

Fortnightly report for the Minister for Energy 19 July 2024

This report summarises items that may be of interest to the Minister for Energy but not necessarily require a formal briefing. Further information on any topic can be provided on request. Substantive items and decision papers will be provided to the Minister in the form of briefings.

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1. Current and upcoming publications and advice

Strategic priority	Title	Purpose	Action and timing
Improving security of supply	Decision: Potential solutions for peak electricity capacity issues	Decision on peak capacity issues and to inform of our wider programme of work to support security of supply.	Ministerial briefing (BR-24-0024): 10 July 2024 Published: 18 July 2024
System security and resilience	Instantaneous reserve cost allocation to groups of generating units	Consultation on the Authority's proposal to amend the Code to ensure the costs of procuring the ancillary service 'instantaneous reserves' are allocated appropriately.	Intended publication: 22 July 2024
Monitoring, compliance, education and enforcement	s9(2)(f)(iv) [Redacted]	[Redacted]	[Redacted]
Enabling investment and innovation	Transmission pricing methodology amendments for emerging technologies	Consultation on the Authority's proposal to amend the transmission pricing methodology to: 1. Ensure connection charges for shared	Board subcommittee to consider: 26 July 2024 Intended publication: 6 August 2024

		<p>connection assets are allocated appropriately</p> <p>2. Address an issue in the transmission pricing methodology relating to the residual charge</p>	
Consumer protection	Mandating the Consumer Care Guidelines (Guidelines)	<p>In early 2024, the Authority announced its decision to mandate the Guidelines following consultation.</p> <p>We intend to release a second consultation seeking feedback on our draft Code amendment that will codify the Guidelines as Consumer Care Obligations.</p> <p>Proposed changes are operational to ensure the obligations are workable for retailers while retaining the intended protections for consumers.</p>	<p>Intended publication of consultation: 6 August 2024</p> <p>Finalised Code amendment to be gazetted in early December 2024.</p> <p>Consumer Care Obligations will come into effect on 1 January 2025.</p>
Enabling investment and innovation	Decision – Code amendment Omnibus #3	<p>In late May we consulted on two Code amendment proposals relating to data visibility and connection of distributed generation. We are planning on releasing a decision paper outlining our rationale to progress the proposed amendments.</p>	<p>Board to consider decision paper: 30 July</p> <p>Intended publication: 6 August.</p>

2. Consultations underway

Strategic priority	Title	Purpose	Action and timing
Data for better performance	Proposed changes to the default distributor agreement	Follow-up consultation on four small but material changes to some clauses of the default distributor agreement, as well as two new proposed changes since our original consultation in October/November 2023.	Consultation closes: 31 July 2024
System security and resilience	Future Security and Resilience – Review of common quality requirements in the Code. Three consultation papers	As part of the Future Security and Resilience work programme we have published a suite of three consultation papers that address some of the issues identified with Common Quality requirements in Part 8 of the Code.	Consultation closes: 20 August 2024

3. Upcoming Electricity Industry Participation Code Amendments

Electricity Industry Participation Code Amendments that need to be presented to the House by the Minister's office **within 20 working days** following the date on which it is made.

Tracking number	Name	Date made	Date of Gazette Notification	Date in force	Due date for presentation to the House
EIPCA-24-0010	Hedge Disclosure Obligations	27 June 2024	4 July 2024	20 October 2024	26 July 2024

4. Key external engagements

- Dr Megan Woods/CE meeting: 23 July (being rescheduled to include staff from Minister's office)
- MEUG AGM, CE presenting: 23 July
- Energy Traders Forum Auckland, CE on panel: 24 July
- ENA/CE meeting: 24 July
- Electricity Authority Advisory Group inaugural meeting: 25 July
- Council of Energy Regulators meeting: 25 July
- GIC/CE meeting: 26 July
- Electricity Forum/CE meeting: 31 July
- Aurecon Future Leaders meeting: 31 July
- Acting CE Transpower/CE meeting: 1 August

5. Winter 2024: Security of supply deep dive

Key points

- The security of supply outlook for energy for winter 2024 is stable. The system operator's simulated storage trajectories show a low likelihood of any Electricity Risk Curves being crossed, despite lower-than-normal hydro storage and heightened risk.
- The low residual notices issued by the system operator in early May were due to unseasonable weather and generation outages. We are working to improve generation outage planning and the system operator's management of these types of events.
- The New Zealand Generation Balance (NZGB) platform projects the availability of generation to meet demand peaks up to 200 days in advance. NZGB is showing low-capacity days in July, however the assumptions used are conservative and these NZGB forecasts rarely eventuate. The latest information in the market schedules show healthy levels of spare capacity for the week ahead.
- The system operator is currently upgrading NZGB to make demand forecasting and generation availability more sophisticated by shifting to probabilistic load forecasting, varying peak load periods by season, and adding a "firm scenario" as a new sensitivity analysis, showing the risk of generation units being either unable or unwilling to offer in the market due to market pricing conditions or fuel access issues.
- Since the announcement of new Tiwai smelter contacts on 31 May, the Authority has noted an increase in investment activity announced to the market. This is likely driven by increased confidence in economic returns from investors.
- Improving security of supply continues to be a key priority for the Authority. The recent decision paper *Potential solutions for peak electricity capacity issues* (BR-24-0024 refers) sets out our forward work programme for ensuring sufficient capacity is available during peak demand periods.

Demand trends

We have observed increasing peak demand over the last five years, but a growth trend in total demand is not yet apparent. A robust growth trend over the same period is difficult to determine due to a range of one-off events affecting demand over the past few years, such as COVID-19, Cyclone Gabrielle and the exiting of some industrial demand (such as the Marsden Point Oil Refinery).

Demand this year is higher than recent years due to a warm and dry summer (driving increased use of air conditioning and irrigation), a cold autumn, and the one-off events mentioned above. We will continue to monitor and report on demand and emerging trends.

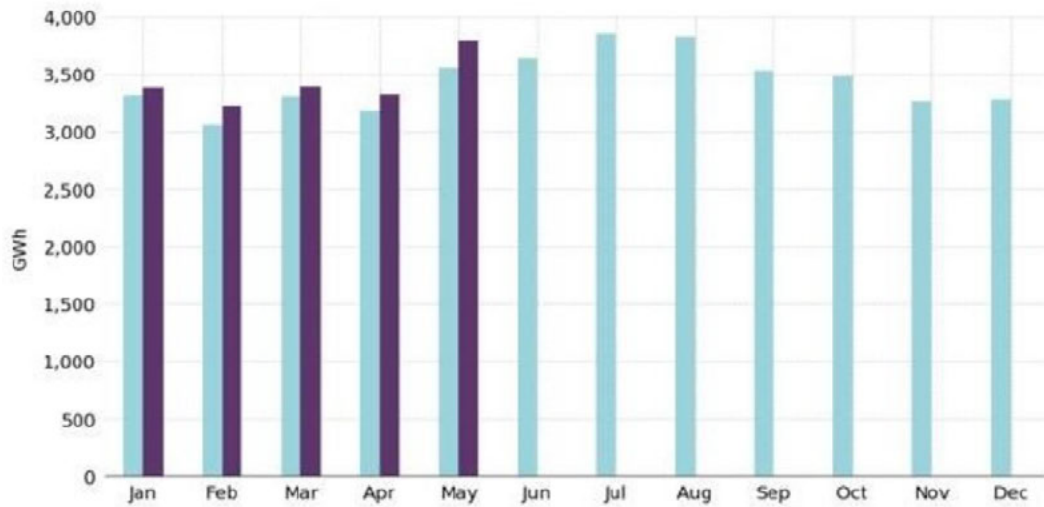


Figure 1: 2024 electricity consumption compared to mean consumption (2018-2023), Electricity Authority data

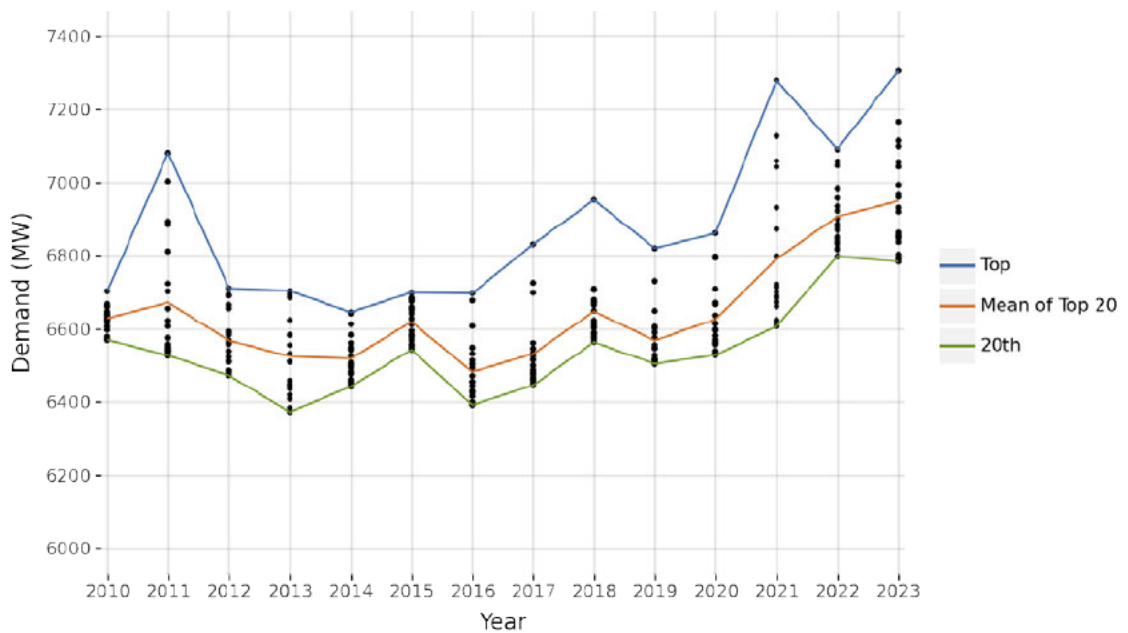


Figure 2: Top 20 largest demand peaks from 2010-23, with the top, mean and 20th positions highlighted, Electricity Authority data

Energy

Monitoring energy risk is informed by the availability of fuel for electricity generation over the longer-term, typically for the winter months. We monitor hydro storage, coal availability and gas supply.

Hydro storage remains low for this time of year and is below the 10th percentile level of the historic mean for this time of year. There was a short period of heightened inflows in early July, but this did not materially change the hydro storage situation.

Gas production has continued to decline this year, with several field development activities not meeting gas producer expectations. According to the Gas Industry Company's latest gas storage data for the Ahuroa Gas Storage facility (from April), gas storage is currently sitting at 4.5PJ, down from 6.6PJ available this time last year.

Gas supply limitations and low hydro have resulted in increased demand for coal-fired electricity generation. Genesis Energy's coal stockpile is estimated at 271kt as of 6 July 2024. Based on Authority projections, the coal stockpile would be depleted by mid-September 2024 at the current burn rate.

Genesis has publicly stated it intends to manage the coal stockpile for its own supply needs and will look to procure additional coal for the purchasers of its Huntly Firming Option (HFO) product.

Enerlytica recently reported Genesis has received two coal cargos from Indonesia. We anticipate these shipments will continue over the coming months.

Meridian has called for a further 50Mw demand response from the New Zealand Aluminium Smelter due to tightening storage levels. This will take the smelter's total reduction to 100Mw (50MW have already been called for in June 2024).

Updated Electricity Risk Curves

The system operator published updated Electricity Risk Curves (ERCs) in June. The ERCs are updated monthly.

There are three risk curves: watch, alert and emergency. When hydro storage crosses these curves, a response from the system operator is triggered. When the emergency curve is crossed and is projected to remain under the curve for one week or longer, the system operator can declare an Official Conservation Campaign.

The ERCs are sensitive to assumptions about thermal fuels. Gas supply for electricity generation is not modelled on a contracted basis as this information is not regularly disclosed to the system operator. Instead, an approach is used where electricity is treated as the marginal consumer. The model also assumes Genesis Energy's Rankine units preferentially burn coal.

The June 2024 update showed a small increase in the curves for July 2024, and some larger increases for the curves in 2025. This increase reflects the drawdown on the coal stockpile, the reduction in forecast gas production, and changes to outages planned by thermal generators. These factors were partially offset by the incorporation of the new Tiwai demand response contract into the curves.

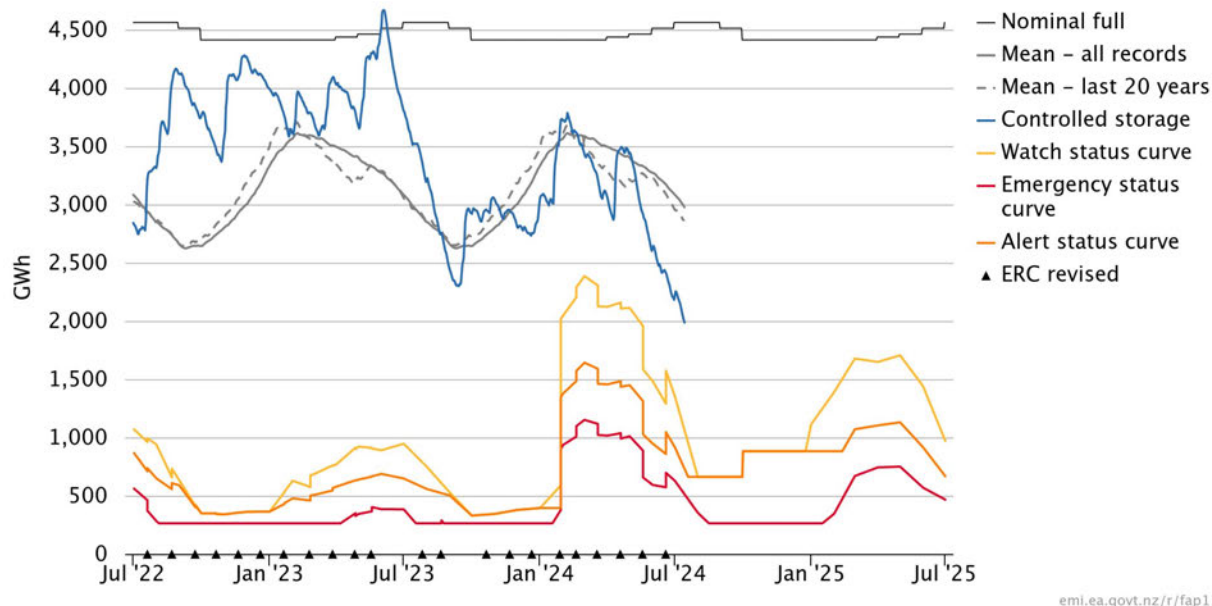


Figure 3: June 2024 Electricity Risk Curves, Electricity Authority and Transpower analysis

The system operator models simulated storage trajectories (SSTs) that project future hydro storage levels, based on historic inflow sequences and a model that reflects the current electricity market. SSTs help to inform the likelihood of the electricity risk curves being crossed. Only one of the 92 modelled SSTs touches the alert curve in 2024. One crosses the watch curve, and one crosses the alert curve in 2025.

Overall, the outlook for hydro storage looks stable, with a low risk of crossing the ERCs despite lower-than-normal hydro storage and heightened risk curves. We continue to work with the system operator to improve the accuracy of ERCs by ensuring they have access to the best information.

Capacity

The other key element the Authority monitors is the availability of enough generation to meet peak electricity demand (capacity availability).

The system operator monitors the capacity available to the electricity grid from about six months to weeks and hours ahead of real time operation. The latter includes information from market schedules, which becomes more accurate the closer it gets to real-time as participants adjust their offers to reflect updated conditions including demand forecasts.

A key near real-time information product is the calculation of residual generation capacity. The amount of residual considers both the generation needed to meet demand, and the generation needed to meet reserve requirements. The system operator will issue a low residual Customer Advice Notice (CAN) if residuals are forecast to be at, or below, 200MW for a given period.

There were several low-residual situations in May 2024 due to an unseasonable cold snap, low wind generation, and several generation units on planned outage. While forced demand shedding was avoided, this event highlighted the need for improved coordination, particularly in relation to outages. The Authority is working to improve outage coordination to help minimise the likelihood of these events in the future.

Low residual events during winter months tend to occur due to unit commitment issues. This happens when generators do not have sufficient certainty about the economic operation of a unit during a peak trading period and therefore are less likely to offer into the market. This can occur due to uncertain levels of variable generation capacity (ie, wind) and increased costs for keeping units operating for trading periods that may not be economic (particularly for slow-start thermal units).

To date, thermal generation unit commitment has been good this winter. This is typically observed at lower hydro storage levels as there is a stronger price incentive to make units available in case they are needed. Figure 5, below, shows the level of thermal generation since Jan 2021. Other than Huntly Unit 2 (which came back into the market on 11 July after being on outage) all slow-start thermal generators have been running over the last few weeks.

Increasing peak demand has contributed to an increase in low residual situations over the past few years. The Authority is actively monitoring residual levels and outages.

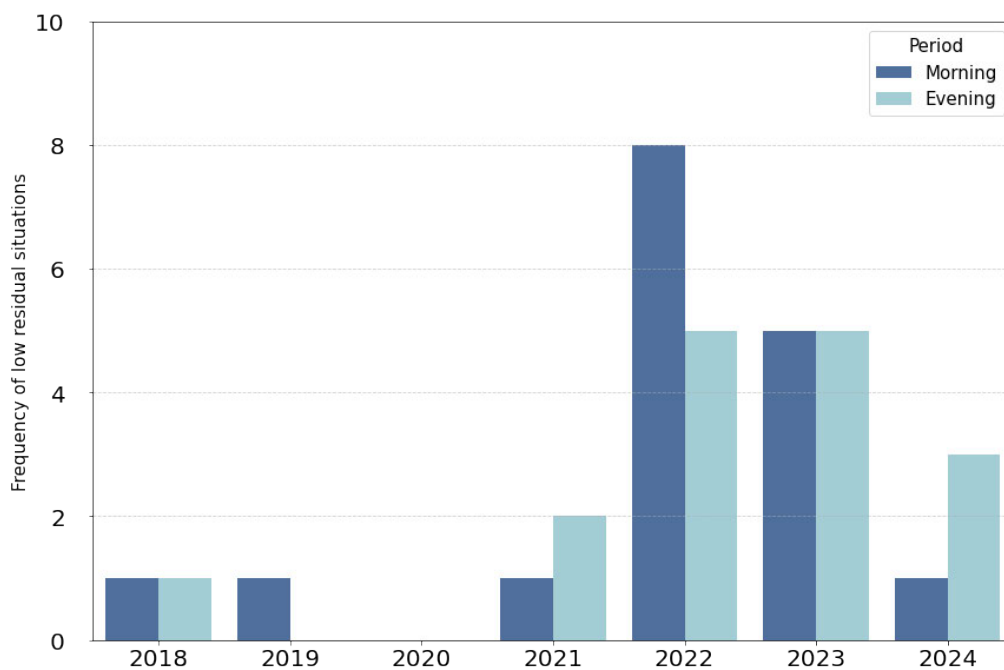


Figure 4: Frequency of low residual situations (2018 - 2024), Electricity Authority *Until 30 June 2024

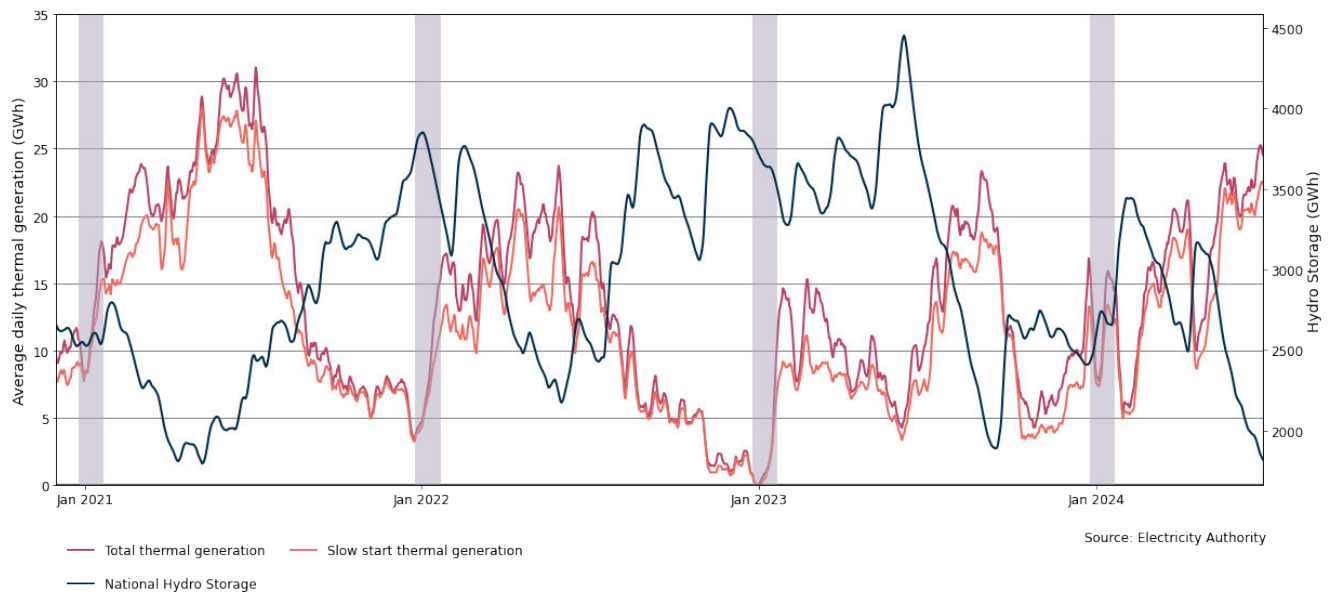


Figure 5: Average daily thermal generation for thermal and slow start units (left axis), national hydro storage (right axis)

Forward outlook

The capacity outlook is informed by the system operator’s New Zealand Generation Balance (NZGB) platform, which projects the availability of generation to meet peaks up to 200 days in advance. A range of assumptions are used to calculate these, primarily planned outages. Other scenarios such as a no gas availability for thermal generation are reported as sensitivities. A key point to note is the NZGB becomes more accurate the closer we get to real time operation, with generation availability and demand forecasts becoming more accurate.

On 26 June, the system operator issued a CAN advising of potential negative generation balances. This covered a range of dates from the 12 to 31 July, with the 19 July identified as being particularly tight. This is based on N-1-G, which is a conservative approach that assumes the loss of one large generator or HVDC pole, along with the next largest risk setter. Based on July forecasts, it also assumes a two percent increase in historical peak demand. This would be likely to occur only during very cold weather. NIWA is forecasting milder weather this year over the whole of winter.

On the other hand, the NZGB currently assumes the capacity factor for wind across the projection period is 20 percent, which might be an optimistic assumption at times. Wind generation can get as low as 1MW (out of a total capacity of ~1000MW).

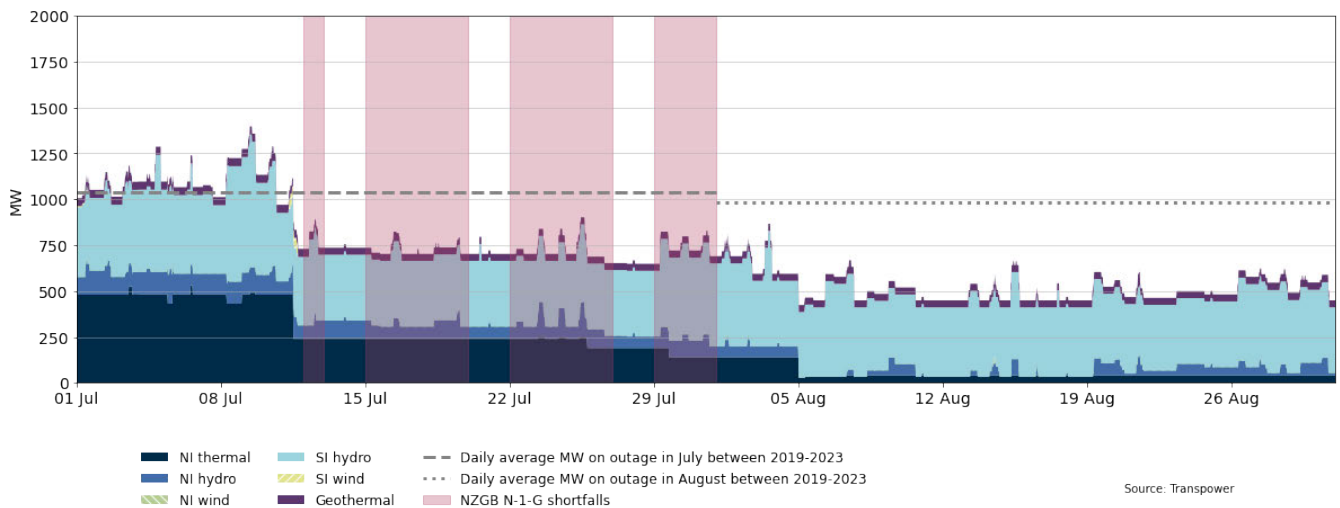


Figure 6: Planned outages from the Planned Coordination Planning Process (POCP) with NZGB residual shortfalls highlighted), Transpower

Since the system operator issued the CAN, there have been several relevant operational updates which will affect residual levels:

- Huntly Unit 2 returned to service on 11 July (originally scheduled for 19 July) which has improved capacity margins
- An HVDC outage is scheduled on 20 July for proactive maintenance. This is scheduled on a weekend and is not on one of the potential N-1-G shortfall days
- The Stratford peaker outage has been extended from 5 August to 2 September, which will influence capacity margins over August.

The Authority has been monitoring residuals in the market schedules for the week ahead. As the schedules use the latest market information available, they provide a more accurate forecast than NZGB. Residual capacity margins in these schedules have been good, with over 1000MW of residual forecast for periods of peak demand for the week ahead.

The system operator is transitioning to a new methodology for NZGB. The new methodology introduces a new probabilistic load forecast model instead of the historical, conservative approach used currently. It introduces more nuanced peak load assumptions associated with summer, shoulder seasons and winter. The system operator is also introducing a “firm scenario” as a sensitivity analysis to show the risk of generation units being either unable or unwilling to offer in the market due to market pricing conditions or fuel access issues.

This new scenario supersedes the existing no wind, no-gas and winter scenarios as sensitivities.

Investment

Ensuring investment keeps up with demand growth and enhances flexibility will be important throughout the transition to an increasingly renewable electricity system. Since the announcement on new Tiwai smelter contacts on 31 May, the Authority has noted an increase in investment activity announced to the market. This is likely driven by increased confidence in economic returns from investors.

The Authority continues to improve the availability of information on the pipeline of new developments of renewable generation and large-scale load. Generation investment information is critical for monitoring long-term security of supply. It also contributes to the monitoring of competitive outcomes, constraints to investment and investment confidence, and well-informed decision-making.

We have published a dashboard on our website and a list of projects based on existing data. We will continue to collect better information from those pursuing development projects to further increase transparency.

The Authority will be consulting this year on how this information is collected and published.

Recent investment announcements include:

Company	Project	Timing
Mercury Energy	Committed to stage two of the Kaiwera Downs windfarm. Stage One already completed and is 43MW. Stage Two will expand this to 198MW (New Zealand's second largest windfarm).	Completed by Q4 2026
Contact Energy	Construction underway on 100MW Glenbrook battery.	Completed by Q1 2026.
	Consents obtained for 100MW Stratford battery.	TBA
	100MW geothermal power station to replace Wairakei geothermal plant.	FID Q4 2024
Meridian Energy	Brought forward a 100MW battery project in the Manawatu. Consents underway.	Completed by 2027
	Announced its intention to spend \$10 billion on new generation build over the next 30 years, including: <ul style="list-style-type: none"> a planned renewable energy park in South Taranaki which, if fully completed, would include up to 350MW of wind and 400MW of solar generation, and BESS. This will be completed in stages. a 500MW solar farm near Taupō, which intends to use the fast-track process for consenting. 	TBA TBA
Nova Energy	Consents acquired and construction about to begin on the 400MW Te Rāhui solar farm near Taupō. Work being conducted in two stages.	Construction starts in Q4 2024
Lodestone Energy	220MW solar farm in the Mackenzie Basin.	Construction starts Q1 2025
Ethical Power and Kea-X	Consents for a 65MW solar and BESS project in Selwyn District.	TBA

Work underway to prepare for future winters

Security of supply is one of the Authority’s key priorities. Alongside our monitoring activities, we also want to ensure market settings strike a balance between providing the system operator with sufficient flexibility to manage power system security, as well as promoting appropriate market signals in a way that incentivises reliable supply for consumers.

We recently provided you with our decision paper on *Potential solutions for peak electricity capacity issues* (BR-24-0024 refers). This decision paper sets out six solutions to support security of supply during peak demand periods.

Solution	Timing
<p>Accelerate demand response participation</p> <p>We will actively explore a full range of options to accelerate demand response in the market from consumers of all sizes.</p>	<p>Aim to have solution in place by winter 2025. This may be in the form of a trial.</p>
<p>s9(2)(f)(iv)</p> <p>[Redacted]</p>	<p>[Redacted]</p>
<p>[Redacted]</p> <p>[Redacted]</p>	<p>[Redacted]</p>
<p>Enhance dispatchable demand (DD) and battery energy storage system (BESS) participation</p> <p>This work will promote flexibility and competition in the wholesale and ancillary service markets by undertaking work to enhance BESS and DD participation and remove barriers to entry. This includes building additional value streams for flexibility.</p>	<p>Policy decisions ahead of winter 2025. Implementation time will depend on the final policy design.</p>
<p>Develop standardised flexibility products</p> <p>This work will increase flexibility in the form of financial incentives (hedge products) to enhance forward price discovery in flexibility markets.</p>	<p>Work commenced.</p> <p>Aim is to have standardised flexibility contracts being traded by the end of 2024.</p>
<p>s9(2)(f)(iv)</p> <p>[Redacted]</p>	<p>[Redacted]</p>