ENERGY

# Energy to Grow: Securing New Zealand's Future

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Aotearoa New Zealand's energy system remains one of the best in the world, but it is now at a crossroads. Over the past 50 years, New Zealand's affordable, secure energy supply has powered industrial growth and sustained economic competitiveness. But that advantage is now under pressure.

This report sets out how New Zealand can renew its competitive edge with abundant, firmed renewable energy – powering economic growth while navigating the challenges of affordability, security and sustainability.

Energy to Grow builds on *The Future is Electric* report, published by BCG in 2022. While The Future is Electric focused on electricity system decarbonisation, this report expands its scope to the full energy sector, including gas supply, industrial demand, firming and storage and performance on the energy trilemma.

## An Evolving Landscape

Since the publication of The Future is Electric by BCG in 2022, New Zealand's energy sector has made strong progress – increasing renewable electricity to nearly 90% and advancing new

technologies like grid-scale batteries. With momentum in the pipeline, renewables are expected to exceed 95% by 2027.

However, the energy sector has also come up against new challenges. First, a dry winter in 2024 highlighted volatility in electricity prices when low hydro and wind generation is accompanied by a shortage of complementary fuel sources. Second, domestic gas supply continues to fall rapidly, declining by 45% in the last six years and forecast to halve again in the coming five years.

These challenges are sharpening focus on the energy trilemma: equity (affordability), security and sustainability, and the future of large industrial gas users.

New Zealand's situation is not unique – many developed countries are facing security and affordability challenges in the clean energy transition. However, New Zealand is better positioned than most, with abundant hydro and geothermal resources. These assets can create a global competitive advantage, especially for industries seeking secure, low-carbon and price-competitive electricity, including emerging industries such as data centres.

While the Future is Electric focused on the electricity industry, this report responds to this evolving context – exploring the challenges faced by the whole energy sector and how it can enable wider economic growth by providing more affordable and reliable energy.

# Inside the Report

The report includes:

- An overview of New Zealand's energy system and its performance across the energy trilemma today
- Discussion of five priorities for the energy sector to ensure affordability and security while maintaining momentum of decarbonisation:

1. Accelerate renewable electricity generation development
2. Strengthen the electricity market and security mechanisms
3. Enhance lines infrastructure efficiently
4. Address gas supply decline and introduce domestic gas alternatives
5. Enable gas users to transition

- A set of over 20 policy, market and regulatory recommendations to support a well-managed transition
- An evaluation of how these priorities could be achieved, tested against plausible energy scenarios and key sector questions

## — Key Findings

**By strengthening its gas market, securing backup fuel for electricity and continuing to build renewables at pace, New Zealand can lower wholesale electricity prices.** In our Managed Transition Scenario, wholesale electricity prices decline from $160 per MWh today to $140 per MWh in 2027 (in today's dollars), and $100–120 per MWh in 2030.

**To strengthen the domestic gas market, the government and energy sector can look to actions across supply, demand and storage.** To reduce the imbalance between gas supply and demand, the most effective actions are to accelerate drilling efforts in existing fields and support users to transition an incremental 10 PJ of gas to biomass and electricity by 2030, on top of ongoing and planned conversions.

**In addition, the energy sector should take steps to secure backup thermal fuels to more affordably replace the reduction in hydro during dry periods.** Options include new gas storage, imported LNG and alternative liquid fuels (condensate or diesel). New Zealand has enough solid fuel in storage to mathematically produce enough energy in a dry year, but solid fuel power plant capacity alone cannot meet all demand at peaks – hence gas, and potentially liquid fuels, are also required. While batteries are essential for hours-scale balancing and addressing price spikes, they can't economically cover multi-week dry periods; they complement, rather than replace, seasonal firming.

**It is highly preferable for New Zealand to have a well-functioning domestic gas market, rather than one that relies heavily on imported LNG. Despite this, LNG may still be a prudent backstop if gas supply continues to decline rapidly.** While LNG provides reliable supply of gas, it is more expensive than a combination of new gas storage and liquid fuels for electricity and may take longer to develop. New LNG infrastructure would cost $400–800 million, excluding fuel costs, while infrastructure for gas storage and condensate or diesel would be $150–300 million. The average domestic spot gas price for the last 12 months was $16–18 per GJ (including carbon), while landed LNG would have been $25 per GJ (including carbon). This does not necessarily mean that LNG should not be pursued – it could

be a valuable insurance policy against further gas supply decline and a backstop to a well-functioning domestic gas market. If LNG is pursued, it is still important to pull all levers to strengthen the domestic gas market, as this will deliver more affordable average gas prices.

**If the electricity industry continues to build renewables at today's pace, it will increase renewable generation to 95% by 2027 and 98% by 2030, and when paired with more reliable firming for dry years, it will support lower wholesale electricity prices.** A higher percentage of renewables decreases the percentage of time that gas sets the wholesale electricity price from 70–90% today, to 50–60% in 2027 with 95% renewables, and 25–35% in 2030 with 98% renewables.

**If these items are delivered (a strengthened domestic gas market, increased backup fuel, and continued pace of renewable development), industrial electricity prices should reduce to 2030, supporting competitiveness and economic growth.** This will be delivered via a reduction in energy costs measured in today's dollars, which represent approximately 80% of industrial consumers' bills.

**Even if these measures are successfully implemented, retail prices for residential consumers are likely to increase through to 2030 due to rising transmission and distribution charges.** Line charges represent 35–45% of final household bills and will increase by 25–35% between now and 2030 in today's dollars, with inflation to come on top. The regulated revenue increments underpinning these higher line charges have already been locked into Commerce Commission price paths. These substantial increases in lines charges will only be offset in part by lower energy costs as wholesale electricity prices fall. Beyond 2030, residential price growth may steady if networks can improve efficiency and if interest rates are lower than in 2024.

**A stronger domestic energy market will lay the foundation to capitalise on an economic opportunity of up to $70 billion in data centres to 2035.** New Zealand's energy resources – particularly geothermal – are perfectly matched to provide 24/7 renewable power, which could underpin the country's next major export industry. To unlock this economic potential, New Zealand would need to adopt an energy abundance mindset – where the conversation shifts from why not, to how the sector collectively delivers an abundance of firmed, renewable energy for the future.

# Priority Areas and Recommendations

*Boston Consulting Group (BCG) was commissioned by the four largest New Zealand gentailers (Contact Energy, Genesis Energy, Mercury and Meridian Energy) to write this independent report for the benefit of the sector. This report reflects the independent views of BCG, and not the commissioning parties.*

*RSM has provided probity assurance to ensure that the report is held to the highest standard of independence and integrity. This includes attending meetings between BCG and sector participants and confirming that changes made to the draft report are based on facts and not subjective interpretation.*

*Concept Consulting conducted the quantitative modelling of scenarios used in this report. BCG has drawn on this modelling and other data sources to produce insights, conclusions and recommendations.*

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