

**Submission on the
Green Paper on South Australia's Energy Transition**

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The Australian Steel Institute (**ASI**) is pleased to make a submission on the Green Paper on South Australia's Energy Transition.

Introduction

The ASI is the nation's 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.

Its 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 member based 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.

The Australian Steel Industry

The Australian steel industry consists of four primary steel producers, supported by over 300 steel distribution and processing sites throughout the country and hundreds of manufacturing, fabrication and engineering companies.

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 90 per cent of the steel grades and qualities required in this country. If special categories such as very large diameter pipe, stainless steel, electrical steel, and tinplate are excluded, then the capability is significantly closer to 100 per cent.

Australia produces around 6 million tonnes of steel per annum across five major manufacturing locations, with approximately 74 percent produced via the more emissions-intensive method in the blast furnace - basic oxygen furnace (BF/BOF) and the remainder produced via the electric arc furnace (EAF) method.

It is important to note the economic and social contribution of the Australian steel industry. It employs over 100,000 people and generates \$29 billion in annual revenue, and it associated with a disproportionately large share of skilled jobs in regional and rural areas.

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 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.

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 manufacturing technology and fully integrated design software that incorporates visualisation and 3D simulation capability.

The steel industry in the renewable energy transition

The steel industry is a key enabler for the Nation's renewable energy transition and associated legislated climate targets. Between now and 2030 it is estimated that at least 400,000 tonnes of fabricated steelwork will be required per annum to service over 23 GW of existing renewable energy generation projects across wind, solar, water and transmission infrastructure, as illustrated in this table:

Wind:

- It is estimated that each 1 MW generated by an onshore wind tower requires 124 tonnes of steel.
- Offshore wind increases generation scale and steel consumption further. Each 1 MW generated by an offshore wind tower requires 190 tonnes of steel.

Solar:

- The steel components include a foundation pile (normally a hot rolled channel or column), torque tube (octagonal, square or tubular hollow section), frames or Rails for PV panels and Brackets.
- Typically, about 45 tonnes of steel are required for each 1 MW of solar energy generated.

Water:

- Hydro projects require large diameter steel liner pipes, penstock, related fabrications, tunnel reinforcement, and foundations.
- It is estimated that each 1 MW of hydro power will require 161 tonnes of steel.

Transmission:

- Each 1000 kms of transmission line typically requires 2500 towers at 30 tonnes per tower.

Australia currently has limited local capability and has missed out on substantial economic value in recent years with renewable projects highly reliant on established overseas supply chains.

Some incremental local investments have recently been initiated but without further investment and government support this trend to predominantly overseas supply is set to continue.

The fabricated steelwork required for the renewable energy transition includes a mixture of components that are readily available in Australia and those that haven't been sourced locally for many years. The sheer scale of the demand and the extended timeframe over which it is required mean that South Australia's energy

transition provides a unique opportunity to develop advanced manufacturing capability in several areas of strategic importance for future energy security. These opportunities include but are not limited to:

- Onshore wind tower fabrication;
- Offshore wind tower fabrication;
- Production of large diameter tube suitable for manufacturing of torque tubes for solar cell tracking and support frame structures;
- High voltage transmission tower fabrication.

The local Australian steel producers, steel product manufacturers and fabricators have the crude steel supply and underpinning production capabilities to make these products, but largely lack the specialised large scale automated capacity that is typically required to produce cost efficiently. This capacity can readily be created in a relatively short time via targeted investment in dedicated plant and equipment. The key to driving the required capital investment is the existence of firm local participation targets for supply of renewable energy infrastructure, which are set at a level sufficiently high enough to ensure manufacturing economies of scale are achieved.

Recommendation: Firm local participation targets for supply of renewable energy infrastructure be established in South Australia, such that it drives capital investment, with the support of the South Australia Government, in optimally scaled state-of-the-art manufacturing capability for local supply of renewable energy infrastructure.

The hydrogen strategy

The 2019 National Hydrogen Strategy, which has the intention of developing a competitive renewable hydrogen industry that is a major global player by 2030 has continued in place.

Encouragement for research and development in the utilisation of renewable hydrogen in steelmaking also forms part of the strategy. To further this goal the Australian Renewable Energy Agency (ARENA) has identified the steel and aluminium value chains as priority areas where it aims to support innovative and replicable technologies, processes and commercial models that can help to lower emissions.

Australian jurisdictions are also involved developing collateral assistance plans for the development of 'hydrogen hubs', many of which anticipate steel production as one of the industries attracted to operate at hub locations.

An example of this is the development by the South Australian Government of a world-leading hydrogen power station, electrolyser and storage facility within the Whyalla City Council area, which will assist the development of 'green steel' projects in that area.

Continued support for the local steel industry is important if South Australia's bold emissions reduction ambition of net-zero emissions by 2050 are to be met.

Recommendation: Funding for appropriate projects supporting the development of a low emissions steel capacity under South Australia's Hydrogen Strategy should continue.

Sustainability accreditation

The built environment represents a significant opportunity to reduce the state's carbon emissions more broadly and support the ongoing transition to a net-zero emissions future.

As steel is recognised as a sustainable material, there was a need to establish mechanisms for companies to determine what a sustainable steelwork supplier is and how to identify one.

Superseding ASI's Environmental Sustainability Charter (ESC), the Steel Sustainability Australia (SSA) Certification Program was established by the ASI to identify sustainable steel suppliers by assessing the environmental and social impact of their steelwork manufacturing and processing operations. The SSA program engages the entire steel value chain by certifying downstream steel fabricators, roll formers, and reinforcing processors and verifying upstream steel producers against best practice environmental, social and governance (ESG) indicators.

The accreditation is designed to be used by regulators, building and construction proponents, specifiers and procurers including government agencies, and environmental rating agencies and bodies such as the Green Building Council of Australia to determine sustainable steel suppliers and products, and to support sustainability targets such as reductions in embodied carbon. SSA certification assures steel suppliers, and their products are sustainably manufactured and processed and are sourced through responsible and ethical supply chains.

Accordingly, it is recommended that government procurement policies should make it a mandatory requirement for procurers to adhere to the ASI Sustainability Specification for Steel:

<https://www.steelsustainability.com.au/resources/specification/> and source finished steel products from businesses accredited under the SSA program

Recommendation: All structural steel and fabricated or processed steel products should be sourced from businesses certified under the SSA Certification Program.

Skilled workforce requirements

Whilst the ASI acknowledges that a suitably skilled workforce is critical to the growth of the energy, mining, resources and clean energy sectors, it is also critical to the local steel industry as well as the broader South Australian economy.

Workforce and skills' shortages present an imminent economy-wide challenge made more acute by the evolving skill requirements of the sector, competition for skilled labour between sectors and the states and territories.

ASI members have noted that skilled workers are hard to find. Steel trades (such as boilermakers and steel fabricators) were cited as being particularly difficult to secure, which is put down to steel being a less desirable career choice compared to plumbing, electrical or carpentry. Demand for similar occupational classifications from emerging industries such as submarines and ship building, defence and space makes it even more difficult for the local steel industry.

Recommendation: To meet the local supply of renewable energy infrastructure in South Australia, the South Australia Government should provide support to the workforce needs of the local steel supply chain from the steel mill to the distributors, the steel processors and fabricators, through the provision of SA Government funding for the promotion of careers in steel and suitable workforce training capabilities via TAFE SA and local Technical Colleges.



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