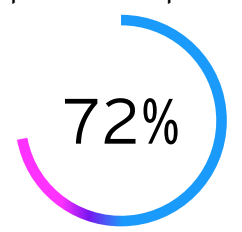


# Overview of the New Zealand Energy Market

## Generation and Demand

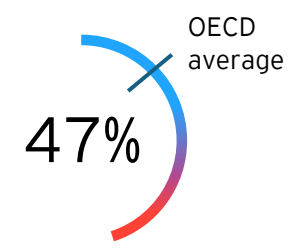
New Zealand has **high self-sufficiency in energy**:

- Electricity: domestic
- Natural gas: domestic
- Biomass: domestic
- Refined petroleum products: imported



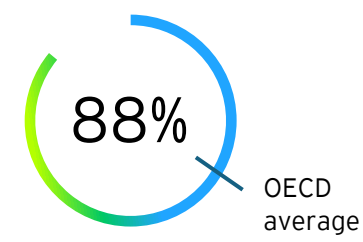
NZ is a global leader in **clean primary-energy**, with a high renewables share of total energy supply:

- NZ: 47%
- OECD average: ~13%



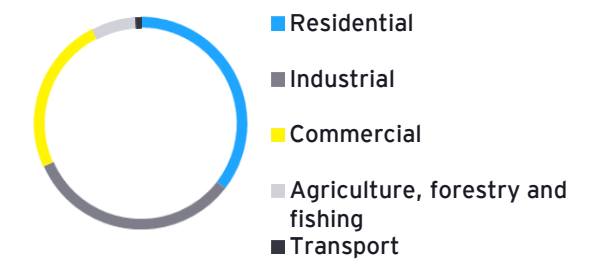
New Zealand ranks among global leaders in **renewable electricity generation**:

- NZ: 88%
- Australia: <40%
- OECD average: 34 %



New Zealand has stable electricity demand, with **projected growth** due to increasing electrification of industry and transport:

- 40,264 GWh electricity demand
- 65% demand growth by 2050
- Largest users: residential and industrial



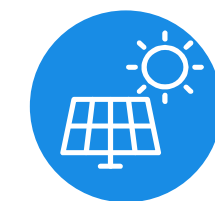
## Resource potential



**Onshore wind**  
 ~11.4 GW theoretical potential (MBIE)  
 World class capacity factors  
 Wind projected to supply ~21% of NZ's electricity by 2050.



**Offshore wind**  
 Exceptional 50-65% capacity factors  
 Extensive shallow coastal shelf  
 Market is pre-construction  
 Strong first-mover advantage.



**Solar PV**  
 High land availability  
 Moderate solar capacity factors  
 Competitive utility-scale economics with LCOE ~NZ\$70-95/MWh.

## What are the investable problems?

New Zealand's hydro-dependent electricity is vulnerable to dry-year conditions causing supply shortages and price volatility.



Thermal power plants are retiring, reducing capacity and increasing the need for alternative generation



Declining domestic gas reserves prompt LNG terminal plans to ensure stable energy supply.



Grid upgrades, including HVDC lines, are needed to support offshore wind and inter-island power transfer.

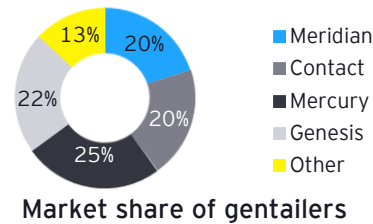




# Overview of the NZ Energy Market

## How the energy system works – structure, grid, markets

### Major generation and transmission players



**Transmission:** Transpower (state-owned) operates the national grid

**Distribution:** 29 companies under Commerce Commission price-quality regulation

### Markets and hedging

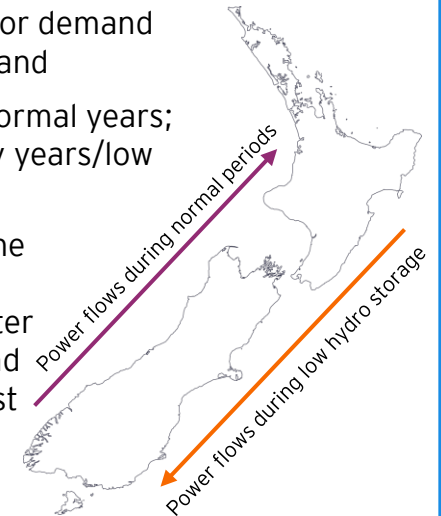
**Nodal spot market:** ~220 nodes, half-hourly pricing; co-optimised energy & reserves; HVDC reserve sharing between islands

**Hedging stack:** ASX futures & options (Otahuhu/Benmore), Over the counter, Contract for Difference, and Financial Transmission Rights for locational price risk

**Updates:** Electricity Authority implementing transparency enhancements

### Grid infrastructure

- The High-Voltage Direct Current link connects the hydro lakes in the South Island to the major demand centres in the North Island
- North-bound flows in normal years; south-bound during dry years/low lakes
- Upper North Island is the dominant load pocket; while NZAS Tiwai Smelter in the lower South Island (~572 MW) is the largest single load



## What you need to know to invest – pathway, approvals, offtake

### Development pathway



### Policy accelerants & pipeline

- Fast-track Approvals Bill: 27 energy projects listed (4.8 GW capacity)
- Announced pipeline: >NZ\$44 B across wind/solar/BESS; ~10.8 GW solar, ~5.2 GW BESS, ~7.5 GW onshore wind at various stages (application, investigation, delivery)

### Offtake & PPAs

- PPA market early but accelerating; corporate PPA template initiative underway to standardise terms.
- Firmed renewable PPAs are enabled by hydro/geothermal; NZ pricing competitive globally on an energy-only, 10-12 yr view.