A modern Australian manufacturing industry

Submission to the Senate Committee on Economics

Date: 24 September 2021

On behalf of: Daniel Walton, AWU National Secretary

THE AUSTRALIAN WORKERS' UNION

Submission - A modern Australian manufacturing industry

24 SEPTEMBER 2021

Overview

Thank you for the opportunity to make this submission on the issues raised in the Terms of Reference for this Committee.

The Australian Workers' Union (AWU) represents around 70,000 members nationally in a diverse range of industries: mining, energy, manufacturing, civil construction and agriculture, along with many others. Manufacturing sectors across Australia represent a large portion of the union's membership, in particular:

- Metal manufacturing (aluminium, steel, copper, brass and zinc)
- Construction materials like concrete, cement and asphalt
- Fuel refineries
- Pharmaceuticals
- Hydrogen
- Ammunition and explosives
- Fertilisers
- Chemicals and plastics
- Food manufacture

While many cities were otherwise empty, AWU members turned up to do the work necessary to keep these industries going. The pandemic has shown the precarious situation Australia has put itself in over the last several decades by offshoring critical sovereign manufacturing capacity.

Recovering from the pandemic provides an opportunity for Australia to set a new higher standard: quality, secure jobs for all Australians. Manufacturing can be the backbone of this recovery.

The AWU endorses the Australian Council of Trade Unions' (ACTU) submission to this inquiry, and provides further evidence below of the issues relevant to our industries.

We would welcome the opportunity to appear before the Committee to provide further evidence on how increasing insecurity affects our members, and the opportunities for reform.

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Recommendations

RECOMMENDATION 1: The Australian Government must move beyond policy announcements and urgently consult with industry to identify all parts of a resilient Australian supply chain. Measures necessary to secure Australia's sovereign capability from disruptions include:

- building Australia's economic complexity by expanding the role that Australian raw materials suppliers play in supply chains
- strategic procurement
- cooperating with regional partners to ensure continued supply during disruptions.

RECOMMENDATION 2: In order to ensure continued supply of affordable gas for local industry, the Australian Government must:

- continue to invest in extraction of gas from new sources, such as the Beetaloo basin and Narrabri
- improve cooperation between environment departments at the Commonwealth and State levels (for example, by application of uniform standards under the Environmental Protection, Biodiversity and Conservation Act and State and Territory legislation) to improve regulatory approval hurdles and times
- implement a prospective domestic gas reservation, as has existed in Western Australia and Queensland, to ensure that new gas exploration benefits domestic manufacturers.

RECOMMENDATION 3: The Australian Government should adopt the proposals identified in the ACTU's submission to this inquiry to establish Cooperative Research Centres and Sustainable Manufacturing Clusters to operationalise the use of hydrogen domestically.

RECOMMENDATION 4: The Australian Government should develop a National Battery Strategy to coordinate the overlap of energy and industry policy. This strategy would acknowledge the other initiatives being undertaken to support the nascent battery industry in Australia, but help to coordinate their efforts to ensure Australia can take advantage of the opportunities for battery development.

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1 Supply chain challenges

1.1 When supply chains are disrupted, Australian manufacturers step up to the plate

The COVID-19 pandemic continues to impose the biggest hit to the world's supply chain capacity since the oil shocks of the 1970s. There arguably has never been greater delays, shortages and risks in supply of the many essential goods and services that Australian consumers and industries rely on, from toilet paper to computer chips, many essential goods and services for Australian consumers and industries. Beyond the immediate effects of the pandemic in constraining worldwide freight and shipping, there are increasing geopolitical risks to global trade: increased willingness by China to punish countries that raise concerns with their practices, and the departure of Great Britain from the European Union.
Australia's manufacturing base has faced decades of erosion, putting our sovereign capability at risk. Australia's ability to develop and sell new products to the rest of the world is currently below that of Senegal and Uganda according to Harvard University. Australian manufacturers have stepped up to the plate to meet demand. Many small business manufacturers saw increases in demand to supply parts, and equally, consumers are increasingly focused on getting an Australian-made product.[1] The Australian Government critically provided support to domestic manufacturers of personal protective equipment (PPE) – which had largely been made in China prior to the pandemic.

However, the Government's recognition of the crucial role of domestic manufacturing was short-lived during the pandemic. The Australian Government approached Australia's only medical mask manufacturer to scale up production in March 2020, buying new machines and providing defence personnel to expand capacity. Yet by July this year, as New South Wales began experiencing the most rapid spread of COVID-19 in Australia so far, health providers returned to their cheaper import suppliers, leaving eight of their ten new machines idle.[2] Similarly, Detmold in South Australia ramped up mask production with the help of a State Government grant, but by April 2021, were forced to let go 80 staff.[3]

Early in the pandemic, the National COVID-19 Commission recognised this challenge and sought to move beyond short-term solutions to creating a longer-term view of value from manufacturing investment by government. But once again, announcements have not turned into workable policy. The Government's Productivity Commission (PC) was tasked with identifying vulnerable supply chains and managing risk associated with them. Ultimately, the PC failed to recognise a number of import-reliant critical sectors of the economy such as construction and manufacturing, saying that they were 'non-

[1] https://www.abc.net.au/news/2020-06-30/andrew-liveris-manufacturing-in-australia-after-coronavirus/12387448
[2] https://www.abc.net.au/news/2021-07-20/australian-mask-manufacturer-dumped-for-cheaper-suppliers/100304530
[3] https://www.adelaidenow.com.au/business/after-ramping-up-to-produce-muchneeded-surgical-masks-last-year-detmold-group-is-winding-back-production-and-shedding-jobs/news-story/e67b89c31b74c36c080ef37b861fca94

essential'. If these services are not essential, then it begs the question of why governments stepped in to support them so dramatically during the pandemic, and why domestic firms were required to expand production to supplant imports.

The PC conceded its own bias by using a different definition to assess export industries – considering any export industry 'provid[ing] significant income security to Australians' as essential. Workers in construction and manufacturing are no less essential than those working in mines or on farms – and the Australian Government needs to take proactive measures to support their jobs and incomes. And despite a significant budget commitment to establishing an Office of Supply Chain Resilience, very little tangible work has been done on supporting Australian manufacturers.

Australia will be making a critical mistake to rely on offshore firms concentrated in one part of the world yet again. The Australian Government must urgently consult with industry to expand on the PC's initial work to identify all parts of a resilient Australian supply chain, and take all measures necessary to ensure adequate supply in the face of disruptions – of the scale faced in the wake of the pandemic and greater. These measures should include:

- **Building Australia's economic complexity** by expanding the role that Australian raw materials suppliers play in supply chains (for example, moving beyond exporting iron ore and lithium to refined products such as direct reduced iron and chemical compounds)
- **Strategic procurement** to bolster demand for industries critical to Australia's economy – with a long-term view to sustaining cost-competitive operations in Australia, not just filling gaps. The McKell Institute has already recognised that cost blowouts offset any of the initial savings from international procurement for major projects, and that the whole domestic economy does better when local supply chains are incorporated.[4]
- **Cooperating with regional partners** who are less exposed to geopolitical risk to ensure continued supply of goods that cannot be made in Australia during disruptions.

[4] *Build It Here* (2021) McKell Institute.

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2 Manufacturing and the changing energy market

Manufacturing is highly energy-intensive. Steelworks burn metallurgical coal to reduce iron ore; aluminium relies on massive amounts of electricity; and many manufacturing sites with AWU members rely on gas and oil either as a feedstock or an energy source. Accordingly, the industry is highly exposed to the changes necessary to reduce emissions. The AWU supports net zero emissions by 2050 in line with the Paris Agreement. In pursuit of this goal, significant emphasis must be placed on:

- maintaining affordable and reliable energy supply for our manufacturing industry during the transition, and
- identifying opportunities for Australian industry to not just participate in renewable energy supply chains but to become a world leader.

This section deals with these issues in turn.

2.1 Maintaining affordable and reliable energy supply

Energy, and gas in particular, is a key input cost of Australia's manufacturing industry. Further, it is difficult for industry to adapt to price volatility – meaning that, if spot prices increase (as they did dramatically earlier in 2021), they must be absorbed as costs.[5] Uncertainty over supply and cost of energy is ultimately highly detrimental to business confidence, both in the investment and operating stages.

5 https://www.industry.gov.au/sites/default/files/June%202018/document/pdf/energy_costs_and_export_competitiveness_-_evidence_from_australian_industries.pdf?acsf_files_redirect

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The Australian Energy Market Operator has confirmed that a gas supply shortage is a risk to the South-East of Australia as soon as 2023. Even as the energy transition takes place, gas will be necessary well into the future, to facilitate decarbonisation of other energy sources and to provide feedstock and energy to industry. This is confirmed by the International Energy Agency's Net Zero by 2050 report from earlier in 2021, under which:

- gas use does not significantly decline until 2040
- oil and gas will continue to make up a fifth of global energy supply by 2050, with the use of carbon capture and storage (CCS) and abatement
- half of the hydrogen in use in 2030, and around two-fifths in use in 2050, is likely to be 'blue' hydrogen (produced with oil and gas in a steam methane reforming process).

Australia's former chief scientist, Alan Finkel, notes that until battery storage becomes more cost-competitive, natural gas will continue to be necessary for 'firming' the grid – maintaining a reliable energy supply in conditions where solar and wind are not effective. Shifting to rapid-start natural gas generators which only fire up when renewable energy is not meeting the needs of the grid is in Finkel's view 'the quickest way to achieve near-zero emissions'.

Despite promises of a 'gas-fired recovery' last year, Australia has turned away from the serious reforms necessary to secure the necessary gas supply for the manufacturing industry going forward. While large parts of New South Wales are now under an effective moratorium on gas development, the Government has committed to supporting the establishment of an LNG import terminal to fill the expected shortfall. This would put East Coast customers in the absurd position of paying the same prices as those in Tokyo or Seoul, while large quantities of gas remain underground in New South Wales.

Australian governments have allowed the narrow interests of landholders and environmental activists to outweigh the interests of industry and the broader community. The technical debate about onshore gas development is over. The industry continues to take place safely around the world with all environmental and safety impacts managed. This was the conclusion of every independent scientific inquiry into the onshore gas industry across Australia's States and Territories.

The Australian Government must work with the States and Territories to open gas exploration and ensure gas is readily available for local industry. Key measures include:

- improved cooperation between environment departments at the Commonwealth and State levels (for example, by application of uniform standards under the *Environmental Protection, Biodiversity and Conservation Act* and State and Territory legislation) to improve regulatory approval hurdles and times

- implementing a prospective domestic gas reservation, as has existed in Western Australia and Queensland, to ensure that new gas exploration benefits domestic manufacturers.

RECOMMENDATION 2: In order to ensure continued supply of affordable gas for local industry, the Australian Government must:

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- improve cooperation between environment departments at the Commonwealth and State levels (for example, by application of uniform standards under the Environmental Protection, Biodiversity and Conservation Act and State and Territory legislation) to improve regulatory approval hurdles and times
- implement a prospective domestic gas reservation, as has existed in Western Australia and Queensland, to ensure that new gas exploration benefits domestic manufacturers.

In the medium to longer-term, **hydrogen** presents a massive opportunity for Australia to leverage its existing gas infrastructure to maintain a reliable and affordable energy supply while reducing emissions. It is anticipated that industrial processes that cannot be electrified – for example, steelmaking and heavy vehicles – will be fuelled by hydrogen in the medium-term. Green hydrogen presents the most significant opportunity to Australia, as Australia has abundant capacity for renewable energy and green hydrogen is likely to be the most-sought-after option by our trade partners looking to decarbonise. However, governments should adopt a technology-neutral approach focused on reducing emissions. If carbon capture and storage is available at commercial prices, then zero-emissions 'blue hydrogen' should also be supported, as a means for Australia to use its abundant gas resources in a decarbonising world. The AWU supports the Government's National Hydrogen Strategy and price target, but would also support building on this with the initiatives proposed by the ACTU. Namely, these recommendations would establish Cooperative Research Centres and Sustainable Manufacturing Clusters to operationalise the use of hydrogen domestically, with a view to building on this to establishing Australia as a global hydrogen powerhouse. We have already become the world's top LNG exporters in just 15 years – we can do it again for the next big energy revolution.

RECOMMENDATION 3: The Australian Government should adopt the proposals identified in the ACTU's submission to this inquiry to establish Cooperative Research Centres and Sustainable Manufacturing Clusters to operationalise the use of hydrogen domestically.

2.2 Renewables manufacturing: future opportunities

Australia has regrettably missed a number of opportunities to enter renewable energy manufacturing at scale. Australia was once at the cutting edge of solar panel manufacturing, but due to a lack of sustained industry support, the domestic industry effectively exported its technology and human capital, eventually being swallowed whole by China.[6] Australia has a limited foothold in towers for wind turbines, but without government local content requirements, the large international suppliers have no incentive to support domestic industry.[7] Beyond these, there is one significant manufacturing opportunity for which Australia is well-placed if it can take the right action: batteries.

Australia is a resource rich country. In particular, rare earth minerals like nickel, vanadium, manganese alumina and lithium are abundant in Australia. Australia is the world's top exporter of lithium minerals accounting for 60 percent of world production, despite only having 19 percent of the world's reserves. For some perspective, Chile has nearly 60 percent in lithium reserves but only contributes approximately 20 percent to world production.[8] Yet despite Australia's comparative advantage in rare earths extraction, more than half of the world's lithium refining takes place in China. In 2019, all of Australia's spodumene, our main lithium ore, was refined in China. China also accounts for 83 percent of the world's battery cell manufacturing.[9] High market concentration for battery commodities subjects them to high levels of supply risk, creating volatile markets leading to disruptions in international trade. This has happened before, even prior to the pandemic: in 2010, interruptions to some Chinese rare earths supply chains off the back of reduction of export quotas saw prices increase by 400 percent.[10] High market concentration also gives China leverage to impose resource and trade sanctions in order to influence other countries at a time when Australia and its allies are changing their strategic posture towards China.[11]

The world's 'battery moment' is taking place right now as options for dispatchable power are being investigated for power generation and for electric vehicles. BHP says that demand for nickel-based batteries is expected to grow by 500 per cent over the next decade. In late July, BHP entered into a nickel supply agreement with Tesla, providing the American company with the key mineral used in its EV

[6] https://www.abc.net.au/news/science/2021-09-19/solar-panels-why-australia-stopped-making-them-china/100466342
[7] https://www.abc.net.au/news/2021-04-04/keppel-prince-boilermaker-fights-for-western-vicorian-wind-farm/100043364
[8] https://fbicrc.com.au/wp-content/uploads/2020/10/PU-141-Energy-Report-WEB.pdf; https://www.usgs.gov/centers/nmic/mineral-commodity-summaries
[9] https://fbicrc.com.au/wp-content/uploads/2020/10/PU-141-Energy-Report-WEB.pdf; https://www.sciencedirect.com/science/article/pii/S0921344917301118
[10] https://fbicrc.com.au/wp-content/uploads/2020/10/PU-141-Energy-Report-WEB.pdf; https://www.usgs.gov/centers/nmic/mineral-commodity-summaries
[11] https://fbicrc.com.au/wp-content/uploads/2020/10/PU-141-Energy-Report-WEB.pdf

and battery storage systems.[12] Batteries will play a crucial role in supporting the stability of the grid (alongside gas) as more variable forms of power generation become the dominant power source. [13]

But rather than putting serious efforts into establishing a battery supply chain in Australia, Australia still relies on countries like China to refine these minerals.

A report by the CSIRO produced for the Future Battery Industries, found there was no commercial production of battery precursor chemicals, despite several Australian companies' technologies in the process of being deployed or piloted.[14] Only one company, BHP's Nickel West, is in its construction phase to make battery-grade nickel sulphate at its Kwinana refinery.[15] An Austrade study found only 0.53% or $1.13 billion of value in global battery manufacturing is presently realised in Australia.[16] The opportunity to undertake a greater part of the supply chain is within Australia's reach – but projects are taking place in an uncoordinated manner.

The opportunity for battery manufacturing has implications both for domestic energy storage as well as the world export market. While there are a number of nascent pilot projects in Australia for the assembly of batteries, or for large public battery arrays, there is a lack of coordination between project proprietors.

The Government's Modern Manufacturing Initiative (MMI) is a good first step, with funding being directed to projects by Lynas Rare Earths, Australian Vanadium and Elphinstone. The Government recognised a number of projects under this initiative will make an important contribution to Australia's sovereign capability and have significant export potential.[17] The Government has committed under its Technology Investment Roadmap to developing energy storage options for firming under $100 per megawatt-hour – making firmed wind and solar competitive with average wholesale electricity prices. Energy storage is rightly recognised as a priority area of focus under the roadmap.[18]

However, just as it has expanded the hydrogen priority into a national hydrogen strategy, the Australian Government must develop a National Battery Strategy to coordinate the multiple strands of energy and industry policy, and to complement the existing work of State and Territory Governments: for example,

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[12] https://www.bhp.com/news/media-centre/releases/2021/07/bhp-enters-into-nickel-supply-agreement-with-tesla-inc
[13] https://fbicrc.com.au/wp-content/uploads/2020/10/20-00191_MR_REPORT_FBICRC-StateOfPlayBattery_WEB_201002.pdf
[14] Ibid.
[15] https://www.bhp.com/news/media-centre/releases/2021/02/bhps-nickel-west-kwinana-refinery-to-reduce-emissions-from-electricity-use-by-up-to-50-per-cent
[16] https://www.austrade.gov.au/ArticleDocuments/5572/Lithium-Ion%20Battery%20Value%20Chain%20report.pdf.aspx
[17] https://www.minister.industry.gov.au/ministers/porter/media-releases/backing-manufacturing-help-charge-australias-future
[18] https://www.industry.gov.au/data-and-publications/technology-investment-roadmap-first-low-emissions-technology-statement-2020/australias-priority-low-emissions-technologies/priority-low-emissions-technologies-and-economic-stretch-goals

the NSW Renewable Energy Sector Board and the Western Australian Future Battery Industry Strategy. This would move beyond the current piecemeal approach of the MMI, ARENA, government and industry to provide a central template for how Australian battery manufacturing capacity can be developed for both domestic and export markets alongside the introduction of central battery storage to the Australian electricity grid.

RECOMMENDATION 4: The Australian Government should develop a National Battery Strategy to coordinate the overlap of energy and industry policy. This strategy would acknowledge the other initiatives being undertaken to support the nascent battery industry in Australia, but help to coordinate their efforts to ensure Australia can take advantage of the opportunities present for battery development.

Further, the Future Battery Industries Cooperative Research Centre states "there are no courses at either the graduate diploma or TAFE level that equip people to work within specific aspects of the battery industry, be it in cell manufacturing or battery-specific electrical skills." Many of the processes linked to mineral mining, battery manufacturing and recycling require a university degree, and sometimes even a graduate diploma or a masters in science or engineering. Most university degrees or graduate diplomas, offered by a private provider, university or TAFE, will require additional courses to produce people with the requisite skills, ensuring faster development for companies to take advantage of opportunities in global and local supply chains. The only apprenticeship-based opportunities are in battery installation, which would require one to undertake a Certificate III in Electrotechnology Electrician, at TAFE.

Governments should investigate the role of public TAFE in delivering graduate courses specific to cell and precursor manufacturing. Governments should also consider the feasibility of establishing apprenticeship and traineeship level pathways to ensure that the labour market in battery and cell manufacturing has enough employees and is not skill starved. This will ensure that blue-collar jobs have a place in the realm of renewable manufacturing.

2.3 Green metals

The AWU covers metalworkers across the country making aluminium, steel, copper, zinc and others. Without these metals, our construction industries stop. These industries are all highly-energy reliant – in the case of aluminium and zinc, particularly on electricity (largely generated by coal and gas on the east coast), and in the case of steel, largely on coal. Australia has the opportunity to transition this industry to newer, cleaner energy sources – steel made with electric arc furnaces (EAFs), powered by renewable

electricity and relying on scrap steel or direct reduced iron; and aluminium and other smelters powered by renewable energy. Commentators like Dr Alan Finkel and Ross Garnaut are confident that Australia has the opportunity not just to continue making metals here, but to be a world leader in green metals, replacing our exports of iron and coking coal with net-zero metals made right here in Australia. The AWU is continuing to work with industry and develop a realistic plan to improve the environmental outcomes of Australia's metals industries while also maintaining and expanding their production, and will be able to share this research later in 2021.

However, as flagged earlier, reliable and affordable energy supply will be necessary in the interim. If these industries are priced out of accessible energy prior to a transition, then they will not come back – just as the car manufacturing industry has not returned. The AWU welcomed the Government's commitment to a 660MW gas peaking generator at Kurri Kurri, noting its importance to ensuring the continued operations of the Tomago aluminium smelter. This generator is not at odds with the need for decarbonisation: rather, it is complementary to wind, solar and hydro power supplies which will largely power the smelter by 2029. The Government should work closely with metal manufacturers to develop an Electrification and Hydrogen Plan specific to the sector – to encourage them to be quick movers and to reiterate their important role to Australia's sovereign capability.