy. In the commercial construction sector, Australia is a leader in the use of high-strength light weight reinforcing products, and light weight roof support structures with superior spanning capability.

Similarly, the steel fabrication sector is well served by a wide range of domestic businesses, located in all regions of the country, each with an area of unique capability or specialisation. Steel fabrication is essential for manufacturing of bespoke construction products such as foundations, piling, columns, beams, girders, gantries, platforms, and towers. Areas of specialisation include wind turbine towers, transmission towers, storage tanks, chemical processing plant, boilers and pressure vessels, mining infrastructure refurbishment, mobile equipment for underground and surface mining, mobile cranes, bridges, armoured vehicles for Defence, naval and domestic ship building, rolling stock, truck bodies and trailer chassis. In those applications where demand is relatively consistent from year to year, local fabricators have invested heavily in state-of-the-art technology such as automated beam lines, robotic welding cells, and fully integrated design software that incorporates visualisation and 3D simulation capability.

Recommendations in response to the Inquiry Terms of Reference

- a) **What manufacturing capacities Australia requires for economic growth, national resilience, rising living standards for all Australians and security in our region?**

The ASI recommends that every effort needs to be made to ensure that all of the remaining manufacturing capabilities that were outlined in the introductory section on the Australian Steel Supply Chain capability and capacity are retained. The rationale for this recommendation is that:

- The steel industry needs to maintain a certain **critical mass** to help support ongoing reinvestment in the latest technology such that it can remain cost competitive and technically capable. When a significant section of the manufacturing base is lost, for example as occurred with the closure of local car production, this impacts negatively on both the capability mix and domestic demand aspects.
- The domestic manufacturing industries in business today have a very **competitive cost structure** as a consequence of having restructured and survived through an extended period with US dollar exchange rates above parity.
- Australian manufacturers produce **world class products** that can win sales based on a compelling value proposition, and are not reliant on subsidies.
- Australian made products are designed and manufactured in **compliance with** all relevant **Australian Standards** and the National Construction Code, meaning that consumers can have peace of mind in the safety and quality compliance of these products and resultant structures.
- Australian manufacturing leads directly to the **employment of highly skilled staff**, often located primarily in regional towns and cities, which in turn support the ongoing viability of technically oriented tertiary education institutions in the same regions.
- Many Australian manufacturers are also very successful **long-term exporters** with a global reputation.
- The recent disruption to global supply chains associated with the COVID-19 pandemic and ensuing impacts on the cost and availability of international shipping have highlighted the importance of **sovereign capability** in the form of fully capable and self-reliant domestic manufacturing value chains

The new or expanded manufacturing capabilities that Australia requires in order to meet future demand are in the field of **renewable energy infrastructure**. These capabilities include, but are not limited to large scale capacity to produce:

- Wind towers and their foundations;
- Solar farm support structures and their foundations;
- High voltage power transmission towers and their foundations;
- Pumped hydro infrastructure;
- Off shore wind power generation.

- **b) The role that the Australian manufacturing industry has played, is playing and will play in the future?**

In addition to the points made in the immediately preceding section, the ASI recommends that Australia needs a large and diverse traditional manufacturing base in order to nurture and support new and emerging industries. High tech future industries such as aerospace rely heavily on the existing industrial ecosystem for the supply of experienced staff, access to specialised skills and capabilities, and all the infrastructure needed for prototyping and initial trial manufacturing. Our future industries will not be developed in complete isolation from existing, mature industries, rather they coexist and have a mutually beneficial relationship. Therefore, a strong and 'healthy' manufacturing base helps to provide the essential ingredients for development of future industries that we look to for growth in new markets.

- **c) The drivers of growth in manufacturing in Australia and around the world?**

The recent history of industrialisation in countries such as Japan, South Korea, and China indicates that manufacturing of any kind can prosper and be successful whenever the conditions are such that it is cost competitive. In the case of the steel industry the key drivers of cost competitiveness are raw material cost and quality, energy cost, and labour productivity.

Australia is naturally blessed with access to large volumes of high quality, low-cost raw materials that span virtually all the requirements for a completely vertically integrated steelmaking value chain. For example, Australia has huge scale iron ore and metallurgical coal mines that export to world markets, it collects and recycles into new products more than ninety percent of all scrap steel generated each year, it produces the ferroalloys required for steelmaking, and also mines much of the fluxing materials required in iron and steelmaking. From a raw material standpoint, Australia is well placed to support a long term viable domestic steel industry.

With regard to energy cost, for both electricity and natural gas, the situation is much less competitive. Major steel producers such as BlueScope with manufacturing operations in both Australia and a range of countries in the region, report that 'Prices paid by our Australian operations for electricity and gas are approximately double those paid by our US steelmaking operation'². Similarly, natural gas, which is critical for reheating in all steel rolling operations, and for most steel heat treatment processes, is not available at a price that is competitive with our major competitors. Therefore, the ASI recommends that Commonwealth government energy policy needs to act to continue to drive a reduction in the cost of energy.

² BlueScope FY2021 Results Presentation slide 48

The key to competitive labour productivity is ongoing investment in automation and industrial robotics. Many businesses have already made significant investments in these technologies and continue to do so. In many cases, these have resulted in redeployment of labour from dangerous and repetitive manual tasks to higher skilled roles, so automation need not lead to a net reduction in employment opportunities. For the Australian steel industry overall, there are several significant barriers to wholesale adoption of automation.

- Firstly, many manufacturing sites have been in operation for a considerable time, with associated legacy constraints. This means that often the only way to automate is via a bespoke solution that isn't commercially available, but instead requires significantly higher cost to design and implement.
- The second significant barrier is that many manufacturing industries are relatively subscale in world terms, because they have been sized to serve just the domestic market. This means that it can be more difficult to achieve a satisfactory return on investment for an automation project.

During recent consultation with ASI steel product manufacturer members, many commented that they had made multiple applications for grant or matching funding under various schemes to assist with automation projects, without success. The conclusion drawn was that in the main these funding schemes are not intended or designed for existing, traditional manufacturing industries to access; despite the very significant economic contribution these businesses make. Therefore, the ASI strongly recommends that the existing Modern Manufacturing Initiative or related funding schemes be expanded to include merit criteria that are focussed on assisting existing, traditional industries to invest in automation to improve labour productivity and overall competitiveness.

- **d) The strengths of Australia's existing manufacturing industry and opportunities for its development and expansion?**

This item has largely been addressed in the responses to items b) and c).

An additional point to add is that in both relative and absolute terms, the Australian steel industry employs highly sophisticated process technology that requires a highly skilled and well-educated workforce to operate it. The ongoing training and replacement of the next generation of this workforce helps to underpin the engineering and science components of the excellent tertiary education system in this country, including both the vocational training and university sectors. An example of this mutually beneficial intersection of industry, academia, and research is the very successful [Steel Research Hub](#), which is co-funded by the Australian Research Council (ARC) and steel industry partners. The ASI recommends that this model of collaborative co-funded academic research and development continue to

be supported by the Commonwealth, and ideally expanded to a broader range of steel industry subsectors.

- **e) The sectors in which Australian manufacturers enjoy a natural advantage in energy, access to primary resources and skilled workers over international competitors, and how to capitalise on those advantages?**

This item has largely been addressed in the responses to item c).

- **f) Identifying new areas in which the Australian manufacturing industry can establish itself as a global leader.**

This item has largely been addressed in the responses to item a). The ASI believes that **renewable energy infrastructure** is the key area where Australian manufacturing industry has the potential to grow and establish world class capability with long term export potential. This view is based on the significant forecast demand for investment in this area in Australia, which if managed favourably from a policy perspective, will enable local industry to confidently invest in highly competitive, state-of-the-art manufacturing capability.

The long-term pipeline of Defence capability building projects, for both land based and naval forces, also offers significant domestic manufacturing opportunities that could ultimately have export potential.

The common theme in both these examples is that government policy needs to be carefully designed so as to encourage local participation, whilst not being in breach of free trade agreements and WTO rules. This point will be further addressed in the response to item g) following.

- **g) The role that government can play in assisting our domestic manufacturing industry, with specific regard to:**
 - i. research and development;**
 - ii. attracting investment;**
 - iii. supply chain support;**
 - iv. government procurement;**
 - v. trade policy;**
 - vi. skills and training;**
- **h) The opportunity for reliable, cheap, renewable energy to keep Australia's manufactured exports competitive in a carbon-constrained global economy and the role that our manufacturing industry can play in delivering the reliable, cheap, renewable energy that is needed?**

The ASI, in consultation with its members, has developed a comprehensive set of policy recommendations, or ‘white paper’, covering the topics mentioned in item g). Rather than reproduce sections of this white paper in isolation, we have included the complete document as an appendix to this submission. The relevant sections are cross referenced with the abovementioned topics in the table below.

Inquiry Topic	ASI White Paper reference
g) The role that government can play in assisting our domestic manufacturing industry, with specific regard to:	
i. Research and development	Pages 16 through 18
ii. Attracting investment	
iii. Supply chain support	Pages 30 through 32
iv. Government procurement	Pages 21 through 26
v. Trade policy	Pages 27 through 29, and below
vi. Skills and training	Pages 19 through 20
h) The opportunity for reliable, cheap, renewable energy to keep Australia’s manufactured exports competitive in a carbon-constrained global economy and the role that our manufacturing industry can play in delivering the reliable, cheap, renewable energy that is needed?	
	Pages 18 through 19

In regard to **Trade Policy**, recent ASI membership consultation raised the following important feedback themes for particular emphasis:

1. The Anti-Dumping System despite being complex and time consuming to engage with, remains a very important trade remedy tool, particularly for local manufacturers of steel intensive finished products.
2. The typical time required for an investigation and final determination to be completed is too long and needs to be reduced to under 12 months.

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