

**Submission by the Australian Manufacturing Workers' Union  
to the inquiry into Jobs for the Future in Regional Areas**



**AMWU Submission – September 2019**

## Jobs for the Future in Regional Areas

### Introduction

The Australian Manufacturing Workers' Union (AMWU) represents over 60,000 workers that manufacture and maintain across regional and metropolitan Australia. We are a union that represents workers in all areas of manufacturing including food and confectionery, metal and engineering, printing, design and packaging, technical, laboratory, supervisory and administrative, and vehicle building, service and repair.

Our union is led by workers in our industries of coverage and has been at the forefront of many campaigns over our 150-year history, both fighting to improve workers' rights industrially, as well as standing up for a fair and equitable society for all Australians.

We campaign for a better deal at work, for strengthening Australian industry, and for good, secure jobs for all Australians. We work to advance our members' interests at a local, national, and global level.

Manufacturing jobs have been an integral part of regional Australia offering safe, secure and high skilled work. Many regional towns have become synonymous with the skill and knowledge intensive manufacturing industries that have flourished in these communities: Geelong and automotive manufacture, Maryborough and rail rollingstock, Shepparton and food processing.

Manufacturing has been the lifeblood of diverse and healthy regional economies across Australia. It has offered a complimentary mix to economies that have been traditionally dependent upon primary industries such as mining or agriculture.

But over the last two decades Australia has experienced a shift to an increasingly two-tiered economy, where regional Australia lags behind its metropolitan neighbours. Regional workers earn 20 per cent less than their metropolitan counterparts<sup>1</sup>, they are likely to experience higher levels of both adult and youth unemployment, and they have less access to vocational or university education.

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<sup>1</sup> ABS Catalogue 6523.0

The decline in Australia’s manufacturing sector has only sought to compound these problems.

### Manufacturing in Regional Australia Snapshot

In February 2019 over 272,000 regional Australians worked in manufacturing, almost twice the number of regional jobs employed by the mining sector<sup>2</sup>. Almost 30 per cent of all manufacturing jobs are based in regional areas. Manufacturing, given its complex nature, relies on extensive supply chains that have a multiplier impact on regional jobs. In advanced manufacturing operations these multiplier factors have been measured to be as high as ten-to-one.<sup>3</sup>

It is no secret that the manufacturing sector has faced significant head winds. Graph 1 depicts total manufacturing employment in Australia over the last decade. From a peak of 1.05 million manufacturing workers in August 2008 the sector has contracted to just over 918,000 by February 2019. This is a decrease of 133,000 manufacturing jobs or 13 per cent.



Graph 1 Total Manufacturing Employment in Australia, ABS Labour Force 6291.0.55.003

<sup>2</sup> ABS Labour Force 6291.0.55.003

<sup>3</sup> Kim Hill, Debra Menk, and Adam Cooper, Contribution of the Automotive Industry to the Economies of all Fifty States and the United States (Ann Arbor: Center for Automotive Research, 2010)

The decline in regional manufacturing over the last decade has mirrored the broader sector nationally. It dropped from almost 318,000 in mid-2008 to 272,000 in February 2019. This was a 14.4 per cent decrease in regional manufacturing jobs, outpacing the rate of total sector decline.



Graph 2 Regional Manufacturing Employment in Australia, ABS Labour Force 6291.0.55.003

A high Australian dollar, the closure of key automotive manufacturers, rising energy costs, restricted access to finance and a lack of industry planning has meant that there has been an increased public perception that Australia is no longer a manufacturing nation.

Too often the same tired argument of Australia being a developed nation with a high cost labour market that cannot compete in manufacturing against its neighbours is wheeled out. The assumption underpinning this statement is that Australia's experience is typical and is not unique. However, this is not the case. The shrinking of the Australian manufacturing sector has occurred at a rate that is unmatched across similar economies.

Germany, South Korea, Sweden, Japan and the United States are all examples of high labour cost countries that have been able to not only maintain their domestic manufacturing industry but also in some instances to grow this sector. From 2009-2014 countries such as Germany (+2.9 per cent), Korea (+12.9 per cent) and the United

States (+6.3 per cent) all saw increases in the number of people employed in manufacturing.<sup>4</sup> Germany is the world's most manufacturing intensive economy and manufacturing continues to fuel the country's sustained growth. While Australian manufacturing contributes a modest 6 per cent to our GDP, in Germany it is a whopping 23 per cent of GDP.

The success of other countries' manufacturing sectors is not down to chance alone. It is driven by strong national leadership that has prioritised the importance of manufacturing and laid the policy framework so that it can flourish. This has been sorely lacking in Australia and it is the regions who bear the brunt of the blow.

When manufacturing operations close in regional communities the impact is not on workers and companies alone. The effect is felt across the entire community especially when alternative forms of employment are limited. Workers are inevitably forced to go to where they can find meaningful employment. Manufacturing jobs in regional centres are vital in binding together communities. To lose them would be to risk watching regional Australian towns and communities to wither on the vine.

### **Stimulating Regional Manufacturing Jobs**

#### *Energy Costs and their Impact on Regional Manufacturing*

Australian industry has long operated on the premise that we are an energy cheap market. This has been the cornerstone of heavy industry in Australia, including manufacturing.

Following the privatisation of state energy assets that promised, and failed, to deliver lower energy prices, we have seen energy costs increase exponentially as consumers compete increasingly with demand from overseas. Graph 3, below, highlights the extent of the rise in energy prices.

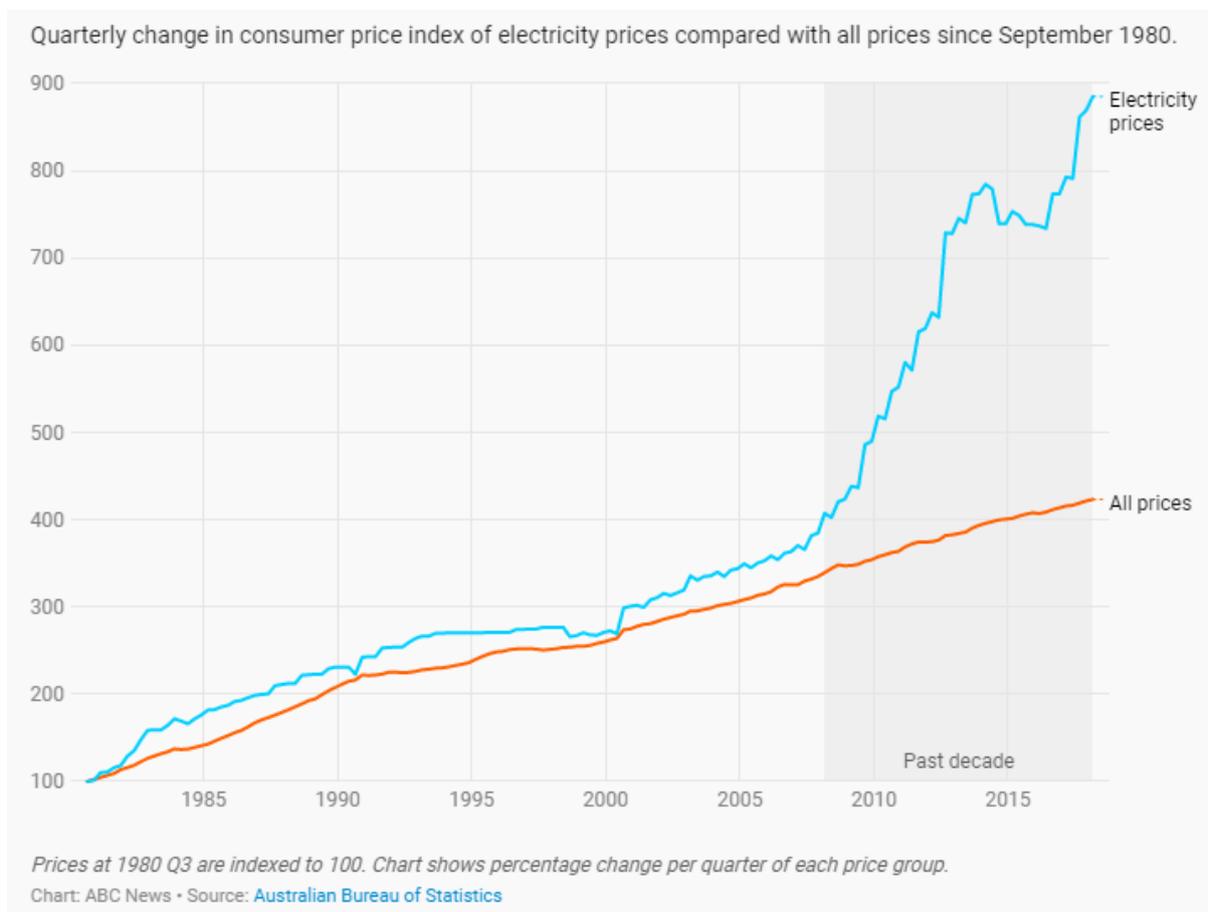
As an energy intensive industry, higher energy costs have disproportionately impacted the manufacturing sector. The Federal Government has done little to instil confidence by

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<sup>4</sup> Jim Stanford, Manufacturing (Still) Matters: Why the decline of Australian manufacturing is NOT inevitable and what Government can do about it, Centre of Future Work, June 2016

at first pushing forward with the National Energy Guarantee (NEG) in 2018 and then turning about face to abandon it. As coal powered generators approach the end of their useful lives little forward planning has been done to develop the next wave of energy generation, whether it be renewables or natural gas. This has resulted in investment flight.

This has a direct impact on regional Australia. One of the most recent examples of this was the August 2019 announcement by BlueScope Steel to invest \$1 billion in its Ohio Steel Mill in the United States instead of its Illawarra facility in regional Australia. The company claimed that this decision was primarily driven by increased uncertainty in Australia's energy market.<sup>5</sup>



Graph 3 – Electricity prices in Australia, ABS<sup>6</sup>

<sup>5</sup> <https://www.afr.com/companies/manufacturing/cheap-us-energy-leads-bluescope-to-1b-ohio-mill-expansion-20190816-p52hxu>

<sup>6</sup> <https://www.abc.net.au/news/2018-07-18/electricity-price-rises-chart-of-the-day/9985300>

The lack of government leadership regarding energy pricing and stability has seen exasperated companies go it alone – using Power Purchase Agreements (PPA) with renewable energy providers to provide costing certainty. In 2018 confectionery manufacturer Mars Australia, a major regional employer in Ballarat, Victoria, reached an agreement with the Kiamal solar farm in North-West Victoria to supply all its electricity needs. Mars cited the price volatility of energy in Australia and its goal to eliminate greenhouse gas emissions from operations by 2040 as the reasons behind this deal.<sup>7</sup>

Australia in the last 30 years has become a leading export of natural gas. This has linked Australia to international markets, but it also has meant that domestic supply has been forced to compete against international demand. In a time when energy costs are skyrocketing it is vital that Australia prioritises domestic use and supply. Gas reservation policies ensure that a small portion of our gas supplies are reserved for domestic use at an affordable price. This rightfully gives Australian manufacturers a competitive edge over other countries. Australia is the only country that allows unrestricted access to natural gas reserves. All other major gas exporting nations have introduced laws and regulations to ensure that domestic consumers are not marginalised in favour of international markets.

Regional manufacturing needs energy stability and security if it can be expected to survive and grow in a globally competitive market. Regional jobs are dependent on a sound energy policy framework and they are increasingly placed at risk by inaction.

***Recommendation:***

**Australia needs a national energy policy that offers certainty, support and stability for local industry. We are an energy rich resource nation – whether it be natural gas, coal, wind, hydro or solar. We cannot afford to squander this advantage and hobble our manufacturing sector with inflated energy costs.**

**Any national energy policy would look to include:**

- **The regulation of energy exports to ensure that domestic industries receive the energy they require and are insulated against peaks and troughs driven by global demand;**

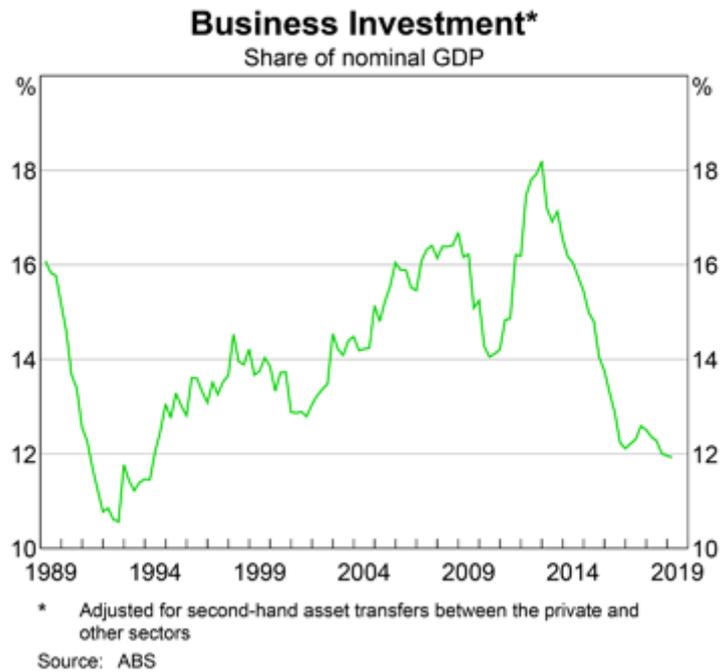
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<sup>7</sup> <https://www.theage.com.au/environment/climate-change/mars-bars-fossil-fuels-and-goes-100pc-renewables-20180530-p4zibw.html>

- **A national interest test to ensure that domestic producers have access to the energy that they need. This is of particular importance for Australia's LNG industry, where a gas reservation policy could be implemented to benefit domestic use;**
- **Offering increased regulatory and policy certainty to local renewable energy projects.**

### *Investment in Regional Manufacturing Jobs*

In Australia banks provide 77 per cent of small to medium enterprises (SMEs) credit and more than 80 per cent of this comes from the Big Four. Since the GFC there has been a marked drop off in business capital investment – as shown in Graph 4 below. The major factor here was the boom bust cycle in mining investment driven by Australia's terms of trade surge that accompanied the industrialisation and urbanisation of China. But there is more to the post GFC capex drought than this. In the post GFC environment Australia's SME's have struggled, particularly fast growing international focused mid market firms in need of expansion capital. More recently the trade war tensions and slowing global growth have disrupted global supply chains and put a further dampener on investment. For regional Australia in particular this is reflected in a tightening of credit, a more risk averse manufacturing sector, as well as slower growth than would otherwise be the case in the high value services that are embedded in the goods production supply chain.



Graph 4 – Manufacturing Business Investment in Australia, ABS<sup>8</sup>

There is a distinct gap in Australia’s finance market that has seen the tap turned off for manufacturing companies. The capital for both manufacturing starts ups and already existing companies seeking to expand has not been readily available. This is particularly the case for SMEs who require the additional capital to expand their businesses, employ more workers and compete on a global playing field.

**Recommendation:**

- **Establish a Manufacturing Finance Corporation, which would operate similarly to the Clean Energy Finance Corporation (CEFC), but with a focus on growing manufacturing jobs.**
- **The Manufacturing Finance Corporation would also be mandated to prioritise projects that deliver investment and jobs to regional Australia. It would also look to provide loan guarantees to small and medium sized manufacturing businesses to facilitate and encourage investment.**

<sup>8</sup> <https://www.rba.gov.au/chart-pack/business-sector.html>

## **Regional Job Opportunities in Manufacturing**

There are a number of green shoots appearing across Australian manufacturing, and in many instances, it is the regions that are leading the way.

Manufacturing has always offered significant opportunities for job creation whether it be fabrication, modification or through life maintenance. However, it is only with the correct nurturing and support that manufacturing jobs can prosper.

Too often we have seen how a slapdash approach to industry policy has led to manufacturers closing and leaving our shores. Electrolux in Orange, New South Wales closed after more than seventy years of continuous manufacturing is a perfect example of how this damages regional communities most – where opportunities for alternative employment may be limited.

## **Renewable Energy in Regional Australia: An Opportunity**

Renewable energy jobs are a growing sector for regional Australia. Australia's abundance of renewable resources – wind, solar and hydro, mean that it has a distinct competitive advantage in the mass production of renewable energy. Given that these renewable projects are often located in rural Australia, regional jobs should be prioritised as part of their manufacture, maintenance and on-going operation.

In 2018 alone, Australia saw a 100 per cent increase in investment in large-scale energy projects, increasing from \$10 billion in 2017 to \$20 billion in 2018. Falling project costs resulted in new large scale-wind and solar projects being built more efficiently than ever. The annual direct full-time equivalent (FTE) employment in the renewable energy sector was estimated at 17,740 jobs in 2018.<sup>9</sup> From 2017 to 2018 there was a 28 per cent increase of FTE employees (3,890 jobs) and this is only expected to grow higher.

Many of the jobs available in renewable energy generation are focused on installation and construction. This is an important part of the industry where the construction phase is often a labour-intensive activity. For example, the Limondale Solar Farm, near Balranald New South Wales, was scheduled to begin construction in October 2018 with

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<sup>9</sup> “ABS – 4631.0 Employment in Renewable Energy Activities, Australia 2017-18

an operational date in mid-2020.<sup>10</sup> During peak construction activity there will be between 100-200 employees engaged. However, once operational there will only be seven full time positions required to maintain and operate the solar farm.

The Limondale Solar Farm clearly highlights the benefits, but also the limitations of renewables construction and installation. Although the initial phase may create job opportunities, the on-going operation and maintenance leave only a fraction of this number. Furthermore, due to the intermittent nature of renewable energy construction projects and their changing locations it means that they are often paired with insecure work.

A more sustainable approach to renewable energy generation and production is one that looks to create a vertically integrated industry – where not only construction and installation of solar panels and wind turbines occurs in Australia but also their manufacture. Australia's policy instability regarding renewable energy has played a significant role in scaring off investment in renewable manufacturing. In 2005 Danish wind turbine manufacturer Vestas was forced to close two manufacturing plants it had opened in Australia after the Commonwealth Government rejected a recommendation to extend the Mandatory Renewable Energy Target.

#### *Case Study: Keppel Prince, Portland Victoria*

Keppel Prince based in Portland, Western Victoria, specialises in the construction, fabrication and maintenance of wind towers. Its proximity in Western Victoria to wind resources allowed it to grow during the 2000s, driven by demand for renewable energy generation. In 2014 a lack of policy leadership from both state and federal governments threatened the ongoing future of Keppel Prince jeopardising over a hundred regional jobs and one of the leading employers in Portland and the surrounding regions.

The election of the Andrews State Government and its commitment to state renewable energy targets provided the company certainty regarding its ongoing future. Key to achieving this certainty has been the introduction of a Victorian Renewable Energy Target (VRET) and Reverse Energy Auctions. This has meant that Keppel Prince now

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<sup>10</sup> <https://www.solarquotes.com.au/blog/limondale-solar-farm-mb0763/>

employs 350 regional Victorians in meaningful, high skilled, renewable energy manufacturing jobs.

The Reverse Energy Auction process is delivering renewable energy and regional jobs: over 900MW of renewable energy while at the same time mandating that these projects achieve a minimum of 63 per cent local content. The Mortlake South Wind Farm, one of the successful auction bidders, has already committed to an advance order of Keppel Prince wind towers to meet local content obligations and maintain a pipeline of work.

The auction process has also attracted global wind turbine manufacturer Vestas to re-open manufacturing and assembly operations in Australia. Vestas have joined with advanced engineering company Marand to use part of the Ford Engine Plant in Norlane, Geelong to assemble wind turbines. This further emphasises the multiplicative nature of sound and robust industry policy and how it is used to create regional jobs.

***Recommendation:***

- **The government should leverage the CEFC and instruments such as Reverse Energy Auctions to both encourage an increased supply of renewable energy projects, supported by an upgraded transmission network, but also to ensure that these projects maximise local content and develop a domestic manufacturing footprint and regional jobs.**
- **Creating a vertically integrated renewable energy sector – where not only construction and installation of solar panels and wind turbines occurs in Australia but also their manufacture, assembly and through life maintenance.**

**Rail Rolling Stock Manufacture and Regional Australia**

Ubiquitous throughout many regional centres around Australia are the rail sheds and workshops that have at various stages directly employed thousands of Australian rail workers. Some of these facilities have been modernised and remain in use today – Maryborough, Queensland, Ballarat & Bendigo, Victoria, and Newcastle in NSW. Others like the Aurizon workshops in Rockhampton have been sadly shuttered.

In a country as vast and geographically dispersed as Australia, rail has always played a special role. And it will continue to going forward.

What has been characterised as an ‘infrastructure tsunami’ of investment is set occur during the mid-2020s. The medium-term outlook for the rail sector is the strongest of all engineering construction markets in Australia. Total activity is expected to grow at approximately eight per cent per annum over the next five years, with annual spend reaching a peak of \$8.3 billion by 2021.<sup>11</sup> This infrastructure work will deliver projects such as Inland Rail, Melbourne’s airport link, Victorian regional fast rail to Geelong and Ballarat, Cross River Rail in Brisbane, and the various iterations of Sydney Metro. All of these infrastructure projects will require rolling stock. And it is in the manufacture of rail rolling stock that regional Australia excels.

#### *Case Study: Maryborough, Queensland*

Maryborough, in regional Queensland is a great example of the result of favourable economic investment and sound manufacturing industry policy by the Queensland State Government. By the end of 2020, Maryborough will continue to play host to Downer EDI Rail operating one of Australia’s largest rail rollingstock manufacturing sites. The Maryborough factory has a long history of manufacturing rollingstock for Queensland, but also for the rest of the country – 78 three-car sets were manufactured for the Perth metro rail between 2004 and 2019.

However, the future of this site was recently jeopardised when the Next Generation Rail program for Brisbane’s suburban rail fleet was awarded to an Indian based manufacturer. But by securing a \$400 million maintenance contract from the Queensland State Government the site’s future was guaranteed representing significant investment in regional manufacturing jobs.

The cyclical nature of rollingstock procurement means that instances like the Maryborough example are far too common. The peak and troughs of procurement, especially when overseas competitors can leverage economies of scale, mean that rail manufacturing hubs in regional areas often face periods of uncertainty.

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<sup>11</sup> Australian Railway Association Skills Capability Study, Skills Crisis: A Call to Action – November 2018

Too often States seek to “go it alone” with rail procurement where there is little standardisation or harmonisation between state rail networks and there are reduced economies of scale.

*Case Study: Intercity Regional Rail and Illawarra, New South Wales*

This is perhaps best characterised by the New South Wales State Government’s decision in 2016 to award the contract for the new Intercity Regional Rail fleet to a South Korean consortium. The 512 rail cars are set to be delivered for a contract worth \$2.3 billion over a fifteen-year period. The State Government decided to procure the cars in South Korea despite one of the primary rival bids proposing to manufacture and assemble them in Illawarra, creating 600 direct jobs in one of New South Wales highest unemployment regions.

As described in the Centre for Future Work’s report “Penny Wise & Pound Foolish” the claim that the South Korean bid was 25 per cent cheaper at face value does not stack up when factoring in the positive externalities of large scale investment and manufacturing when it occurs in regional areas – direct employment, benefits to upstream and downstream industries, expanded supply chains. The project itself has also been plagued with delays and issues regarding the upgrade of stations to accommodate the new trains.

***Recommendation:***

- **Commonwealth and State Governments should maximise the benefit to regional communities from the significant investment in rail infrastructure that will be made over the next decade.**
- **Increase coordination between state and federal governments to tie infrastructure spend to rail rolling stock procurement in Australia.**
- **Prioritise existing regional rolling stock manufacturing sites such as Maryborough, Ballarat and Newcastle and the Hunter Valley for rail procurement.**

## The Lithium Value Chain

The Greenbushes lithium mine south-east of Bunbury in Western Australia is the world's largest and highest grade spodumene, hard rock, deposit from which lithium is extracted. It currently supplies 40 per cent of the world's lithium resources<sup>12</sup> and in 2018 exported \$1.2 billion worth of spodumene. The demand for lithium is largely driven by its use in lithium ion batteries that vary in size and use from small batteries in mobile phones to medium sized batteries used in cars and large batteries that can be used in homes combined with solar panels, and ultra-big batteries that can be used utility storage – as in South Australia's Tesla lithium ion battery.

Australia has long employed a “dig it, ship it” approach to raw mineral mining. This has come at the expense of any value-add processing or manufacturing occurring in Australia. The result of this has been that the revenues earned from the resources sector are then spent paying for value added imports made from our resources. This has meant that Australia has suffered the fluctuations, boom and bust, that are associated with staples dependence.

Exporting raw spodumene is further problematic as a long term, sustainable strategy as the race to take advantage of initially high raw material prices resulted in a global oversupply and a softening in global lithium prices.

Lithium offers Australia, and in particular regional Australia, a chance to break its staple dependence and invest in downstream lithium manufacturing and processing jobs. The first step is ensuring that all refining of raw lithium occurs in Australia. There are a number of companies investing in domestic refining – US company Albermarle have started construction of a \$1 billion facility that refines lithium hydroxide north of Bunbury in Western Australia.

According to Austrade Australia has captured just 0.53 per cent of the ultimate value of its ore exports. There is an enormous opportunity for value added manufacturing to make the most of this opportunity. Australia should be adopting a ‘bean to cup’ approach to lithium that prioritises local: mining and extraction, processing and refining and the manufacture of lithium-ion batteries. This value chain is an opportunity to create

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<sup>12</sup> <https://lithium-au.com/greenbushes/>

thousands of high skilled Australian manufacturing jobs and the vast majority of them can be regionally based.

Australia currently produces nine of the 10 mineral elements required to make most lithium-ion battery anodes and cathodes, and has commercial reserves of graphite, which is the remaining element. In addition, it has secured access to all the chemicals required for lithium-ion battery production, according to Austrade.

There are a number of ambitious proposals to start up lithium battery production in Australia. The most encouraging of these is Imperium3's Townsville lithium ion battery factory. The planned \$2 billion "gigafactory" has received financial sector support from NAB and also from the Queensland State Government that signed an assistance agreement to provide \$3.1 million to complete a feasibility study. The project is expected to create 2,000 direct jobs at the manufacturing facility and up to 5,000 indirect jobs in the region.

The final step of the lithium value chain is in electric vehicle manufacture. The development of the market for electric vehicles (EVs), in the global context of a carbon constrained future, provides the federal and state governments with an opportunity to secure Australia a place in a growing market. This industry would provide high skill, high wages jobs now and in the future and the global race is on to secure them.

Manufacturers like SEA EV based in Gippsland, Victoria have re-fitted Hino, Isuzu and Ford trucks with electric batteries. SEA EV has also recently opened a manufacturing site in Los Angeles. While in Australia SEA EV have not benefited from government grants or funding, this is starkly different to their experience in the United States where there have been significant incentives for electric vehicle manufacturers.<sup>13</sup>

Lithium offers Australia an opportunity to create a robust industry that supports thousands of regional jobs. So much in this space is already occurring, it only requires the correct Government support to ensure that the maximum benefit flows back to regional Australian communities.

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<sup>13</sup> <https://www.theaustralian.com.au/inquirer/making-electric-trucks-without-subsidies/news-story/4c39cf772c9a15850ed84a16e89424d7>

***Recommendation:***

- **Establish a National Lithium Industry task force with the expertise and resources to support the growth of the industry;**
- **Champion battery Research and Development creating links between industry, the CSIRO, government and universities;**
- **Leverage public procurement policies – such as the home solar battery rebate/subsidy in South Australia, and prioritise access to these programs to Australian manufactured battery systems; and**
- **Mandate that approval of new mining approvals is conditional on domestic refining of Lithium.**

**Defence Industry in Regional Australia**

The Australian Defence Industry plays a significant role in regional economies across the country. The Department of Defence has provided investment to build the innovation capabilities of regional Australian industry and research organisations, and to deliver innovative solutions for Defence capability in regional areas.

Defence facilities in regional areas have a positive effect on the local economy, as the department draws support from local contractors and suppliers in the area. This effect is not only through direct employment or contracting but is also indirect economic and social support through employment, community development, childcare facilities, housing and economic activity of defence members and their families. The Australian Defence Force has regional hubs across regions such as Newcastle, Wollongong, Albury, Cairns, Maroochydore, Toowoomba and Townsville.

The effect of the direct and indirect contributions made by each defence precinct to their relevant economic catchment regions varies significantly between precincts. The multiplier effect on the economy is relative to the size of the defence precinct, scale and intensity of the regional and state economy in which it is located.

North Western Victoria is a defence industry hub. Broadspectrum and the Department of Defence maintain a key maintenance base in Bandiana, Thales have munition production facilities in Benalla and Mulwala, Bendigo produces the Hawkei and there are number of smaller manufacturers that are integral parts of the Defence supply chain.

Regional manufacturing hubs, like in North Western Victoria where businesses in the same industry are placed geographically close together and can build supply and information sharing networks, benefit from industry cluster policy. The impact that these clusters is only furthered magnified when they are partnered with learning institutions such as universities and technical colleges that can bolster research and development.

***Recommendation:***

- **Identify areas and locations for manufacturing clusters;**
- **Use public procurement and industries like defence manufacturing to anchor these clusters;**
- **Support clusters with educational institutions such as regional TAFEs and Universities to drive training, re-skilling and research and development;**  
**and**

**Green Hydrogen Production and Export Opportunities in Asia**

Clean hydrogen offers a massive opportunity for Australia – both in domestic consumption but also in exporting to our neighbours like South Korea and Japan.

Hydrogen can be used as a fuel for transport – buses at the 2020 Tokyo Olympics will have hydrogen fuel cells; Germany became the first country to commission a hydrogen powered train manufactured by Alstom. It can also be used for energy storage and can substitute natural gas as a source of industrial heat.

Since 2011 the Japanese government has spent \$16 billion in hydrogen research and development. Although hydrogen is produced as a fuel around the world it is rarely generated from renewables by electrolysis – largely because few countries have sufficient renewable economies of scale to achieve this.

Pure hydrogen can be produced in several different ways<sup>14</sup>:

- Brown hydrogen – produced from natural gas via steam methane. This produces hydrogen and CO<sub>2</sub>.

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<sup>14</sup> Source: H2 Taranaki Roadmap

- Grey hydrogen – a process that uses the excess waste from Brown hydrogen, purifying and refining it further. It creates no further additional emissions, other than those already emitted as part of the Brown hydrogen process.
- Blue hydrogen – produced either by steam methane reforming or coal gasification, but the CO<sub>2</sub> emitted is captured and not released into the atmosphere.
- Green hydrogen – produced via electrolysis which is the process of using electricity to split water into hydrogen and oxygen. When the electricity is generated from a renewable source this process is emissions free.

Australia is uniquely placed with large renewable reserves to become the green hydrogen supplier of Asia. The proposed Asian Renewables Hub in Western Australia near Port Hedland would generate 11,000 MW of energy (approximately twice the size of Snowy Hydro), with most of it used to create green hydrogen which will be then shipped to Asian markets.

The opportunity for regional Australia in hydrogen production is two-fold: firstly, the large-scale renewables required for electrolysis, whether it is sourced from Solar, Hydro or Wind, will require manufacturing, construction and through life maintenance. And secondly, the process of electrolysis will require laboratory and technical work as part of the production of green hydrogen fuel cells.

At the moment there is no large-scale green hydrogen production operation in Australia. The first export of hydrogen occurred in Queensland where the Government-owned Redlands Research Facility pilot plant on the Gold Coast made its first delivery to Japan. The Queensland Government has released a Hydrogen Industry Strategy that has further committed \$5 million into studying the feasibility of a hydrogen plant at the Stanwell Power Station outside Rockhampton.

At the Commonwealth level, the COAG Energy Council recently established a Hydrogen Working Group to develop a national strategy to:

- build a clean, innovative and competitive hydrogen industry; and
- position Australia's hydrogen industry as a major global player by 2030.

Government support for this emerging industry will be critical in ensuring its long-term viability and job creation potential. Inaction and a lack of leadership put at risk future regional jobs and the industry. For both domestic and export markets, infrastructure to enable the safe and efficient transport and storage of hydrogen is needed.

As the global economy transitions, Australia will need to ensure transition plans for workers, particularly the workforce made most vulnerable by this transition. Regional Australia already has a skilled workforce with experience in the energy and associated manufacturing and production sectors. There will be a strong need for skilled workers throughout the hydrogen value chain and therefore represents an opportunity to transition the workforce to a growth market.

If governments can harmonise their approaches and ensure the preconditions for the industry are present such as, transport and storage options, and an appropriately skilled workforce, regional Australia is perfectly suited for hydrogen production.

***Recommendation:***

- **The CEFC have the funding and resources to support the growth of an export focused hydrogen energy industry;**
- **The CEFC's mandate should prioritise the creation of regional jobs as part of any loan or guarantee scheme put in place to support the industry; and**
- **Invest in infrastructure that will facilitate the export of hydrogen – ports, pipelines, energy transmission.**

**Industry Transition: Lessons Learned**

The AMWU has a proud history of standing side by side with workers in communities and industries that have undergone significant upheaval and change. We have seen firsthand the devastating impacts that industry closures have on workers, their families and their communities, especially in regional Australia.

The AMWU is not a union that can afford to stick its head in the sand regarding industry transition. In transitions prior, long after Government agencies and media interest have waned, our members and their communities still deal with the lingering the impacts of

industry change. Whether it be the steel industry in Newcastle, automotive manufacturing in Geelong or power generation in Gippsland and the La Trobe Valley, we are acutely aware of the consequences and magnitude of industry change and the impact it has on working Australians.

The lessons learned from previous industry and structural changes in our economy are clear:

- A response to industry transition or closure must be proactive. We must face the hard truths in our economy and respond to them. Too often support from Governments for regional communities facing closures is too late and reactive.
- Industry transition, especially in regional areas needs central coordination and resourcing. This can occur in the shape of a Commonwealth Statutory Authority that is adequately resourced and tasked with addressing industry transitions.
- Decision making regarding industry transition should be tripartite – involving government, business and trade unions and the broader community.
- Industry transition planning does not happen overnight. The difference between the approach adopted by Australia to structural changes and transitions and how it was achieved by Germany when transitioning its coal mining industry in the Ruhr Valley is stark. By employing effective stakeholder collaboration, forward planning, investment in industry diversification and staggering of mine closures the German government were able to deliver a major structural transition that resulted in no forced redundancies. This was planned and agreed upon decades in advance.
- Re-skilling and training opportunities are key. The access to skills training and re-training plays an important role in alleviating the effects of industry restructuring on the workforce. To achieve this training must be a fundamental part of transition packages and developed in consultation with the regional labour market.

*Case Study: Hazelwood and the La Trobe Valley Transition, Victoria*

“Best Practice” concerning the closure of mines and electricity generation plants advises long-term planning and close collaboration between companies, trade unions, governments and community stakeholders on the socio-economic impact of the transition process. Despite widespread calls from unions and the community for proactive government programs to phase out the Hazelwood power station, it took until the closure was announced for both state and federal to offer their transition policy packages.

Prior to its closure in 2017, Hazelwood was one of the oldest coal-fired power stations in Australia. The final decision to close was made in November 2016 and this was swiftly followed by the actual closure only five months later. On the day of the closure announcement, the Commonwealth Government announced a \$43 million package to assist workers affected by the Hazelwood closure.

This package aimed to assist the community in diversifying the local economy by providing:

- \$20 million to support local infrastructure
- \$3 million to provide a labour market structural adjustment package
- \$20 million as part of a Regional Jobs and Investment Package

The Victorian Labor Government responded to the Hazelwood closure by announcing the largest regional assistance package in Victoria’s history. The Government announced \$22 million in assistance for workers in the Latrobe Valley region and the establishment of the Latrobe Valley Authority to lead work on the economic transition. In addition to this the Government later announced \$224 million of funded aimed at promoting economic growth, business investment and job creation in the wider community.

The Hazelwood closure followed a similar pattern to other coal power station shutdowns that have occurred in Australia. On average workers receive four months’ notice for plant closures. The Northern power station in Port Augusta, South Australia did not receive any financial support or transition package from State or Federal Governments for six months post closure.

### *Case Study: Newcastle/Hunter Valley – Approaching Transition*

The AMWU represents thousands of members working in the Hunter region of NSW, with the majority of these in the coal, power generation, or aluminium industries. These workers and communities will be heavily impacted by the transition away from fossil fuels and recognise the imperative to act. AGL has already announced that it will close all existing coal-fired power stations by 2050, starting with Liddell and Bayswater power stations which are both located in the Hunter.

Like most regional communities, the Hunter already faces disadvantage in areas of employment, education, infrastructure, and service provision. In 2015, the Hunter Valley recorded the second highest unemployment rate, and the highest regional youth unemployment rate, in NSW. It also records lower levels of post-school qualifications than the state average, and lower median incomes than the national average.

The renewable energy industry presents many economic opportunities for this region, where much of the state's electricity infrastructure already exists. This makes it a natural region from which to drive the NSW renewable energy industry and provide local jobs for an existing skilled workforce.

There are several steps that could be taken to transition this region into a renewable energy hub:

- Establishing the Hunter Transition Authority, a local statutory body charged with managing the region's transition. The Authority would work with State and Federal governments, businesses, unions, and other stakeholders to encourage and oversee investment and procurement of local jobs in alternative industries, maximising local content in new projects.
- Turning research capability into jobs, using existing research facilities in Newcastle including the National Solar Energy Centre, the Renewable Energy Integration Facility, and the Newcastle Institute for Energy and Resources – a globally competitive research centre. Connecting Newcastle's world-class research capability with its world-class manufacturing industries will attract investment that will stay in the region.
- Redirecting workers into new industries, through a skills audit and mapping of current and future industries that workers could transition into. The Hunter

Transition Authority could oversee this process in consultation with employers, unions, and the VET sector, to develop a strategic plan incorporating a benefits program for impacted workers, retraining, career advice, relocation allowances, and other support.

- Developing a procurement and investment strategy to support job creation in local industries, particularly building on Newcastle's history as a world-class manufacturing region. This would include transport and defence manufacturing, as well as land rehabilitation, regeneration, recycling, and forestry.
- Investing significantly in TAFE to deal specifically with the industrial transition, including upgrading TAFE facilities in the Hunter and Newcastle regions, encouraging partnerships with local industry, and expanding workplace development programs to help businesses upskill workers.

Historically, industrial transitions elsewhere have been handled poorly, leaving communities devastated by unemployment and population drain. However, the existing manufacturing capabilities, skilled workforce, and energy infrastructure in the Hunter and Newcastle regions, presents a unique but time-sensitive opportunity to get this transition right for workers and communities.

A key component of this will be genuine and ongoing consultation with workers and communities in the Hunter and Newcastle regions, institutionalising this through forums, inquiry hearings, and community meetings with representatives from Unions, government, businesses, and other bodies.

## **Conclusion**

The current opportunity for the growth of long-term, secure and sustainable regional manufacturing and maintenance jobs in Australia is immense, but it requires action from government to ensure these regional communities do not miss out and are left behind the rest of the country. There is no better time for Australia to leverage the export prospects offered by Green Hydrogen and the lithium value chain. The Federal Government must utilise procurement opportunities in rail, defence and renewable energy manufacturing and maintenance and setup the correct authorities to ensure the longevity of regional communities all around Australia that rely on the jobs created and

sustained by these industries. The experience globally and locally compels the government to take action – for the unique opportunity to build these jobs for the future in regional Australia will not last – and we cannot afford to wait.