Market Operations Weekly Report - Week Ended 21 September 2025

Overview

New Zealand hydro storage increased to 96% of the historic mean last week as large inflows hit the South Island. Demand has also eased with warmer spring weather.

In this week's insight we look at the effect of the recently contracted grid scale battery energy storage system on reserve prices.

Security of Supply

Energy

Inflows across the motu last week resulted in national hydro storage levels, increasing to 96% of the historic mean from 83% the week prior. South Island hydro storage increased from 78% to 93% of historic mean and North Island storage increased from 110% to 114%.

Capacity

Capacity margins were healthy last week with residual at all peaks exceeding 1,000 MW. The lowest residual occurred on the morning of 21 August, at 1,007 MW.

The N-1-G margins in the NZGB forecast are healthy through to mid November. Within seven days we monitor these more closely through the market schedules. The latest NZGB report is available on the NZGB website.

Electricity Market Commentary

Weekly Demand

Total demand last week decreased from 822 GWh the week prior to 787 GWh, as temperatures warmed across the motu. Total demand is now sitting near levels of previous years. The highest demand peak occurred at 7:30am on Monday 15 September, at 5,901 MW which was 507 MW less than the previous week's highest peak.

Weekly Prices

The average wholesale electricity spot price at Ōtāhuhu last week decreased to $103/MWh from $174/MWh the week prior in line with higher than average wind generation and increased hydro storage. Wholesale prices peaked at $224/MWh at Benmore at 5:00am on Monday 15 September.

Fast instantaneous reserve prices spiked at 9:30am on Thursday 18 September in both islands.

Generation Mix

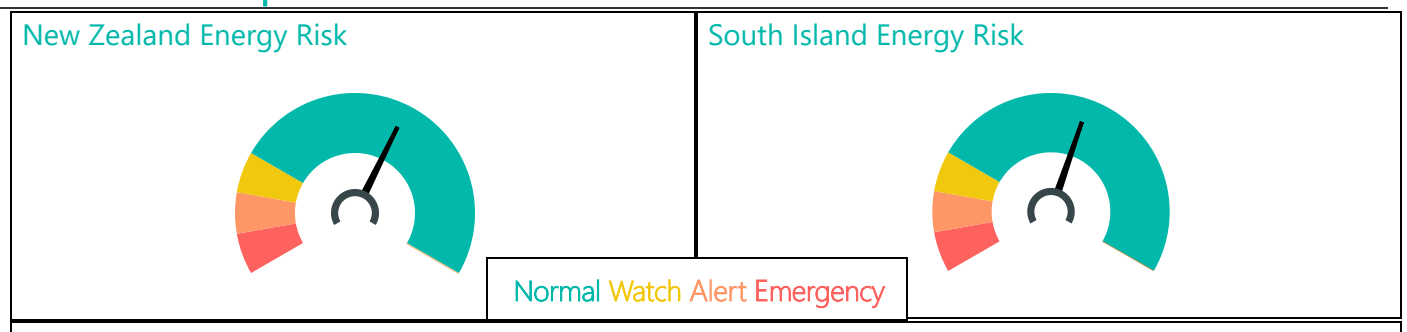
Renewable generation contributed 91% of the generation mix last week. Hydro generation increased to sit close to its average contribution, at 55% of the generation mix. Wind generation increased its share of the mix from 11% to 14% of the mix, above its average contribution of 9%. Thermal generation decreased from 10% to 8% reflecting lowered demand. The geothermal share remained close to its average level at 21% of the mix.

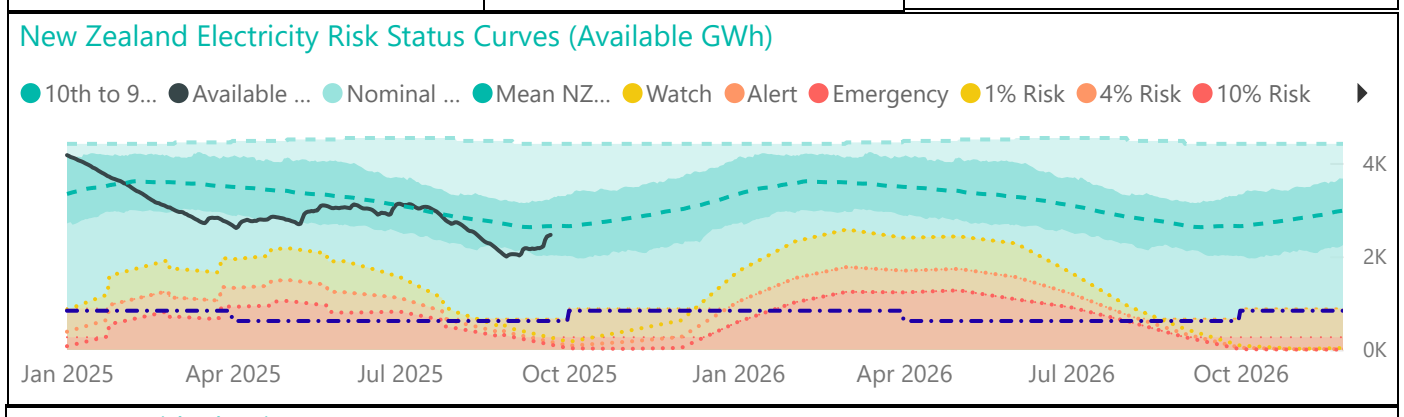
HVDC

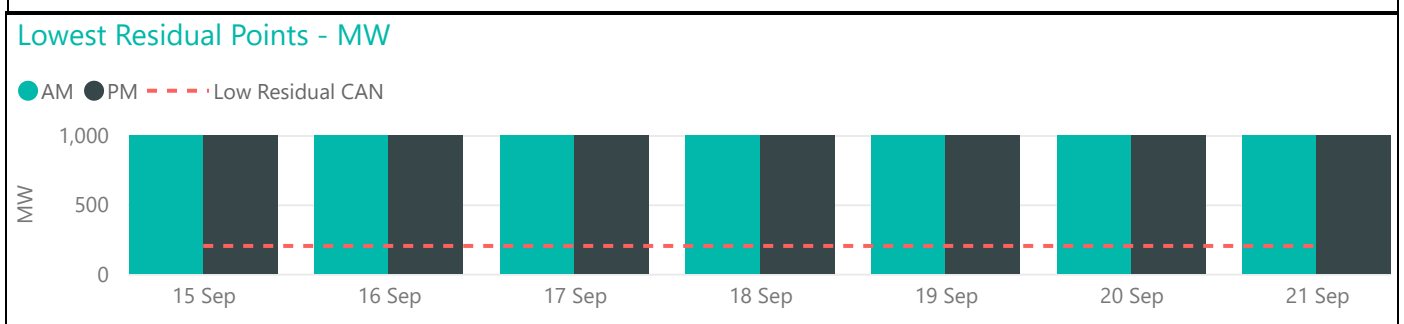
HVDC flow last week was predominantly northward with only three overnight periods of southward flow early in the week. These periods coincided with periods of high wind generation and lower North Island demand. In total, 44 GWh were Transferred north and 6 GWh were transferred south.

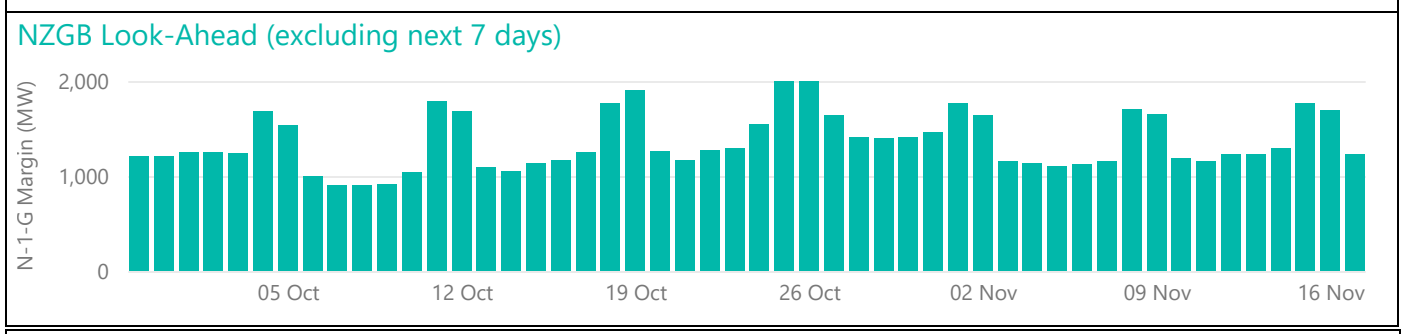
CACTIS Consultation Open

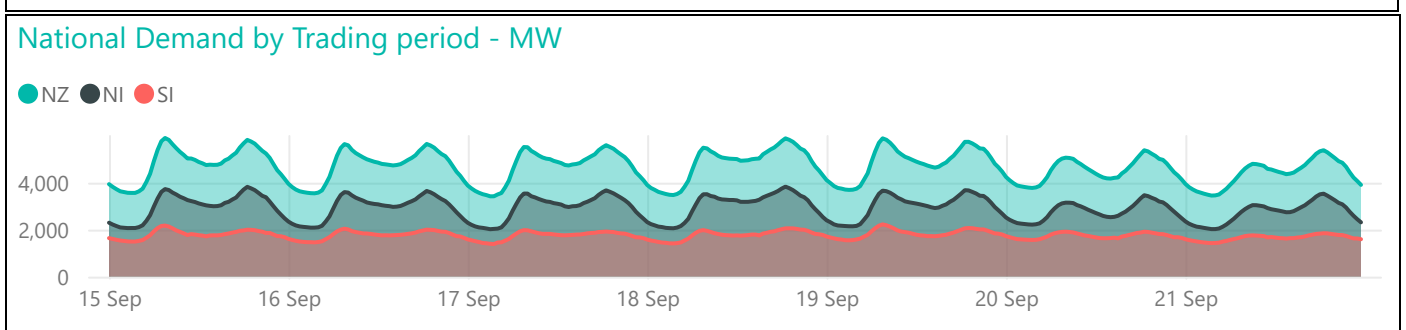
Consultation to feedback on the proposed Connected Asset Commissioning, Testing and Information Standard (CACTIS) opened on 1 September. The closing date for submissions is 29 September. More information on this consultation can be found here.

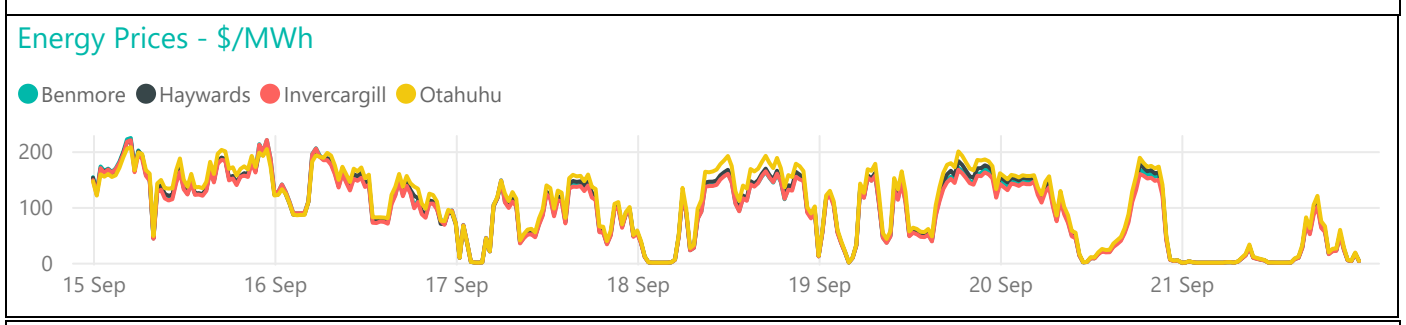


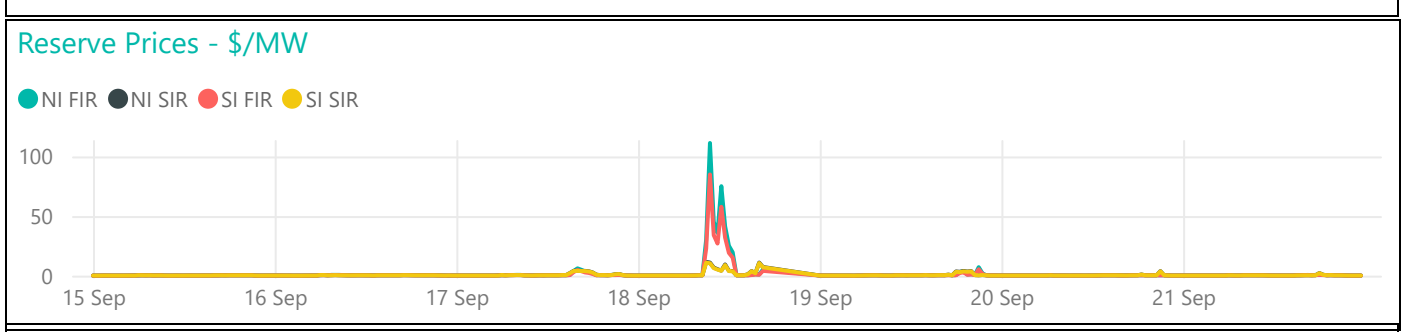


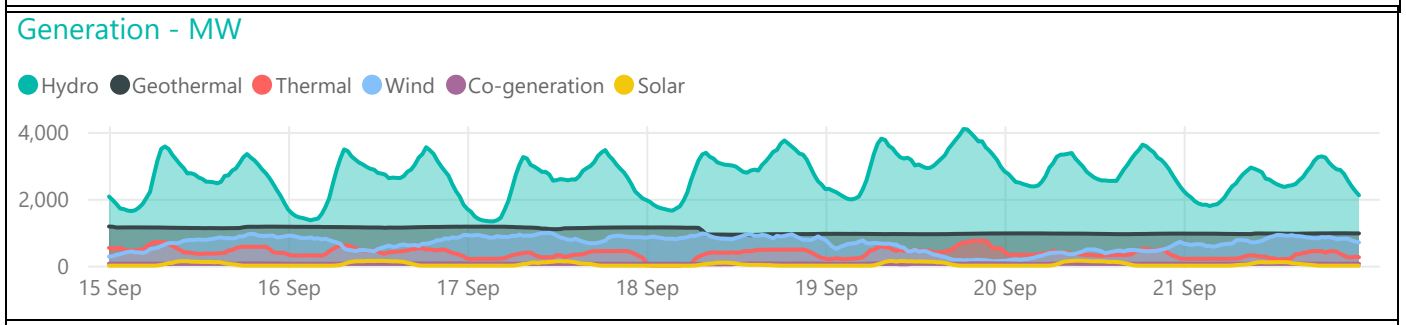


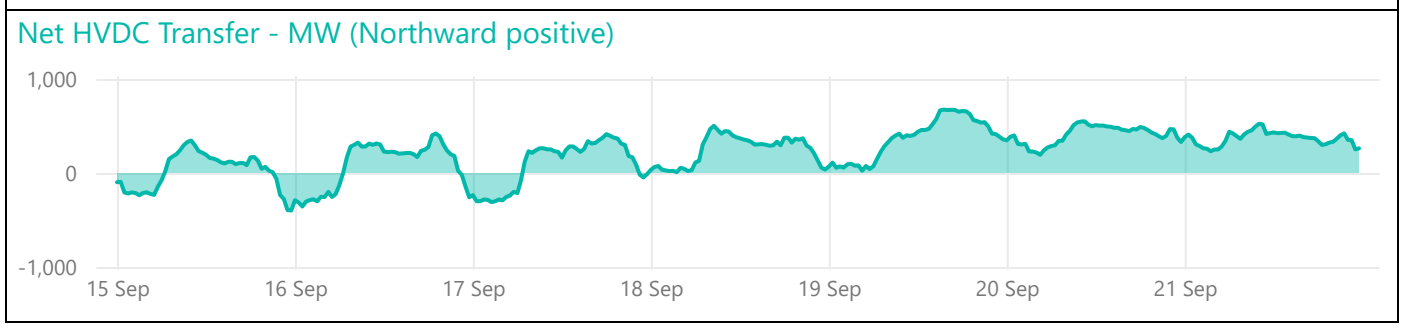












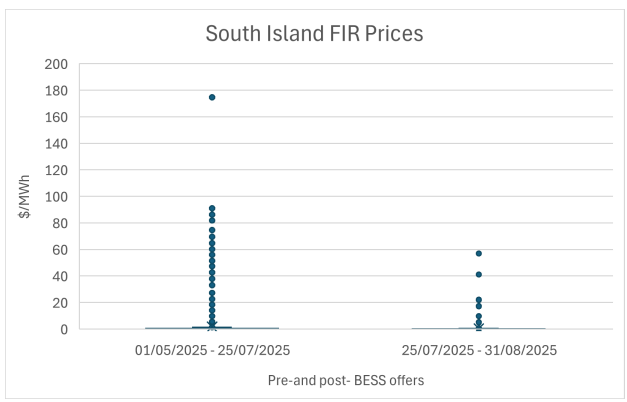
Weekly Insight - BESS impacts on reserve market prices

Since the commissioning of Meridian's grid scale Ruakākā battery energy storage system (BESS) in May 2025, and its subsequent reserve offers into the market from 25 July, we've observed changes to reserve prices in both the North Island and South Island.

Ruakākā BESS has a maximum output of 100MW of electricity and a storage capacity of 200MWh. Even though it has limited energy capability, the benefits of BESS are that they can respond rapidly to changing system conditions (such as under-frequency events). This makes them ideal for providing instantaneous reserves to the market. Additionally, increases in reserve supply help to bring down reserve prices.

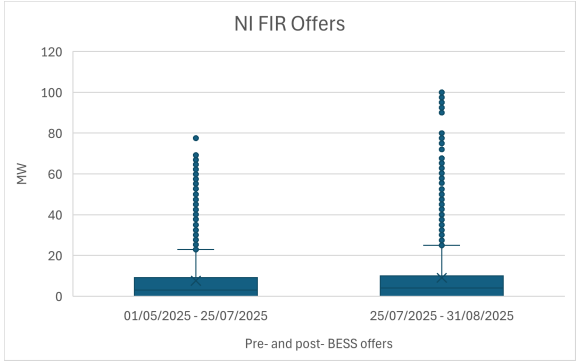
While it is still early days, we've had an initial look at the reserve prices before and after the introduction of the Ruakākā BESS, as shown in the charts below (Figures 1 – 4). Here we see a downward trend since the BESS began offering in late July.

Figures 1 – 4 below show FIR and SIR prices for both the North and South Islands between 1 May and 31 August 2025.



We also see some effect on increased FIR and SIR offered quantities after the BESS begins offering as shown in Figures 5 – 8. However the aggregate offers could be offset by reductions in other reserve offers into the market.

Figures 5 – 8 below show the distribution of FIR and SIR offer quantities for both the North and South Islands between 1 May and 31 August 2025.

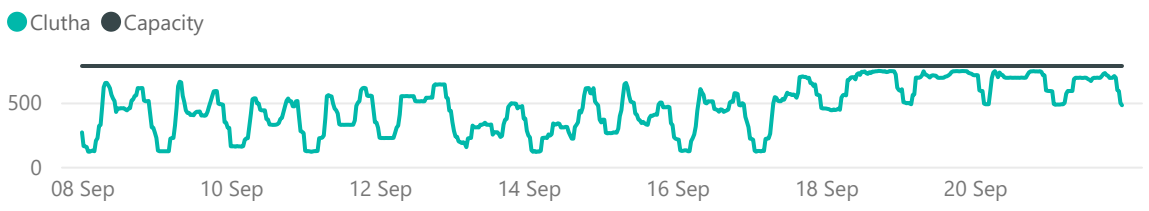


As we expect more BESS to enter the market [1] [2] we expect this trend to continue with more reserves and downward pressure on reserve prices. This also helps free up capacity of generators to provide energy, helping overall security of the system.

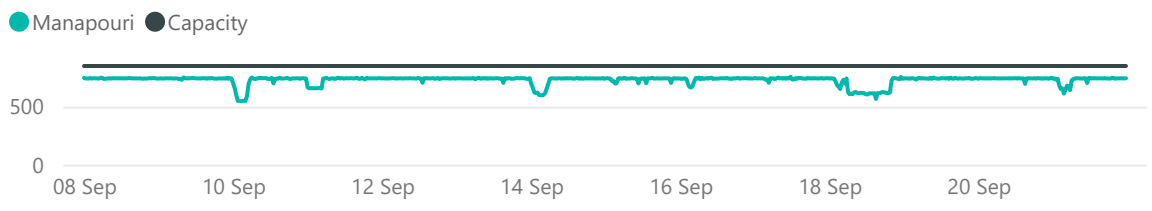
Generation Breakdown - Last Two Weeks

Measured in MW and displayed at trading period level for last 14 days

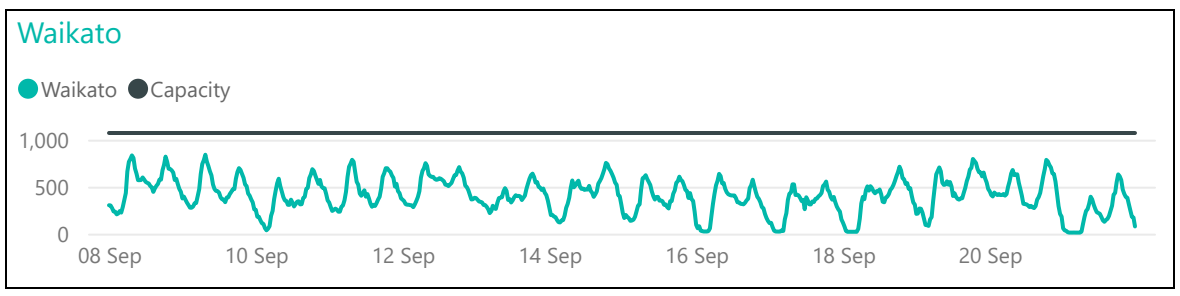
Clutha



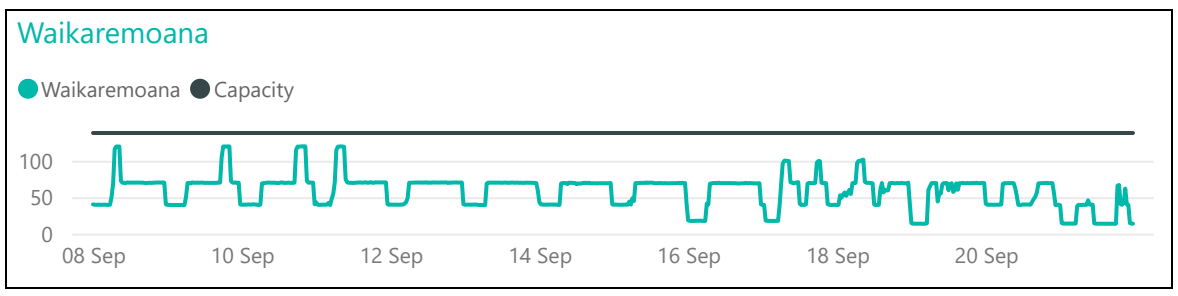
Manapouri



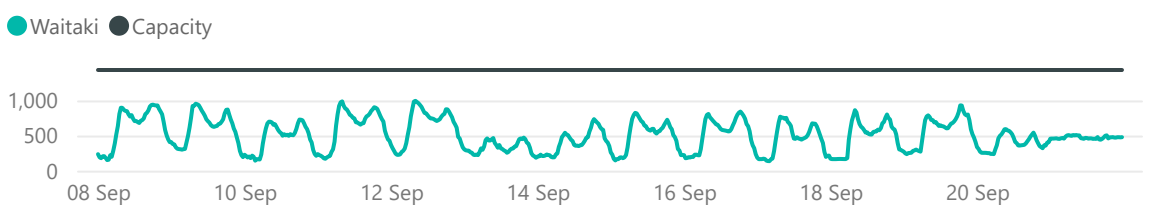
Waikato



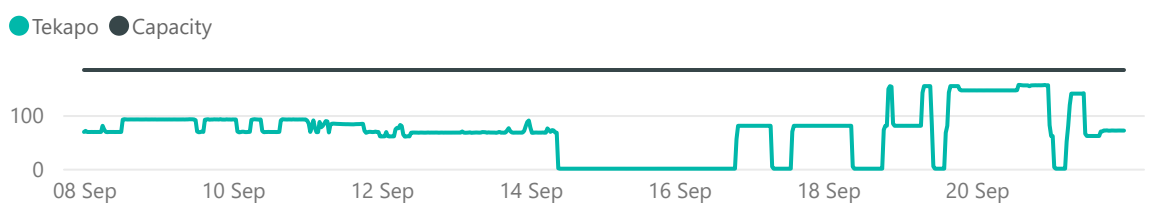
Waikaremoana



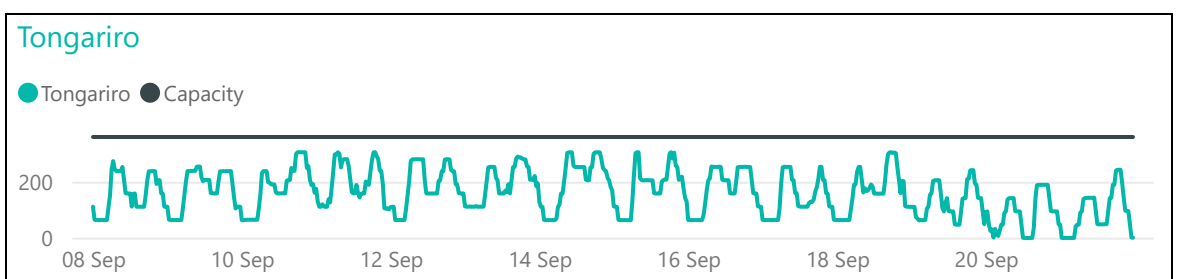
Waitaki



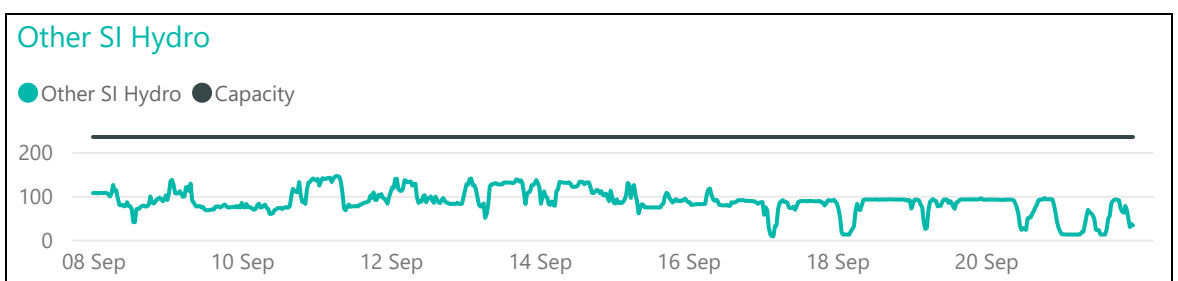
Tekapo



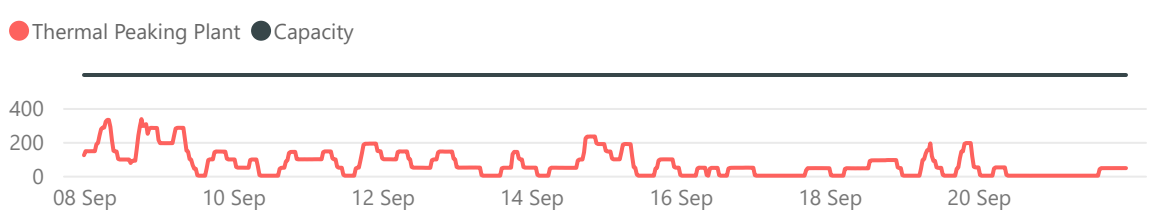
Tongariro



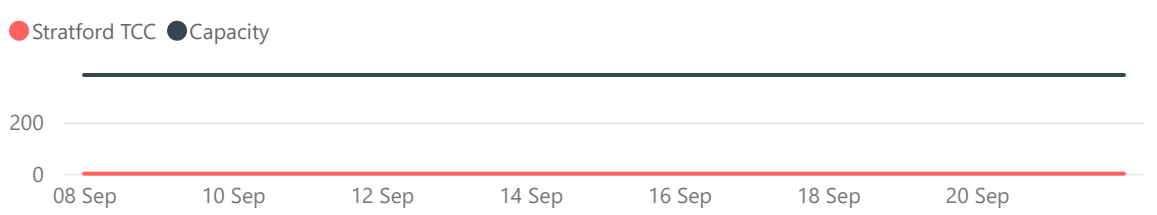
Other SI Hydro



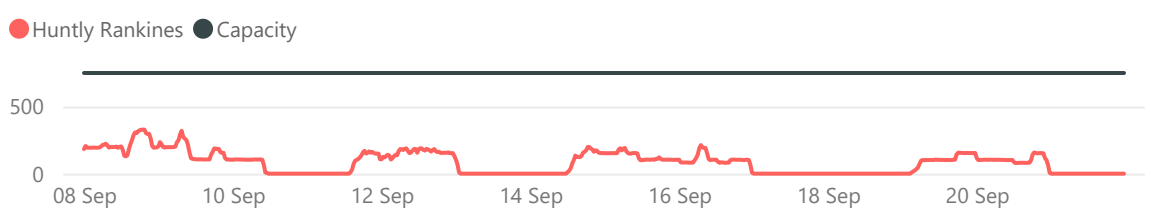
Thermal Peaking Plant



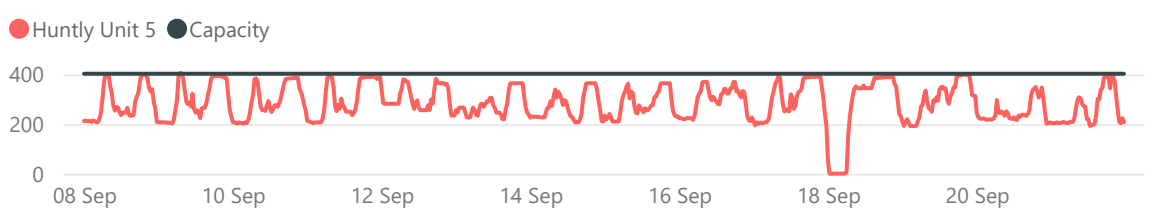
Stratford TCC



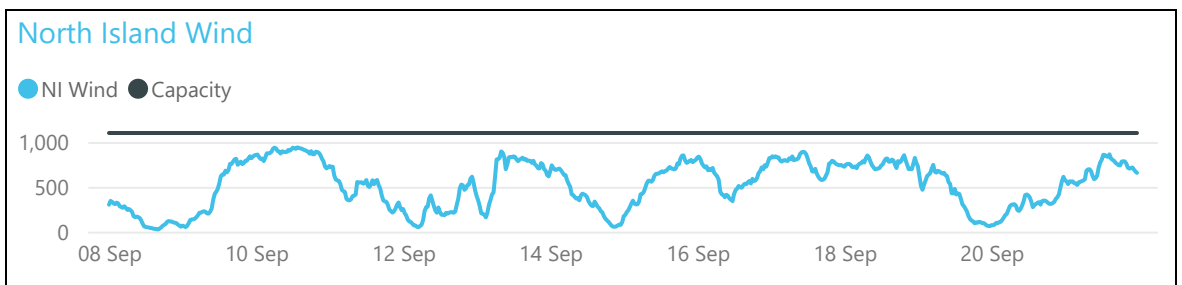
Huntly Rankines



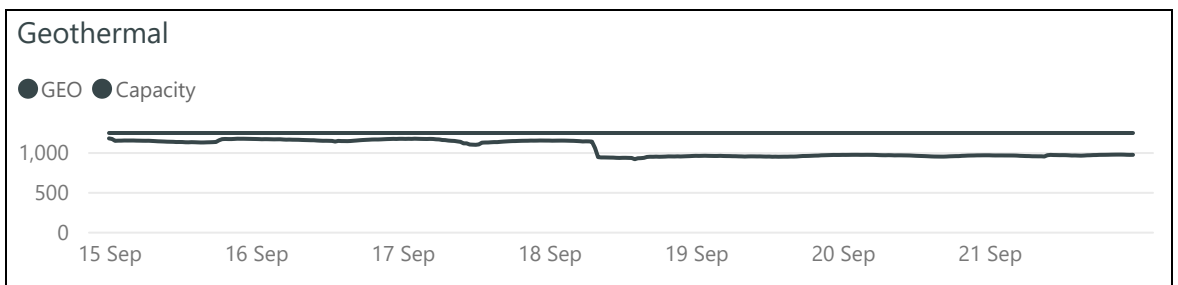
Huntly U5



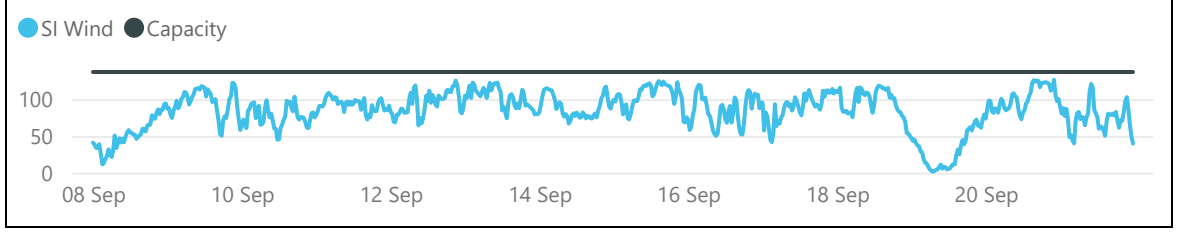
North Island Wind



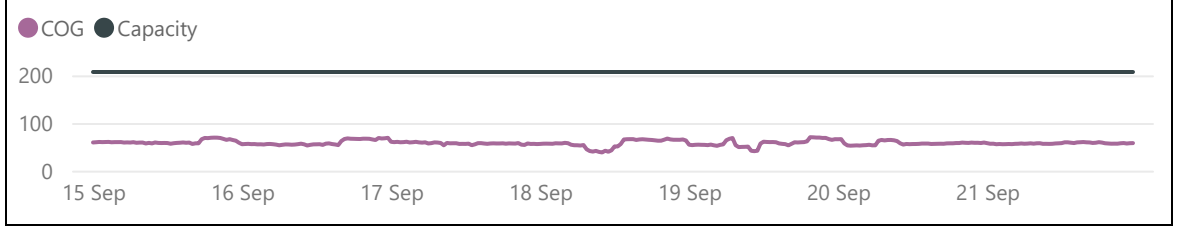
Geothermal



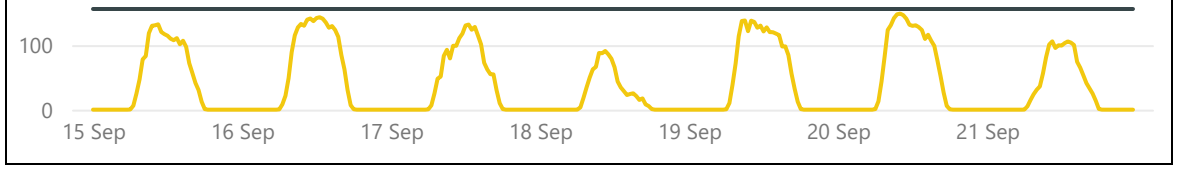
South Island Wind



Co-Generation

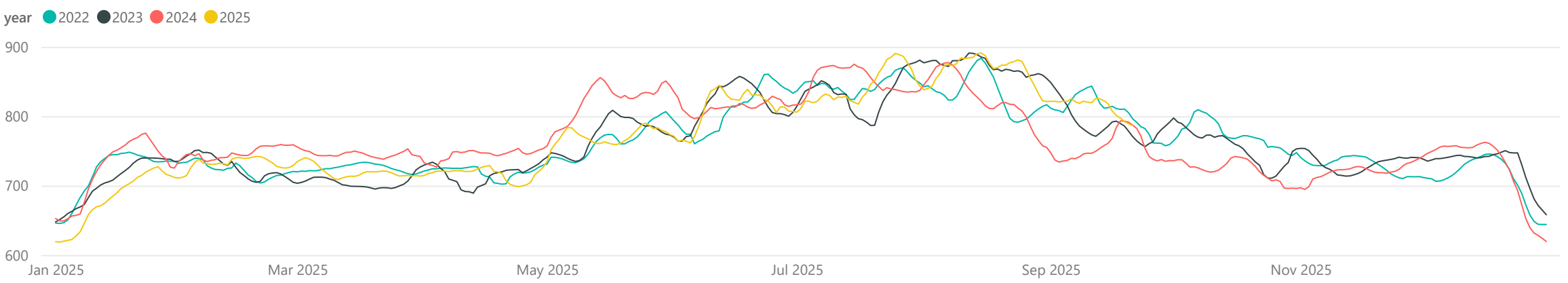


Solar

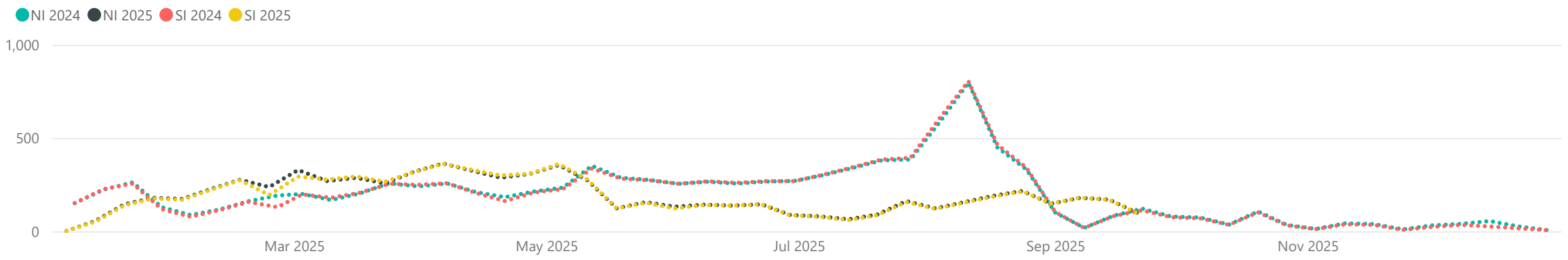


Weekly Profiles

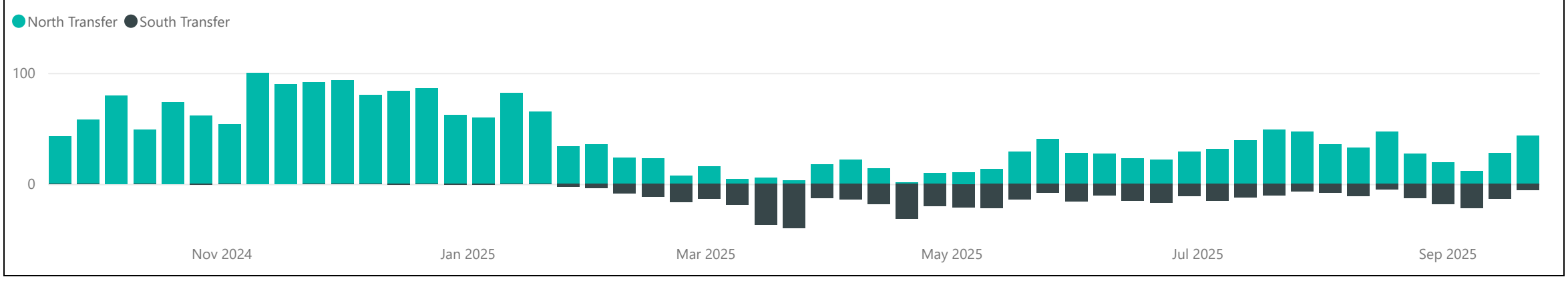
National Weekly Demand - GWh - 7 Day Rolling



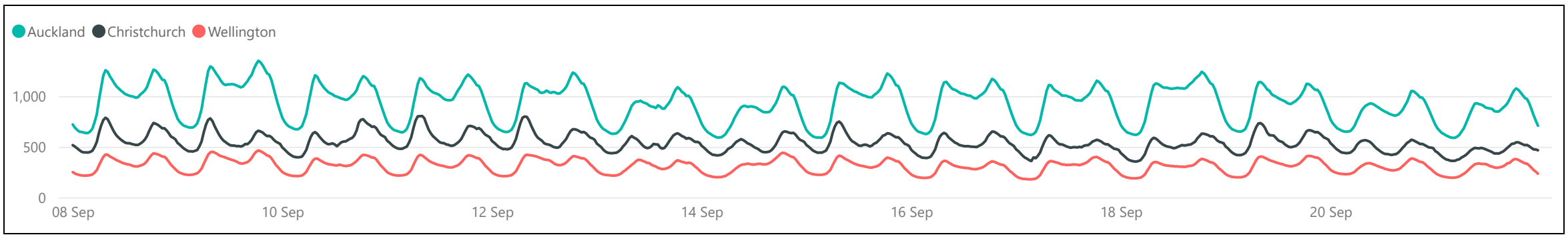
Weekly Spot Price - $/MWh



HVDC Transfer - Weekly GWh

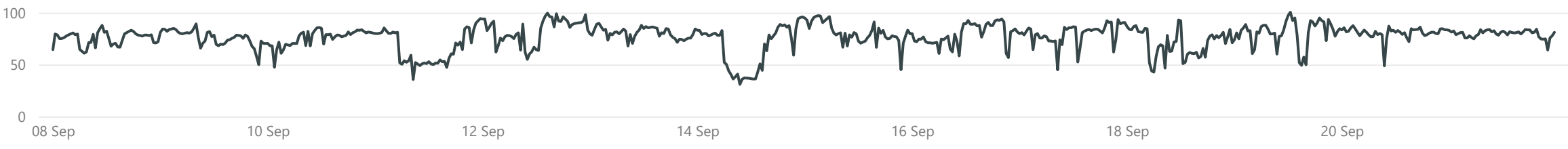


Conforming Load Profiles - Last Two Weeks *Measured in MW shown by region*



Non-Conforming Load Profiles - Last Two Weeks *Measured in MW shown by GXP*

GLN0331



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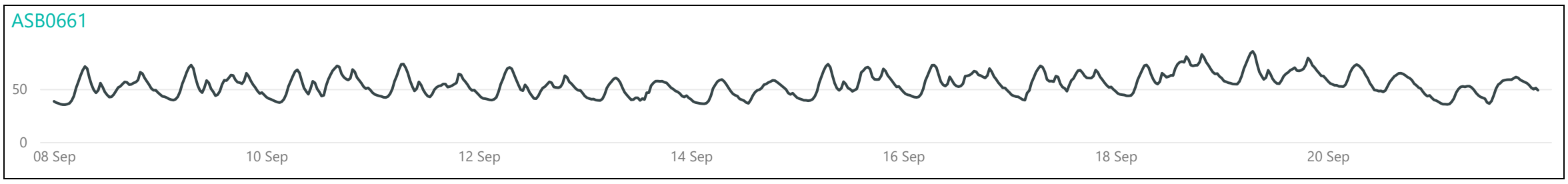

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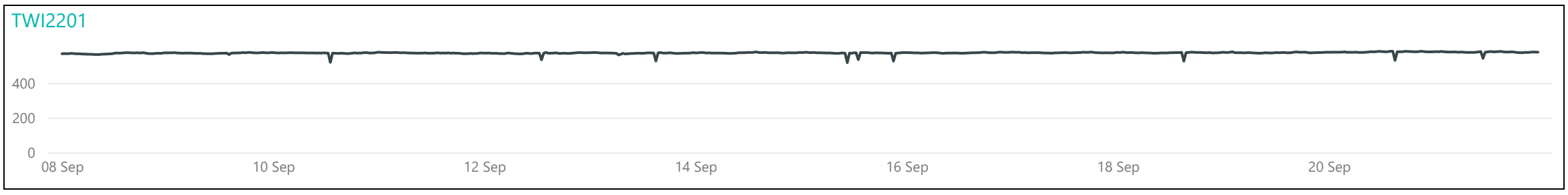
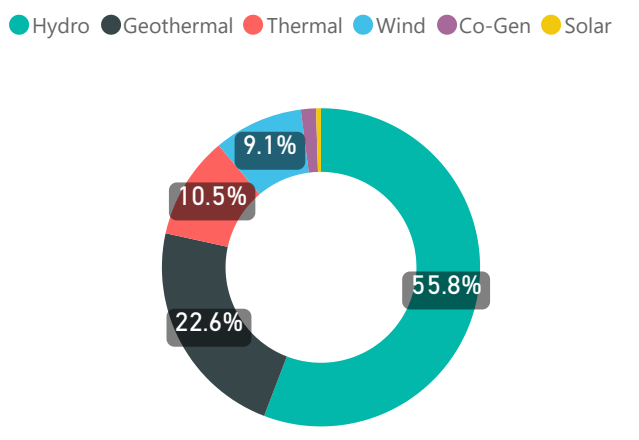


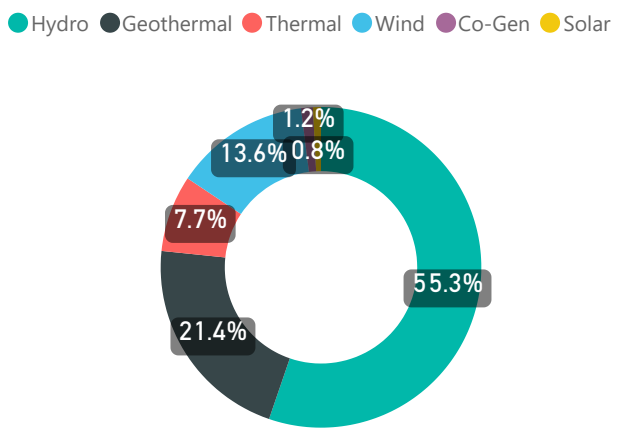
TRANSPOWER

Generation Mix

Last 52 Weeks Generation Mix - Weekly GWh



Last 7 Days Generation Mix - Weekly GWh



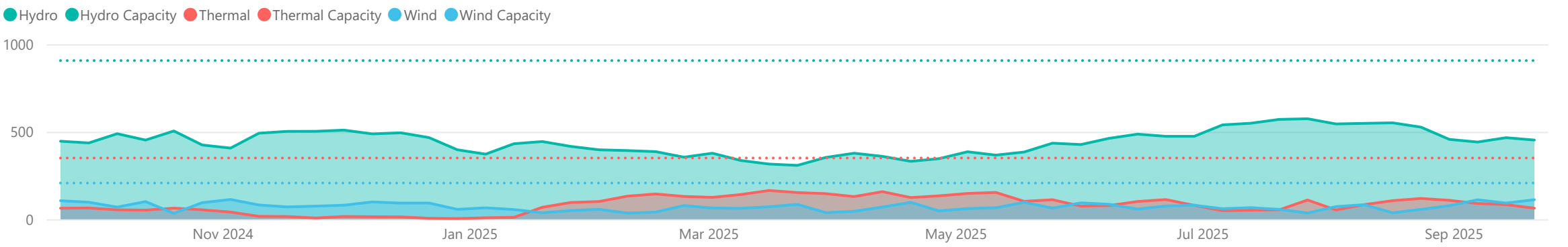
Average Metrics Last 7 Days

Renewable Percentage	CO2e Tonnes/Week	CO2e g/kWh
91%	50,843	61.8

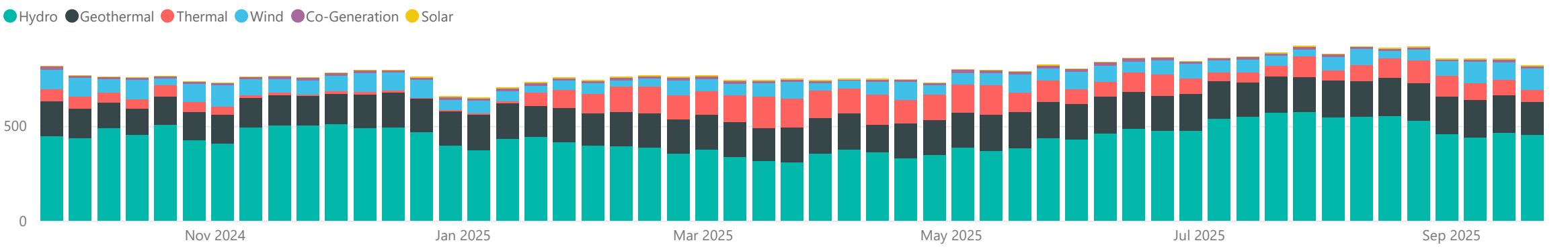
Average Metrics Last 52 Weeks

Renewable Percentage	CO2e Tonnes/Week	CO2e g/kWh
88%	67,294	85.0

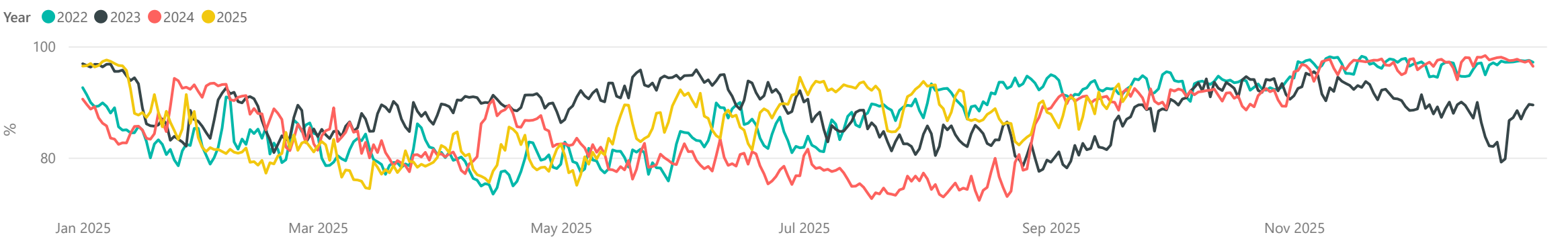
Weekly Generation Mix vs Capacity - GWh



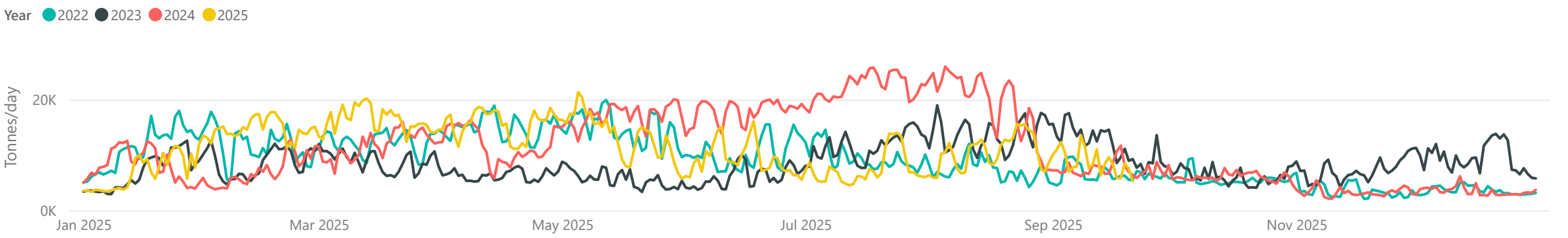
Weekly Generation Mix - GWh



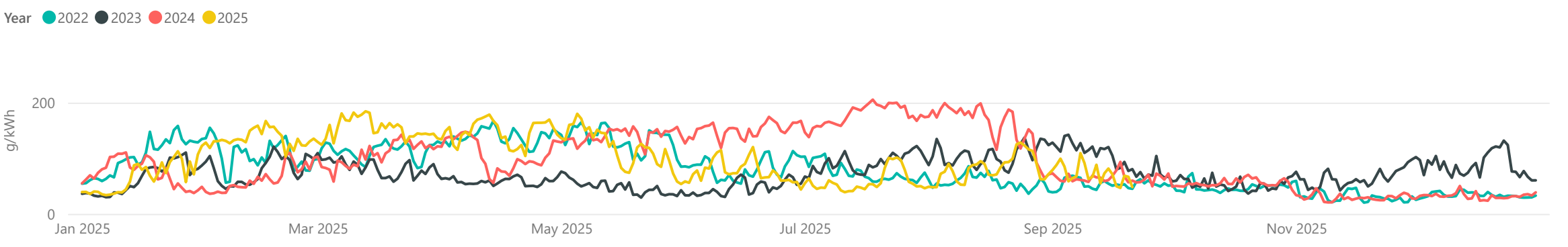
NZ Renewable Percentage



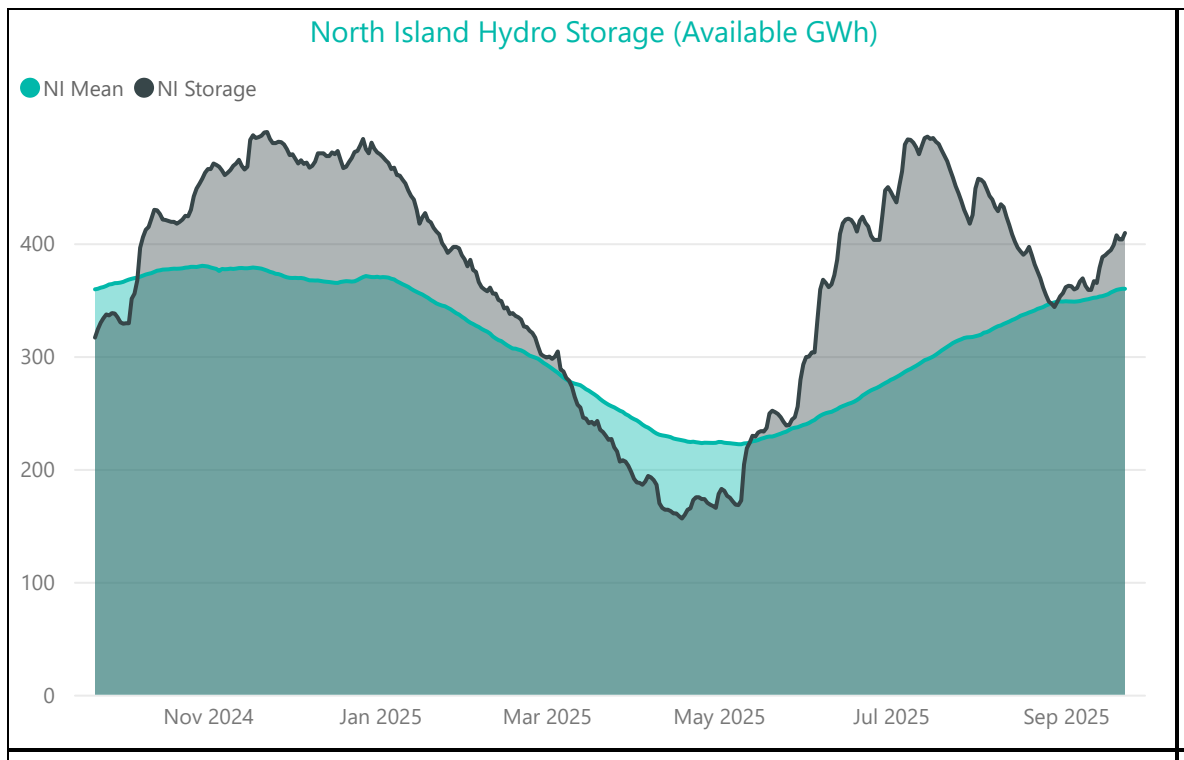
CO2 Tonnes/Day

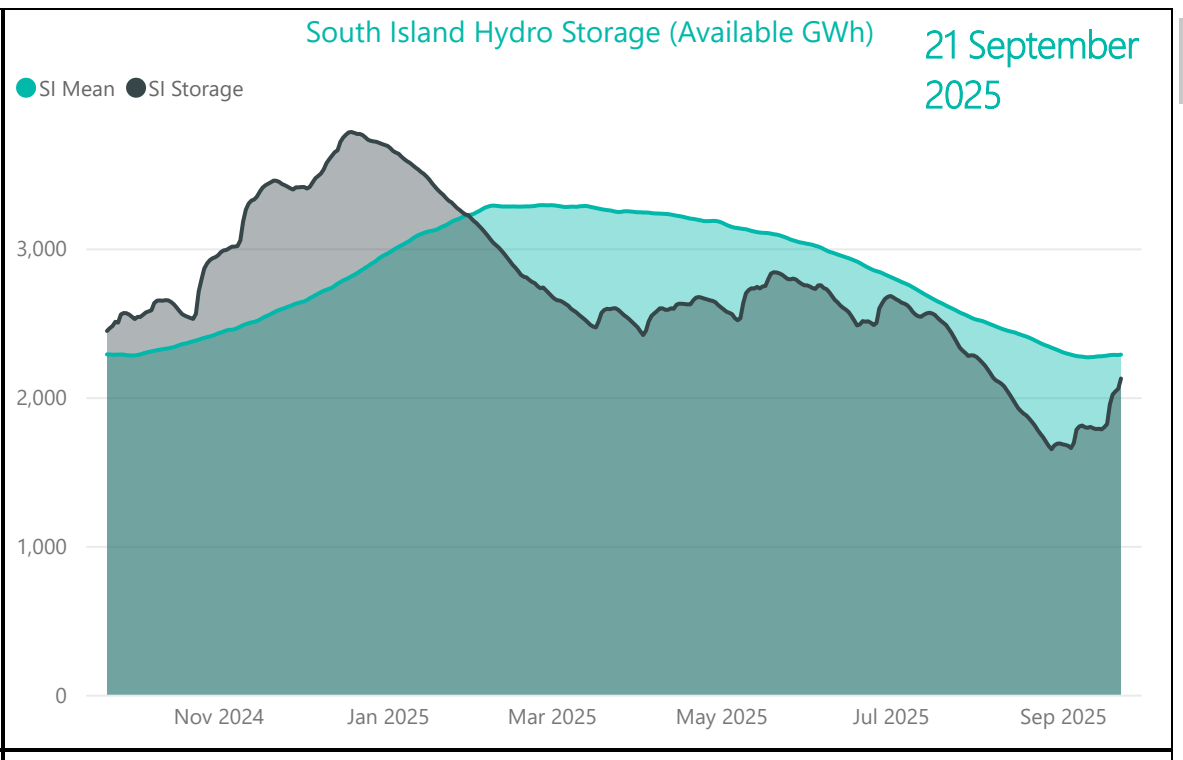


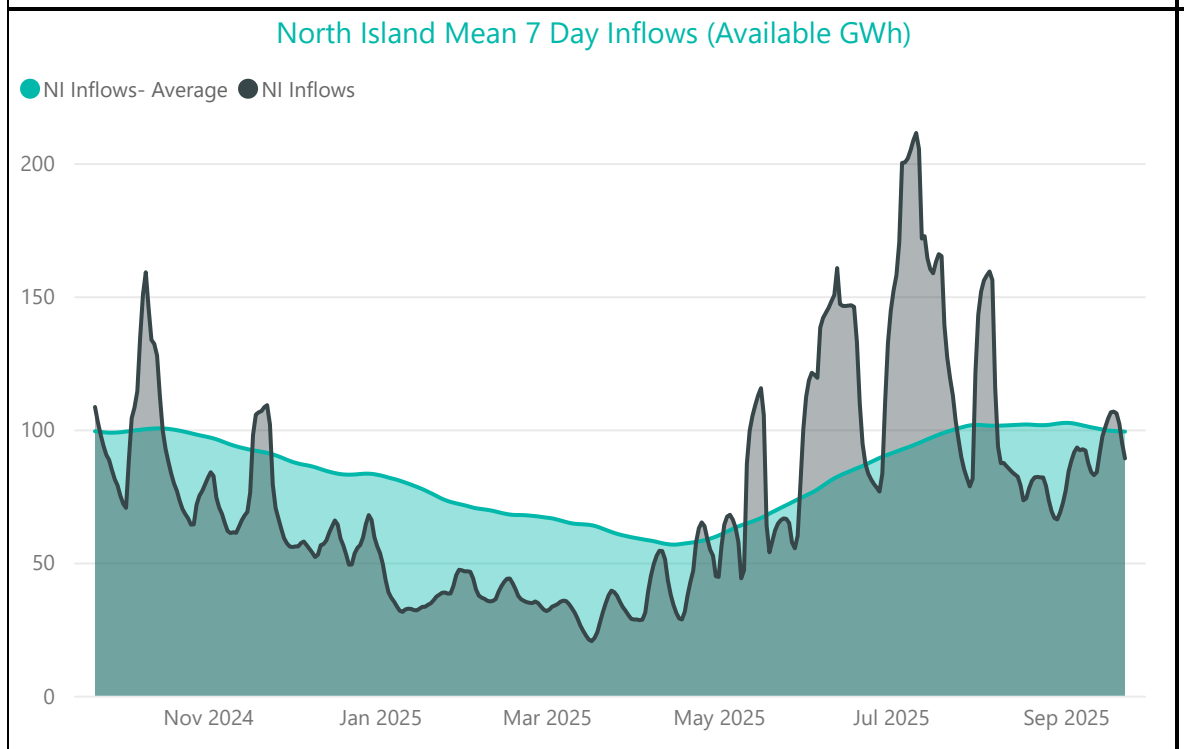
CO2 g/kWh

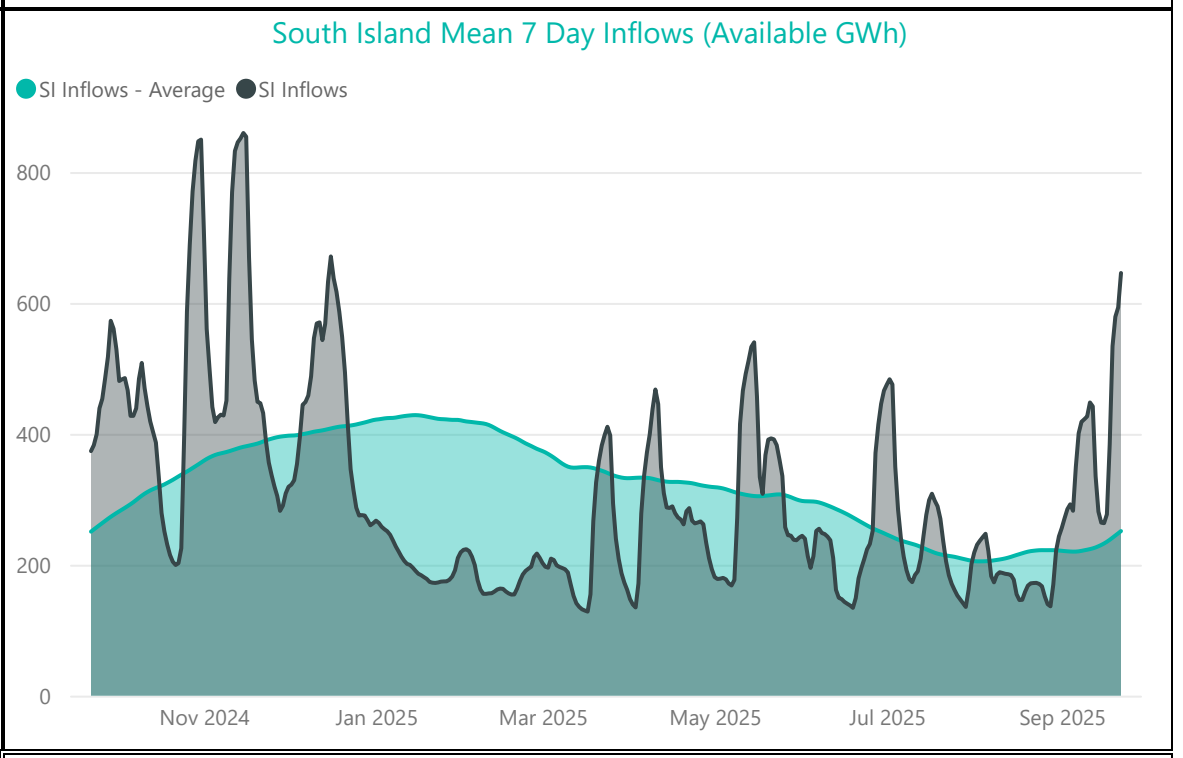


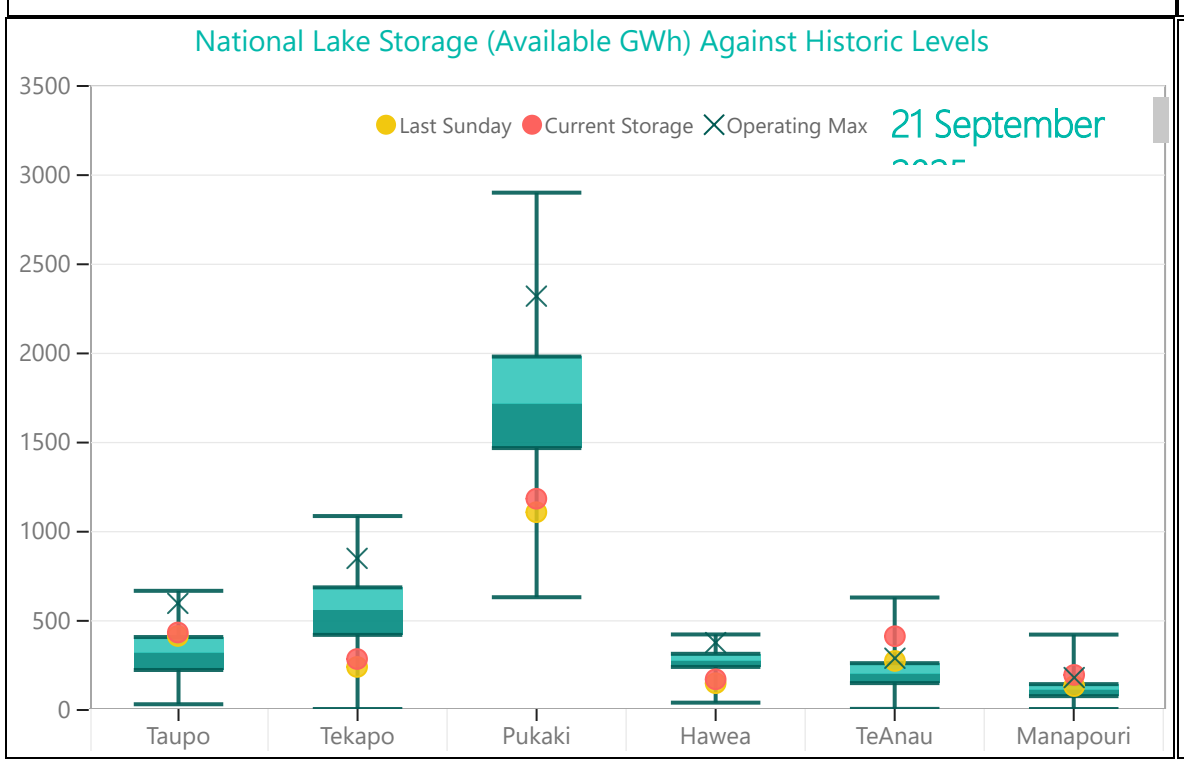
Hydro Storage

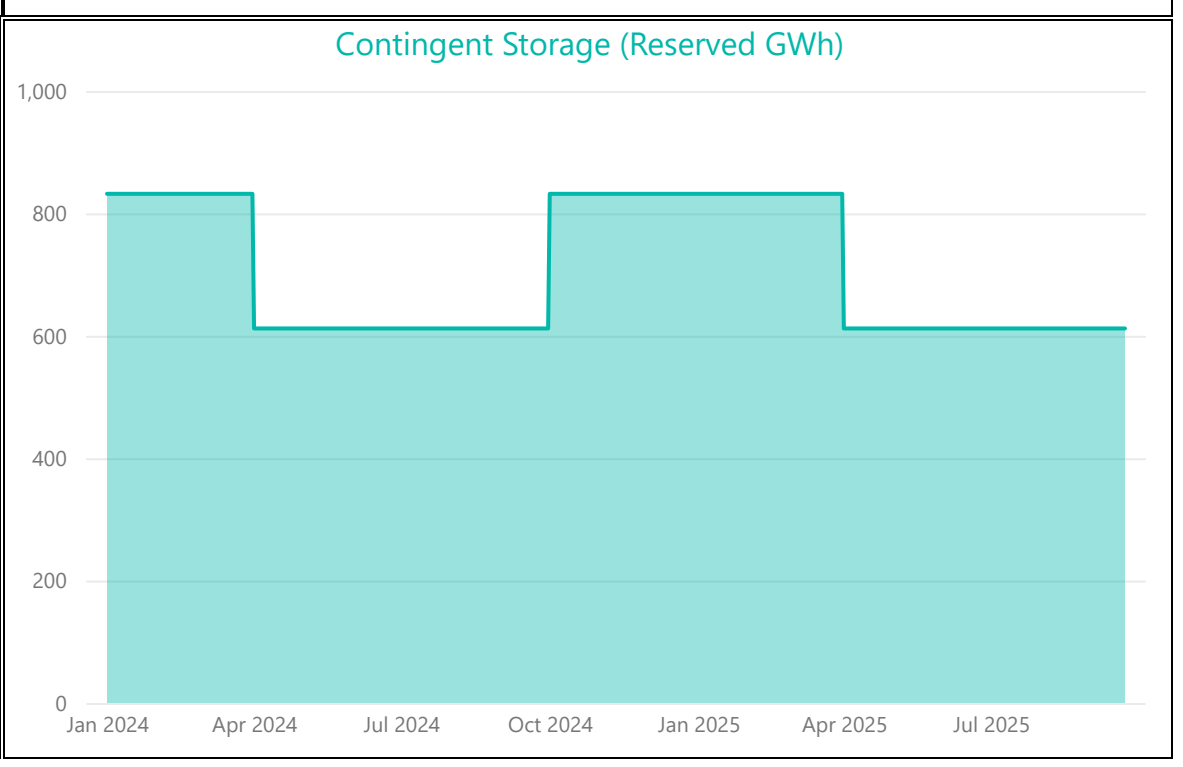












For further information on security of supply and Transpower's responsibilities as the System Operator, refer to our webpage here: https://www.transpower.co.nz/system-operator/security-supply

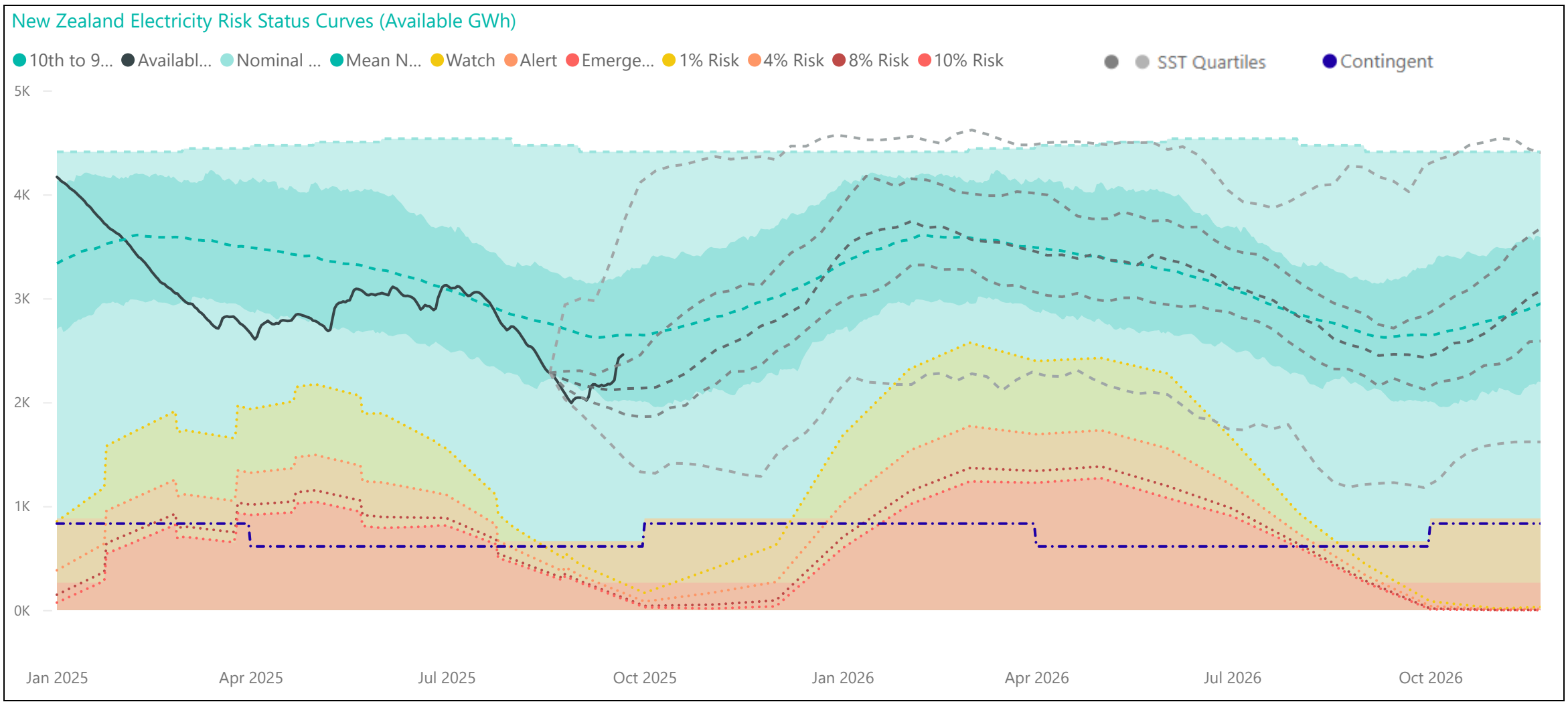
For any inquiries related to security of supply contact market.operations@transpower.co.nz

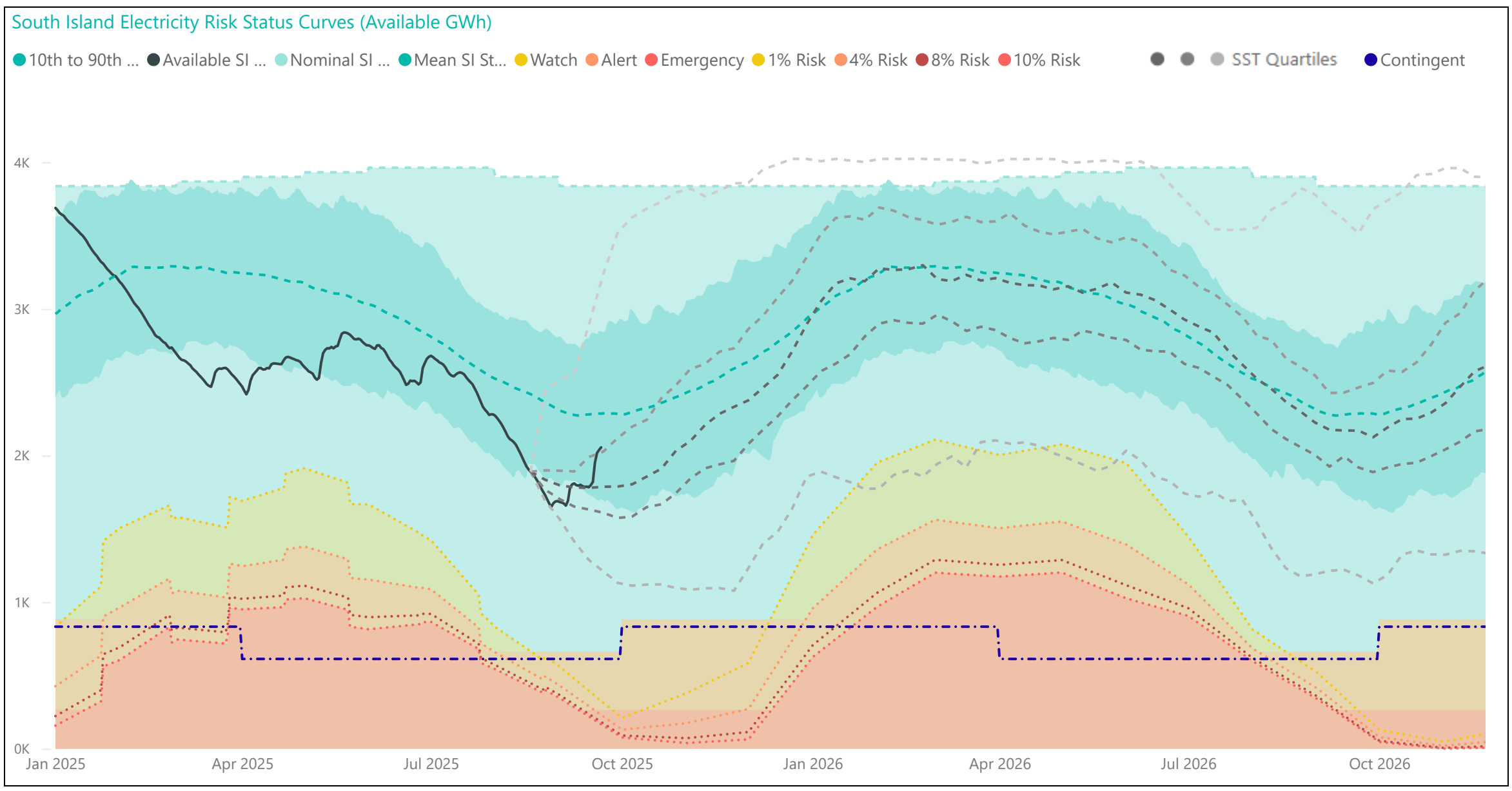
Hydro data used in this report is sourced from *NZX Hydro*.

Electricity risk curves have been developed for the purposes of reflecting the risk of extended energy shortages in a straightforward way, using a standardised set of assumptions.

Further information on the methodology of modelling electricity risk curves may be found here: https://www.transpower.co.nz/system-operator/security-supply/hydro-risk-curves-explanation

Electricity Risk Curves





Electricity Risk Curve Explanation:

Watch Curve - The maximum of the one percent risk curve and the floor and buffer
Alert Curve - The maximum of the four percent risk curve and the floor and buffer
Emergency Curve - The maximum of the 10 percent risk curve and the floor and buffer
Official Conservation Campaign Start - The Emergency Curve
Official Conservation Campaign Stop - The maximum of the eight percent risk curve and the floor and buffer

Note: The floor is equal to the amount of contingent hydro storage that is linked to the specific electricity risk curve, plus the amount of contingent hydro storage linked to electricity risk curves representing higher levels of risk of future shortage, if any. The buffer is 50 GWh.

The dashed grey lines represent the minimum, lower quartile, median, upper quartile and the maximum range of the simulated storage trajectories (SSTs). These will be updated with each Electricity Risk Curve update (monthly).