

QUEENSLAND'S RENEWABLE RECOVERY PLAN

Making strategic economic recovery investments
to diversify the economy and build the next
generation of energy



SolarCitizens



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SUMMARY

This report outlines the benefits of a renewable economic recovery plan for Queensland.

In a low carbon world, one of Queensland's main competitive advantages is an abundance of solar and wind resources that can be utilised to create cheap electricity.

Rolling out more small-scale solar and storage, and investing in key large-scale renewable energy and transmission projects, will create jobs and lower electricity prices for Queensland homes and businesses.

Turbocharging Queensland's renewable energy sector also sets the Sunshine State up for the future: unlocking opportunities for new renewable-powered manufacturing and export industries.

If the right investments are made now, in ten years there could be 13,430 Queenslanders employed long-term in clean energy generation and tens of thousands working in 'green' steel and renewable hydrogen production.

Up to 75% of the jobs created by a thriving renewable energy industry would also be in regional Queensland – assisting some of the communities worst-hit with high unemployment.



IMMEDIATE STIMULUS MEASURES



Expand existing rooftop solar programs for renters and public housing residents.



Extend the popular no-interest small-scale solar loan scheme.



Roll out 50,000 household battery storage systems with rebates and no-interest loans – prioritising Queensland made or developed battery systems.



Expand and prioritise the rollout of solar and storage for remote communities – while ensuring appropriate community consultation.



Increase CleanCo's budget, allowing for more publicly-owned large-scale renewable energy projects.

INVESTING IN THE FUTURE



Immediately set Powerlink to work establishing the feasibility of transmission projects outlined in the 2019 draft Integrated System Plan, and fast-track the establishment of Renewable Energy Zones.



Further support the delivery of CopperString 2.0 so the project can achieve financial close by the end of 2020.



Commit to a 4GW reverse auction over the next term of government where local procurement is prioritised and encouraged.



Investigate opportunities for off-river pumped hydro, community-scale batteries and Virtual Power Plants (VPPs).

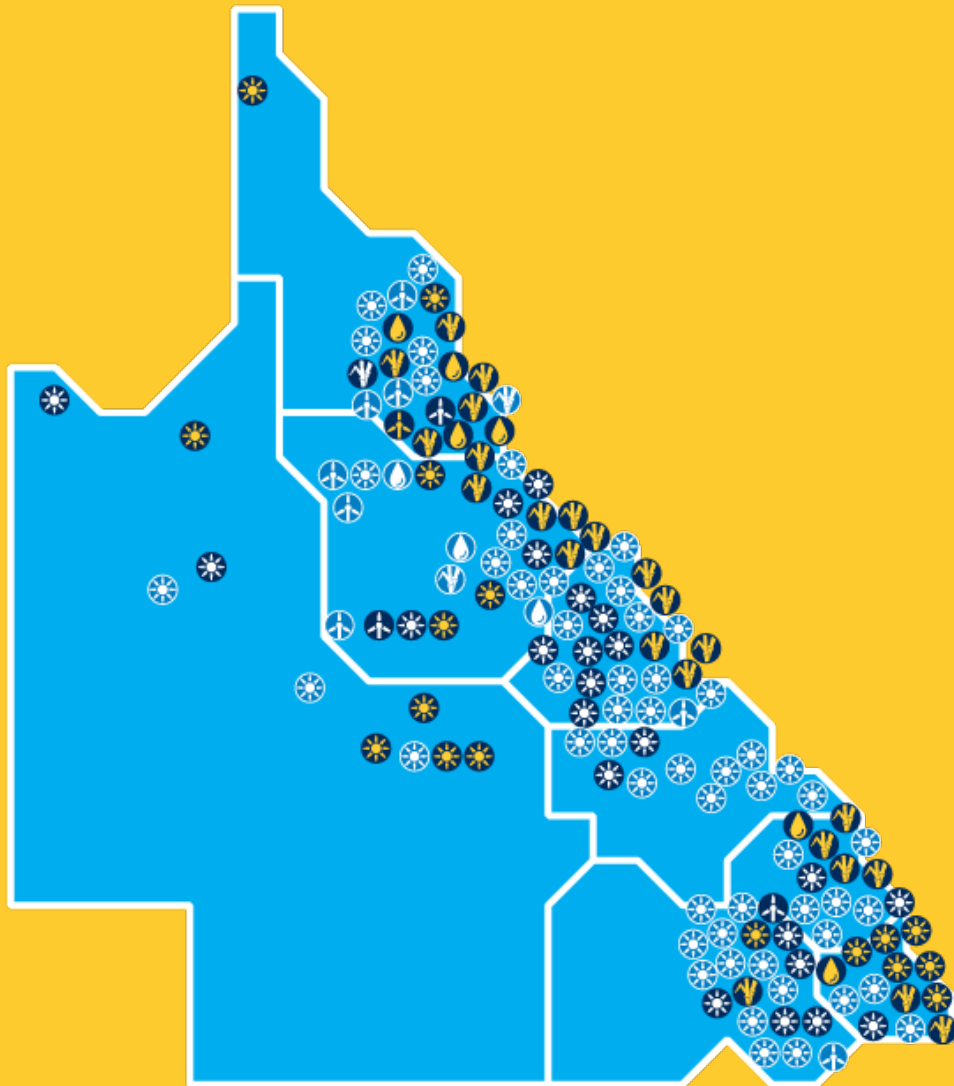


Provide free skills and training opportunities for a growing renewable energy workforce.



Support the establishment of a Gladstone or Townsville renewable hydrogen hub by providing further funding for local projects to move from feasibility to implementation.

RENEWABLES IN THE SUNSHINE STATE: IT JUST MAKES SENSE



Map references the planned, in construction, and operating renewable energy power stations (2018).

QUEENSLAND ADVANTAGE

Queensland has a unique set of natural advantages that could see the state prosper as the world moves towards a low carbon future.

The Sunshine State has impressive solar and wind resources – including valuable wind resources in the north of the state that tend to blow when the sun is setting, and when the wind is low in the southern states. This presents an opportunity to export electricity to the rest of Australia as renewable energy makes up a greater share of the nation's energy mix.

What's more, Australia is rich in the minerals needed for the transition to renewable energy backed by storage: bauxite, copper and lithium. Queensland, in particular, is well-placed to process and export renewable commodities to Asian markets. When these factors are coupled with Australia's clean energy expertise, it makes a strong case for further developing Queensland's natural renewable energy advantage.

The majority of Queenslanders support the transition, especially given many homes and businesses have experienced savings from their own rooftop solar PV systems. **A poll of over 1,000 Queenslanders found that 78% of respondents would be more likely to support the government using funds to build more renewable energy generation rather than build more coal-fired power stations¹.**



ROOFTOP SOLAR IN QUEENSLAND

Queenslanders are world-leaders with regards to small-scale installation – with almost 700,000 systems installed. But even though 35.7% of Queensland homes have rooftop solar installed, there are still many people that face barriers to installing solar².

A poll commissioned by Solar Citizens of over 1,000 Queenslanders, found that of the 63% that didn't have solar, nearly half said it was because they're renters and 12% said the upfront cost was stopping them.



ROOFTOP SOLAR AND STORAGE ECONOMIC STIMULUS

The Queensland Government already has a range of solar pilot programs that could be upscaled beyond their current size to create jobs and enable more Queenslanders to reduce their electricity bills. **Our recently released Rooftop Recovery report demonstrates that installing solar on a third of Queensland's public housing stock, and expanding the no-interest solar loan scheme for another 20,000 systems, would create 1,100 jobs³.**

What's more, subsidising household batteries will work to resolve local grid issues associated with 'solar saturation', create employment and place downward pressure on electricity prices. **If 50,000 5kW battery systems were subsidised, it would create 280 installation jobs over 5 years, 73 jobs in operations and maintenance and an additional 330 jobs over the same period if the batteries were manufactured locally⁴.**

If the battery policy was designed to prioritise Queensland made and developed batteries, this could encourage more local manufacturing – as we've seen demonstrated in South Australia with Sonnen, Eguana Technologies and AlphaESS opening up battery facilities to meet local needs.

At present, the Queensland Government has committed to rolling out renewable solutions in remote communities Bamaga, Mapoon, Pormpuraaw and Doomadgee. This could be expanded to more remote communities, following a consultation process. Installing solar and storage microgrids in remote communities, or fire-prone areas, can be a good investment that will result in long-term fuel and network savings.

To lower electricity prices and create jobs immediately, we recommend:



Expanding existing rooftop solar programs for renters and public housing residents.



Extending the popular no-interest small-scale solar loan scheme.



Rolling out 50,000 household battery storage systems with rebates and no-interest loans – prioritising Queensland made or developed battery systems.



Expanding and prioritising the rollout of solar and storage for remote communities – while ensuring appropriate community consultation.

LARGE-SCALE RENEWABLES

PROJECTS ALREADY IN THE PIPELINE

Analysis by Green Energy Markets found that there are 108 large-scale renewable energy projects in Queensland's planning and development pipeline. If these projects went ahead it would generate⁵:



Over 51,000 construction jobs



\$36 billion worth of investment



Almost 2,500 ongoing jobs



Emission savings equivalent to almost
a 30% reduction in Qld's emissions

However, in 2019 investment in large-scale renewable energy projects in Queensland crashed to almost nothing – putting these projects at risk.



POWERING LARGE-SCALE RENEWABLES

New clean energy projects create a significant amount of construction employment and investment, largely in the regions. Modelling from the Institute of Sustainable Futures, found that approximately 75% of Queensland's renewable employment up until 2035 would be regional in a scenario where the industry is thriving⁶.

Unfortunately there are obstacles halting large-scale renewable energy investment, which include: a lack of energy policy to provide investment certainty, transmission bottlenecks, and low electricity demand during the middle of the day.

Large-scale renewable energy developers have also identified skills shortages across Australia, reporting that at times they are unable to find suitable local workers with the required experience. In particular, surveys conducted by the Institute of Sustainable Futures found that developers had the most trouble finding electrical and grid engineers, as well as construction managers⁷.

To overcome these issues and drive further public and private investment in new large-scale projects, we recommend:



Increasing CleanCo's budget, allowing for more publicly-owned large-scale renewable energy projects.



Committing to a 4GW reverse auction over the next term of government where local procurement is prioritised and encouraged.



Setting Powerlink to work establishing the feasibility of transmission projects outlined in AEMO's 2019 draft Integrated System Plan, and fast-track the establishment of Renewable Energy Zones.



Investigating opportunities for off-river pumped hydro, as well as community-scale batteries.



Providing free skills and training opportunities for a growing renewable energy workforce.

BUILDING FOR THE FUTURE

One of the principles underpinning Queensland's Economic Recovery Strategy is investing in productive infrastructure for the future⁸. One of the main roadblocks stalling investment in new clean energy projects is the need for more transmission infrastructure.

The latest Integrated System Plan from the Australian Energy Market Operator (AEMO) suggests the priority development of the Darling Downs, Fitzroy and Far North Queensland Renewable Energy Zones (REZs), as well as the following transmission upgrades⁹:

WHAT NEEDS TO BE DONE

- #1** Queensland to New South Wales Interconnector (QNI) upgrades
- #2** Augmentation to the northern Queensland network to support REZ development
- #3** Upgrade of the network from Central to Southern Queensland
- #4** Reinforcement of the network around Gladstone

RENEWABLE ENERGY ZONES

Investing in these upgrades will allow for better interconnection between states, and for the development or further development of the Darling Downs, Far North Queensland, Isaac and Fitzroy Renewable Energy Zones.

But the priority transmission projects suggested by AEMO alone will not unlock Queensland's enormous renewable energy potential – further investigation is required to establish which other transmission projects are needed. There is especially a need to investigate options for transporting energy from major Renewable Energy Zones in the north to load centers in the south of the state.

The below table shows the job potential associated with each of Queensland's Renewable Energy Zones if they were developed to their capacity.

QUEENSLAND RENEWABLE ENERGY ZONE	POTENTIAL SOLAR AND WIND CAPACITY ¹⁰	JOB YEAR* POTENTIAL DURING CONSTRUCTION AND DEVELOPMENT ¹¹	ONGOING JOB YEAR* POTENTIAL ¹²
Far North Queensland	3,500MW	8,753	649
North Queensland Clean Energy Hub	26,600MW	70,753	4,972
North Queensland	3,400MW	8,556	374
Barcaldine	11,900MW	29,238	1,738
Isaac	10,700MW	25,006	1,595
Fitzroy	11,200MW	27,496	1,540
Wide Bay	3,300MW	7,841	484
Darling Downs	13,300MW	32,550	2,079

*Job years are a full-time equivalent position that lasts for a year.

UPGRADING TRANSMISSION

If all of Queensland's Renewable Energy Zones were developed to their solar and wind capacity, as outlined by AEMO, it would create approximately 210,193 job years in Queensland during construction and development, as well as 13,430 ongoing jobs. These figures do not include the jobs created in the construction of transmission lines.

Copperstring 2.0 is another promising transmission proposal in North Queensland. The \$1.5 billion project will create 400 construction jobs as well as 20 operation jobs – and unlock significant solar and wind resources that could provide cheap electricity to the North West Minerals Province and Mt Isa community.

High electricity prices are negatively affecting industry and businesses, particularly in North Queensland. According to the Townsville Enterprise, North Queensland has historically been disadvantaged due to high transmission charges associated with being located long distances from major electricity generators¹³. The addition of CopperString 2.0 will allow for more local renewable energy generators to be built, which again will help lower electricity prices in Townsville, Mt Isa and Far North Queensland.

To generate more renewable energy jobs and lower the wholesale electricity price in Queensland, we recommend:



Setting Powerlink to work establishing the feasibility of transmission projects outlined in the 2019 draft Integrated System Plan, and fast-track the establishment of Renewable Energy Zones.



Further supporting the delivery of CopperString 2.0 so the project can achieve financial close by the end of 2020.

INCREASING STORAGE

PREPARING THE GRID FOR GREATER RENEWABLE UPTAKE

As more rooftop solar and large-scale renewable energy generation connects to the grid, there can be localised issues such as voltage fluctuations and risks to system strength, as well as concerns regarding the reliability of variable renewable energy generation.

What's more, on mild, sunny days in Queensland it's becoming more frequent for the wholesale price of electricity to go negative because of excess solar generation. These negative pricing events result in solar farms switching off to avoid paying to supply electricity while coal generators, which have a limited ability to ramp up and down, lose money because they continue to operate.

To resolve these issues while creating employment, we recommend:



Rolling out 50,000 household battery storage systems with rebates and no-interest loans – prioritising Queensland made or developed battery systems.



Investigating opportunities for off-river pumped hydro, community-scale batteries and Virtual Power Plants (VPPs).



GROWING A CLEAN ENERGY ECONOMY

Data from the Australian Bureau of Statistics (ABS) shows that in the year 2018-2019 there were 26,850 direct full-time equivalent jobs in renewable energy across the country¹⁴. Of these jobs, 12,660 were direct employment in large-scale clean energy generation, and 6,330 of the total full-time equivalent jobs were in Queensland.

+2,500 ONGOING JOBS FOR QUEENSLAND

Data from Green Energy Markets suggests that close to 2,500 ongoing jobs would be created across Queensland if all the large-scale renewable energy projects in the planning and development pipeline went ahead. In comparison, less than 1,500 people are estimated to be employed at Queensland's coal-fired generators. Analysis from the Clean Energy Council shows that across Australia renewable energy already employs more workers than the domestic coal industry, which includes both coal generators and coal mining for domestic use¹⁵.

What's more, opportunities for renewable energy employment are not limited to construction, installation and operation of small and large-scale generation. **Queensland's solar and wind resources, available landmass, and accessibility to Asian markets, mean that the Sunshine State is well-placed to capitalise on a clean energy economy.**

A RENEWABLE HYDROGEN FRONTRUNNER

According to Australia's National Hydrogen Strategy, a homegrown hydrogen industry could create 7,600 jobs and increase Australia's GDP by \$11 billion per year before 2050. In a more optimistic scenario where global demand for hydrogen develops faster, this could increase to tens of thousands of jobs and \$26 billion per year¹⁶.

One recommendation outlined in the National Hydrogen Strategy is to establish hydrogen hubs: areas that co-locate various users of hydrogen to assist with the early stages of development for the industry. Gladstone is one example of a great location to establish a hydrogen hub due to its port location, skill base and existing demand for hydrogen. Likewise, private investors are already expressing interest in developing hydrogen projects in Townsville. **Supporting the implementation of renewable hydrogen projects in either Gladstone or Townsville, will help kick-start this industry and position Queensland as a renewable hydrogen frontrunner.**

It's also possible to utilise Queensland's abundant solar and wind resources to provide low-cost electricity, making it competitive to process minerals onshore and create new manufacturing industries. Queensland's competitive advantage could be low-cost renewable electricity.



RENEWABLE MANUFACTURING

New data from the Grattan Institute makes a compelling case for using renewable energy for onshore 'green' steel production. **If Australia gained just 6.5% of the global steel market it would create 25,000 ongoing manufacturing jobs in Queensland and New South Wales, and generate \$65 billion in annual export revenue¹⁷.**

\$65 BILLION IN ANNUAL EXPORT REVENUE

The Australia Institute's Centre for Future Work found that the manufacturing industry could save \$1.6 billion a year, or 23% of its annual electricity costs, if it switched its energy supply to 100 per cent renewables¹⁸.

If the small and large-scale renewable energy industries continue to thrive, it could also be feasible to expand onshore manufacturing of clean energy components such as solar panels, wind turbines and batteries.



KICK-STARTING RENEWABLE MANUFACTURING

Already, plans for a \$3 billion battery manufacturing plant in Townsville are moving ahead. Construction will likely begin in the second half of 2020, and the 18GWh lithium-ion battery factory is expected to create 1,150 direct jobs when in full operation.

Clean energy manufacturing can help future-proof jobs in Queensland's regions, and provide a well-paid alternative for workers transitioning out of traditional industries – but key to the success of these new industries is investment in new renewable energy projects to drive down the cost of electricity.

To kick-start renewable manufacturing, we recommend:



Committing to a 4GW reverse auction over the next term of government where local procurement is prioritised and encouraged.



Rolling out 50,000 household battery storage systems with rebates and no-interest loans – prioritising Queensland made or developed battery systems.



Supporting the establishment of a Gladstone or Townsville renewable hydrogen hub by providing further funding for local projects to move from feasibility to implementation.



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