Market Operations Weekly Report - Week Ended 23 November 2025

Overview

New Zealand hydro storage increased to 142% of the historic mean last week and continues to sit above the 90th percentile. This is the second highest storage for this time of year on record, behind only 1983.

This week's insight looks at historic trends in evolving branch flows in Northland with the uptake in grid-scale solar farms.

Security of Supply

Energy

National hydro storage increased by 5% to 142% of the historic mean. South Island hydro storage increased from 138% to 143% of the historic mean while North Island storage increased from 133% to 138%.

Capacity

Residuals were mostly healthy with at least 800 MW of residual across all peaks last week. The lowest residual period for the week was the Wednesday evening peak at 802 MW.

The N-1-G margins in the NZGB forecast are healthy through to mid-January. 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 increased from 737 GWh the week prior to 750 GWh and was higher than weekly demand levels observed over the past three years. The highest demand peak of 5,304 MW occurred at 5:30 pm on Tuesday 18 November.

Weekly Prices

Average wholesale spot prices decreased last week in line with high hydrology and inflows. The average wholesale electricity spot price at Ōtāhuhu last week was $67/MWh, down from $72/MWh the week prior. Wholesale prices peaked at $256/MWh at Ōtāhuhu at 3:00 pm on Tuesday 18 November, during maximum northward HVDC flow.

Generation Mix

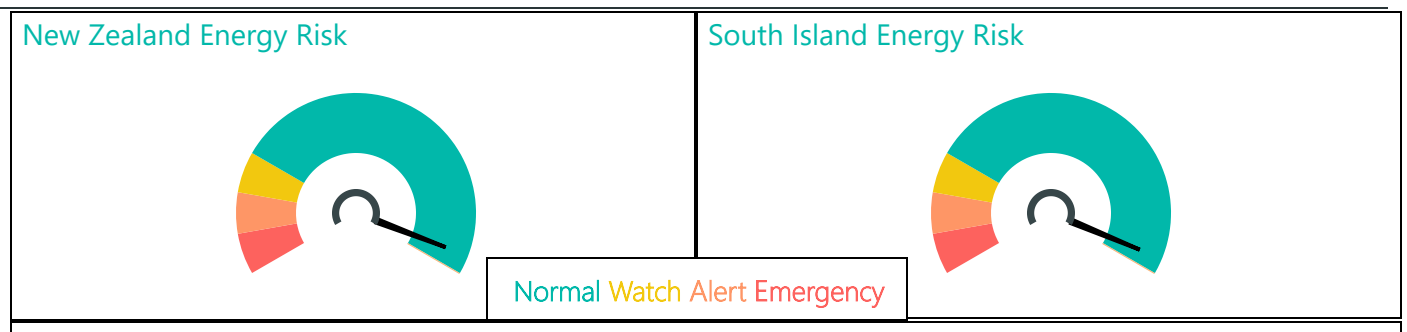
Wind generation decreased to 7% of the generation mix, below its average contribution of 9%. Hydro generation was above average and increased to 72% of the mix, from 68% the week prior. Thermal generation decreased to just 1% of the mix from 2% the week prior. The geothermal share remained at 17% of the mix — well below its average contribution of 23% — with multiple geothermal units on planned outage during the week. Total renewable contribution to the mix was 97% for the seventh week in a row.

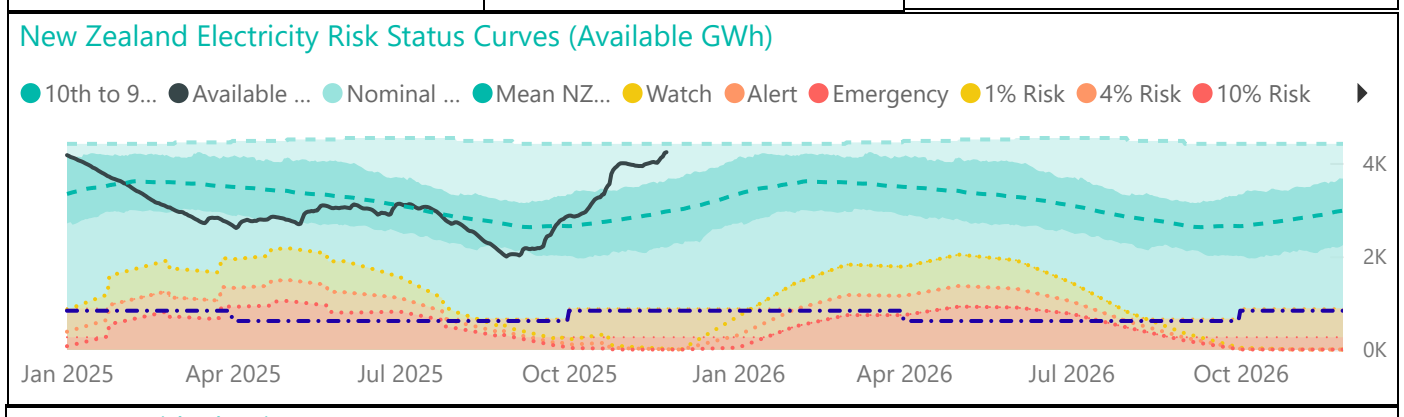
HVDC

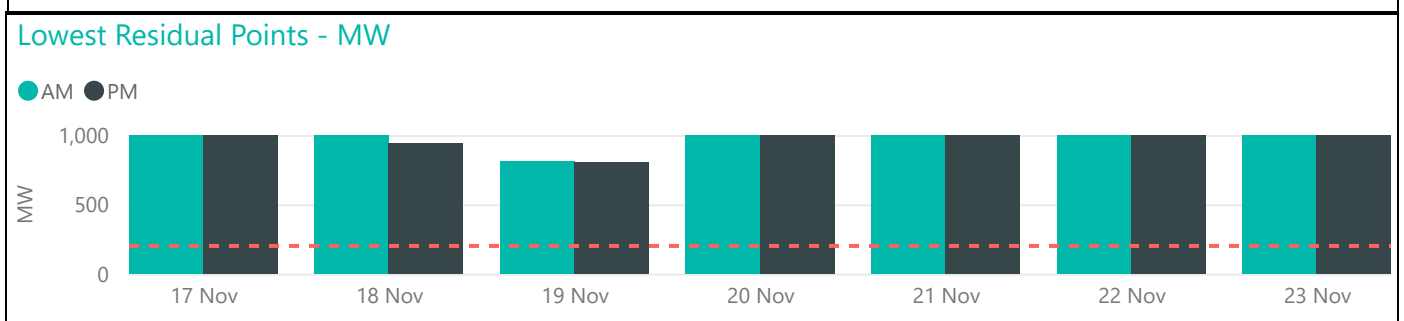
HVDC flow last week was entirely northward with high hydro generation, decreased geothermal generation, and higher demand in the North Island. In total, 86 GWh was transferred north. AC asset outages have reduced physical capacity, causing the northward limit to constrain flows at times.

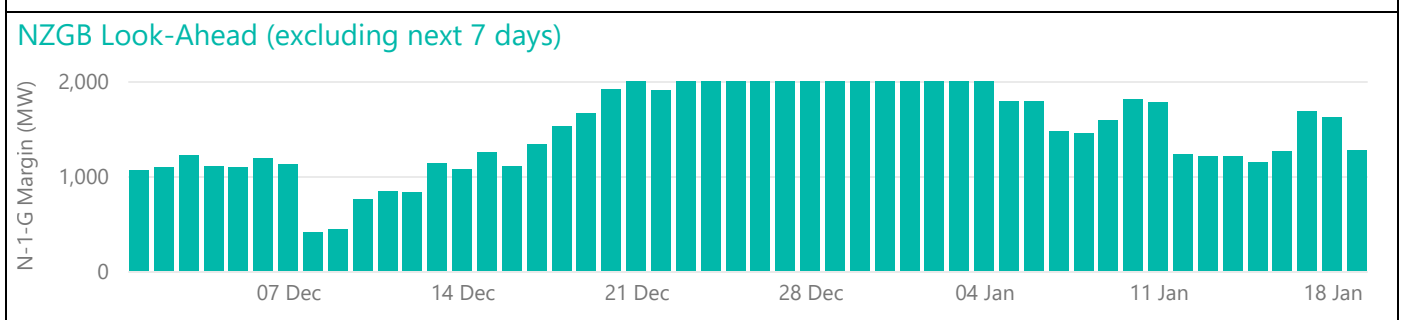
Consultations

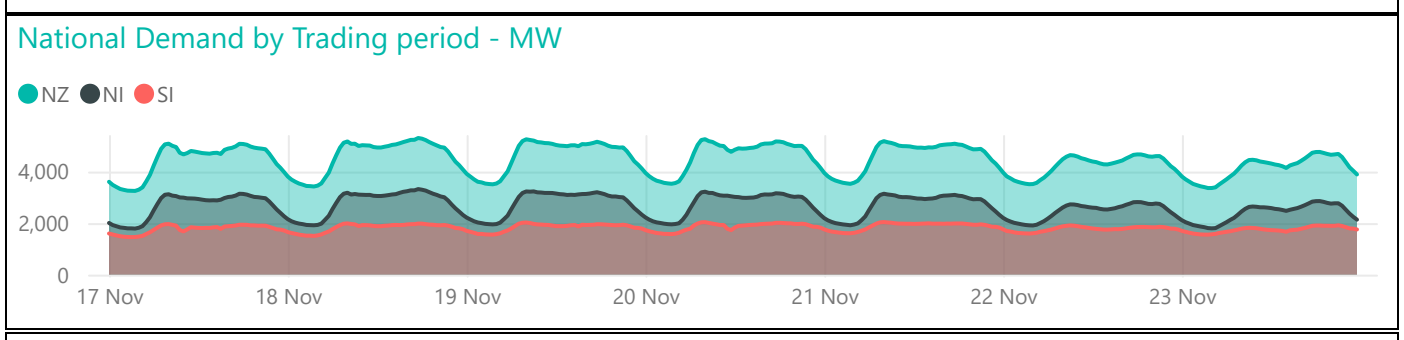
Consultation on the Security of Supply Assessment (SOSA) reference case assumptions and sensitivities has now closed. We have published the five received submissions on the consultation page. A reminder to those who have not responded to our Security of Supply Assessment (SOSA) request for information to please do so.

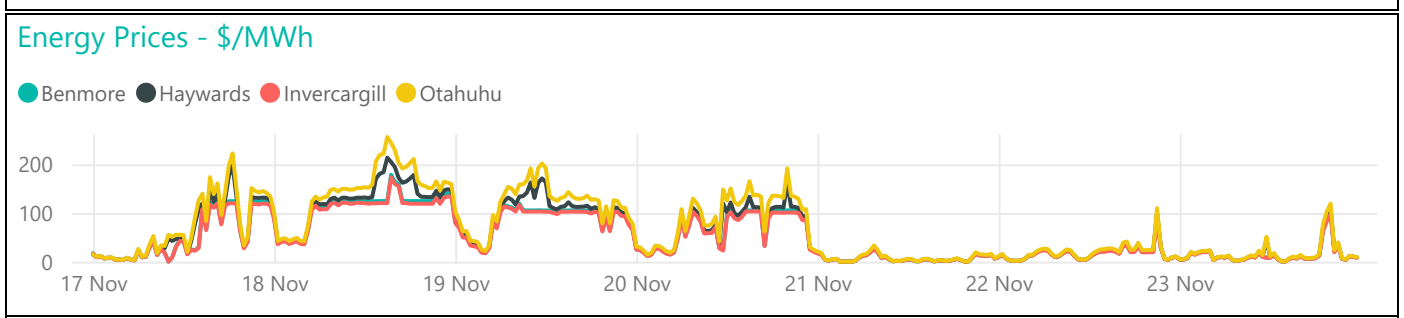


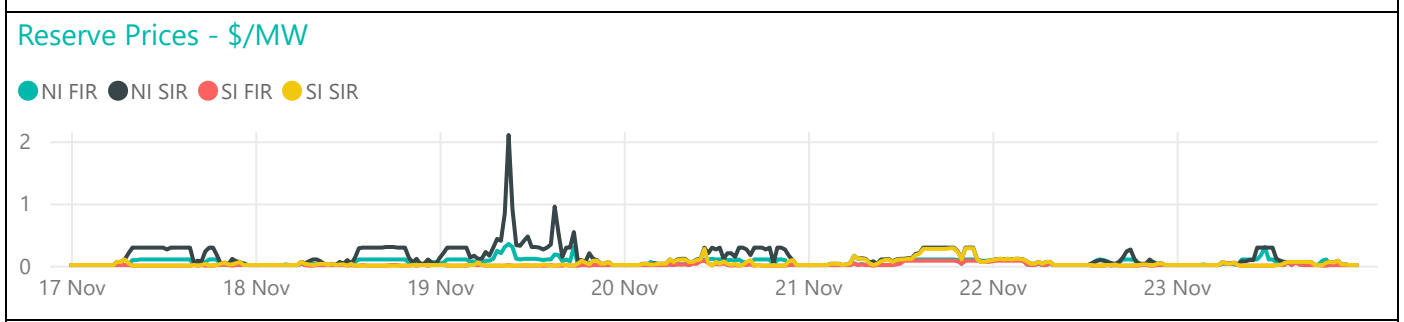


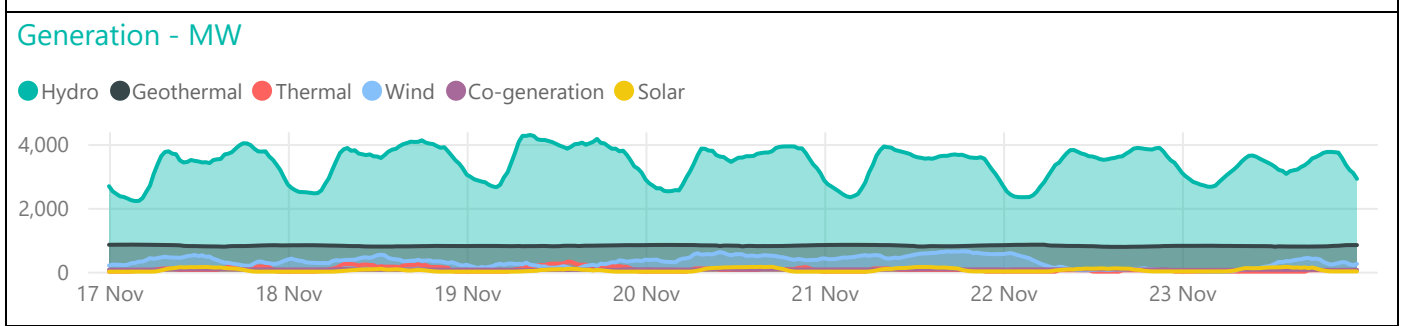


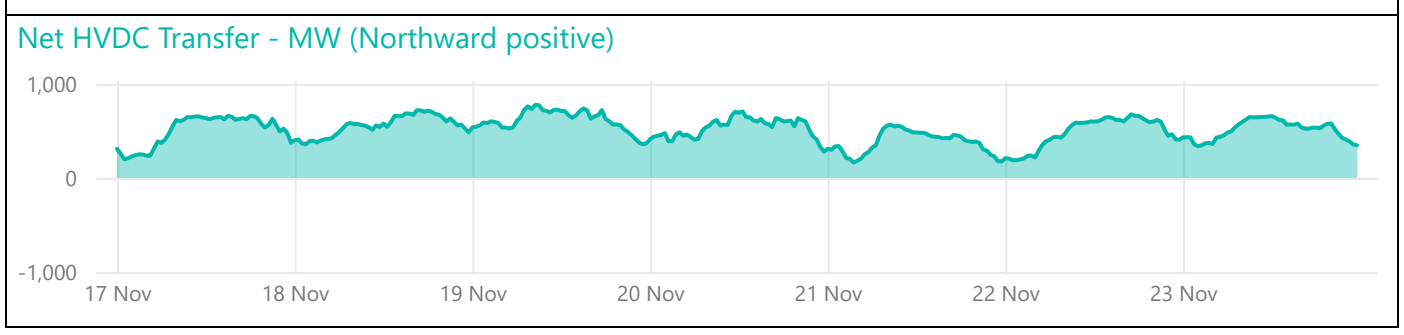












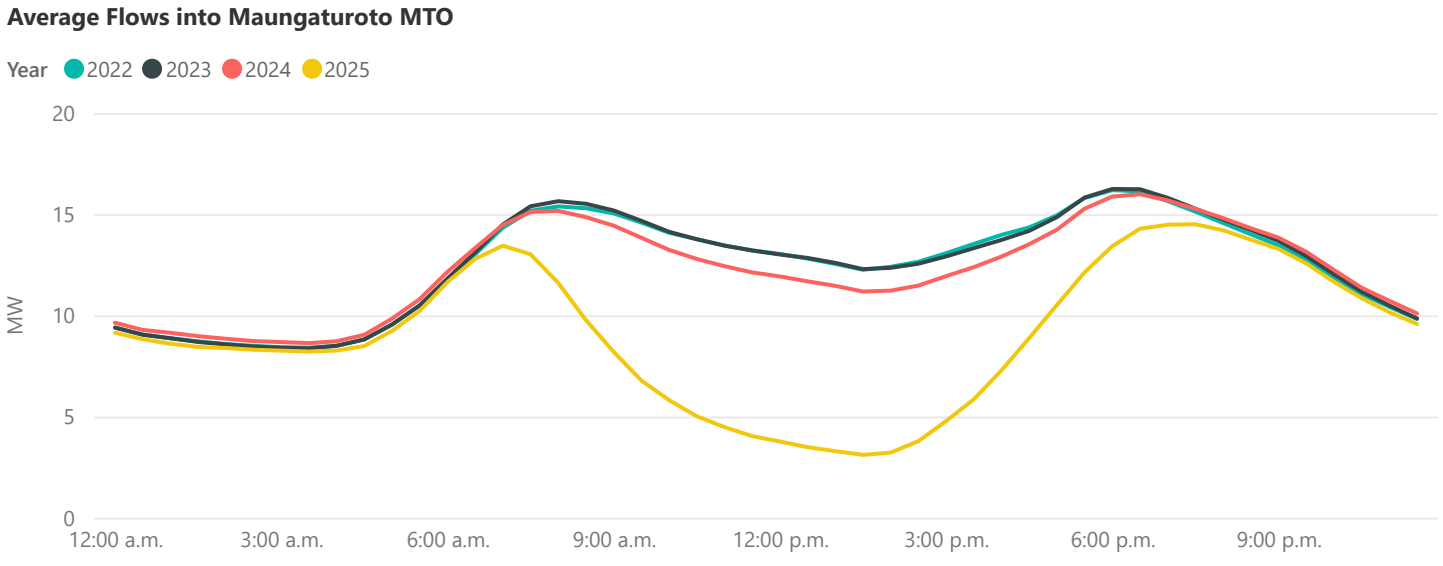
Weekly Insight - Evolving branch flows in Northland

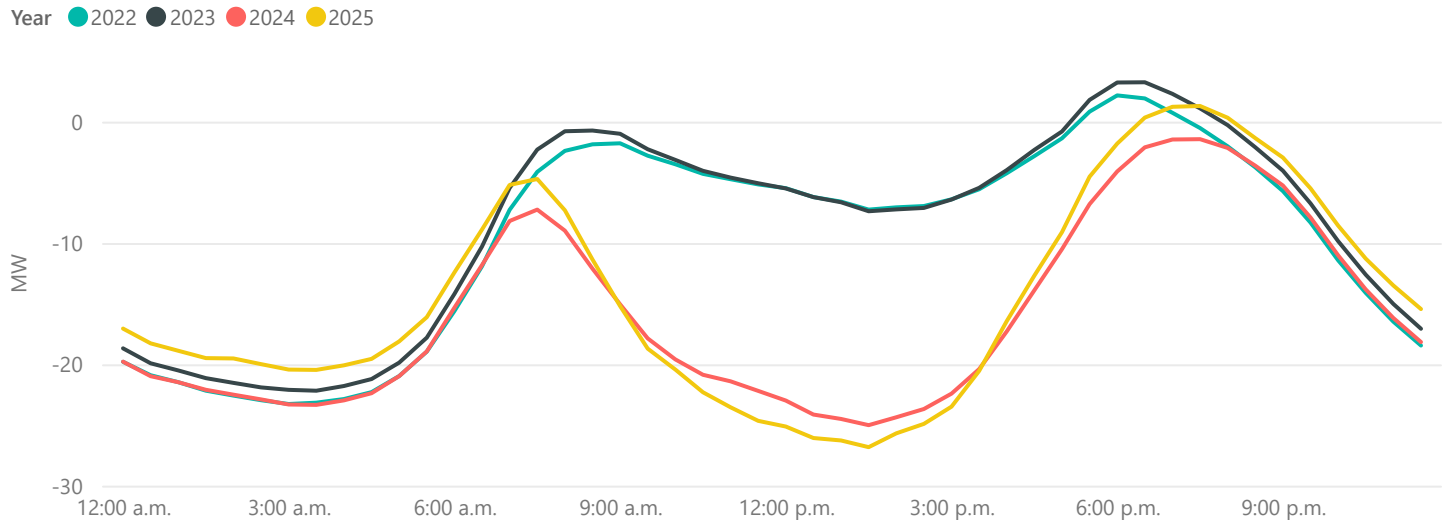
Branch flows into Kaikohe (KOE) and Maungaturoto (MTO) have shifted noticeably over the past four years as solar development in Northland continues to ramp up. For much of the early 2020s, flows at both followed a predictable load-driven pattern with modest morning and evening peaks and a relatively shallow midday trough. As new solar farms have progressively connected downstream, the daytime shape has begun to flatten and, more recently, dip much more sharply.

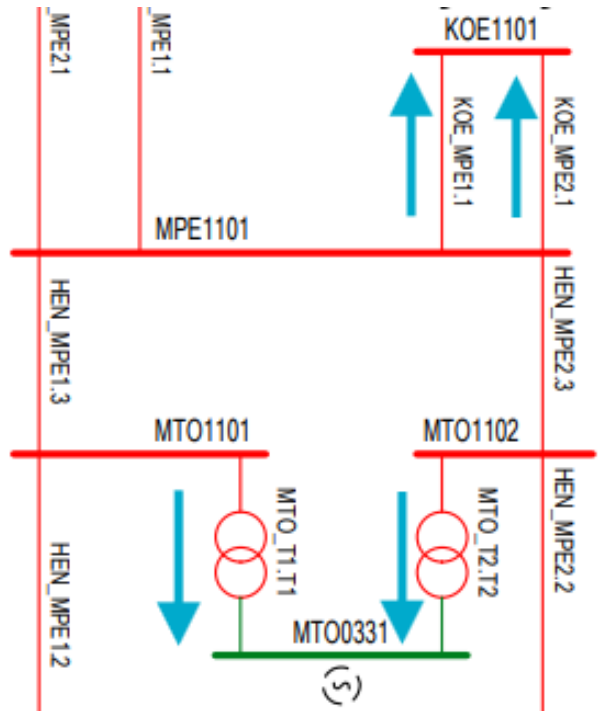
Since 2022, the following grid-scale solar farms have been commissioned in Northland:

- Kaitaia Solar Farm (KOE1101 KSF0) - November 2023
- Ruawai Solar Farm (MTO0331 RWI0) - November 2024
- Pukenui Solar Farm (KOE1101 PSF0) - May 2025
- Twin Rivers Solar Farm (KOE1101 TRS0) - September 2025
- Golden Stairs Solar Farm (MTO0331 GDS0) - November 2025

The chart below highlights this progression, showing the mean branch flows off the grid from the 110kV MTO bus to the 33kV bus. The 2022 and 2023 profiles are nearly identical, with only a slight reduction in flow during the middle of the day. By 2024, the midday drop becomes a little more pronounced at MTO, and in 2025 the change is unmistakable: flows into MTO now drop several megawatts lower during daylight hours compared with prior years, despite similar morning and evening peaks. The region remains firmly net-load throughout the day, but local solar output is increasingly offsetting what would otherwise be drawn from the grid at midday.







A similar trend is evident at Kaikohe (KOE), where flows have historically differed from MTO due to the presence of the Ngāwhā geothermal station. KOE has long operated as a net-export node, with geothermal output regularly pushing power south toward Maungatapere. However, recent solar connections in the far north are now amplifying that export behaviour during the middle of the day. While nighttime exports remain largely unchanged, daytime exports have grown materially, deepening the trough in the intraday flow profile. This introduces an operational consideration for the region: higher daytime injections could push the Maungatapere–Kaikohe corridor closer to its transmission limits, particularly under n-1 conditions, increasing the likelihood that solar generation may need to be curtailed during peak-output periods.

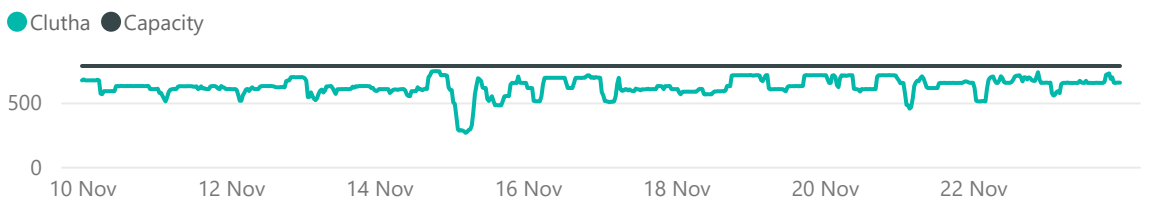
These shifts are becoming increasingly relevant for system operation and market conditions. Higher daytime solar generation translates to softer dispatch requirements for conventional generation and contributes to the growing divergence between midday and evening pricing patterns, particularly in the North Island. The steeper afternoon recovery visible in the 2025 profile also reflects the sharper transition from high solar output to the evening peak, which in turn increases the need for flexible resources elsewhere on the system.

More broadly, the evolving load shape at KOE and MTO is an early indication of how even moderate amounts of grid-connected solar can reshape intraday demand patterns at the transmission level. While Northland remains a net-consuming region, the cumulative impact of multiple solar developments is beginning to materially influence flows on key corridors. Continued monitoring of these patterns will be important as further solar capacity comes online and as operational and planning decisions increasingly account for these changing intraday dynamics.

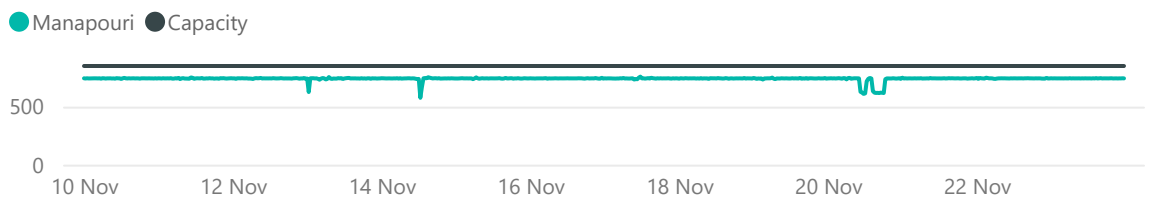
Generation Breakdown - Last Two Weeks

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

Clutha

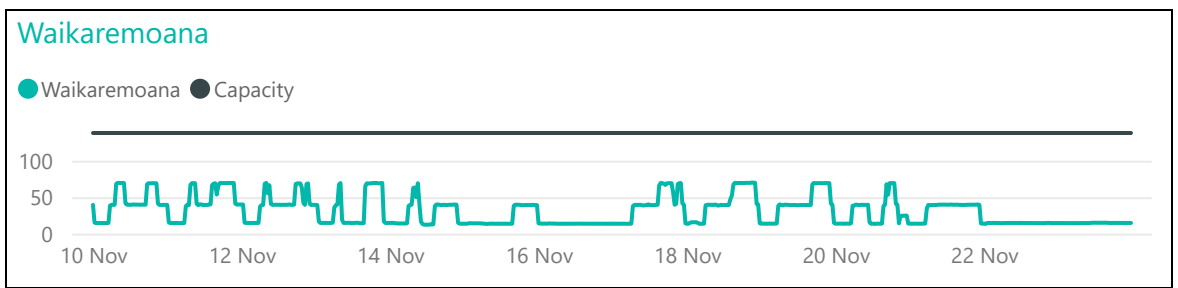


Manapouri



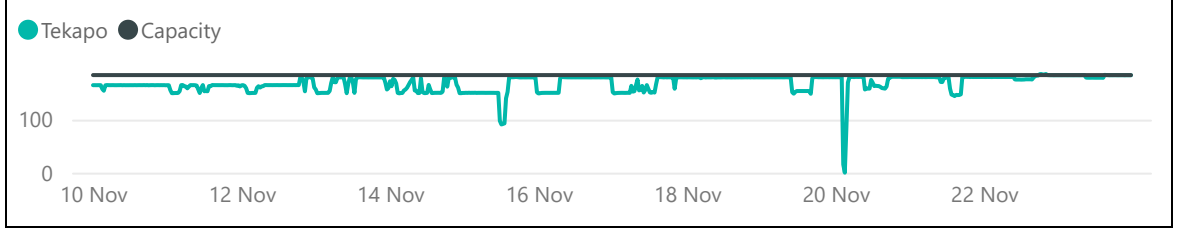
Waikato

Waikaremoana

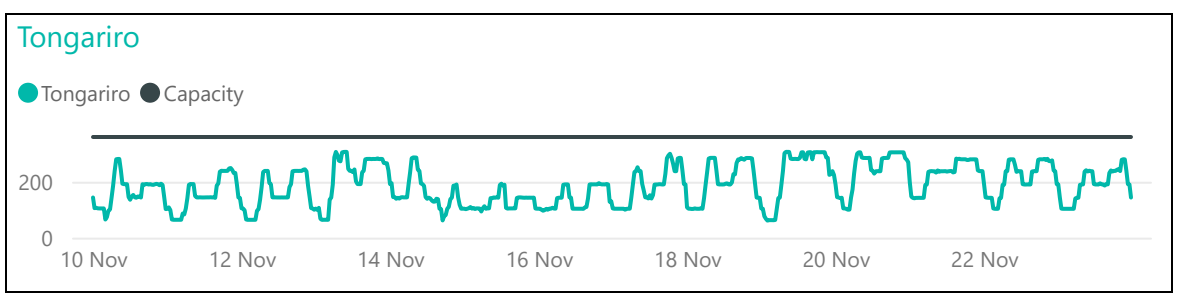


Waitaki

Tekapo

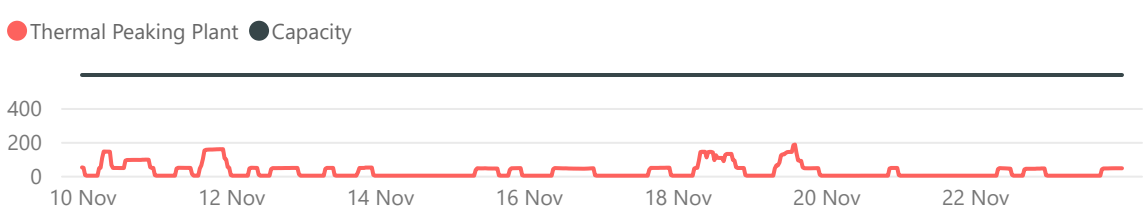


Tongariro

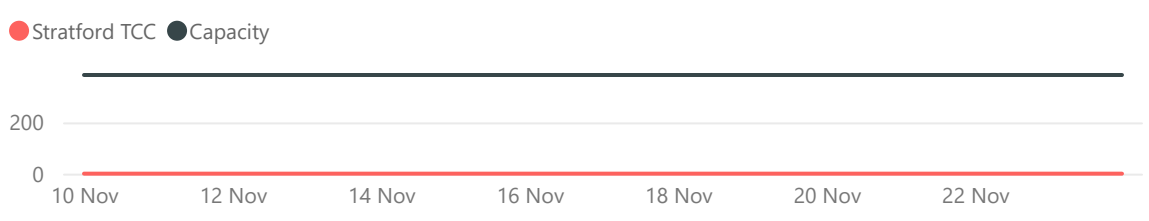


Other SI Hydro

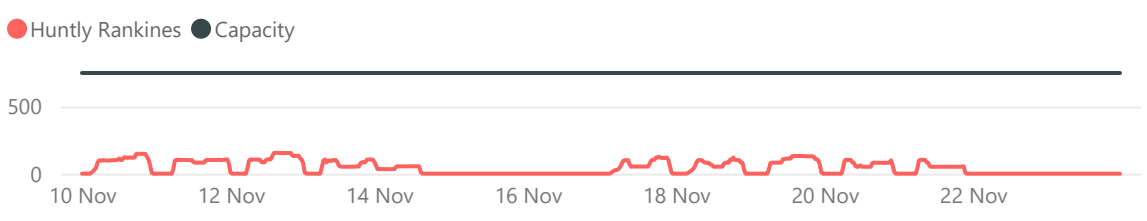
Thermal Peaking Plant



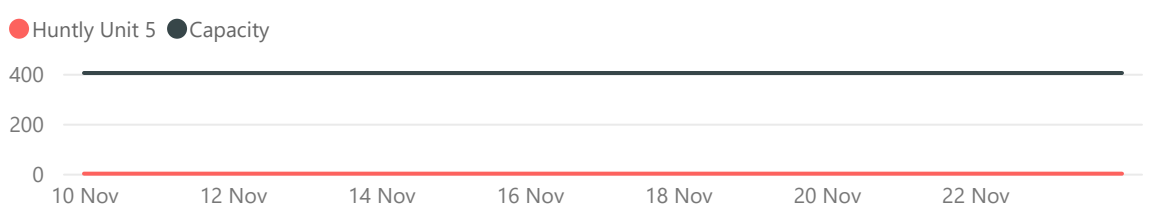
Stratford TCC



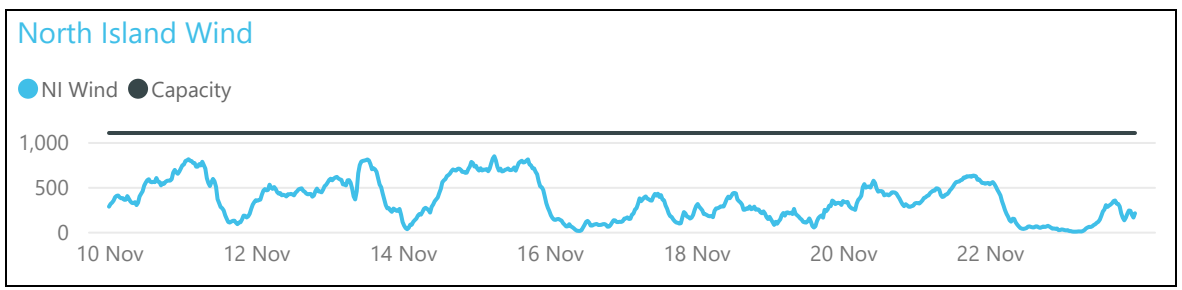
Huntly Rankines



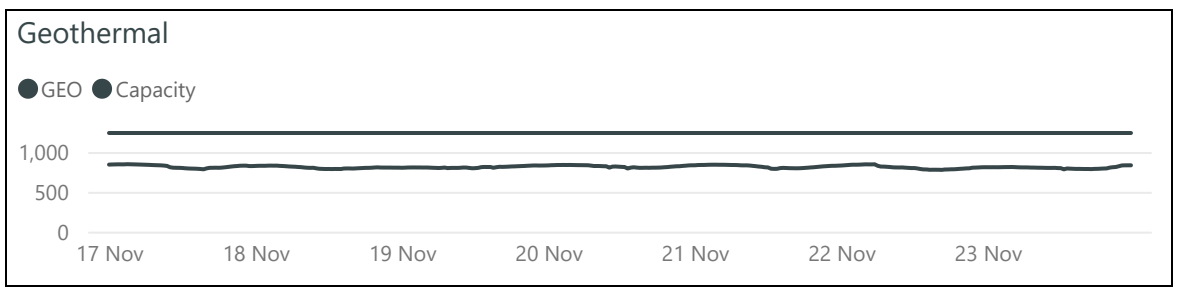
Huntly U5



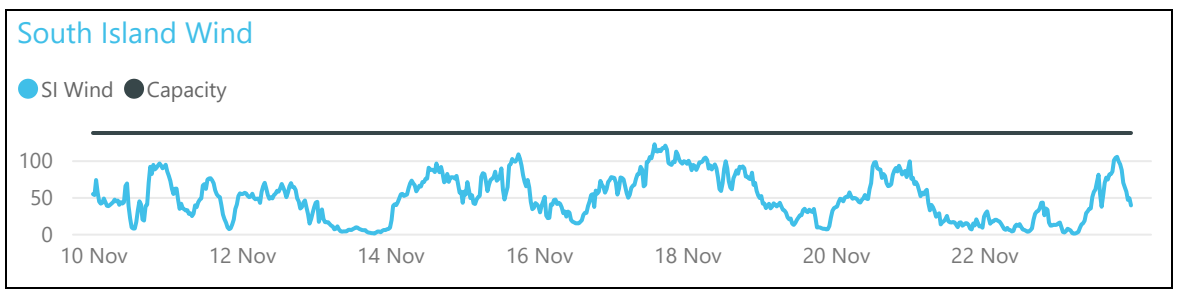
North Island Wind



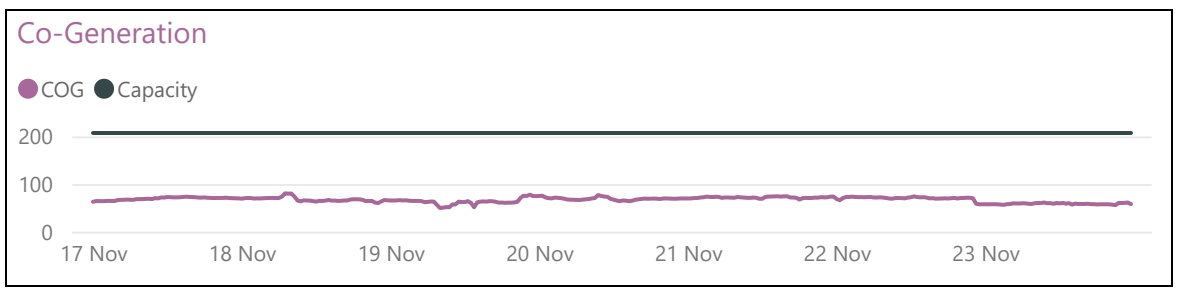
Geothermal



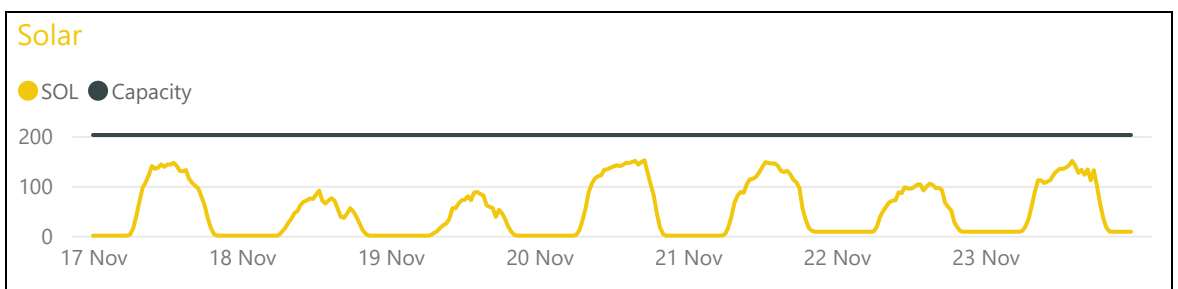
South Island Wind



Co-Generation

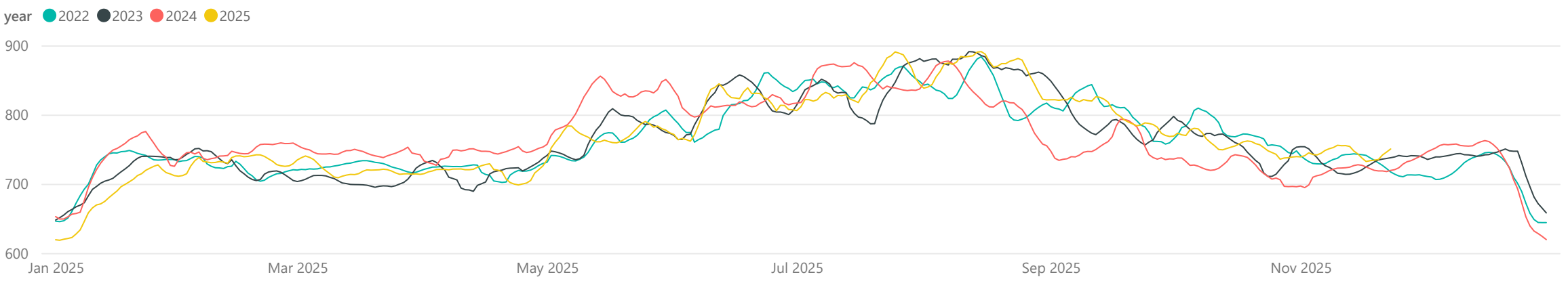


Solar

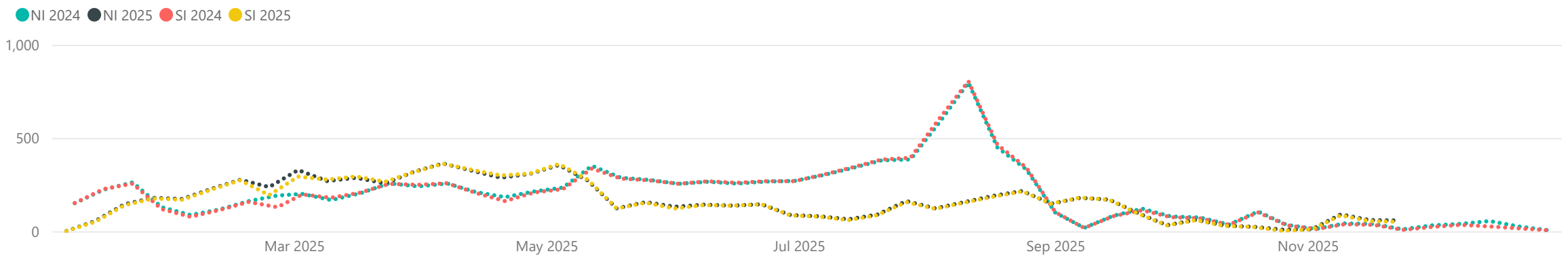


Weekly Profiles

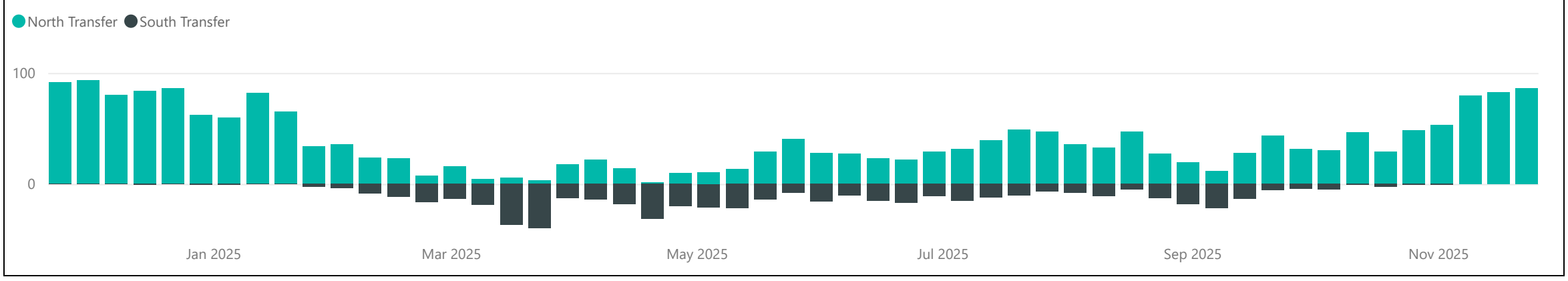
National Weekly Demand - GWh - 7 Day Rolling



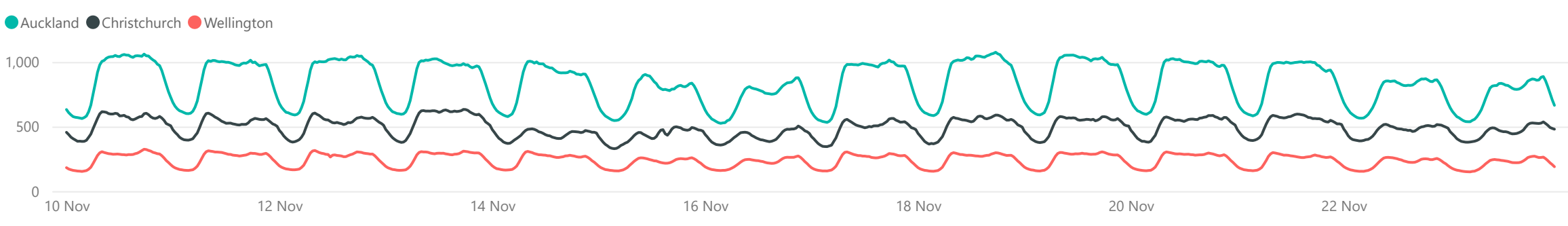
Weekly Spot Price - $/MWh



HVDC Transfer - Weekly GWh

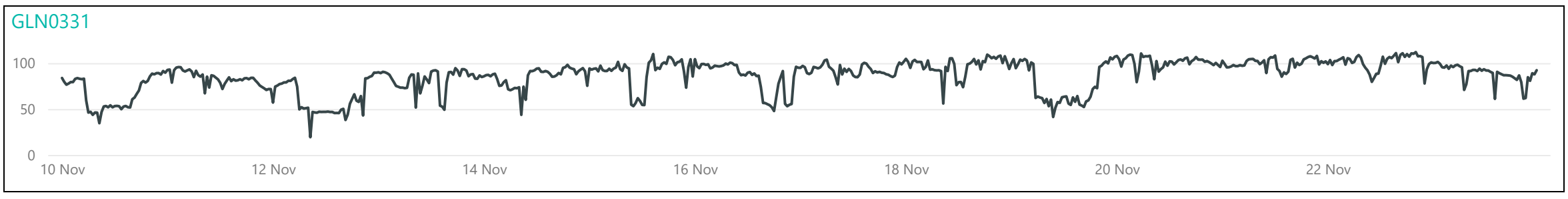


Conforming Load Profiles - Last Two Weeks *Measured in MW shown by region*

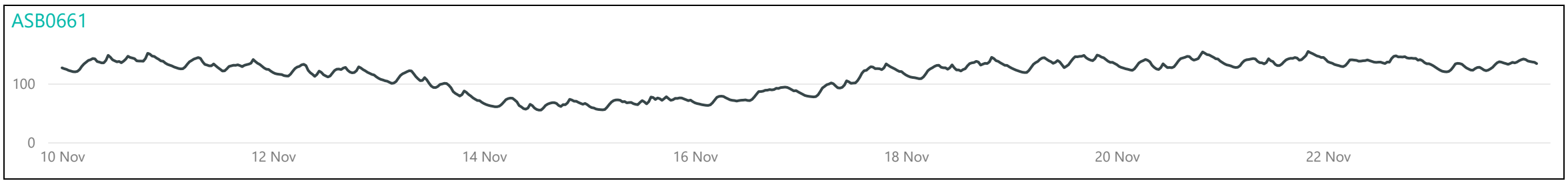


Non-Conforming Load Profiles - Last Two Weeks *Measured in MW shown by GXP*

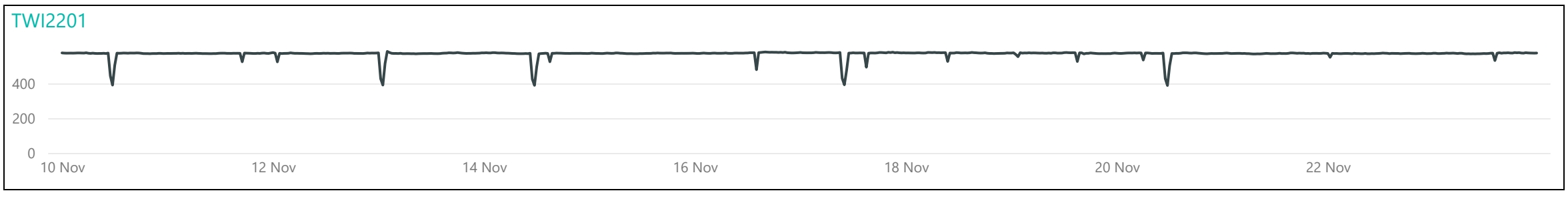
GLN0331



ASB0661



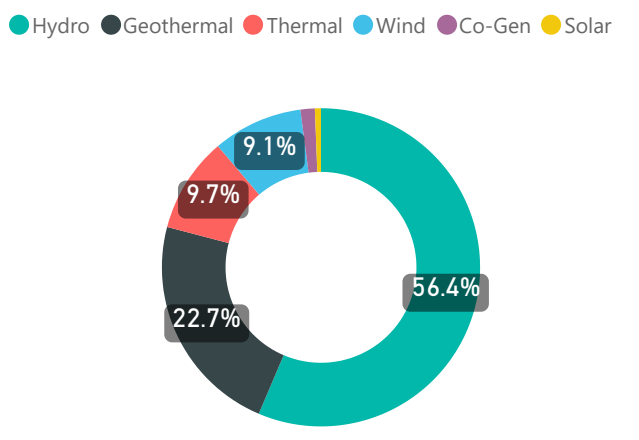
TWI2201



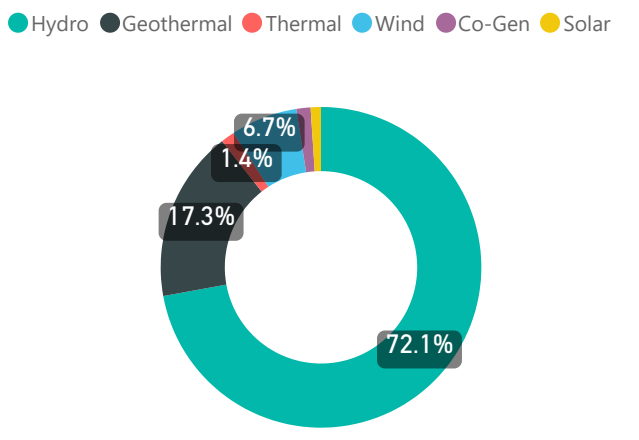
TRANSPOWER

Generation Mix

Last 52 Weeks Generation Mix - Weekly GWh



Last 7 Days Generation Mix - Weekly GWh



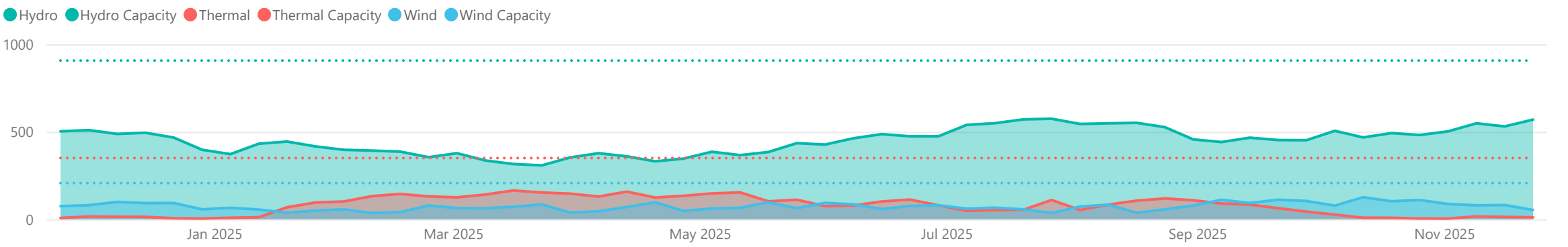
Average Metrics Last 7 Days

Renewable Percentage	CO2e Tonnes/Week	CO2e g/kWh
97%	15,739	19.4

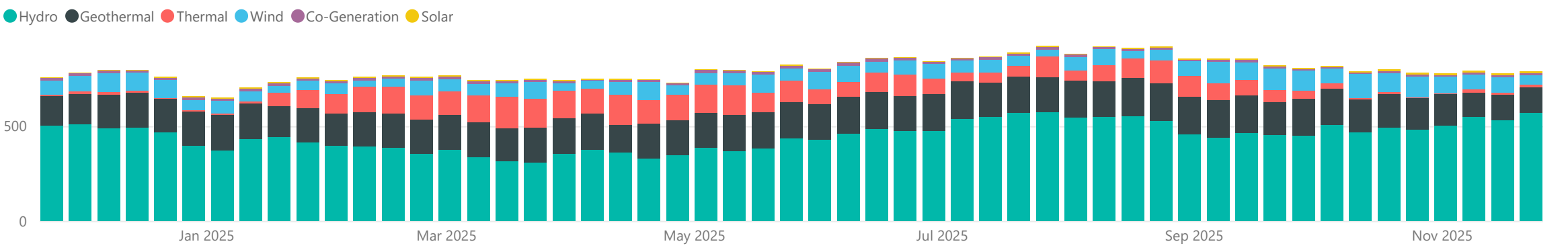
Average Metrics Last 52 Weeks

Renewable Percentage	CO2e Tonnes/Week	CO2e g/kWh
89%	65,091	81.8

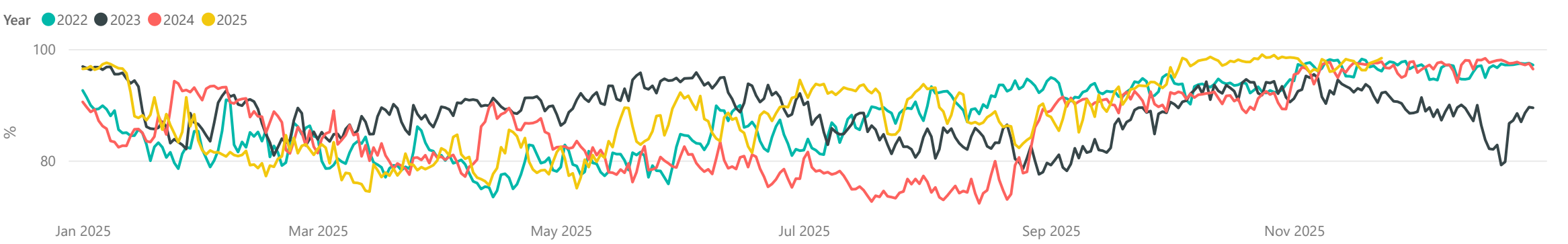
Weekly Generation Mix vs Capacity - GWh



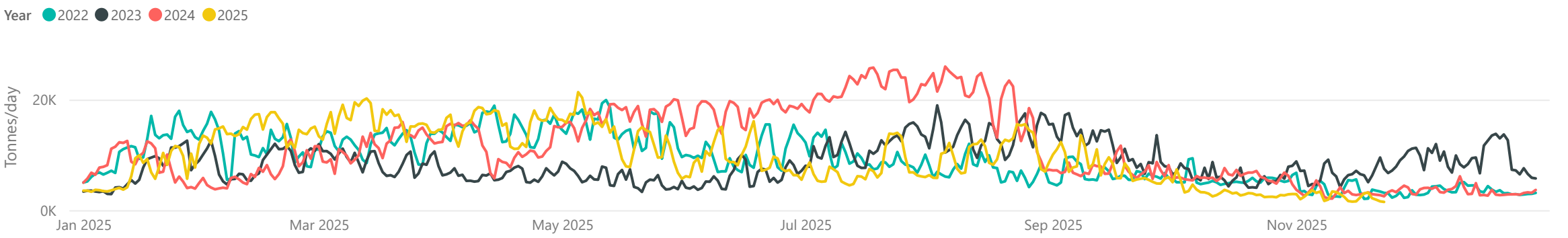
Weekly Generation Mix - GWh



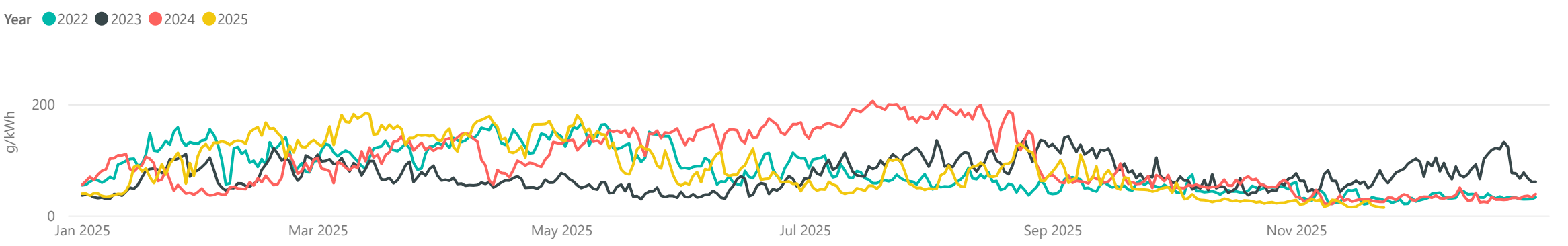
NZ Renewable Percentage



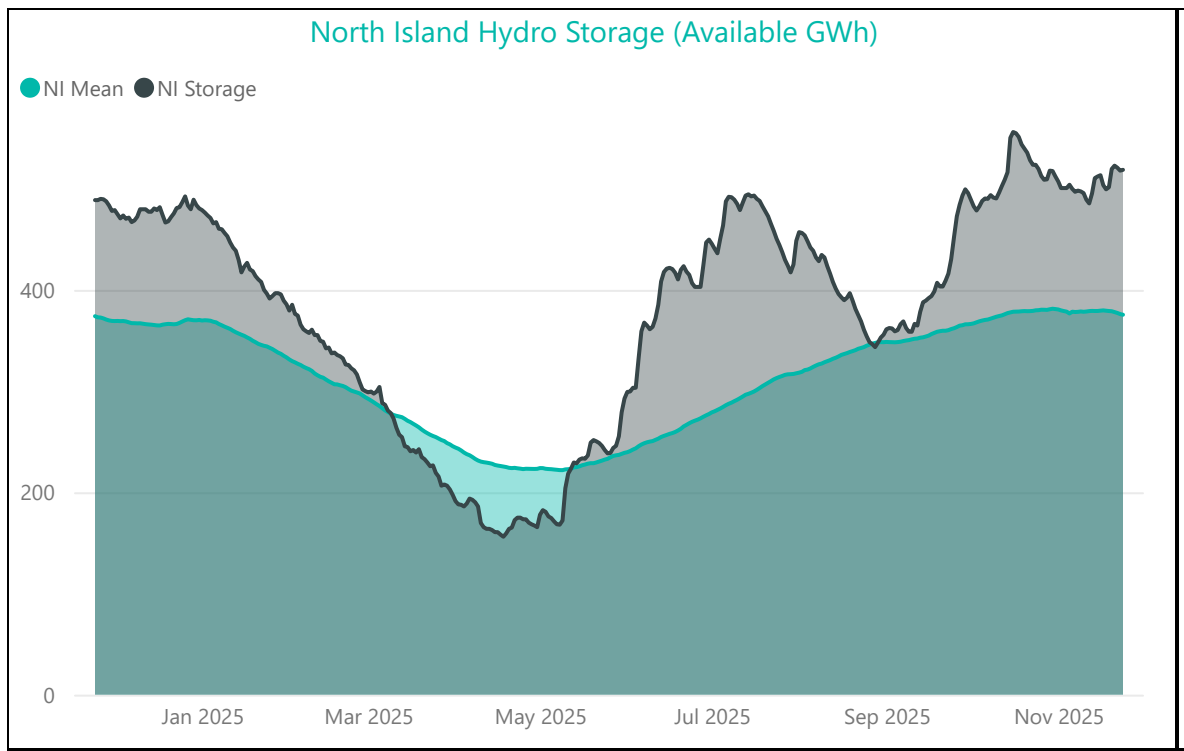
CO2 Tonnes/Day

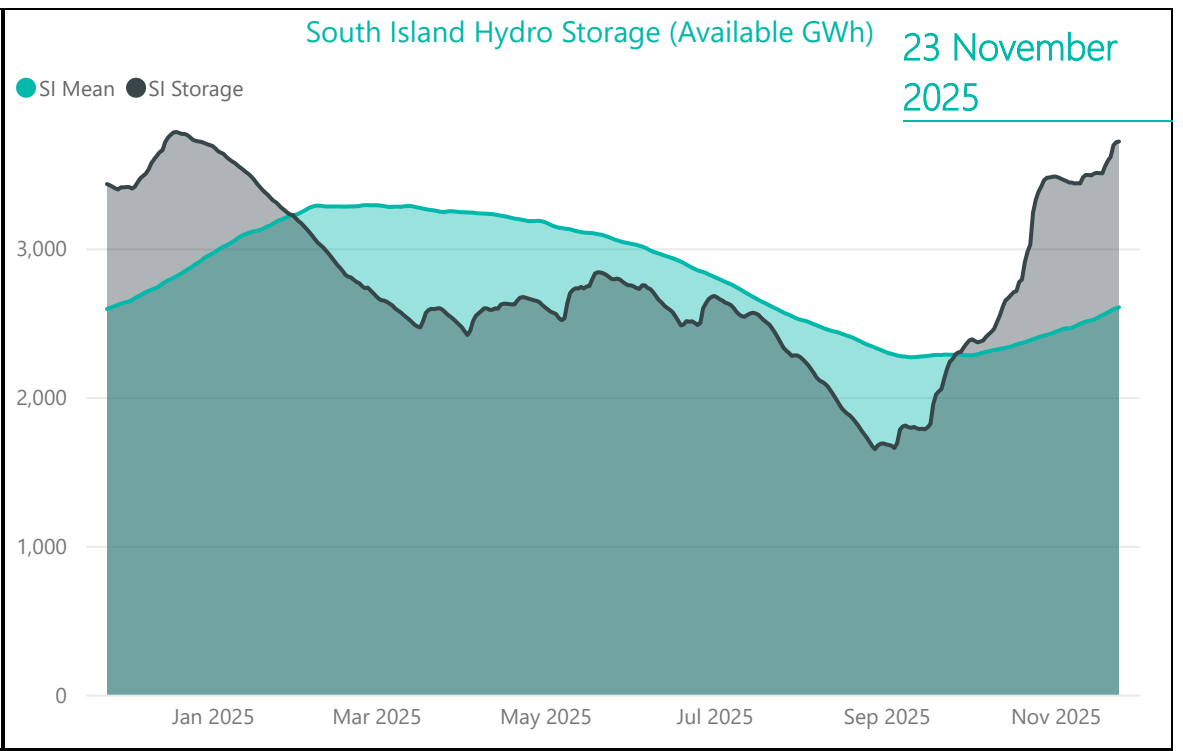


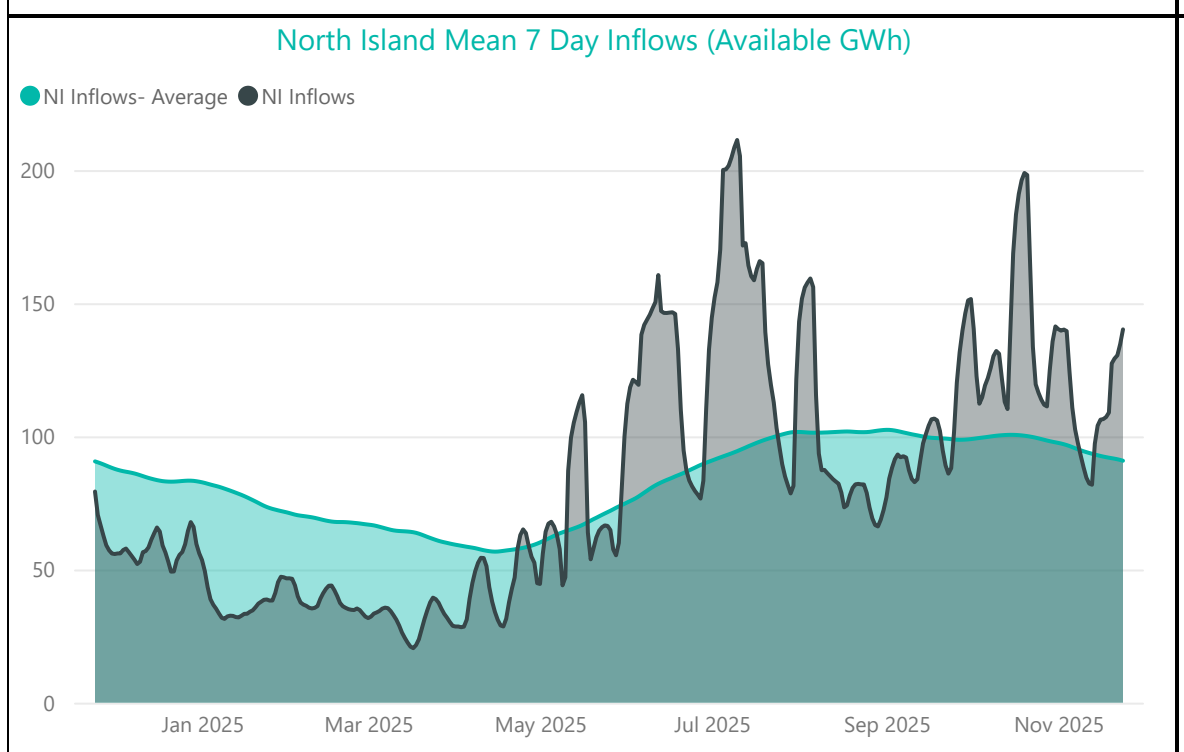
CO2 g/kWh

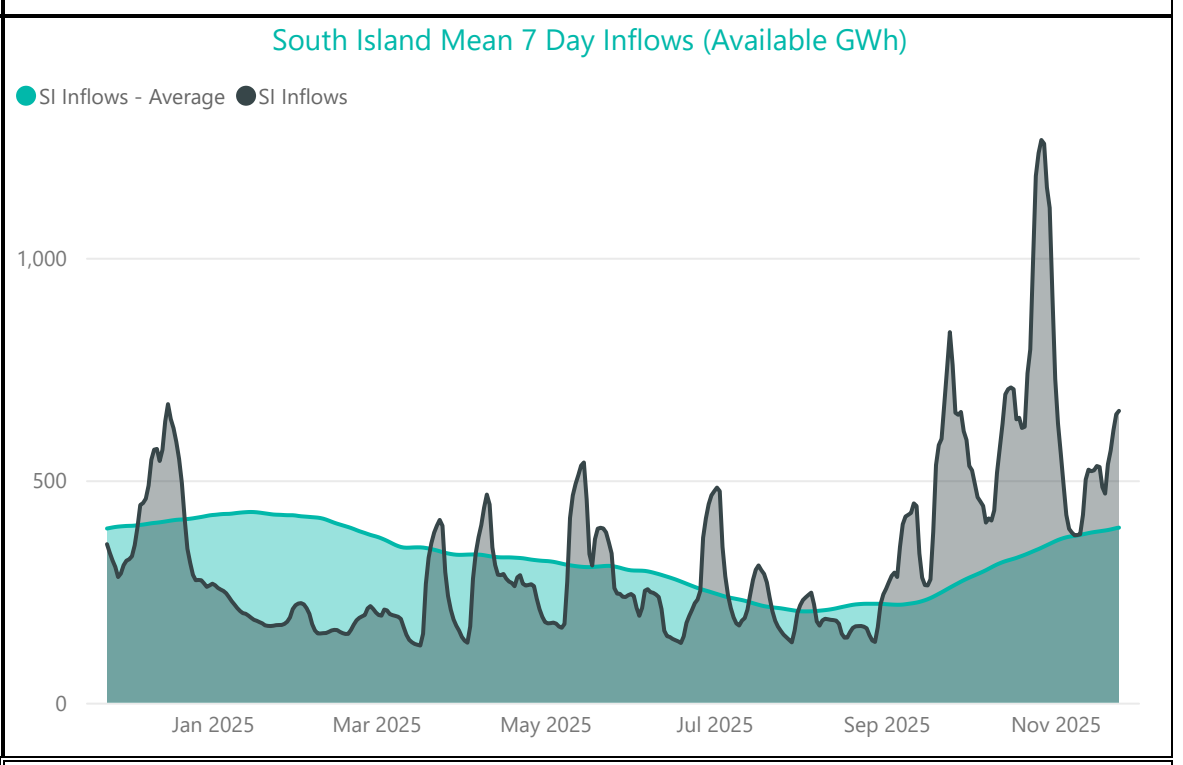


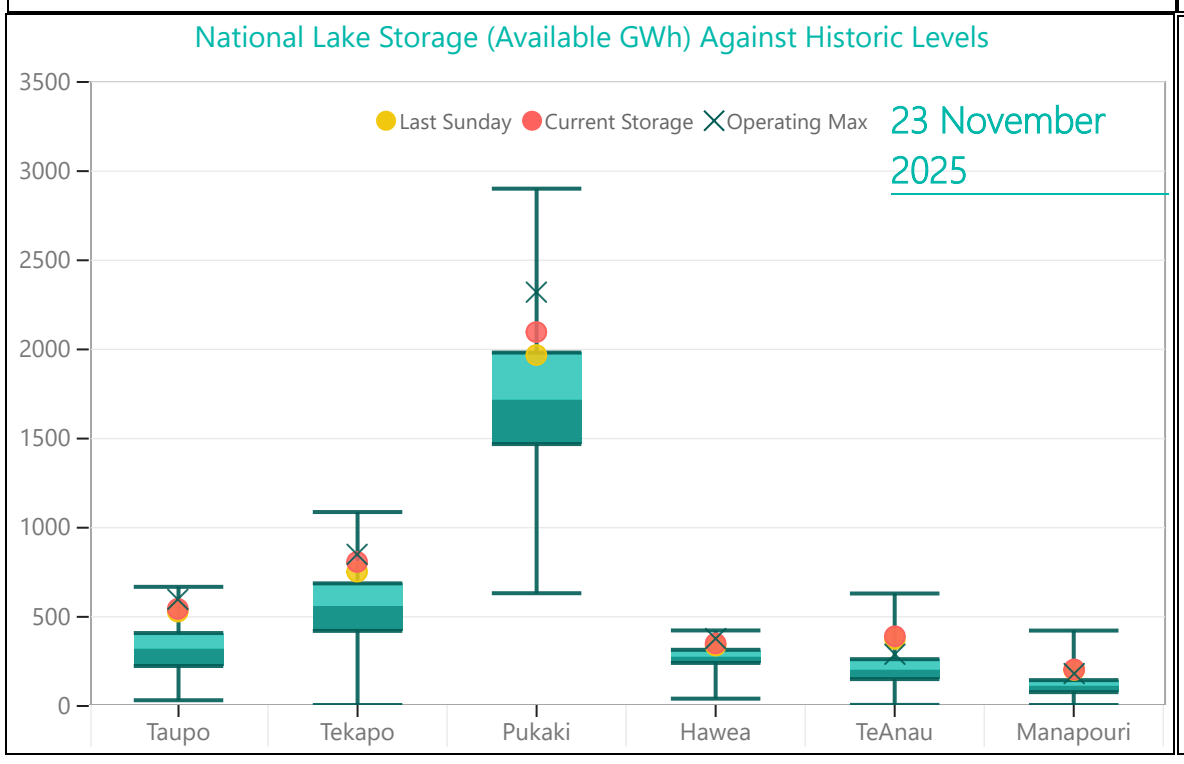
Hydro Storage

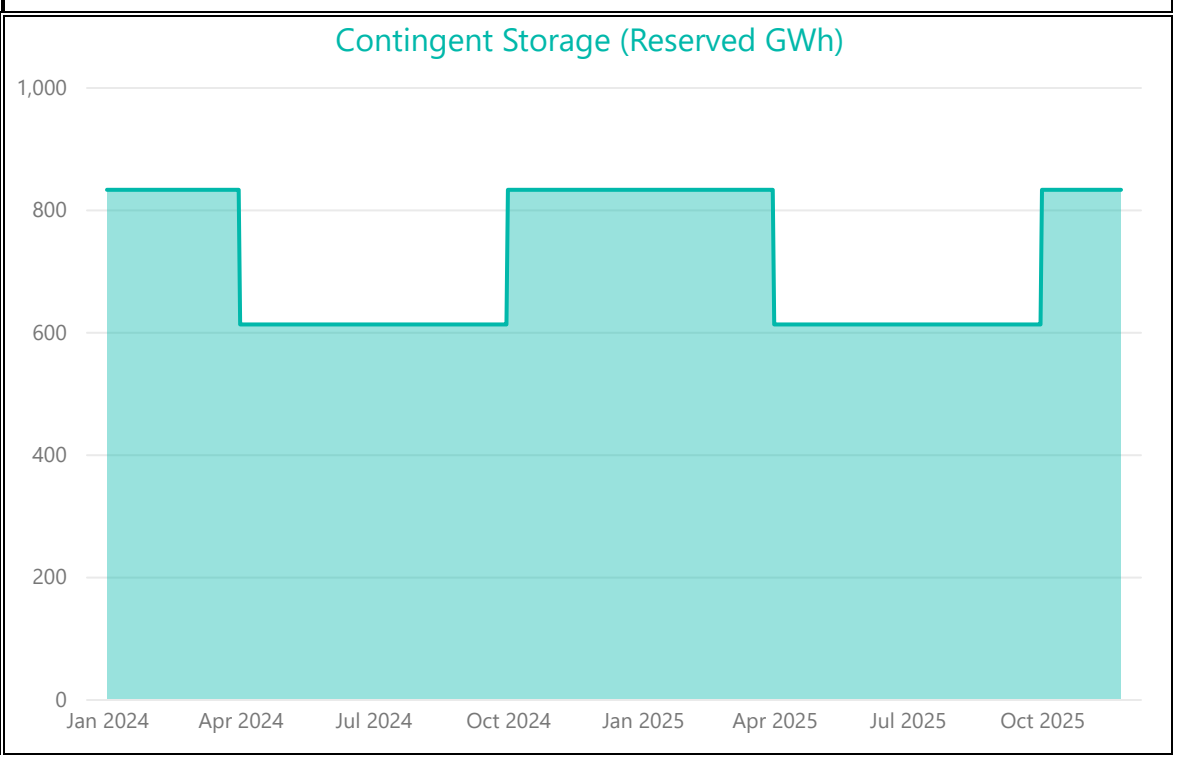












For further information on security of supply and Transpower's responsibilities as the System Operator, refer to our webpage here: https://www.transpower.co.nz/system-operator/security-supply

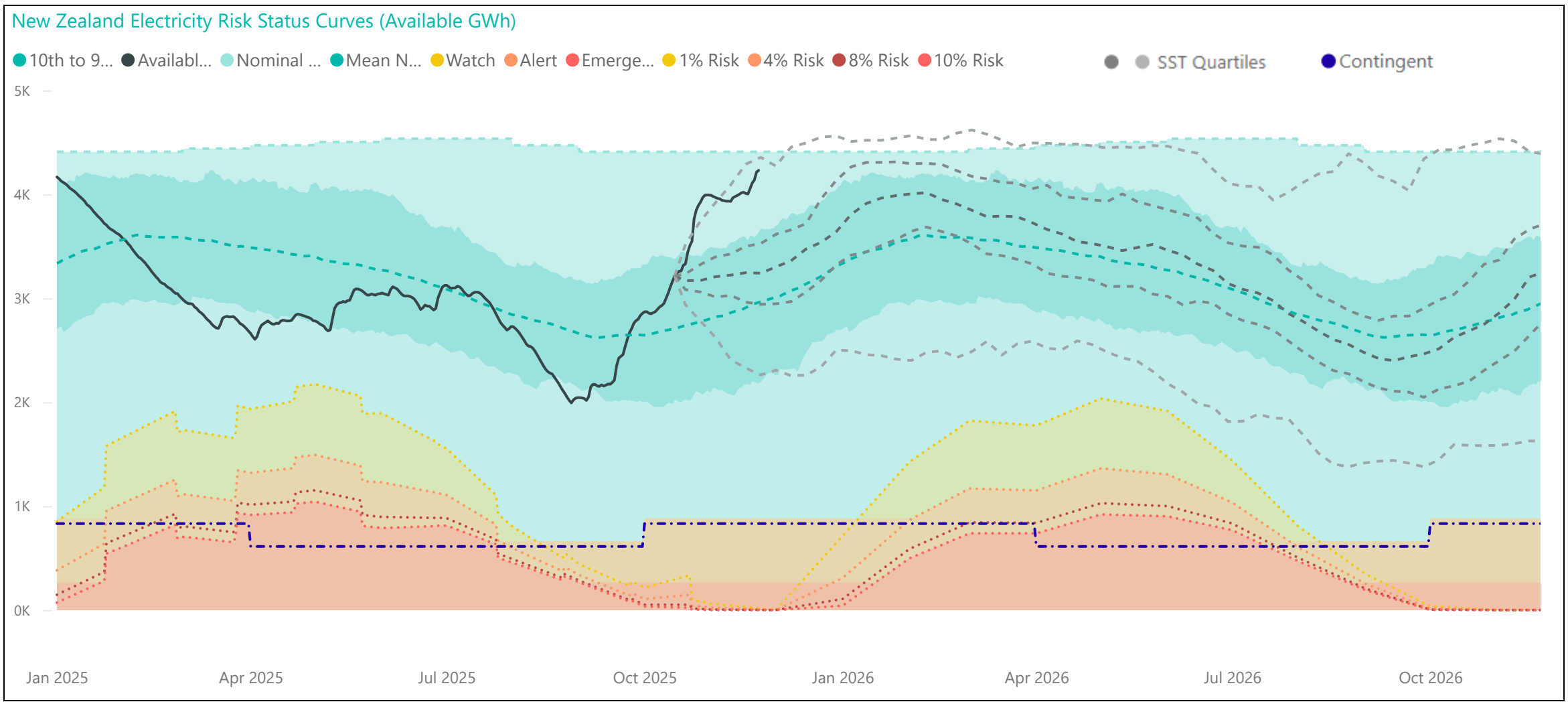
For any inquiries related to security of supply contact market.operations@transpower.co.nz

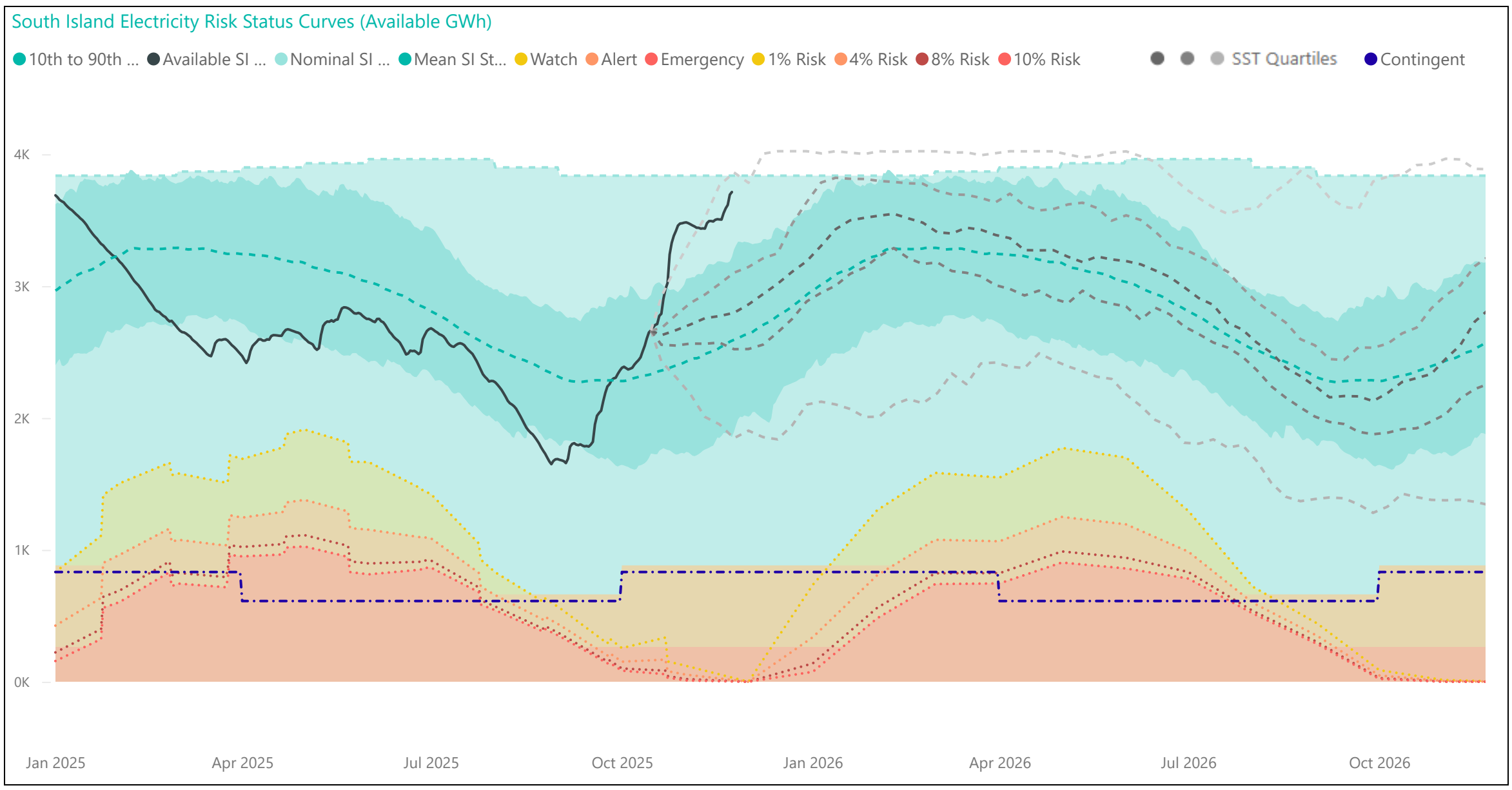
Hydro data used in this report is sourced from *NZX Hydro*.

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).