Renewable Energy Targets: Methodology

Introduction

The Queensland Energy and Jobs Plan outlines the Government's vision to increase the proportion of Queensland's electricity generation from renewable energy sources to 50 per cent by 2030, 70 per cent by 2032 and 80 per cent by 2035. The Queensland SuperGrid Infrastructure Blueprint, which was released alongside the Plan, detailed the infrastructure pathway and investments required to transform the State's electricity system and achieve the three renewable energy targets, while maintaining a safe, secure, reliable, and affordable supply of power.

The *Energy (Renewable Transformation and Jobs) Act 2024* (Energy Act) enshrines key commitments from the Plan in law, creates the infrastructure frameworks for delivery, and establishes the governance bodies required for success. In particular, the Energy Act (Part 2) embeds the three renewable energy targets in law and creates new obligations on the Minister, including:

- to prepare and publish a methodology for calculating the proportion of electricity generated in Queensland that is generated from renewable energy sources,
- to publish an annual progress statement on progress toward achieving the three renewable energy targets, and
- to regularly review the renewable energy targets.

Methodology

Calculation

The calculation of progress towards, and achievement of, the renewable energy targets in Queensland will be on an electricity generation basis:

$$Renewable\ energy\ percentage\ in\ Queensland = \frac{Renewable\ generation\ in\ Queensland}{Generation\ in\ Queensland} \times 100$$

where generation refers to energy generated, measured in units such as megawatt-hours (MWh) or gigawatt-hours (GWh). The calculation aims to include all (as far as practicable) significant generators in Queensland. The generation estimates are limited to electricity generated within Queensland; energy generated outside of Queensland and transported into the state via interconnectors is excluded.

Scope

This calculation captures primary energy generation only. Secondary generation from energy carriers such as batteries and pumped hydro energy storage schemes are excluded from the calculation.

The calculation also excludes systems that displace the need for electricity, such as solar hot water systems and energy efficiency measures.

All parameters are "as generated", meaning generator auxiliary loads are included in the calculation.

Key Definitions

Generator Auxiliary Loads refers to energy consumed in the operation of auxiliary equipment necessary for electricity generation, such as pumps, blowers and fuel preparation machinery.

Primary energy refers to an energy source found in nature that has not been subjected to any human engineered conversion processes. It refers to raw fuels such as coal, petroleum, natural gas, solar, wind, biomass, geothermal and hydropower.

Renewable energy sources are defined in the Energy Act (schedule 1) to include:

a) solar;
b) wind;
c) biomass;
d) geothermal; and
e) hydropower, other than pumped hydro energy storage.

The Energy Act also allows for other sources of renewable energy to be prescribed via Regulation.

Renewable energy target refers to the proportion of Queensland's electricity generation from renewable energy sources. The targets are for 50 per cent renewable electricity generation by 2030, 70 per cent by 2032 and 80 per cent by 2035.

Secondary energy refers to energy carriers, which involve energy conversion processes from primary energy sources. Examples of energy carriers include batteries, pumped hydro energy storage schemes, hydrogen, and ammonia.

Data sources

The calculation of Queensland's renewable energy percentage primarily relies on publicly available information from the Australian Energy Market Operator (AEMO) for electricity generation data. Generally, this is generator metered output at 5-minute intervals.

AEMO also provides estimates for the generation from rooftop solar PV systems for residential, commercial and industrial customers.

Where AEMO measured output or estimates are not available, the calculation relies on estimates provided by the Department of Energy and Climate. These estimates are calculated using plant-specific capacity and published generation profiles where available, otherwise assumed generation profiles are applied.

Tracking

The Queensland Energy System Advisory Board – Queensland's new technical expert advisory board, established under the Energy Act – will prepare an annual progress statement. This annual progress statement must be published on the Department of Energy and Climate's website and tabled in the Legislative Assembly by 30 September each year. This statement must outline (section 11 of the Energy Act) the progress made towards achieving the renewable energy targets in the previous financial year.

In addition, the Queensland Government has committed to reviewing the Infrastructure Blueprint every two years to ensure Queensland:

- remains on track to achieving the three renewable energy targets,
- has a safe, secure, and reliable electricity supply, and
- long-term minimisation of the cost of electricity for Queensland consumers

This biennial review of the Infrastructure Blueprint will also serve as a critical tracking indicator for the State's energy transformation, and progress toward the renewable energy targets.

Reviews

Section 12 of the *Energy (Renewable Transformation and Jobs) Act 2024* requires that the Minister must review the renewable energy targets at least every five years. The object of the review is for the Minister to decide whether the renewable energy targets remain appropriate in consideration of factors including the progress made towards achieving the renewable energy targets and advice from the Queensland Energy System Advisory Board.

In addition, the Minister is also required to review the renewable energy targets in 2030. As part of this review, the Minister must decide whether targets should be set beyond 2035.