



Supporting clean energy jobs of the future

By Dr. Fiona Simon on Oct 04, 2022

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The recently elected Australian Government has legislated a target to reduce emissions by 43% by 2030. And last week the Queensland Government announced a new 70% renewable energy target for 2032, and 80% target for 2035.

These are positive indications that Australia is putting the policy levers in place to indicate to the market that we are open for business and a place to invest in clean energy.

Various scenarios and modelling come to different conclusions, but one thing is for certain – renewables will produce most or all our domestic energy by 2050.

Australia has the resources to build a new clean export industry by producing clean energy carriers, and we are therefore in a fortunate position to replace fossil fuel exports with clean energy.

There are different views about pathways to achieve our Net Zero ambitions. The most recent – and comprehensive – work was released last month by Net Zero Australia, a partnership between the University of Melbourne, the University of Queensland, Princeton University and Nous Group. Building on the approach that the founding authors had already taken in modelling for Net Zero America, the project modelled six scenarios for reaching Net Zero in Australia.

The early analysis presents a confronting set of figures. For example, the rapid electrification scenario sees five solar arrays across the top half of Australia by 2050, each the size of Tasmania. These new assets provide the future renewable electricity needed for domestic and export use, which is forty times the current capacity of our National Electricity Market (which, despite its name is not national but covers around 80% of Australia's electricity consumption).

Who will build and maintain the assets required? Net Zero Australia has suggested that this could be over one million workers. So, for an already tight workforce, where employees can name their price, what does this mean? How do we prepare?

To unpack this, the Australian Hydrogen Council held a Jobs and Skills webinar, where we heard from university professors, industry groups, standards bodies and educators.

Here are some key takeaways.

1. We need to attract an enormous workforce

Jobs in renewable energy will range from engineering and construction activities to manufacturing, maintenance, and social engagement. And future renewable electricity will power not only the electricity grid, but also all modes of transport and all heating (directly, via batteries, or to produce hydrogen and its derivatives). This means multiple integrated systems, and large-scale infrastructure, such as from inland solar farms to industrial hubs and export ports. Hydrogen production also involves the water industry and connecting with water infrastructure.

Some regions will experience more growth than others, and for different reasons; for example, Net Zero Australia shows that the Northern Territory will need significant population growth just for new energy jobs, and this growth will be focussed on export. Other states will have stronger domestic needs.

Policymakers and project proponents need to consider regional opportunities and needs, and work with these to respond to a market for talent that will largely be led by workers themselves.

The time is now to understand and build the pipeline of future workers and to prepare to meet them on their own terms. High school students should be taught about clean energy jobs of the future and their employment options. We also need to better understand job permanence (particularly when thinking about construction activity in energy and for other purposes) and how people identify with an industry.

2. Communication with local communities is paramount

Jobs will be focused in regional areas where renewable energy resources are most favourable. This means that we must tackle the challenge of attracting people to regional areas, and then give them a reason to stay.

For the communities themselves, governments and industry need to work within communities to communicate the different job opportunities, to provide skills and training, and to assist with employment. Ideally equipment should be sourced locally.

Governments must also be aware of the impacts on local economies and plan to avoid the worst impacts from Australia's traditional boom-bust cycles of economic activity. It is important to invest in social infrastructure to support changing life circumstances.

The sheer scale of construction and development will also raise important community (and societal) questions about competing uses for land and water, and priorities for infrastructure for different purposes.

3. Sovereign manufacturing capabilities will spur job growth

Australia is the world's largest producer of iron ore, but we don't make significant amounts of steel. This is because the economics currently favour sending the raw materials to major manufacturing and steel-consuming countries, such as China, Japan, Korea, and India. The cost of shipping is not high enough to offset the costs of producing steel onshore.

But this can change with the energy transition, where future economics are likely to favour using electricity and hydrogen onshore to add value to resources, rather than sending the ore and energy to overseas buyers separately. There is public benefit in supporting Australia's manufacturing sector, and this is also a growth opportunity.

We need to think strategically – and have a long-term view – about creating industrial policy that values and grows local knowledge and capability, not only for beneficial economic outcomes but also in the interests of energy and national security. In the shorter term, it is also about supporting early adopters of hydrogen technology in manufacturing who still face significant financial risk.

4. Clean energy jobs should be inclusive and diverse

Work has begun to develop hydrogen-focused courses in Australian technical colleges, and the number of students enrolling in them is expected to increase as they attract credits.

But there is still under-representation of women and all minorities, in both jobs and coursework. These populations have much to offer and have traditionally been overlooked in oil and gas. Providing appealing job prospects to a broader range of people will improve the ability of the future energy industry to access the skills it needs.

About the author

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