Sharing the benefits with workers: A decent jobs agenda for the renewable energy industry

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From the President of the ACTU, Michele O'Neil

The Paris Climate Agreement requires that all signatories, including Australia, develop ambitious national targets and timelines to decarbonise our economy. It also requires that parties to the agreement take into account *"the imperatives of a just transition of the workforce and the creation of decent work and quality jobs"*[1]

Australia is experiencing a rapid, and at times chaotic, energy transition. With no enduring national climate or energy policy, this transition is happening without the necessary national leadership and planning to maximise the benefits of, and support communities through, a transition to net zero emissions. Unlike nearly 50 other nations, Australia has no process to develop a national just transition plan as part of its Paris commitment.

Despite this lack of national leadership Australia's renewable energy industry has developed rapidly to become a major industry and employer, with at least 27,000 Australians employed in the sector, which could grow to 45,000 jobs by 2035. Yet many of these new jobs lack the security and conditions of the jobs at fossil fuel power stations and mines.

Australian unions support action to address global warming and a jobs-rich energy transition. With the renewable energy sector likely to continue its rapid growth over coming years and decades, we want to help establish the industry on solid foundations and ensure that the benefits of the industry's growth are shared with workers and communities host to clean energy projects in the form of secure, safe and well-paid jobs with training and career progression opportunities.

This report outlines the opportunities ahead in creating decent, well-paid renewable energy jobs, and the experiences of workers, both good and bad, in the industry to date. It then suggests a series of solutions for project developers, governments, investors and purchasers of renewable energy to adopt to ensure improvement to the quality of jobs in Australia's clean energy industry.

Australia doesn't have to choose between good jobs and a safe climate. We can, and must, achieve both.

Michele O'Neil

November 2020

Front cover image: Workers finalising construction of the Crowlands wind-farm, north-west Victoria, RMIT

[1] United Nations, Paris Agreement, 2015, p.2

1. Executive Summary

Driven by the imperative of climate change, rapid technological development and ageing fossil fuel generation, global energy markets are changing rapidly.

Australia is not immune to these changes. Our electricity and gas markets and networks are undergoing a dramatic and at times chaotic transformation with no enduring overarching national planning, policy or coordination. Despite this the renewable energy industry has experienced rapid growth over the past decade, to the point where the ABS estimates it employed nearly 27,000 Australians[2] in 2018/19. This growth in renewable energy jobs is being replicated globally and is predicted to accelerate over coming years due to declining renewable energy technology costs, converging global efforts to slow global warming and the retirement of ageing fossil fuel plant. The future competitiveness of energy-intensive industries such as mining, metals smelting, recycling and manufacturing is also increasingly dependent upon having access to low emissions, low cost electricity.

Section 2 of this ACTU report briefly summarises the extent and types of employment in Australia's renewable energy sector, and the characteristics of those jobs. It explores the industry's growth prospects and the current status of deployment of large- and small-scale renewable energy technologies. The changing drivers for new investment in renewable energy projects are discussed including the growing influence of voluntary purchasers of, and investors in, renewable energy who will be looking to ensure renewable energy projects deliver maximum community benefits and good quality jobs.

Section 3 outlines why unions have had concerns about the quality of renewable energy jobs and why the industry needs to pay more attention to this aspect of its social licence. In large part the union movement's experience has been that many new renewable energy jobs have been short-term, insecure and poorly paid, compared with the permanent, secure, well-paid and unionised jobs in coal, oil and gas that often underpin regional economies. It explores some of the structural and operational challenges that need to be overcome to make the renewable energy industry an industry of choice for workers. Particular attention is paid to the current practice of outsourcing construction of renewable energy projects to labour hire contractors, which is where many of the poor employment practices occur, and to ensuring project developers are maximising local job creation through procurement, hiring and local content planning.

Section 4 provides some examples of both best and worst cases of labour standards in the industry and highlights some issues particular to the small scale solar industry.

The report concludes in section 5 with an agenda developed by Australian unions to improve the quality and security of jobs in the renewable energy sector so that a low carbon future delivers secure and sought-after jobs for the current and future generations of Australian workers. This best practice agenda, if adopted, will establish Australia's renewable energy industry on solid foundations to support the growth and competitiveness of the industry and will ensure the benefits of renewable energy projects are more fully shared with workers, their families and communities through guaranteed local jobs and stronger employment conditions.

Australian unions are ready and willing to work in partnership with Australia's renewable energy industry, governments and the energy sector to ensure a successful energy transition that creates good quality jobs across the country and a bright future for the industry. We look forward to working with the renewables industry, renewable energy purchasers and investors and governments to achieve this vision.

[2] https://www.abs.gov.au/ausstats/abs@.nsf/productsbytopic/58E7A93514A911F0CA25827B001AA6D2?OpenDocument

2. The current status of renewable energy jobs

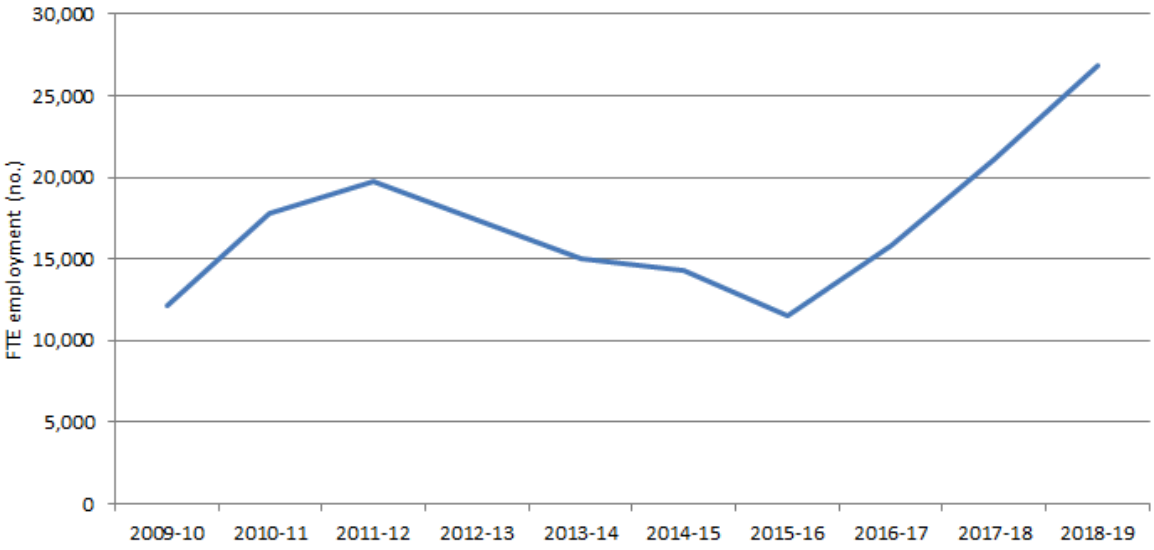
2.1 How many jobs are there in renewable energy in Australia?

In April 2020, the ABS released a paper (updated annually) summarising estimates of direct full-time equivalent (FTE) employment in renewable energy activities in Australia.[3]

The ABS concluded that in in 2019-19 there were 26,850 jobs in the renewable energy industry in Australia.

As Figure 1 below shows, this was an increase of 5,770 jobs in FTE employment (27%) from the previous year (2017-18).

Figure 1: Annual direct FTE employment in renewable energy activities in Australia, 2009-10 to 2018-19



The increase of FTE employment in renewable energy activities between 2017-18 and 2018-19 was driven by an increase in construction activity for roof-top solar photovoltaic (PV) systems (2,880 additional FTE jobs), large scale solar PV systems (1,600 additional FTE jobs) and wind farms (1,220 additional FTE jobs).

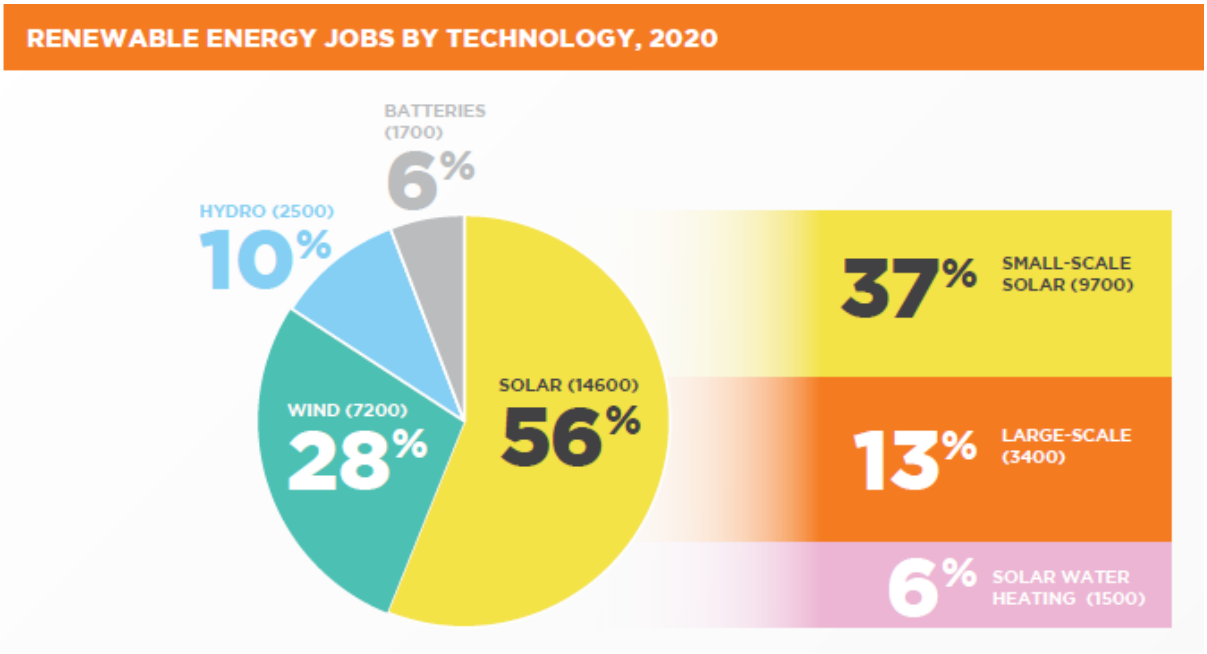
The ABS employment numbers were largely mirrored by a 2020 report 'Clean Energy at Work' commissioned by the Clean Energy Council and completed by researchers at the Institute for Sustainable Futures, University of Technology Sydney (ISF).[4]

That research found that renewable energy jobs are split across the following technologies:

[3] ABS, ibid.

[4]Clean Energy Council, Clean Energy at Work https://www.cleanenergycouncil.org.au/resources/resources-hub/clean-energy-at-work The full report is available here: Briggs, C., Rutovitz, J, Dominish, E & Nagrath, K. (2020) Renewable Energy Employment in Australia.

Figure 2: Where the jobs are by technology[5]



With the exception of mature renewable energy sources like hydro and biomass where job numbers are relatively stable, most employment in the wind and solar sectors is associated with construction activity and is therefore more volatile and subject to surges and declines depending on annual investment.

ISF estimates that on average two-thirds of the employment in the renewables industry comes from regional areas and one-third is in capital cities. Construction workforces vary from being locally hired to operating like 'fly-in fly-out' operations - the main variables in this being the approach of the developers, the policy regime (Australian policy settings have tended to create 'boom-bust' cycles which make it hard for projects to train and source local labour) and the availability of local, skilled labour.[6]

There are a range of direct and indirect economic benefits of projects for local communities. The indirect benefits occur from the expenditure of the workforce in the community (e.g. hotels, restaurants, shops). The direct benefits occur from procurement (cabling, concrete, fencing, local skills development etc) and the engagement of local labour.

Wind farms employ larger numbers than solar farms, including a greater proportion of trades and technicians and a significantly higher proportion of on-going electrical and mechanical maintenance workers.

[5] Clean Energy Council, ibid.

[6] Business Renewables Centre Australia (BRCA), Renewable Energy Power Purchase Agreements: Maximising Social Benefits & Minimising Risks, June 2020

MUA workers load wind towers onto a ship for a new Tasmanian wind farm. Pic: MUA

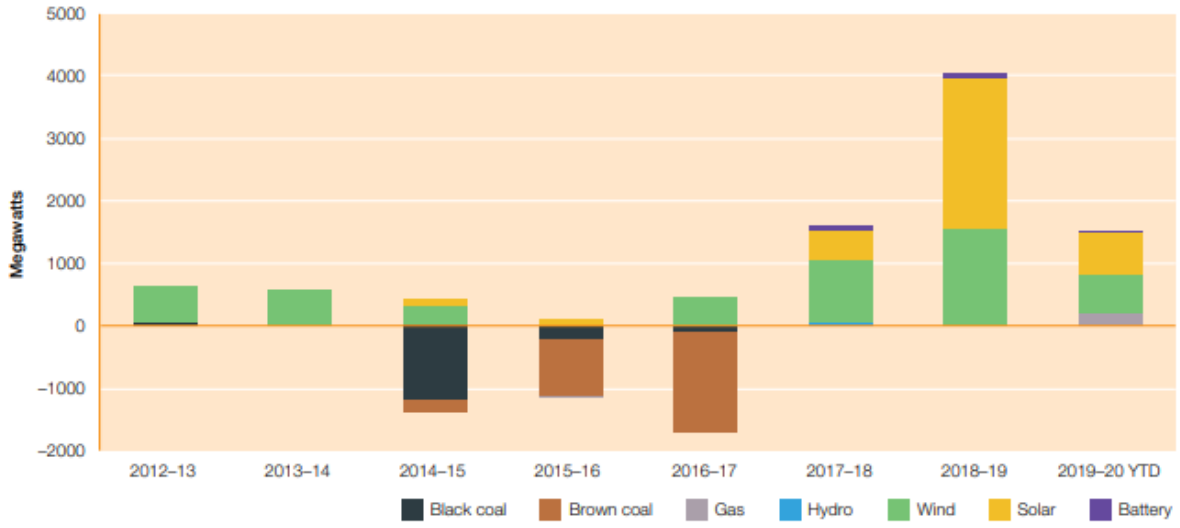
As 'Clean Energy at Work' highlights, as the installed capacity of renewables increases the balance shifts from short-term construction jobs to more enduring and locally based operations and maintenance jobs (which could be as high as half of renewable energy employment by 2035), though there is a risk that these jobs are outsourced to contractors rather than being permanently located in the host communities.

2.2 The drivers for renewable energy investment are changing

As at October 5 2020 renewable energy has provided 25.4% of electricity generation in the National Electricity Market (which excludes WA and NT), in the past 12 months, with the remainder provided by brown coal 17%, black coal 50%, and gas about 8%[7]. The renewable energy share is up from around 10% a decade ago. The entry and exit of generation from the National Electricity Market is summarised in the Energy Security Board graph below:

[7] https://opennem.org.au/energy/nem

Figure 1.1
Entry and exit of generation capacity in the NEM



Note: Capacity includes scheduled and semi-scheduled generation, but not non-scheduled or rooftop PV capacity. 2019–20 YTD includes data to 31 March 2020.

Source: AER; AEMO (data).

The major driver of renewable energy investment in Australia has been the Federal Government's Renewable Energy Target (RET) which mandated that electricity retailers source 20% of the electricity they sell from renewable energy generators.

That program, which started slowly, saw investment in large-scale renewable energy peak from 2018-20. Currently there is a boom in the construction of large-scale renewables that is mostly the last gasp of the RET. About 11 GW are currently under construction supporting over 14,000 construction jobs according to the Clean Energy Council[8]. These projects are likely to be complete by 2022 when it is predicted that the share of renewables in the National Electricity Market will be about 35% as projects under construction start generating electricity.[9]

The imperative of climate change and the fact that new solar and wind farms are the lowest cost form of new electricity generation in most locations means that the transition to renewable energy is inevitable over the long term.

The shorter term trajectory is however more uncertain. Now that the RET has been fully subscribed, investment in large scale renewable energy is likely to slow considerably from around 5-7 GW/year currently to 2-3 GW/year[10] from 2021 with some likely associated job losses. Difficult economic conditions and challenges in connecting to the transmission grid are already further stalling investment[11].

The new drivers for renewable energy investment will be state renewable energy targets and reverse auctions (mainly in Victoria and Queensland, and potentially in NSW), upgraded transmission in renewable energy zones (NSW), and corporate and public sector decisions to power their organisations with renewable energy (eg all 4 major banks are in the process of

[8] https://www.cleanenergycouncil.org.au/resources/project-tracker

[9] https://reneweconomy.com.au/know-your-nem-more-renewables-lower-prices-questions-over-battery-storage-28640/

[10] The level of this decline will largely be determined by the ambition and timeliness of state renewable energy programs

[11] https://www.rystadenergy.com/newsevents/news/press-releases/covid-19-renewable-projects-stalled/

powering their businesses with renewables). Remote mining operations are also increasingly looking to use renewables as the cheapest source of electricity.

Unlike the large-scale renewable energy industry which has been on a boom-bust cycle, small scale renewables, in particular solar PV and hot water, continue their relentless growth- the annual growth rate of installed capacity is about 20%. As at the end of June 2020, there are over 2.46 million PV installations in Australia[12]. Each month another 25,000 solar PV installations are added nationally on homes and small businesses.

2.3 Renewable energy jobs are likely to increase in number

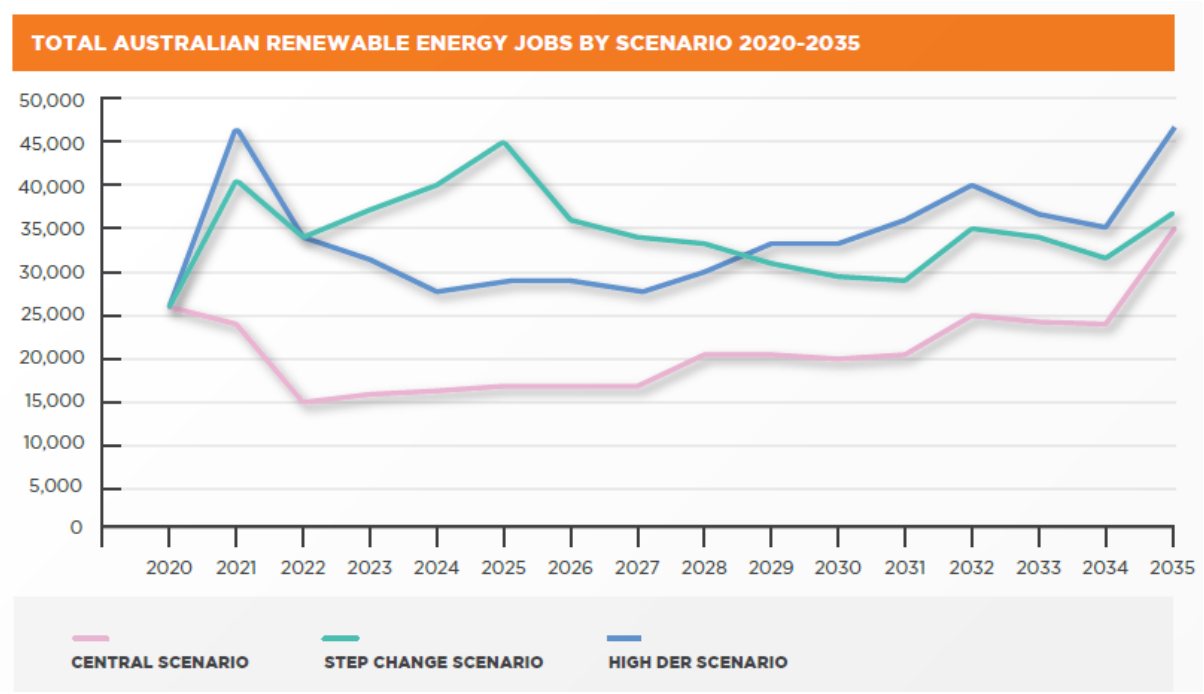
The Clean Energy at Work report[13] maps out a number of projections for renewable energy employment in Australia over the next decade based on scenarios from the Australian Energy Market Operator's Integrated System Plan used for future planning, with the major variable being the ambition of state and federal climate and energy policy, the mix of small scale versus large scale renewables and whether hydro power or battery storage becomes the primary technology to 'firm' renewable energy. The graph below shows the number of renewable energy jobs in Australia under each of these 3 scenarios. As can be seen in the most conservative scenario (which is essentially a business as usual scenario with no new climate or energy policy), there are still a minimum of 15,000 jobs in the Australian renewable energy industry, noting that the report only looked at wind, solar, hydro, and batteries industries, so approximately 1,500 bioenergy jobs and 1,800 associated professional jobs are not included. This is a very significant drop from current job numbers. More aggressive growth scenarios see as many as 45,000 renewable energy jobs.

Importantly even the most aggressive scenario modelled could be exceeded if a high renewable export scenario eventuates, for electricity export with electricity export via high voltage DC cables to south-east Asia, hydrogen production or increased minerals processing using renewable energy. If these plans, promoted by Professor Ross Garnaut and others, are realised, there may be many more renewable energy jobs again.

More jobs again could be created if off-shore wind, bioenergy and geothermal industries were established in Australia. To date these technologies have either been higher cost or less mature and are therefore under-represented in planning exercises like AEMO's Integrated System Plan. These technologies however are rapidly benefitting from greater global deployment. Off-shore wind in particular has been accelerating dramatically globally, to the point that cost-reductions may make the technology a viable competitor on cost with on-shore wind in Australia, particularly as the proportion of renewable energy in the system increases. Offshore wind projects are currently in development in Victoria, NSW, and Western Australia. These projects are located in areas with good grid connection projects which often coincide with retiring fossil fuel assets.

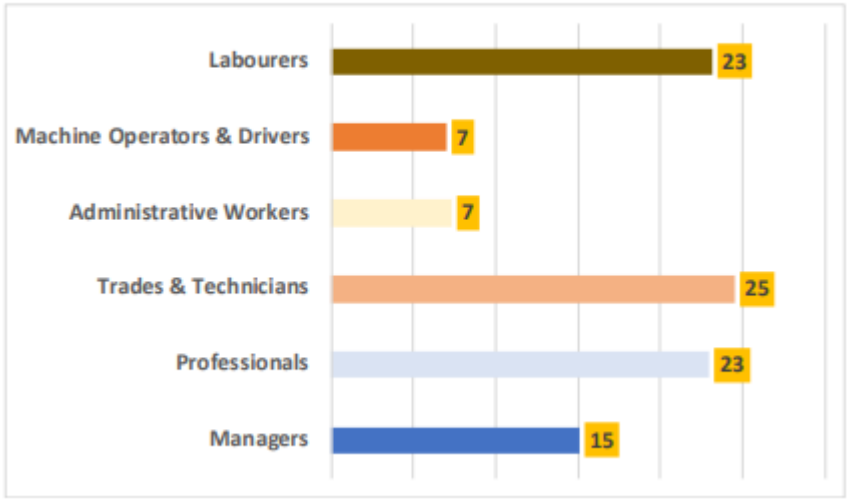
[12] Australian PV Institute, https://pv-map.apvi.org.au/analyses

[13] Clean Energy Council, Clean Energy at Work https://www.cleanenergycouncil.org.au/resources/resources-hub/clean-energy-at-work



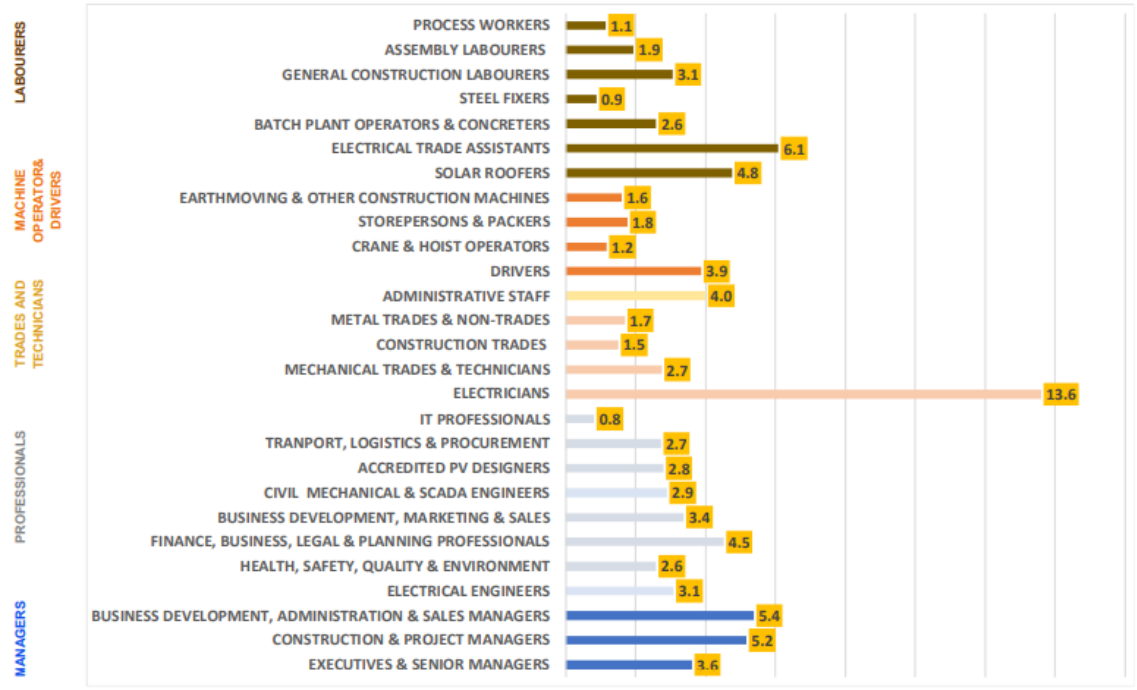
The clean energy jobs in the 'step change' scenario are distributed across a broad range of professions and trades, some of which are highly skilled and well-paid and others less so. The graphs below, from the Clean Energy at Work report, estimate the distribution of jobs by occupation, first at a broad level of categorisation and in the second graph in a more detailed breakdown.

Figure 2 Renewable energy jobs by occupation (%), Step Change, 2020 - 2035



Renewable Energy Jobs in Australia

Figure 3 Renewable energy jobs by detailed occupation (%), Step Change scenario, 2020 - 2035



As both the ABS data and the future projections for renewable energy jobs demonstrate, the renewable energy industry is, and is likely to continue to be, a major source of employment in an increasingly difficult post-COVID jobs market. It is therefore important that the employment conditions of this industry are scrutinised and that where they fall short workers and unions hold this relatively new and growing industry to account and ensure it provides decent jobs with good conditions. It is also important that energy policy considers workforce planning, both to avoid the boom bust cycles that have been so characteristic of renewable development in Australia, and to maximise local, regional and national employment benefits.

2.4 Transmission grid upgrades are also jobs-rich

Accompanying the growth of distributed energy will be a massive expansion of Australia's electricity transmission system. The Australian Energy Market Operator maps the priorities for upgrade and extensions of the transmission system through their Integrated System Plan (ISP)[14]. At a minimum AEMO estimate there will need to be $11 billion of investment in transmission augmentation to deliver the actionable projects in the ISP. This investment will support the roll-out of poles and wires and supporting infrastructure to the Renewable Energy Zones outlined in the ISP. These projects will create thousands of additional construction and electrical jobs in the construction phase, and hundreds of maintenance jobs in the operations phase.

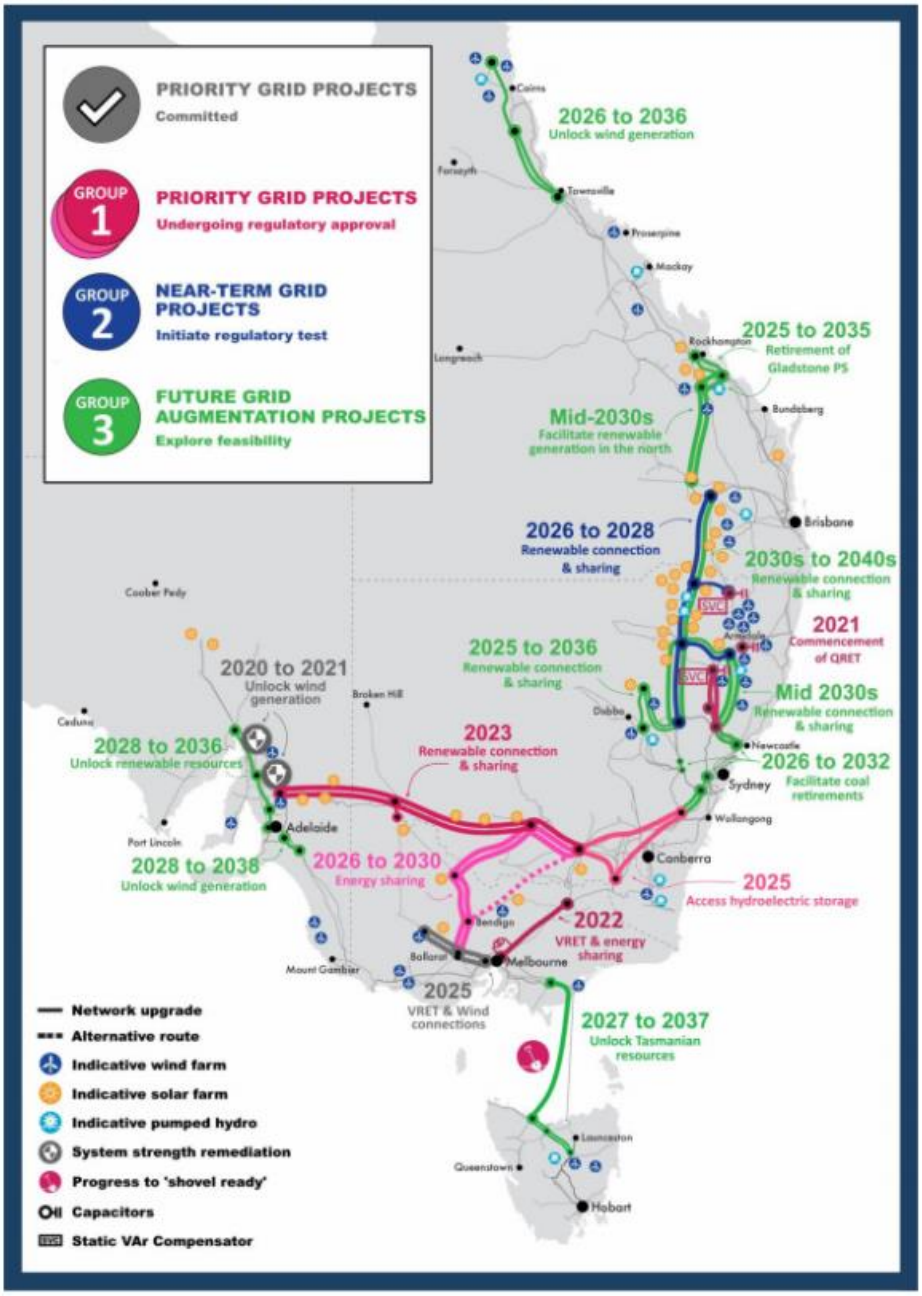
As with new renewable energy projects it will be important that we are maximising the employment and regional development opportunities from these projects, as well as consulting fully with local communities about the projects' social and environmental impacts.

[14] AEMO, Integrated System Plan 2020, https://aemo.com.au/en/energy-systems/major-publications/integrated-system-plan-isp/2020-integrated-system-plan-isp

Good job creation could be maximised by ensuring strong local content requirements in both renewable and transmission projects, which would potentially deliver hundreds of new jobs in the manufacture of steel towers, transformers and electrical cabling.

There is also a need to consider workforce development needs during infrastructure planning and to co-ordinate the scale up both of renewable construction and transmission construction, in order to avoid the boom bust cycles of the past. This should be accompanied by putting in place skills training to support the development of the long-term skilled workforce needed.

Figure 1 The development paths for the NEM in the Draft 2020 ISP[17]



3. Are renewable energy jobs up to scratch in Australia?

The Australian union movement has consistently supported action to reduce Australia's greenhouse gas emissions since as long ago as the Rio Earth Summit in 1992. Unions have supported the growth of a renewable energy industry and represented workers in the industry. The Electrical Trades Union has organised and represented workers in the electricity transmission network, wind industry and large and small scale solar projects. CFMMEU and AWU members have been employed to construct wind and solar farms and hydro power upgrades. AMWU, ETU and CFMMEU members are building wind towers in Portland, Victoria, electrical transformers in Wodonga, and manufacturing cabling being used in renewable energy projects across the country. Maritime Union of Australia members are handling wind turbines and other renewable energy equipment in ports. Professionals Australia engineers are overseeing project construction and Transport Workers Union members are transporting giant wind towers and turbines along narrow regional roads with great skill and care. United Workers Union and other union's members work in food manufacturing and oil refining factories that are powered by renewable energy.

However despite all of this activity unions report concern about renewable energy projects and way the industry is evolving due to persistent issues with the security and employment conditions of jobs in Australia's clean energy workforce. These concerns are explored in following sections.

Australia's energy transition has seen decentralised renewable energy generation, with a burst of construction jobs as projects are built, replacing centralised fossil fuel generation and mining activities and jobs. While this can present an organising challenge for unions, the greater concern is that well paid, ongoing roles with employment conditions, safety standards and training pathways that are the result of decades of negotiation are being replaced by shorter-term, insecure forms of employment which often coincide with lower pay and weaker employment conditions.

It is important to note that many Australian industries, not just renewable energy, have many examples of poor working conditions, in particular an over-reliance on insecure forms of contracting such as labour hire, short-term or casual contracts and exploited visa workers. With many of the jobs in the industry being construction-related, it is not surprising that some of the issues that have plagued the broader construction industry also exist within the renewable energy industry. However the renewable energy sector takes pride in its social licence via its contribution to solving climate change and deep work with local landholders to win support for projects. It is equally important that the industry adopts best practice when it comes to employment standards.

The challenges to securing decent renewable energy jobs can be broadly categorised as either structural challenges or operational challenges. Neither are immutable, both can be addressed, and there is significant interaction between both the structural and the operational challenges. The sections below identify some of the key structural and operational challenges that can erode job quality in the renewable energy industry in Australia.

3.1 Structural challenges to decent renewable energy jobs

3.1.1 Capital intensity

By their nature renewable energy projects often involve large up-front capital investments which create a burst of construction and installation jobs, but once construction is complete there are fewer jobs in the ongoing operation and maintenance of power stations.

The summary of employment factors by UTS below highlights the dominance of construction and manufacturing jobs particularly as the renewable generation capacity builds up. It is worth noting however that the operations and maintenance jobs endure over the life of a project which may be 25+ years, so while job numbers in operations and maintenance in a single year at the start of the

wind farm life will be much lower they have enduring value for workers and host communities, and by 2035, more than half of renewable jobs are likely to be in operations and maintenance.

Table: Jobs/MW of installed renewable energy capacity by technology[15]

Table 2 Employment factors

	Construction/ installation	Manufacturing		Operations & maintenance
		All	Onshore	
	Job-years/MW			Jobs/MW
Wind	2.8 (1)	1.7 (3)	0.4	0.2 (1)
Utility Solar	2.3 (1)	4.4 (3)	0.1	0.1 (1)
Rooftop PV	5.8 (1)	4.4 (3)	0.2	0.2 (1)
Utility batteries	4.7 (1)	6.6 (1)	0.3 (4)	1.2 (1)
Distributed batteries	5.6 (1)	6.6 (1)	0.3 (4)	0.3 (1)
Hydro	7.4 (2)	3.5 (2)	0.7 (5)	0.1 (1)
Pumped hydro	11.1 (1)	3.5 (2)	0.7 (5)	0.2 (1)
	Job-years/ system			
Solar water heating	0.015	n/a	0.0021 (6)	-

Lean operations and maintenance workforces are exacerbated by the fact that renewable energy projects generally have a smaller generation capacity than larger fossil fuel power stations, therefore work-forces are smaller and more fragmented. There are some benefits to this, as energy generation jobs are spread over wider areas and more regions, though this is likely to be of little comfort to fossil fuel regions where power stations are closing and large workforces are displaced.

3.1.2 Missed manufacturing opportunities as a result of undervaluing our manufacturing industries

As can also be seen from the table above, Australia is not benefitting as much as it could be from the creation of manufacturing jobs in renewable energy supply chains. The UTS employment factors show that we are creating more manufacturing jobs in wind farms than other renewable energy technologies, despite only one in 4 of the manufacturing jobs associated with a wind farm being Australian jobs. The wind manufacturing jobs we do have relate to the manufacturing of wind turbine towers at the Keppel Prince factory in Portland, Victoria and Haywards near Launceston in Tasmania, and some Australian assembly of wind turbine nacelles, as well as electrical cabling, transformer production and other equipment.

For large scale solar farms, which almost exclusively import solar panels from other countries, we are only seeing 1 in every 40 manufacturing jobs based in Australia.

It is important to point out here that in recent decades Australia has generally also imported fossil fuel generation technology such as boilers and generators. However with a known pipeline of clean energy investment over coming decades there is a great opportunity that we are currently missing to increase the proportion of renewable energy manufacturing jobs located in Australia. Australian governments of recent years have tended to eschew industry policy and local procurement, which have contributed to missed opportunities in renewable energy manufacturing that need a fresh

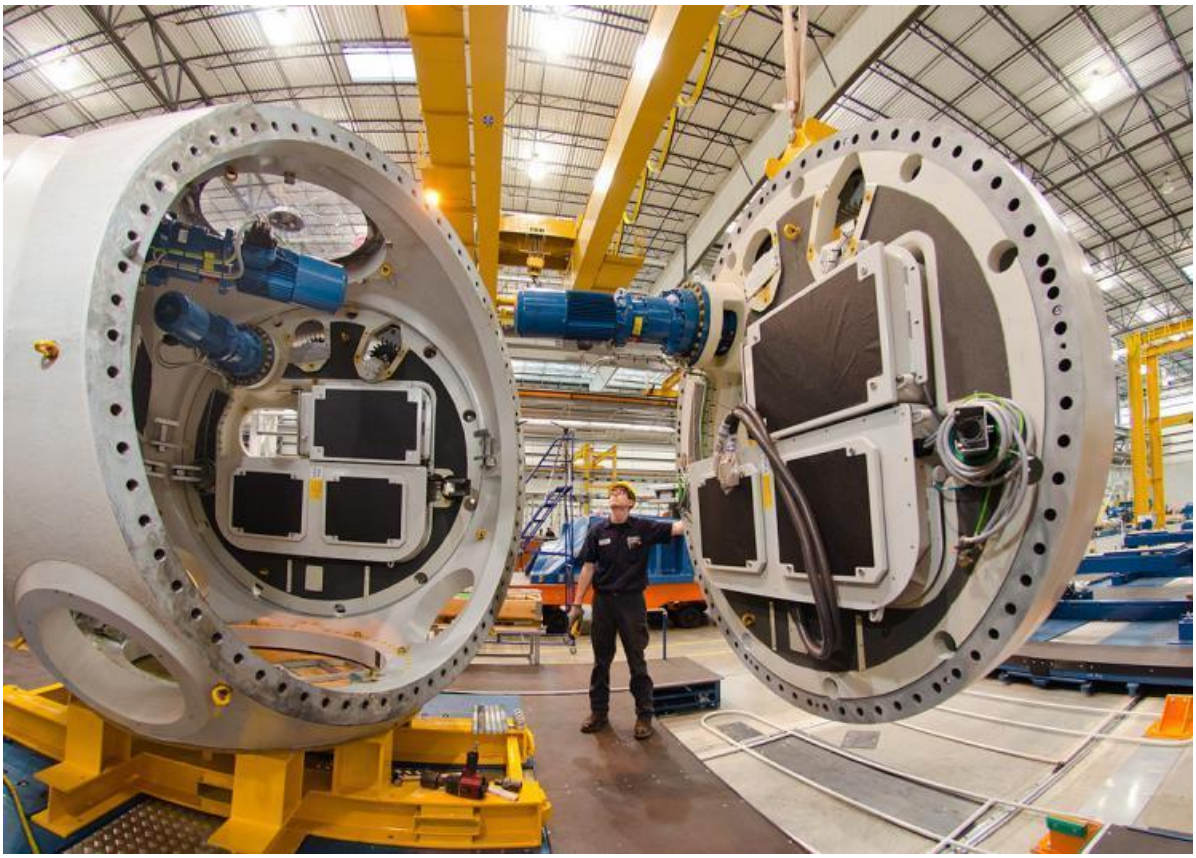
[15] UTS Institute for Sustainable Futures, Renewable Energy Jobs in Australia

approach. The Australian Manufacturing Workers' Union's recent report 'A Fair Share for Australian Manufacturing'[16] highlights some of our strongest opportunities for reinvigorating our manufacturing industries in general and renewable energy industries in particular, including:

- Making the most of our minerals- value adding: moving beyond being solely an extractor of resources by moving into resource processing and manufacturing. For instance Australia mines and exports lithium, a key ingredient for renewable energy and transportation systems. We could be processing the lithium and manufacturing batteries which would greatly magnify the value of our lithium resource.
- Repowering manufacturing industries with renewable energy which is now the lowest cost means of generation.
- Using domestically produced green steel and aluminium to build wind turbines
- Fiscal and regulatory encouragement to locate new manufacturing projects, tied to renewable energy expansion, in regions with employment challenges.

We have Australian examples of what good policy looks like to encourage more local content and support manufacturing. For example the Victorian Renewable Energy target first auction set a local content target of 64%, as well as targets of 90% for local operations and 90% for local steel. According to a state government fact sheet on the auction: "Projects that exceed the threshold scored higher than those that only met the minimum threshold."[17] These local content requirements saw towers manufactured at Keppel Prince, steel components in Tasmania and cabling from Victorian manufacturers.

Workers assembling Vestas turbine nacelles at the old Ford factory in Geelong Pic: EcoNews



[16] Australian Manufacturing Workers' Union, A Fair Share for Australian Manufacturing, https://www.amwu.org.au/fair_share

[17] Fact sheet here: https://www.energy.vic.gov.au/__data/assets/pdf_file/0023/391172/VRET_FAQ.pdf

3.1.3 Lack of enduring and coherent climate and energy policy in Australia

Despite climate change being the focus of international treaties since 1992, Australia has lacked an enduring or credible policy framework to ensure we are reducing emissions across the economy and contributing to global efforts. The political argument over climate change has seen the renewable energy industry subject to chaotic policy changes such as the Coalition's slashing of the large-scale renewable energy target from 41,000 GWh to 33,000 GWh in 2015. This has meant that annual installations of renewable energy projects have fluctuated wildly, creating barriers to establishing a stable clean energy workforce and invest in its training and development. It has also meant that some attempts to increase local manufacturing have failed without a reliable pipeline of project commitments.

Bipartisan commitment to decarbonisation and industry planning would provide greater certainty for workers and businesses in the industry, so that renewable energy jobs are able to be built on more sustainable and secure footings.

3.1.4 High churn in the renewable energy industry

Partly as a consequence of the chaotic policy settings mentioned above the renewable energy industry has been characterised by high rates of corporate churn. That is, companies have entered and exited the renewable energy landscape and as companies have grown they have been subject to takeover by larger companies. While a decade ago most large-scale renewable energy projects were built by the incumbent electricity retailers, now they are more often progressed by renewable energy development companies, often owned by private equity or internationally. This moving feast has again compromised consistent effort to improve workplace conditions and safety and establish a common understanding of best practice across the industry. High levels of private ownership of renewable energy projects by private equity companies located internationally has also reduced the mechanisms available for workers and asset owners to build relationships and accountability.

The small-scale solar industry consists of thousands of businesses, mostly very small, with very low levels of unionisation. There has been much market consolidation in the industry over the last 2 or 3 years. A cut-throat pricing environment in the budget end of the solar market has been a poor platform for business longevity, worker safety and for employment security and conditions.

3.1.5 Lack of clear signals from investors and renewable energy purchasers demanding decent clean energy jobs

As the renewable energy industry has grown there has been an evolving discussion about 'community benefit' and 'social licence'. Projects are increasingly required by investors and purchasers to demonstrate that they are sharing the benefits of project development with host communities in numerous ways. However for much of the past 2 decades it has been enough for most renewable energy developers to demonstrate that they have environmental, planning and any cultural approvals in place and that they are looking after landholders and contributing to host communities through regular community grants for local projects. As previously discussed though, the end of the RET means that an increasing share of renewable energy projects will be financed through voluntary Power Purchase Agreements by corporations who are acting for reputational and corporate social responsibility reasons. Investors and purchasers will wield new influence in this environment and should use that influence to deliver better conditions for workers in the renewable energy industry.

A logical lead proponent of this argument could be industry super funds, who are investing worker's capital and are an increasingly important source of equity for financing new renewable

energy projects. Industry super funds have been instrumental in normalising ESG (Environment, Social and Corporate governance) principles and demonstrating that companies who uphold ESG principles tend to maximise shareholder return. By ensuring renewable energy companies are upholding ESG principles and providing decent and secure employment they will raise employment standards in the industry, improve shareholder returns and minimise investment and climate risk.

3.1.6 Racing to the bottom of the cost curve

Perhaps the single largest factor limiting employment conditions on renewable energy projects has been the policy and competitive drivers that have resulted in a race to the bottom of the cost curve. For investment in new renewable energy generation to stack up financially, generation costs need to be competitive with existing fossil fuel assets, many of which were built with public funds decades ago. Subsidy programs such as the renewable energy target and solar rebates have helped bridge this gap, but developers and proponents can often only turn a profit by locking in the lowest possible construction, connection and operational costs. Costs of finance and construction are generally locked down before any project labour is hired. Wages and conditions are therefore often shoe-horned into a project budget envelope and corners then cut to ensure a project's profitability.

This competitive tension is not unique to Australia, however renewable portfolio standards like our national renewable energy target with volatile renewable energy certificate (REC) prices[18] exacerbate this 'least cost' approach to a greater degree than feed-in tariffs which provide a more predictable and reliable income for project developers. Challenges and uncertainty renewable energy projects have faced in connecting to the electricity grid have exacerbated these cost pressures.

Australia's predominantly privatised electricity markets place further downward cost pressures on renewable energy projects which can be at the expense of workers conditions or project sustainability. In general employment conditions have been better for workers in renewable energy projects in the publicly owned systems in WA and Queensland where they are more likely to be subject to enterprise agreement conditions, or in states like the ACT or Victoria which have sought to drive community benefit and employment outcomes via conditions on state-run renewable energy reverse auctions.

There are of course some perceived advantages to a least cost model of renewables deployment, in terms of minimising electricity costs for consumers and maximising carbon abatement. However this is only true to the extent that project costs are sustainable over the life of a project, lower costs are passed on to consumers, projects are properly maintained and serviced, and the industry maintains its social licence to operate. Driving down project costs by cutting wages, safety, security or conditions for workers is an unsustainable long term strategy that will be a poor foundation for the industry's growth.

3.1.7 Lack of clear signals on employment standards from government

While government policy has supported investment in renewable energy projects, this support has not always been tied to minimum expectations for labour standards. This contrasts to New York

[18] REC certificates are traded to meet RET liabilities, with their price dependent on scarcity, thus prices are hard to predict for renewable energy developers.

State's renewable energy procurement, which requires union agreements on prevailing wages for 9,000 MW of offshore wind projects.[19]

In Victoria the Victorian Renewable Energy Target (VRET) auctions also rewarded projects with higher levels of local content and procurement as discussed in 3.1.2.

By contrast, Clean Energy Finance Corporation (CEFC) project funding criteria consider local manufacturing but do not require it. Dr. John Falzon argues that government procurement and industry assistance, including through the CEFC, should require a union agreement.[20]

There is considerable room to improve labour standards and local procurement standards across the various state and commonwealth renewable energy mechanisms. Clear minimum labour standards could reduce the potential for projects to compete on wage costs.

The most direct route for government to ensure good jobs and procurement policies is to build renewable energy in the public sector. Unions welcome the creation of CleanCo by the Queensland government and the 2020 commitment of $500 million to build renewable energy and transmission upgrades in the public sector.

3.2 Operational challenges to decent renewable energy jobs

3.2.1 Keeping the neighbours happy has trumped other social licence issues

As Australia's large-scale renewable energy industry has grown over the last 15 years, project developers have paid most attention to the issue that they have perceived as the biggest risk to their projects- historically, local landholder and community opposition, and more recently grid connection risks. This largely reflects the regulatory environment for projects. Controversial projects are more likely to have to undertake extra steps as part of their environmental and planning approvals, and therefore it makes good business sense to work with local landholders and community members to address their concerns in advance of planning approvals. Such an approach has led to the current practices of rental payments to landholders, community benefit funds to support local infrastructure and contributions to local roads or other infrastructure projects impacted by wind or solar farms. Community engagement and 'Community benefit' measures continue to evolve and expand. The renewable energy industry (in particular the wind industry) and governments have commissioned several detailed and extremely useful reports which document best practice approaches to benefit sharing for new renewable energy projects.[21] While the concept of community benefits has been applied to encouraging local hiring and local job creation, these practices are relatively under-developed compared with other aspects. It is time for the benefits of renewable energy projects to be more fully shared with workers through guaranteed local jobs and stronger employment conditions.

[19] Climate Jobs NY, https://www.climatejobsny.org/annual-report, p.4

[20] Dr. John Falzon, *Goodbye Neoliberalism: Restoring democracy, supporting trade unions, protecting workers' rights*, December 2018, p. 21-22.

[21] For example the Clean Energy Council's "A guide to benefit sharing options for renewable energy projects" and the Victorian Government's "Community Engagement and Benefit Sharing in Renewable Energy Development A Guide for Renewable Energy Developers"

3.2.2 EPC (Engineering Procurement Construction) models of project delivery

Large-scale renewable energy projects are generally built under EPC contracts. Renewable energy developers select a site, engage with local communities, undertake project approvals processes and secure off-take agreements or finance. Once they have financial close, they then sub-contract the detailed engineering design of the project, equipment and materials procurement and construction of the project to an EPC contractor. Prominent EPC contractors in Australia include Downer, Juwi, Clean Energy Corporation Australia, Elecnor, Bouygues and UGL.

In recent times the industry has been plagued by a number of EPC contractors going broke, sometimes with incomplete projects (eg RCR Tomlinson and R&L Solar Constructions) and leaving workers and suppliers out of pocket by thousands of dollars, or choosing to leave the renewable energy sector as it deems the sector unprofitable or too risky (eg Downer has exited solar projects).

This experience in the renewable energy industry with EPC contractors failing is not unique. The construction industry has utilised EPC arrangements for decades. However in that industry many developers have realised that is in their best interests to have strong relationships with unions and to engage EPC contractors that prioritise strong employment practices, including group training commitments and portability funds for workers. The renewable energy industry needs to learn from this experience and seek more mature and sustainable EPC contractors. Where the renewable energy industry has used EPC contractors that have construction industry experience in Australia results have generally been better- for instance companies like Downer, UGL, BEON, Schneider have been among the more stable EPC contractors. However many of the more experienced EPC contractors have been leaving the industry which is a significant problem.

It is at the stage of EPC contracting that for even renewable energy developers with the best intentions in relation to employment standards, local procurement or community relations these good intentions can get lost in translation. Unless the specific aspirations of and commitments to local communities, workers or suppliers are outlined in the EPC contracts it is highly likely that the EPC contractors will deliver the project in a different or cheaper way in order to maximise profits, or for convenience. There is some anecdotal evidence that some EPC contractors in the renewable energy industry are operating with extremely high profit margins by comparison with the norm in the construction sector, which is a sign of renegade operators acting for short-term gain undermine the sustainability and credibility of the industry.

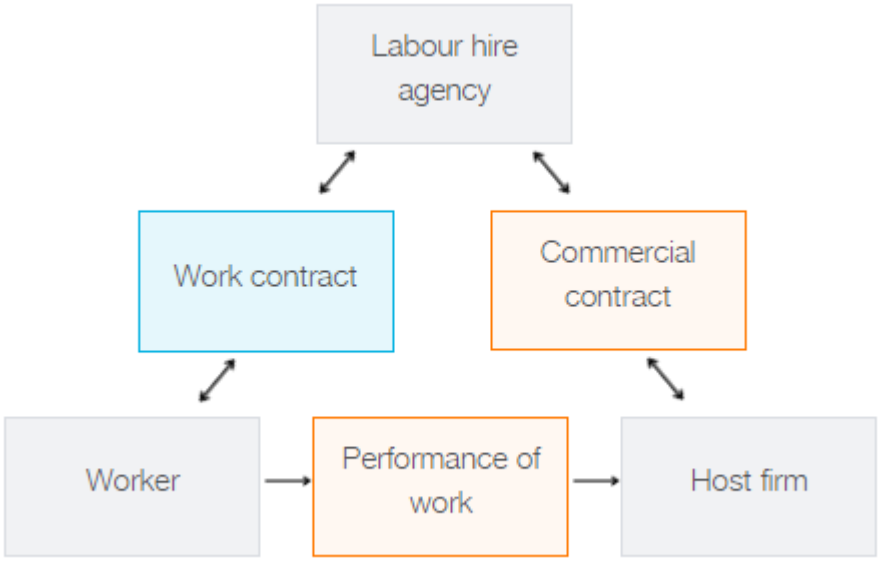
It is a matter of priority for the renewable energy industry and those interested in better project outcomes to develop and make publicly available best practice EPC contracts that maximise the community benefits of renewable energy projects and guarantee best practice labour standards.

3.2.3 Poor employment practices of proponents

The EPC model described in the previous section sees EPC contractors fill construction roles through the use of a labour hire agency. As the Fair Work Commission explains,

"A labour hire worker is someone who enters into a work contract with a labour hire agency. The labour hire agency has a commercial contract to supply labour with a host firm. The worker performs work for the host firm. The host firm pays the labour hire agency, and the labour hire agency then pays the worker. The worker has no contract with the host firm and as a result cannot make an unfair dismissal claim against the host firm."[22]

[22] https://www.fwc.gov.au/unfair-dismissals-benchbook/coverage/people-excluded/labour-hire-workers



The lack of a direct relationship with the project proponent again can see good intentions in relation to job creation get lost in translation. Labour hire agencies generally operate using casual contracts instead of fixed term or permanent contracts and workers are generally not covered by a union-negotiated enterprise agreement or conditions.

Other examples of poor employment practices on some sites identified through consultation with unions working in the sector include:

- Use of unqualified, unlicensed and unticketed workers, including for prescribed work that should only be undertaken, for example, by qualified electricians
- Poor on-site facilities for workers eg lack of shelter or shade in breaks, lack of shelter from dust or smoke, no female toilets.
- Not advertising roles locally
- Over-use of temporary visa workers including where there are willing local workers with appropriate skills
- Little training and no apprenticeships
- Culture of removing workers who speak up about safety concerns
- Hostile response from EPC when Unions visit site including locking workers inside compounds and calling police

While many operators in the industry have better practices than these examples above, it is critical that the industry stamps out poor behaviours across the board and establishes well understood and applied definitions of best practice employment standards.

3.2.4 Underinvestment in training and development pathways

As you would expect with an EPC hiring model that outsources labour, the renewable energy industry has underinvested in training and development and as a consequence is predicted to suffer significant skills shortages in the decade ahead. The industry already claims that some roles, particularly in the wind industry such as crane and hoist operators and wind turbine blade technicians are hard to fill with Australian workers and as a result the industry is relying on overseas contractors. These claims have not been independently verified and there does not appear to be any effort to use these overseas skilled workers to train local workers. The industry has not developed a systematic approach to apprenticeships to provide pathways to employment

and exposure to a broad range of skills, ensure stability of employment, or to fill skills shortages or to engage with existing training centres.

There may be a further issue that the industry is not paying enough for some roles to make it an attractive employer. The 'Clean Energy at Work' report identified that the industry is competing with the mining sector and infrastructure projects for some professions and has struggled to keep staff, particularly once they have significant experience. Increasing pay levels for highly skilled jobs and structuring projects to ensure long-term stable employment would make the industry a more attractive one for workers and overcome skills shortages.

3.2.5 Outsourced operations and maintenance

As discussed, most renewable energy jobs are currently in the construction phase. Once operating, projects can have small ongoing workforces, particularly if they are small scale solar or wind farms. At these sites, power station owners often prefer to outsource operations and maintenance (O&M) contracts through a tender process. This can produce uncertainty and downward pressure on wages and conditions for O&M workers as their employers rebid for work every few years. A better solution for workers and host communities is for power station owners to directly employ O&M staff. Where this is happening benchmark studies show that pay for permanent staff positions at renewable energy projects in Australia is high by international standards[23] - this is a story Australia's renewable energy industry can be proud of and aspire to at more sites. In some cases renewable energy power station owners will struggle to achieve the economies of scale to employ permanent O&M staff by site, particularly where power stations are smaller. In these instances they should look to employ a permanent workforce that works across several sites rather than a subcontracting model. There may be a greater role for a publicly owned O&M entity to undertake servicing of renewable facilities, particularly if there is underinvestment in a stable workforce by the asset owners.

[23] Global Energy Talent Index Report 2020

4. Renewable energy employment practices under the spotlight: some Australian examples of best and worst practice

Tower construction at Keppell Prince factory, Portland

4.1 Getting it right: examples of success and good practice.

4.1.1 Secure, permanent manufacturing jobs at Keppel Prince factory, Portland

Keppel Prince engineering has been operating its Portland factory in western Victoria since 1968. Specialising in the construction, fabrication and maintenance of industrial structures and equipment, the company initially focused on work with the aluminium and forestry industries, two of the largest industries in this part of the state.

In 2001 the company signed a contract to manufacture towers for its first wind project. Wind tower manufacturing and solar installation has now become a core part of the business which employees 350 engineers, project managers, technicians, tradespeople, apprentices and support staff, making it one of the region's largest employers. Jobs at the Keppel Prince factory are well-paid, secure and highly skilled, and one of the best Australian examples we have of capturing the benefits of local renewable energy manufacturing. Keppel Prince has been supported by local content conditions attached to the Victorian Government's Renewable Energy Target and auctions,

again highlighting the critical role of procurement policies in driving good quality Australian manufacturing jobs as we deploy renewable energy.

Unions including the AWU and the AMWU who represent workers at the plant have in the past highlighted that consistent renewable energy policy incentives are necessary to ensure operators like Keppel Prince have a predictable pipeline of future work.[24]

4.1.2 Inclusive hiring, training and local jobs at Karadoc solar farm, Victoria

Karadoc Solar Farm is a 112MW facility comprised of 330,000 solar panels mounted on trackers to follow the sun throughout the day. The project was delivered by German renewables developer BayWa r.e. and local construction partner Beon Energy Solutions. Output from the solar farm has been sold to Carlton United Breweries (CUB) and Flow Power through a 12-year power purchase agreement (PPA).

The solar farm was built in 2018 with a workforce of 300, mostly locals. The Business Renewables Centre Australia (BRCA) has documented the efforts that the project developers made to develop an employment diversity plan to "hire locally, provide opportunities to people facing employment barriers and training to young people to develop careers in the solar industry"[25]. As the BRCA outlined:

"The employment management provider engaged six local community groups to recruit from the local community, including a number of traditionally disadvantaged groups. The project employed:

- *90 long-term unemployed people*
- *38 Aboriginal people*
- *14 people from culturally and linguistically diverse backgrounds*
- *12 people on community-based orders*
- *4 people with a disability*

A traineeship program delivered in partnership with the SuniTAFE provided training to 25 trainees who obtained a Certificate II in Electrotechnology, 15 of whom have since transitioned to electrical apprenticeships."[26]

But even with these efforts there were initial challenges due to a lack of understanding of the electrical industry. Fortunately, Beon worked closely with the Electrical Trades Union to pay qualified electricians on the project proper rates given the contract was won against a high number of competitors who refused to enforce decent pay rates and employment standards. The union and employer also worked to improve the training arrangements after it was identified by the union that workers had been enrolled in the wrong training programs- they were subsequently upgraded to apprenticeships. Both at Karadoc and at Bomen solar farm in NSW Beon has been frank with unions about the difficulty of paying market rates given the budget for the project and the large numbers of contractors who bid at 'loss-leading' unsustainable rates in order to be able to demonstrate experience in the Australian market. This is a welcome change from other developers who have chosen to take shortcuts with safety and sought to use unlicensed workers to complete prescribed work.

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[24] https://mobile.abc.net.au/news/2015-05-04/union-calls-for-renewable-energy-target-resolution/6441864?pfm=sm&pfmredir=sm

[25] Business Renewables Centre Australia (BRCA), Renewable Energy Power Purchase Agreements: Maximising Social Benefits & Minimising Risks, June 2020, p.38

[26] BRCA, ibid, p. 38

Photo: Former Mildura mayor Mark Eckel on site with workers at Karadoc. As the then Mayor said in relation to Beon's employment program, "The way Beon has gone about the construction of the Karadoc Solar Farm in terms of engaging with the Mildura community is to be commended and should be seen as a model for future solar farms wishing to operate in the region."[27]

Other signs of improvement at large scale solar farms include at Tailem Bend solar farm in South Australia where the Communications, Electrical and Plumbers Union SA has documented that most electricians were employed on full-time contracts rather than via labour hire and there was a strong focus on safety28. Meanwhile at Beon's Bomen solar farm in NSW a 'Women in Solar' program gave 12 local women employment and four weeks of TAFE pre-employment training. As a result, women comprised 10% of the construction workforce at Bomen Solar Farm.

Bomen Women in Solar participant Hayley Stear[29]*. Photo from Clean Energy Council case study*

4.2 Getting it Wrong

The following poor practice case studies illustrate the above issues in Australian renewable energy projects. Notably, many of the case studies are in the large-scale solar industry which has been

[27] From Clean Energy Council case study at https://www.cleanenergycouncil.org.au/news/beon-energy-solutions-maximising-local-impact-through-a-strategic-employment-and-training-program

[28] https://www.etunational.asn.au/a_tale_of_two_solar_cities

[29] From https://esdnews.com.au/beons-women-in-solar-program-gets-award-nomination/

more problematic than other project types due to short construction times, razor-thin project margins and poor definition of roles and responsibilities for employees.

4.2.1 Solar jobs filled by backpackers and overseas workers on labour hire contracts

The Bannerton solar farm in northern Victoria is owned by Foresight Solar Fund Limited, a UK-listed infrastructure fund managed by Foresight Group, KDB Infrastructure Investments Asset Management Co. Ltd, Hanwha Energy Corporation and Korea Western Power Co Ltd (KOWEPO).

In 2018 the Electrical Trades Union raised concerns that jobs at the Bannerton solar farm were not being offered to locals, rather they were going to backpackers on labour hire contracts.

This was despite the project being financed, in part, by an agreement with the Victorian Government to provide power to the Melbourne Tram network, supporting Victoria's renewable energy target.

As the Age reported "Troy Gray, secretary of the ETU Victorian branch, said UGL, the overseas-owned contractor building the projects, had contracted labour hire company WorkPac, which the union claims has employed up to 100 overseas workers, and just around 40 residents including 20 of its members for the Bannerton project."[30]

Union inspections of the construction site found exposed electrical cables which could have caused fatalities, prompting a walk off the site by workers.

The union advised Energy Safe Victoria to sanction UGL and their contractors for using non-licensed electricians in violation of Section 38 of the Victorian Electrical Safety Act (1998). The ESV issued direction clearly defining the work being performed as electrical work. The ETU followed up with a state-wide blitz on renewables projects and many visa workers were subsequently replaced with Australian electricians.

The ETU also called on Victorian Energy Minister, Lily D'Ambrosio, to conduct a state-wide audit of employment practices by companies taking state government money for solar projects.[31]

4.2.2 Townsville solar farm pays overseas workers just $30 per day

The Ross River solar farm is located just south of Townsville and is one of the largest built in Australia to date. It is owned by infrastructure investor Palisade Investment Partners and was built by Schneider Electric with EPC contractor Downer.

[30] https://www.smh.com.au/business/workplace/backpackers-are-filling-solar-energy-jobs-promised-to-locals-union-20180502-p4zcx0.html

[31] https://www.etuvic.com.au/ETUV/Your_Union/News/Solar_Scandal.aspx

Other investors in the project included the Clean Energy Finance Corporation (CEFC), VicSuper, and HESTA.

In 2018, as construction was underway, the ETU visited the site and made routine enquiries into the wages and conditions of two Filipino workers employed on the site under a temporary work visa by an internationally owned affiliate of Schneider Australia, discovering that the workers were being paid just $30 per day.

As Queensland ETU Secretary Peter Ong said at the time:

"First we had unlicensed backpackers doing electrical work on low rates of pay, now we have basically slave labour where overseas workers are being paid subsistence wages and going hungry, it's a disgraceful breach of immigration, building and employment law"[32]

TOWNSVILLE

Filipinos provide cheap labour on Townsville solar farm

A CONTACTOR at the Ross River solar farm project has confirmed Filipinos were employed at lower than normal pay rates as unions claims its "modern day slavery".

TONY RAGGATT, Townsville Bulletin

Subscriber only | August 3, 2018 12:00am

In a statement to the Townsville Bulletin, Schneider Electric conceded the union's claims were accurate and said:

"Schneider Electric Australia management has taken immediate steps to respond to this isolated issue…Schneider said the four workers would be remunerated, including any back pay, equivalent to a Field Service Technician. They would also receive a daily site allowance."

The fact that it took a union investigation of wages highlights the pitfalls of labour hire arrangements where there is no direct relationship between the employee and the project developer.

[32] https://www.townsvillebulletin.com.au/news/townsville/filipinos-provide-cheap-labour-on-townsville-solar-farm/news-story/87de2514c2e63f7faa98bc53dc5a066e

It is examples like this of privately owned renewable energy projects that has led unions like the ETU to conclude that renewable energy projects need to be publicly built and operated by governments to ensure decent jobs and conditions.

Queensland in particular has been plagued with poor practices in the large-scale solar industry, leading the Queensland Government to undertake a "blitz of inspections across regional solar farms" and issuing 30 notices (as at September 2018) to a number of companies — "including 23 breaches of the Work Health and Safety Act and seven breaches of the Electrical Safety Act. These have included notices for unlicensed electrical work, failing to provide personal protective equipment for workers and failing to implement safe systems."[33]

4.2.3 EPC contractors collapsing mid-project

Unfortunately the Australian renewable energy industry has a history of project developers, equipment providers and EPC contractors going broke mid-project, often leaving workers in the lurch. These issues have again been most common in the large-scale solar industry, but have also occurred on wind projects. The common cause is contractors bidding to deliver projects at unsustainably low prices, which then translates to these same companies exploiting overseas workers, underpaying workers and providing poor working conditions.

The most well-known mid-project collapse was of established Australian engineering firm RCR Tomlinson as they were building 9 Australian solar farms in 2018. Project delays, increased costs of imported solar panels, unforeseen site preparation costs and then delays in grid connection forced the company into administration with all projects eventually being on-sold. Workers were left searching for a new employer while also fighting to be paid, trying to salvage leave and entitlements and trying to get their tools off site.


The Sydney Morning Herald SUBSCRIBE

About 250 jobs gone as major solar farm builder calls in administrators

By Hamish Hastie
August 4, 2020 — 4.15pm

About 250 people, many of them casual labourers in remote parts of Australia, have lost their jobs after a major solar farm subcontractor called in administrators this week.

R&L Solar Constructions had been contracted to help build major solar farms right across Australia including Alinta and Fortescue Metals Group's $114 million 60MW solar power facility in the Pilbara and Melbourne Aiport's 12MW solar farm.

At RCR's solar farm in Wemen in Victoria the company sacked 130 electricians on site and locked the bus that was used to transport workers, leaving them stranded 100 kilometres from the nearest town. Many of the workers had only commenced work with the company the previous week and had just moved to the region. [34] These scenes were repeated across the country at other RCR projects. Other notable collapses have included wind turbine supplier Senvion going into administration disrupting workers at Murra Warra wind farm in Victoria and Lincoln Gap wind farm

[33] https://www.abc.net.au/news/2018-09-26/queensland-solar-farms-employing-backpacker-labour/10302500?nw=0

[34] https://www.facebook.com/etuvic/posts/rcr-tomlinson-just-forced-the-sacking-of-130-electricians-on-the-construction-vi/10156894191697884/

in South Australia and more recently R&L Constructions which collapsed in August 2020 leaving workers stranded in the Pilbara without housing or transport to leave the region.

A feature on collapsing EPC contractors called 'The Dark side of Solar' by Giles Parkinson stated:

"Contractors say the problem arises because some EPC contractors are coming into the industry and bidding too low on projects, and then are unable to deliver. They then select sub-contractors based only on price, potentially sacrificing quality and opening themselves up to conflict and delays, and then those subcontractors also can't deliver, and go broke. The ultimate losers are the project owners, local communities and workers who are out of pocket."[35]

Other EPC contractors such as Downer and Ellaktor have decided to exit the renewables industry having lost money on delivering projects.

The EPC model of project delivery is a weeping sore that the renewable energy industry needs to address if it is to maintain its social licence to operate and be viewed as a responsible employer.

4.3 An outlier: the small-scale solar industry is lagging behind and presents a risk to clean energy industries

Most of the above discussion focuses on large scale renewable energy projects, with longer planning and lead times and larger workforces. However as is evident from the data presented earlier, almost half of the jobs in Australia's renewable energy industry are in the small scale solar and solar hot water sectors.

This sector is dominated by relatively small private and family businesses and has experienced significant churn in recent years. The market is also relatively stratified, with installers pitching to the budget, mid-range and premium ends of the market with the main differentiators being the quality of the equipment and the existence of after-sales servicing and monitoring. The budget end of the market has seen more companies emerge and then disappear, in some cases leaving consumers stranded in terms of after-sales servicing.

Regulation of the sector is partly through an accreditation program run by the Clean Energy Council (in addition to oversight by State and Territory electrical safety bodies and regulators). The Clean Energy Council reports that as at the end of 2019 there were 6566 accredited installers and 686 approved solar retailers nationally[36]. This accreditation process, required for installers to receive Federal government solar subsidies, mainly focuses on quality assurance and safety issues. Despite this accreditation and oversight from the industry and state and Federal regulators, an Auditor General's report in 2018 found that around 20% of solar PV installations were 'sub-standard' and that 2-4 % of installations were 'potentially unsafe'. While many of these issues were caused by DC isolators that the industry has been arguing should no longer be mandatory, given the numbers of PV installations happening each year in Australia these number remain concerning and demonstrate that many installers are getting away with poor practices and not being pursued by the regulator.[37]

As far as employment practices in the small-scale sector go, there is very little data upon which to make evaluations. This is partly a result of the lack of union representation and absence of

[35] https://reneweconomy.com.au/hung-out-to-dry-the-dark-side-of-big-solar-75803/

[36] Clean Energy Council, Clean Energy Australia 2020, p. 64.

[37] https://www.anao.gov.au/work/performance-audit/administration-renewable-energy-target

certified workplace agreements in the sector. In undertaking this report we have been unable to find a single enterprise agreement for a company operating purely in the small scale solar sector.

Qualified tradespeople such as electricians and plumbers are generally paid award wages, but according to the ETU are often not paid market rates. In the ETU's experience, often the electrician is simply employed to do final sign off of installations that have been performed by apprentices or labourers, and many electricians have left the small scale solar industry as they are unwilling to rubber-stamp unlicensed work.

Non-prescribed work is usually carried out by general labourers and is at greater risk of underpayment and poor conditions compared with work that is required to be completed by qualified trades. This risk can be seen regularly in job advertisements for solar installers wherein labourers are clearly being offered below-award wages or being expected to undertake prescribed electrical work. Workers frequently report unsafe work practices with the necessary height safety equipment detailed in work procedures but either being unavailable or discouraged and the ETU reports that its branches are called on regularly to undertake wage recovery activities on behalf of their members who are seeking payment for domestic solar installations.

Even among solar installers contacted for this report who are proud of the employment conditions in their workplace there was wariness about questions relating to union membership and why there had been no registered workplace agreements. This was despite a sense among some installers that some 'bad apples' operating with poor employment and safety standards were letting the entire industry down. Those installers who claimed good employment practices pointed to the following as being a way to identify responsible installers:

- Vast majority of jobs delivered by in-house staff rather than by contractors (use of contractors for surges in installation or specialist activities (eg crane use) rather than ordinary business)
- Commitment to apprenticeship programs
- Commitment to diverse and inclusive hiring practices
- Existence of servicing and maintenance divisions within company

While these may all be indicators of a positive workplace culture, best practice employment standards would welcome and encourage union representation and participation. This would enable workplace conditions to be embedded in a workplace agreement negotiated between workers and the employer, and assist the solar industry to eliminate poor practices and unscrupulous operators.

5. An agenda for improving the quality and security of clean energy jobs.

The ACTU has consulted with our affiliates who have a stake in Australia's renewable energy industry. Unions are keen to be partners with the industry in the nation's energy transition and to ensure that workers, their family and communities share in the benefits of renewable energy and transmission projects. We are committed to working with the renewable energy industry to improve the quality and number of renewable energy jobs and to grow the industry.

We have identified the following priorities for action by the renewable energy and transmission industry across each phase of project operations. We urge the industry, governments, investors and clean energy customers to ensure that the industry is striving for best practice by pursuing these actions:

Industry-wide commitments sought by Australian unions

- Committing to a genuine dialogue with unions as part of a process designed to improve the quality and security of renewable energy jobs and the future of the industry
- Negotiation of union enterprise agreements for all large-scale renewable energy projects.
- Commitment to transparency with regular disclosures about the numbers of jobs in the industry, wages, employment conditions, skill levels and qualifications, investments in training, average hours and staff turnover across the industry.
- Commitment to highlighting best practice examples of labour and safety standards in the industry and being prepared to challenge poor labour and safety practices
- Commitment to work to establish a national industry framework for wages and conditions agreed between relevant Unions and Employers.
- A commitment to developing and delivering the skills and training needs of the industry with a particular focus on deepening these skills in the communities that renewable energy is deployed in (in particular in Renewable Energy Zones).
- Committing to seek out local suppliers and manufacturers wherever possible through development of a local procurement plan for each new project.
- A commitment to not oppose efforts by government/s to bring in uniform local content requirements.
- A commitment to participate in government programs which seek transfer or redeployment of workers from industries affected by the need to reduce greenhouse gas emissions.
- A commitment to inclusive and diverse hiring practices for clean energy projects.

Project planning and design phase priorities to enhance the quality of jobs in the industry

- Articulating site roles and responsibilities to ensure all tasks are carried out by skilled workers and that licenced and prescribed work is only performed by workers with the relevant occupational licences and qualifications.
- Mapping local skills needs for future projects and working with unions and their members, educational institutions and governments to fill these gaps.
- Develop a local content and procurement plan for the project.
- For large scale projects over 250 MW, commitment to a multi-union project agreement.
- Commit to working with regional employment, training and development bodies to hire the workforce, particularly for projects in areas with high unemployment due to retirement of fossil fuel projects. Local workers deserve the opportunity to gain secure employment. Jobs must be properly advertised locally, and people have access to the training they need to pursue these opportunities.

- Working collaboratively with unions to plan for and provide apprenticeship opportunities on renewable projects by working with group training companies to provide experience for apprentices across the industry with a particular focus on providing 4th year electrical apprentices with experience in the renewable sector, therefore maximising the number of skilled tradespersons with renewable experience.
- Pursuing renewable energy project opportunities in regions that will be disproportionately affected by the transition away from fossil fuels.
- A commitment to inclusive and diverse hiring practices for clean energy projects.

Project construction phase priorities to enhance the quality of jobs in the industry

- Commit to recognise and promote unions lawful rights to access work sites and the workers they represent.
- Project proponents directly employing workers rather than use of labour hire contracts.
- Committing to project delivery through union-negotiated greenfield agreements.
- Maximising secure work through permanent employment wherever possible, project planning and the use of established portable entitlement funds.
- A commitment to inclusive and diverse hiring practices.

Project operations phase priorities to enhance the quality of jobs in the industry

- Commit to recognise and facilitate union access to work sites.
- Work to establish scale to maximise opportunity for a permanent highly skilled workforce to undertake maintenance at existing renewable energy projects, including use of established portable entitlement funds.
- Proponents to directly employ operations and maintenance workers where-ever possible. This may include Operations and Maintenance workers working across multiple sites, but is highly preferable to a model of outsourcing operations and maintenance roles on short-term contracts.
- A commitment to diverse and inclusive hiring practices for clean energy projects and provision of the necessary on-site infrastructure and processes to support inclusive hiring.

Working with First Nations communities across all project phases: First Nations Workers Alliance priorities

Aboriginal and Torres Strait Islander union members have been instrumental in convening the First Nations Workers Alliance (FNWA), which is hosted by the ACTU and guided by the ACTU National Indigenous Committee. The FNWA provides workers in Aboriginal and Torres Strait Islander communities participating in the Federal Government's Community Development Program (CDP) with a collective voice to campaign for fair wages and employment conditions. The FNWA is also playing a vital role in the campaign for Voice, Treaty and Truth Telling - the proposals from the Uluru Statement from the Heart.

The FNWA is developing resources to assist traditional owners and industry establish what best practice engagement and involvement of traditional owners in major projects- including renewable energy projects- looks like. The priorities outlined below are a first iteration of this.

In the experience of the FNWA, the best outcomes on major projects have come from unions negotiating binding outcomes with employers. From the few examples that exist, there is a stark difference in beneficial outcomes achieved by Traditional Owners when they have had union support, as compared to when they haven't. An example of union support is the construction phase of the Gorgon gas project, albeit not a renewable energy project. The Maritime Union of Australia

secured a 20% Indigenous employment clause in a Deed of Agreement with the sub-contractor, Patricks Stevedore. With the binding arrangement and the commitment of the union, the 20% target was exceeded and considerable salaries were paid to local Noongar workers who would otherwise not been employed.

Obviously there are a broad range of issues the renewable energy industry needs to address to acknowledge land rights, the rights of traditional owners and their aspirations for healthy country, clean energy and good jobs on country. Other organisations including Country needs People and Original Power, land councils and Aboriginal corporations are working more broadly on ways in which traditional owners can share in the benefits of renewable energy projects.

First Nations

Working with the First Nations Workers Alliance, the union movement has identified the following priorities in relation to renewable energy:

- Inclusion of First Nations in project design and planning.
- Ensuring benefits of projects flow to First Nations, and consulting with Traditional Owners on what they believe this should look like. This could include ongoing infrastructure on Aboriginal or Torres Strait Islander land or adjacent waters being owned in partnership with Traditional Owners so that they have an ongoing income stream, provision of energy, and payments.
- Development of a Deed of Agreement between the proponent, the Traditional Owners and the eligible unions. This Deed of Agreement would include:
    - Commitment to identifying and maximising employment opportunities for Aboriginal & Torres Strait Islander workers in both the construction and operations phase of renewable energy including the development of targeted apprenticeship/ traineeship programs.
    - Commitment to an Indigenous Employment and Training Database that is run and maintained (as funded by the project proponent) by Traditional Owners.
    - Mentorship requirements agreed between Traditional Owners and the principal, again contained in a binding agreement, and pathways for permanent employment
    - Clear and unambiguous agreement with Traditional Owners about the use of Indigenous owned businesses.
    - Commitment NOT to engage workers on the Community Development Program in renewable energy projects and to instead employ local Indigenous workers directly.
    - Commitment to employing local Aboriginal or Torres Strait Islander people to walk country of the project and report any sites and artefacts of significance.
    - Commitment to guarantee ongoing access to sites of significance once project is underway.
    - Commitment to maintaining any sites of significance and handing over any artefacts found to appropriate custodians.
    - Commitment to employing local Aboriginal or Torres Strait Islander people to restoring the land at the end life of the project.
    - Establishment of an enhanced dispute resolution process with a third party mediator (such as a retired Fair Work Commission Commissioner) agreed between the Traditional Owners and the proponent, that applies to all sub-contractors as well as the principal. A commitment to decisions by the mediator in a dispute. This process can apply to all matters of employment, procurement and environment.

Global framework for Renewable Energy and Human Rights

In June 2020 the Business & Human Rights Resource Centre released a global survey benchmarking the largest publicly listed renewable energy companies globally against the United Nations Guiding Principles on Business & Human Rights. These principles include:

Human Rights:

- Adopt, embed, and effectively implement human rights policies in company operations
- Collaborate with peers in the renewable energy industry and other companies with large renewable energy investments, as well as workers and communities, to rapidly adopt and improve human rights standards across the renewable energy sector.

Indigenous peoples' rights:

- Adopt specific policies to ensure respect for land rights of communities and rights of indigenous peoples' in areas of operation, including to secure free, prior, and informed consent (FPIC) of indigenous peoples with regard to project development
- Explore shared ownership models with communities; and incorporate benefits-sharing with communities as a core component of projects, with priorities and activities being defined by the affected communities.

Labour Rights:

- Adopt and implement strong labour rights policies in line with ILO Core Conventions, including on discrimination, child and forced labour, collective bargaining, and freedom of association
- Supply chains: Develop systems to identify and monitor supply chains for human rights risks and address impacts, and introduce this requirement in supplier contracts and business partner agreements
- Human Rights Defenders: Adopt policies to protect human rights defenders in areas of operation, and integrate human rights in security contracts consistent with the Voluntary Principles on Security and Human Rights.
- Grievance mechanisms and access to remedy: Introduce effective grievance mechanisms in line with the UN Guiding Principles' effectiveness criteria, designed and monitored with communities and workers, and provide or enable effective remedy where abuses occur.

While these global benchmarks should be relatively easy for companies operating in Australia to meet and exceed, it is important for the Australian industry to demonstrate compliance and exceedance.

The International Trade Union Confederation and the B team have also been working with many of the world's largest renewable energy companies to ensure a just transition and decent jobs in renewable energy, including their supply chains. This pledge has been signed by companies including Engie, Iderabola and Acciona. (https://bteam.org/our-thinking/news/just-transition-pledge/)

Appendix

Decent Renewable Energy jobs.

A Risk Matrix for renewable energy proponents, investors, customers and policy-makers to assess individual renewable energy projects

The matrix below is a tool to assist project developers, investors, renewable energy customers and governments systematically think through how a project is likely to perform on employment issues. Dialogue with project developers will help them understand how they could improve the employment outcomes from their project and what it would take to become a best practice employer.

Stage of project	Decent jobs benchmark	Assessment against benchmark
Project approvals	• Do planning applications and environmental assessments include details about the type and tenure of jobs as well as job numbers? • Have local Aboriginal or Torres Strait Islander people been engaged to walk country of the project & report any sites & artefacts of significance? • Is there a plan to manage any identified sites of cultural significance? • Has a Deed of Agreement been developed with Traditional Owners to determine First Nations participation in the project including employment targets, training, apprenticeships, access to country, dispute resolution processes and use of indigenous owned businesses? • Is there an opportunity to locate the project in a region being negatively impacted by the energy transition?	
Hiring	• What proportion of roles will be locally hired? • Will there be a diverse and inclusive hiring plan? • Will construction staff be employed directly by the developer or through a labour hire contractor? If a labour hire contractor will be used what conditions will be applied to ensure they uphold decent conditions? • How will all levels of the project demonstrate that staff are being paid at market rates?	

	• Will there be a union-negotiated enterprise agreement for the project/workplace? • Is there an opportunity to hire workers who are being displaced as part of the energy transition? • Will all jobs be advertised locally? • Is the developer maximising secure work through permanent employment, project planning and the use of established portable entitlement funds? • Is there a plan to identify and maximise employment opportunities for Aboriginal & Torres Strait Islander workers in both the construction and operations phase of renewable energy including the development of targeted apprenticeship/ traineeship programs?	
Procurement	• Is there a local procurement plan for the project? • What proportion of equipment will be manufactured in Australia? • Are there opportunities to engage local and regional contractors and suppliers?	
EPC contracting	• Is the EPC contractor an experienced operator in the Australian context? • Does the EPC contractor have good relationships with its staff and unions? • Has the EPC contractor delivered renewable energy projects previously in Australia? If so how did they perform? • How will the EPC contract ensure the project delivers best practice employment standards? Will there be regular audits against these standards • How will the EPC contract ensure inclusive and diverse hiring practices?	
Training	• Is there a plan to incorporate training into construction, operations and maintenance phases? • Has there been consultation with unions and training organisations about training needs, access and priorities? • How many apprentices will be engaged on the project? • For any roles for which there are not skilled Australian workers and workers need to be imported, is there a plan to transfer the skills to local workers through training and a buddy-system?	

Worker Health and Safety	• Will all roles be defined to ensure all licenced and prescribed work is carried out only by qualified workers? • What steps will be taken to assess safety management plans are actually implemented on site and in consultation with workers and their representatives? • Is there a commitment to recognise and promote unions' lawful rights to access work sites and the workers they represent?	
Operations and maintenance	• Is the developer maximising secure work through permanent employment, project planning and the use of established portable entitlement funds? • Is the developer utilising portability entitlements for workers moving from one project to another? • Will operations and maintenance staff be employed directly by the project owner as ongoing roles? • Is there a plan to establish scale to maximise opportunity for a permanent highly skilled workforce to undertake operations and maintenance at existing renewable energy projects? • Is there a plan to employ local Aboriginal or Torres Strait Islander people on a permanent basis throughout the project's operation and to restore the land at the end life of the project? • Is there a commitment to inclusive and diverse hiring practices for ongoing operations?	

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