



Fact Sheet: Challenges facing the electricity system

Facts and figures about New Zealand's electricity system

Electricity demand

- Electricity demand was 39,991 GWh in 2024.
- Demand is forecast to rise by around 50 per cent by 2050 as transport, industrial manufacturing, and process heat electrifies.

Current electricity generation

- In 2024, 53% of electricity was generated from hydropower, 20% from geothermal, 10% from wind and solar, and 16% from thermal sources.
- The proportion of energy from renewable sources in an average hydrological year should rise from 85% to 95% in the coming years.

Electricity prices

- Average wholesale prices have more than doubled since before the gas supply shocks in 2018.
- With continued renewable generation build, forecasts suggest spot prices should fall to \$120-130/MWh around 2028. But because the system is exposed to dry-year price spikes, there is now a \$30-50/MWh 'risk premium' keeping contract prices above these forecasts.

The pipeline of new generation

- More generation has been commissioned in the last 18 months than in the previous 15 years.
- According to the Electricity Authority's generation pipeline, there is 831 MW of committed new generation being developed, with a further 3,550 MW being actively pursued.
- 25 renewable electricity projects are either listed in the Fast-track legislation or have been referred to go through a Fast-track approval process.
- But the dry year risk premium in prices will not decrease unless there is sufficient dry year cover.

Declining domestic gas

- Domestic gas production is forecast to fall almost 50 per cent below projections made just three years ago.
- Around 300 industrial sites, 16,000 commercial sites, and 290,000 households use natural gas.

Dry year exposure

- In a dry year, New Zealand no longer has enough domestic gas to fully operate existing thermal generation and meet industrial gas demand.
- There are no projects in the generation pipeline that would provide backup energy to cover dry years.
- Electricity contracts prices on ASX now include a \$30-50/MWh risk premium, because the electricity system would be exposed to expensive generation and shortage prices in a dry year.

Impacts on households and businesses

- Energy costs are now households' second-highest concern after groceries, according to a recent Consumer NZ survey.
- Several energy-intensive firms, including Oji and Ballance agri-nutrients, have already closed or announced plans to curtail production.

Impacts on the economy

- High energy prices between 2017 and 2025 are estimated to have:
 - reduced New Zealand's Gross Domestic Product by \$5.2b (1.25%)
 - lowered real wages by 1.4%
 - cut household spending by 1.65%
 - worsened the trade balance by \$275m.
- Even short periods of undersupply can take up to 25 years for the economy to recover from, because the knock-on impacts to delayed investment and reduced employment.
- The economy might be \$3.76 billion larger by 2035 if we can bring prices down by just 2% a year from the current ASX trajectory.

Key challenges in delivering sufficient dry-year backup

Frontier Economics found that...

- The market will not deliver sufficient firming on its own to back up New Zealand's highly renewable electricity system.

Sustained price signals...

- Should create incentives for investments. In practice, Frontier Economics found that high upfront costs, uncertain returns, and market dynamics that discourage first movers all deter investment. There is currently no planned dispatchable, long-duration firming in the generation pipeline.
- The Huntly-backed security contracts between the gentailers will help maintain existing capacity but will not cover the decline in domestic gas supplies and will not expand existing thermal capacity.

Policy and fuel risks...

- Are likely the biggest challenges for investors in new thermal generation plant. Developers are not confident investing in fossil-fuelled assets when fuel supplies are uncertain, and policy changes could wipe out investments 'with-a-stroke-of-a-pen'.
- Fossil-fuelled generation is currently the only proven and economic technology for providing dispatchable long-duration firming.

Revenue risks...

- Are particularly high for the fuels and plant needed to provide backup during dry years. Dry years are inherently unpredictable. As more renewables are built, thermal assets are used less in normal years, reducing their returns.

There is a risk of coordination failure...

- As generators are wary of tying up capital in risky thermal investments and instead wait for their competitors to develop dry year backups.
- In practice the market has relied on short-term deals with Methanex or unplanned demand response from other industrials to keep the lights on.

New fuel...

- Is currently more critical than new generating kit. At the moment we don't have enough fuel to fully use all our existing thermal plant in a dry year, which is why the Government is focused on enabling LNG.
- However, we will need to ensure the market invests in future dispatchable capacity to ensure the dry-year problem doesn't re-emerge in the medium- to long-term, when more thermal plants may begin to retire. When the Taranaki Combined Cycle gas plant retires at the end of 2025, the electricity system will have lost 50% of its thermal generating capacity since 2011.