REACHING 50% RENEWABLES

Queensland can reach 50% renewable energy in 2025.

Queensland Conservation Council

SolarCitizens

KEY FINDINGS

This report analyses Australian Energy Market Operator (AEMO) data and publicly announced renewable energy projects to determine the likelihood of Queensland exceeding the State Government's current 50% by 2030 Renewable Energy Target (RET).

The findings of this report demonstrate that reaching Queensland's 50% RET could be achieved by 2025. This is in line with modelling from AEMO's Integrated System Plan which suggests that renewable energy will meet 65% of Queensland's electricity demand by 2030 [1].

As the Queensland Government works to develop a 10-Year Energy Plan, our findings suggest that maintaining a 50% by 2030 RET would stifle investment in new large-scale renewable energy projects and position Queensland well behind other Australian states and territories.

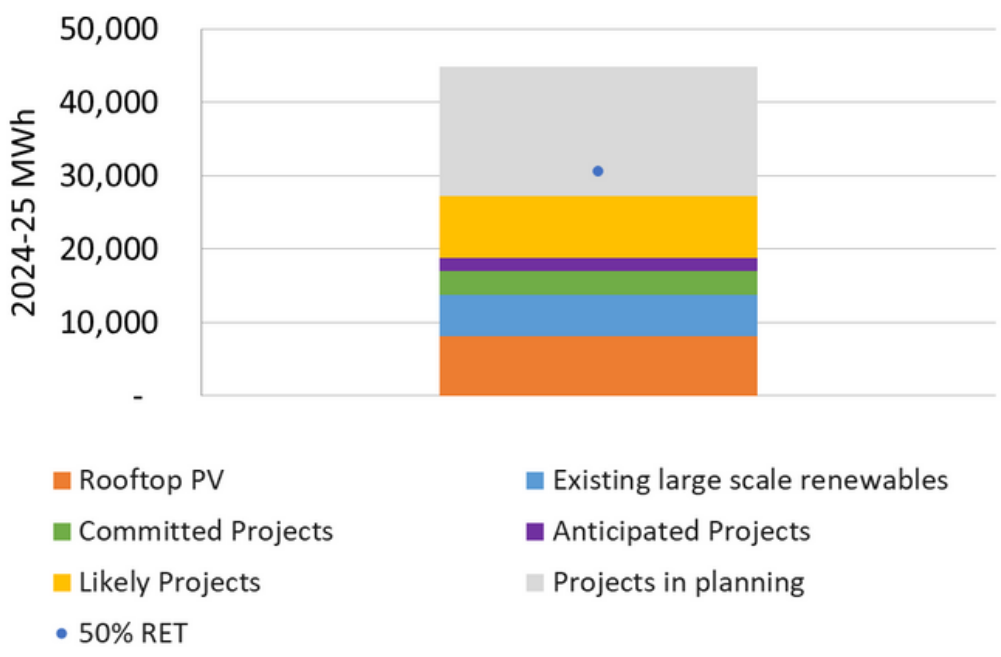
Key findings of this report include:

- Queensland's renewable energy ambition is currently lagging behind all other Australian states. Tasmania, South Australia, New South Wales and Victoria all have either higher renewable targets or more significant Renewable Energy Zone plans that will deliver a higher renewable penetration by 2030.
- A significant 5,100 MW of large-scale solar and wind projects are currently under construction or anticipated to proceed to construction in Queensland by 2025. Once these projects are online only an additional 1,400 MW of solar or 1,000 MW of wind will be required to meet the 50% Renewable Energy Target by 2025.
- The significant pipeline of large-scale solar and wind projects under construction or likely to proceed to construction set Queensland up for reaching 44% renewable electricity in 2025.
- A 50% by 2030 RET will stifle renewable energy development beyond 2025 as there will be no directive for further public investment or private sector confidence in Government objectives for further investment.

- The Queensland Government's $2 billion Renewable Energy and Hydrogen Jobs Fund could deliver the remaining renewable generation required for Queensland to reach 50% renewable energy in 2025. There would still be funds left over to build a 150 MW, 4 hr battery to support further wind and solar projects.

- More than 60,000 MW of large-scale renewable generation has been identified in Queensland's project pipeline [2], and nearly 8,000 MW is undergoing planning and development approval stages.

Graph 1:
A 50% RET will not support Queensland's renewable energy pipeline beyond 2025



BACKGROUND

In 2015, the Queensland Government committed to a 50% by 2030 Renewable Energy Target. Since announcing the 50% RET, Queensland has not yet published a plan for how this target will be reached.

Since 2015, other Australian states and territories have increased their renewable energy ambition, either by increasing their renewable targets or by announcing significant Renewable Energy Zone (REZ) plans. As a result the Australian Government estimates that the Sunshine State will lag behind every other state and have the lowest renewable energy penetration in the National Electricity Market (NEM) by 2030 [3].

However, even without strong State Government leadership, the falling cost of renewable energy generation coupled with pressure on business to decarbonise is encouraging new large-scale solar and wind investments in Queensland. Government-owned generators are investing in new renewable projects to help diversify their asset base as profits from coal generators trend downwards, and to ensure they can meet renewable energy demands from their retail customers.

Currently, there is a significant 5,100 MW of large-scale solar and wind generation either under construction or anticipated to proceed to construction in Queensland. These projects are expected to be commissioned by the end of 2025, meaning the Sunshine State could reach 44% renewable penetration by this time.

In 2021, the Queensland Government announced a $2 billion Renewable Energy and Hydrogen Jobs Fund to fund publicly-owned renewable energy and hydrogen projects. If allocated, this funding could build the remaining capacity required to meet the 50% RET by 2025, and also fund a 150 MW, 4 hr battery to support further renewable energy development in Queensland.

The Queensland Government is currently developing a 10-Year Energy Plan, expected to be released this year to shape Queensland's electricity system in the 10 years up to 2032 when Brisbane will host the world's first climate positive Summer Olympic and Paralympic Games.

The analysis undertaken by Queensland Conservation Council and Solar Citizens for this report found that Queensland is well positioned to aim higher than the current 50% RET. In fact, a 50% target by 2030 would stifle private renewable investment post 2025 in Queensland. It is therefore our recommendation that the 10-Year Energy Plan maps a pathway for Queensland's electricity system to exceed 50% renewable energy by 2030.

The State Government has also pledged to establish three Renewable Energy Zones. The Queensland Department of Energy and Public Works is still consulting on the scale of these zones; however, the New South Wales REZ plans include up to 12,000 MW of new solar and wind generation coming online by 2030. This significant investment will pave the way for NSW to develop new industries in clean energy exports such as hydrogen and manufacturing.

Queensland is at risk of losing investment in these new industries if the State Government maintains a 50% Renewable Energy Target by 2030.

METHODOLOGY

AEMO models future scenarios of Australia's main electricity system in the bi-annual Integrated System Plan. The Step Change scenario is the most likely future scenario modelled in the 2022 Draft Integrated System Plan [4].

This analysis uses AEMO's Step Change scenario to assess the likelihood of Queensland reaching the 50% Renewable Energy Target earlier than 2030. Our calculations demonstrate that Queensland could easily meet 50% of its electricity demand with renewable energy by 2025.

AEMO anticipates under the Step Change scenario that Queensland's operational sent out electricity demand by 2024-25 will be 61,488 GWh inclusive of demand met on-site by small-scale solar PV.

Using AEMO's solar and wind capacity factors [5], we were able to determine that 27,733 GWh of renewable generation would be produced by renewable projects likely to be operating in the State then. The renewable generation included in this analysis is as follows:

- Existing, committed and anticipated large-scale renewable energy projects as defined by AEMO;
- Projects likely to proceed as they have already received Power Purchase Agreements or secured finance; and
- Projected growth in small-scale solar PV.

Again using AEMO's solar and wind capacity factors, we determined that a further 1,400 MW of solar or 1,000 MW of wind would be required by 2025 to meet the renewable generation shortfall if the 50% target were to be met early.

Costs for renewable energy development were derived from CSIRO's GenCost report [6] and used to estimate the approximate scale of solar and wind generation and battery capacity that could be developed using the $2 billion Renewable Energy and Hydrogen Jobs Fund.

Job estimates were taken from the Institute for Sustainable Futures report into renewable energy jobs [7], and reports from Hornsdale battery in South Australia [8].

RECOMMENDATIONS

The energy transition offers an exciting opportunity to stimulate employment across Queensland's regions by building out new renewable energy projects and establishing clean manufacturing industries – but these opportunities can only be seized by increasing the State's renewable energy ambition.

The Queensland Conservation Council and Solar Citizens are calling on the State Government to commit to powering Queensland's entire electricity demand with renewable energy by 2030.

In the more immediate term, we are calling on the Queensland Government to ensure that at least 2,000 MW of new renewable energy is added to each of Queensland's three Renewable Energy Zone regions by 2025 on top of the 1,000 MW of projects already at advanced stages of construction. Another 1,000 MW of new battery storage should also be supported during this time.

If the Government commits to this through the development of their 10-Year Energy Plan they would fast-track approximately 6,500 construction job years and 350 ongoing jobs across the regions, including in Gladstone, Rockhampton, Townsville, as well as the Western and Darling Downs. A more ambitious 2030 target would support even more long term jobs.

REFERENCES

[1] Australian Energy Market Operator. (2021). Draft 2022 Integrated System Plan.

[2] Queensland Government Department of Energy and Public Works. (2021). Queensland Renewable Energy Zone Technical Discussion Paper.

[3] Department of Industry, Science, Energy and Resources. (2021). Australia's Emissions Projections 2021.

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[6] CSIRO. (2021). GenCost 2020-21.

[7] Institute for Sustainable Futures. (2020). Renewable Energy Jobs: Stage One.

[8] Neoen. (2022). Hornsdale Power Reserve Local Benefits.