

## Country Assessment Report

**Country/Region name:** New Zealand /Asia Pacific

In June 2022, New Zealand’s population was 5.12M (up 16% on 2012).

The size of the economy according to [Statistics NZ](#) is \$375bn, and the quarterly GDP growth to December 2022 was 2.0%.

Over 80% of the country’s electricity comes from renewable generation.

**Generation and demand: (type, MW, TWh)**

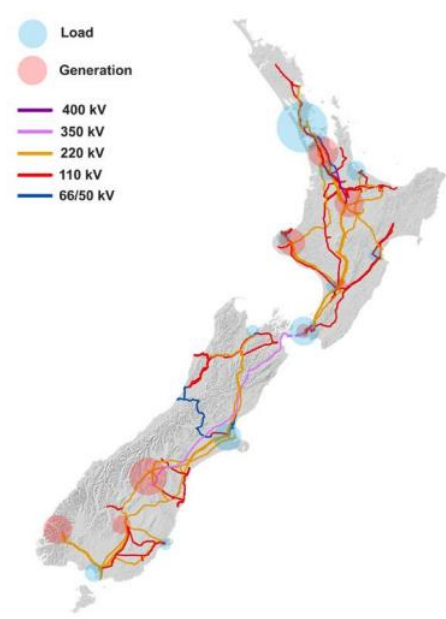
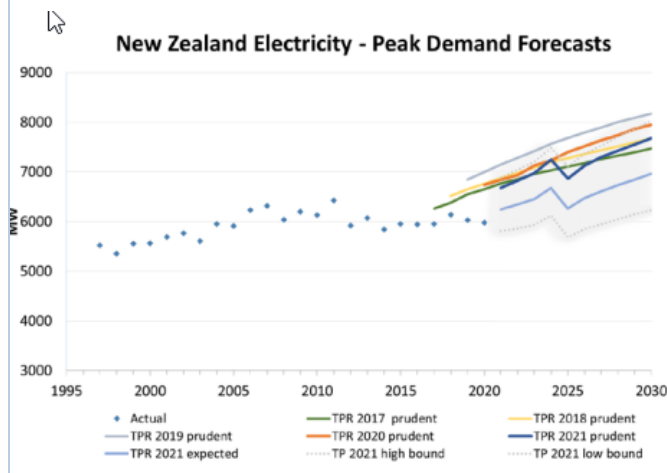
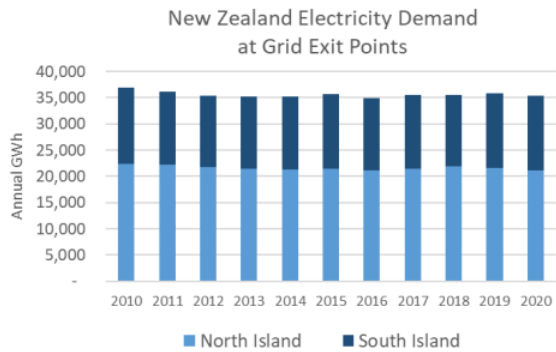
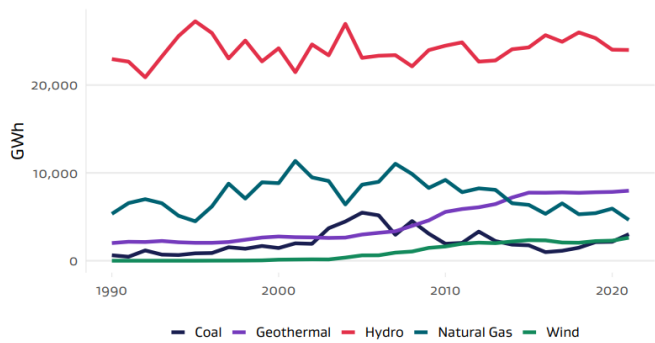
Electricity is primarily generated by five major electricity generation companies. Genesis Energy, Mercury Energy, Meridian Energy (all 51% owned by the New Zealand Government), Contact Energy and Manawa (non-Government owned companies). All are electricity retailers.

Most of New Zealand’s electricity is generated at remote locations and requires an efficient transmission system to transport it to the main load centres.

More than 200 electricity generation plants supply electricity to the national grid, which is owned and operated by Transpower New Zealand. Small-scale generation is embedded, connecting to distribution networks.

New Zealand’s transmission network is narrow and longitudinal, with areas of demand generally some distance from generation. The transmission network is essential to transport energy to where it is needed, as well as to balance demand and generation between the North and South Islands.

Figure C.1 Electricity generation by major source



New Zealand generated 42,656 GWh in 2022.

Peak demand is increasing much faster than average energy consumption. For example, in the year to October 2022, the average of the top 20 demand peaks was up 1.7% on the previous year. This compares to energy consumption growth of 0.2%.

**RE Market Potential:**

New Zealand has two principal climate change commitments:

1. **Paris commitment:** a 30% reduction of gross greenhouse gas emissions below 2005 levels (or 11% below 1990 levels) for the period 2021-2030.
2. **Domestic 'net zero' commitment:** net zero emissions by 2050.

Future power stations will be increasingly renewable, with new technologies and improving economics expected to allow for renewables to make up 95% of New Zealand's electricity generation mix renewable by 2035 and 100% by 2050 in a "normal" year – up from ~80% today.

An accelerated electrification future, to meet our emissions reduction targets, will require 40 new grid connected generation projects by 2035, 30 connections to accommodate increased electricity demand, 10-15 new transmission interconnections and other network investments to enable energy to reach consumers.

[Transpower's strategic analysis on decarbonisation](#) pathways for New Zealand presents scenario modelling for the system. It lays out the contribution of electrification towards New Zealand's climate change targets, the size of the emissions reductions gap, as well as the estimated cumulative emissions reductions from electrification and increasing the volume of renewable electricity: the target market.

#### **Electrical interconnection and import/export:**

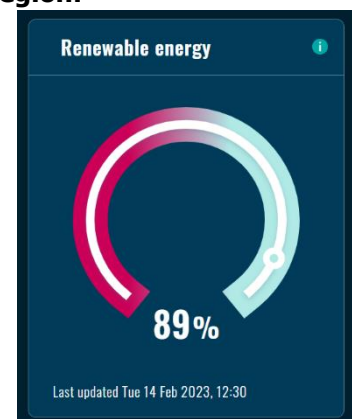
Surrounded by ocean, New Zealand's nearest neighbour, Australia, is over 4,000km away. As a result, New Zealand has a power system which supplies domestic load only, with no interconnection to other markets.

#### **Historical support or development of renewables in the country/region:**

On 4 August 1888, a 20kW hydroelectric power station on the Inangahua River was commissioned to supply Reefton, the first town in the southern hemisphere, to have its own public electricity supply.

The country's first modern hydroelectric power station opened in 1914 at Lake Coleridge in the Southern Alps.

The Government built many large run-of-river power stations in the latter half of the 20th century before deregulation in 1996. Renewables growth continues to this day with solar, wind, geothermal and hydroelectric generators assets contributing the majority of New Zealand's electricity supply.



#### **Electricity market structure**

New Zealand's electricity market was [deregulated in 1996](#) with full retail competition in 1999. The market regulator is the [Electricity Authority](#). The Minister responsible is the Minister of Energy and Resources, Hon. Megan Woods.

[Transpower New Zealand](#), the transmission grid owner and System Operator, is owned by the New Zealand Government.

Five major generators produce ~95% of New Zealand's electricity.

#### **Description of renewables support mechanism:**

[The Emissions Trading Scheme](#) (ETS) is New Zealand's primary policy mechanism for meeting climate change targets, however, renewable generation is not included in the ETS scope.

A voluntary renewables certificate scheme is run by Certified Energy (NZECS).

#### **Responsible government department:** (include key contacts)

1. [Climate Change Commission](#)
2. [Ministry for the Environment](#)
3. [Ministry of Business, Innovation and Employment](#)

#### 4. [Environmental Protection Authority](#)

Key contacts will be provided as required.

##### **Existing/Planned energy legislation:**

The Climate Change Response Amendment Act 2019 came into force in November 2019, providing a framework for achieving net-zero carbon by 2050 and then in late 2020, the Government declared a climate emergency. Since then, it has made a series of climate-related announcements, including a strengthened ETS, an intent for a carbon neutral public sector by 2025 together with a \$200M State Sector Decarbonisation Fund, a \$70M Government Investment to Decarbonise Industry fund, the banning of new low and medium temperature coal-fired boilers, a Clean Car Import Standard, a Clean Car Discount and a biofuels mandate.

2019 saw the establishment of the independent Climate Change Commission (CCC). The CCC released its first [carbon budget](#) in 2021, which charts a course to New Zealand becoming carbon neutral by 2050. The CCC recommend that New Zealand maximise the use of electricity as a low emissions fuel, noting that wider electrification of energy use is an essential part of the transition and will require a major expansion of the electricity system.

##### [Emissions Reduction Plan 2022](#)

The Emissions Reduction Plan (ERP) sets the Government's 2050 vision for the energy sector: to have a highly renewable, sustainable, and efficient energy system that supports a low emissions economy.

The ERP outlines the strategies, policies, and actions for meeting the country's first emissions budget (covering 2022 to 2025). The ERP also sets a direction and outlines how New Zealand will contribute to global efforts to limit global temperature rise to 1.5°C above pre-industrial levels. Decarbonising the energy sector will be vital to New Zealand achieving its emissions budgets. Specific actions include:

- Accelerate development of new renewable electricity generation across the economy
- Develop a mandatory energy and emissions reporting scheme for large energy users by 2024.

##### **Environmental legislation for RE:**

Additional to the above, the relevant environmental legislation enabling renewable energy is the Resource Management Act (RMA). The RMA promotes the sustainable management of natural and physical resources in a way, which enables people to provide for their social, economic and cultural well-being and for their health and safety. The RMA also aims to sustain the potential of natural and physical resources to meet the needs of future generations; safeguarding the life-supporting capacity of air, water, soil and ecosystems; and avoiding, remedying, or mitigating any adverse effects on the environment.

The Natural and Built Environments Act and the National Planning Framework (NPF) will replace the RMA for land use and environmental protection. Key is the NPF, through which the Government will give direction, allowing potentially conflicting outcomes to be resolved at the national level. The NPF will set a new direction for decision-makers in the resource management system, to plan for, and enable, infrastructure within limits. The infrastructure provisions of the NPF will include direction for planning instruments will establish a suite of standards for infrastructure to be applied to a range of activities and effects. Existing infrastructure direction for renewable energy generation will be transitioned into the NPF.

##### **Existing/Planned energy certificate systems: (purpose, extent)**

The New Zealand Energy Certificate System (NZECS) is a commercial voluntary certificate system with approximately 20 participants. NZECS is not affiliated with the International Attribute Tracking Standard held by the I-REC Standard Foundation.

**Extent of engagement with government:** Transpower is owned by the New Zealand Government.

**Response from Government in relation to attribute tracking systems:**

Although no formal conversations have taken place, it is expected that Government authorities will be supportive of the development as it aligns with New Zealand's climate change objectives and supports international reporting obligations. In addition, Transpower, is the state-owned transmission system operator and proposed Issuer for the I-REC(E) in New Zealand.

**Demand-side market potential or strategic nature of market development:**

Transpower has seen increased growth in new grid connection requests from demand and renewable generation. As a result, [Transpower updated](#) their connection process to better manage new connection enquiries. These new connections all represent market potential for RECs.

New Zealand has introduced disclosure reporting systems, starting with Government agencies to report against GHG2 and many New Zealand companies already report scope 2 emissions voluntarily, and international organisations that report GHG scope 2 for their international offices wish to report for their New Zealand-based businesses using I-REC.

Three large generators are participants in NZECS, typically using RECs for their retail businesses. All are potential I-REC users.

**Analysis of political disruptions or market risks:** N/A

**Analysis of regulatory risks including linkages with carbon markets and support systems:**

Although renewable generation is not specifically included in the [scope of the ETS](#), generators that emit GHG have obligations under the ETS and are required to surrender 1 New Zealand carbon unit (NZU) for every tonne of CO2 (equivalent) on an annual basis. This adds an operating cost to those generators. At the time of writing, the market price was \$71/NZU.

Note that some renewable generators (particularly geothermal) emit greenhouse gases that are captured by the ETS obligations and therefore attract obligations (costs) under the ETS.

**Current environmental reporting in energy:**

New Zealand currently has a voluntary [GHG emissions reporting framework](#). While currently voluntary, this will become mandatory, many organisations are preparing by reporting already.

**Carbon Neutral Government Programme - Launched in 2020**

The Government agencies responsible for managing the [Carbon Neutral Government Programme](#):

- the [Ministry for the Environment](#)
- the [Energy Efficiency and Conservation Authority](#)
- the [Ministry of Business, Innovation and Employment](#)

Government agencies are [required to report emissions and publish reduction plans](#) from the 2022/23 financial year.

**Mechanisms in place to support the reliable verification and issuance of I-RECs:**

Transpower owns and operates the revenue meters for grid connected generation and has direct access to measurement data. The metering team has developed industry-leading measurement and verification systems and processes, directly applicable to the issuance of R-RECs.

Revenue meter data for grid-connected devices is also [publicly available](#). All other revenue meter data can be accessed via an [industry-mandated data format](#).

Avoiding double issuance of RECs (where more than one REC system exists) will require registrants to verify that each MWh is exclusive to I-REC, i.e., they will not seek issuance from multiple REC systems.

**Local organizations of importance and their opinion on local I-REC market development:**

Transpower has been requested by a large retailer/generator to consider implementing I-REC(E) in New Zealand to meet their customers' needs for RECs. Anecdotally, RECs are a common requirement for new customer agreements, especially where power purchase agreements are used to support new generation. Contact names can be provided on request.

Toitu Envirocare

- Provides GHG emissions reporting certification
- Recognises RECs as an accepted input into their certification

**Any other relevant information:**

<https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/emissions-reduction-targets/>

<https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/mandatory-climate-related-financial-disclosures/>

<https://environment.govt.nz/assets/publications/Aotearoa-New-Zealands-first-emissions-reduction-plan.pdf>

<https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/carbon-neutral-government-programme/about-carbon-neutral-government-programme/>

<https://www.mbie.govt.nz/dmsdocument/23550-energy-in-new-zealand-2022-pdf>

Report Prepared by	Che Lewis
Contributors	Quintin Tahau
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