Market Operations Weekly Report - Week Ended 28 September 2025

Overview

New Zealand hydro storage increased to 107% of the mean for this time of year. High wind generation, decreasing demand and increasing hydro storage resulted in very healthy residuals last week.

This week's insight looks at the regional conforming load sensitivities to temperature variance in the summer and winter periods.

Security of Supply

Energy

National hydro storage improved to 107% of the historic mean for this time of year. South Island hydro storage increased from 93% to 102% of the historic mean while North Island storage increased from 114% to 137%.

Capacity

Capacity margins were healthy last week with residual over all peaks exceeding 1000 MW. This was a result of high wind generation, decreasing demand and an improving hydro storage.

The N-1-G margins in the NZGB forecast are healthy through to the end of 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 continued to decline as warmer spring temperatures arrive, with load dropping from 787 GWh to 773 GWh last week. The highest demand peak occurred at 6:30pm on Thursday 25 September, at 5,700 MW.

Weekly Prices

The average wholesale electricity spot price at Ōtāhuhu last week decreased to $35/MWh from $103/MWh the week prior, in line with increased hydro generation, high wind generation and decreasing demand. Wholesale prices peaked at $214/MWh at Ōtāhuhu at 9:00pm on Wednesday 24 September.

Generation Mix

Renewable generation contributed 94% of the generation mix last week. Hydro generation contributed 56%, 1% higher than the previous week. Wind generation remained high at 13% of the mix. Thermal generation decreased from 8% to 5%. The geothermal share remained close to average at 24% of the mix.

HVDC

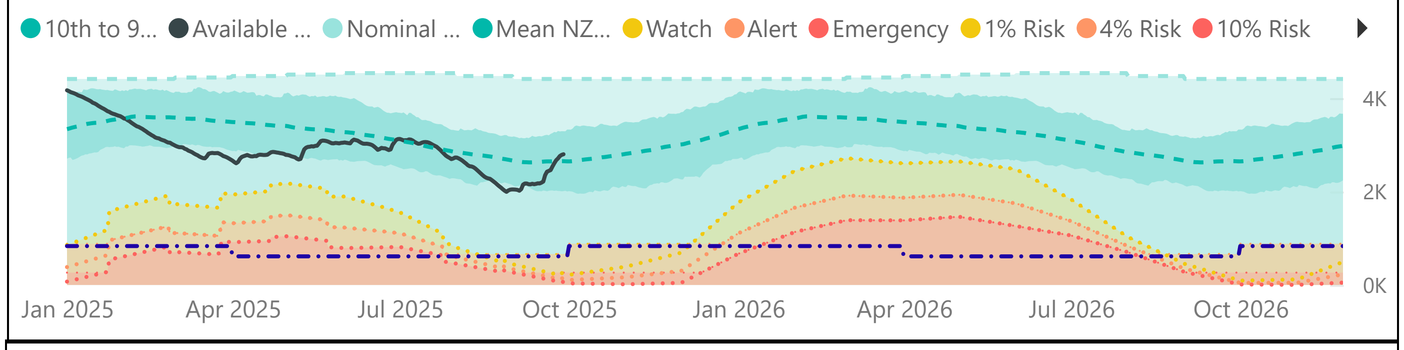
HVDC flow last week was predominantly northward with the increase in hydro generation and there was some southward transfer overnight during periods of high wind generation. In total, 31 GWh was sent north and 4 GWh was sent south.

New Zealand Energy Risk

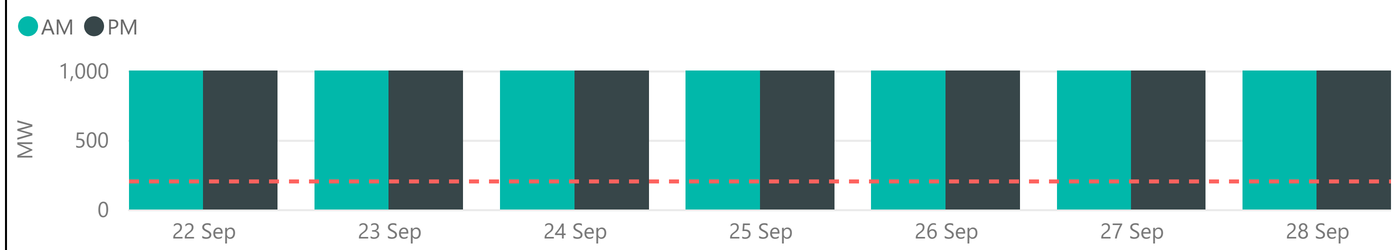
South Island Energy Risk

Normal Watch Alert Emergency

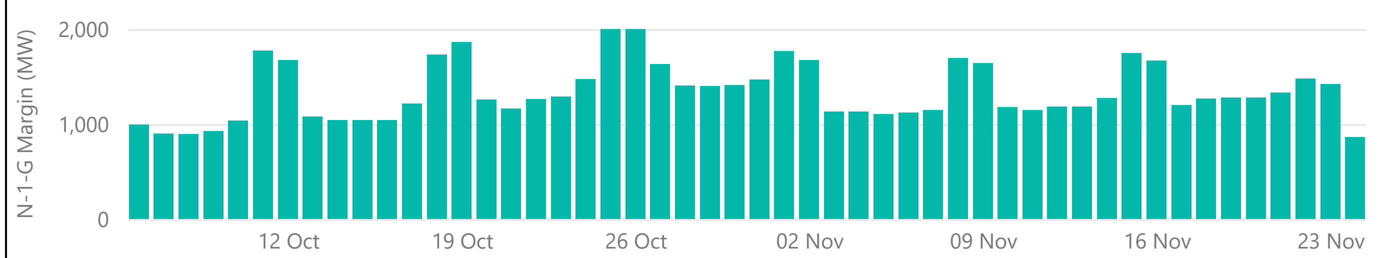
New Zealand Electricity Risk Status Curves (Available GWh)



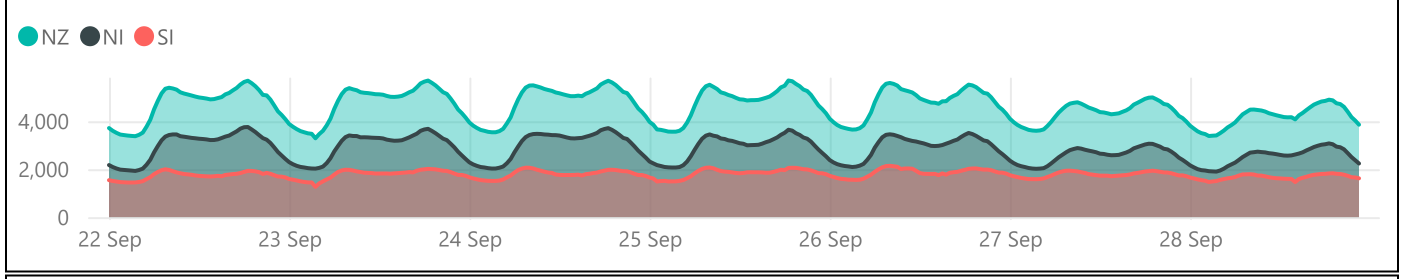
Lowest Residual Points - MW



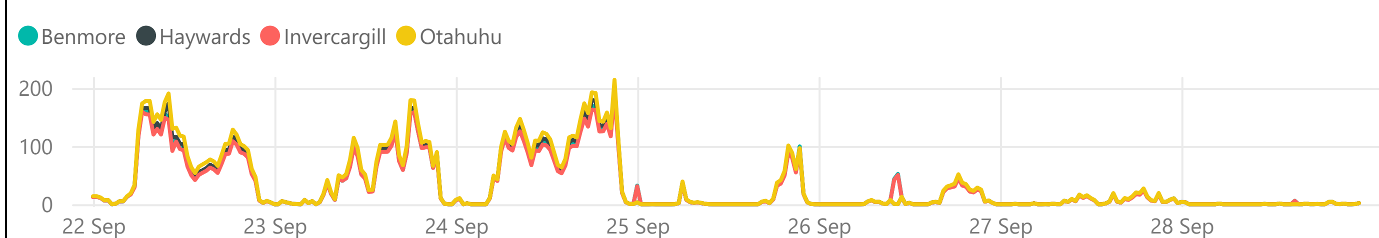
NZGB Look-Ahead (excluding next 7 days)



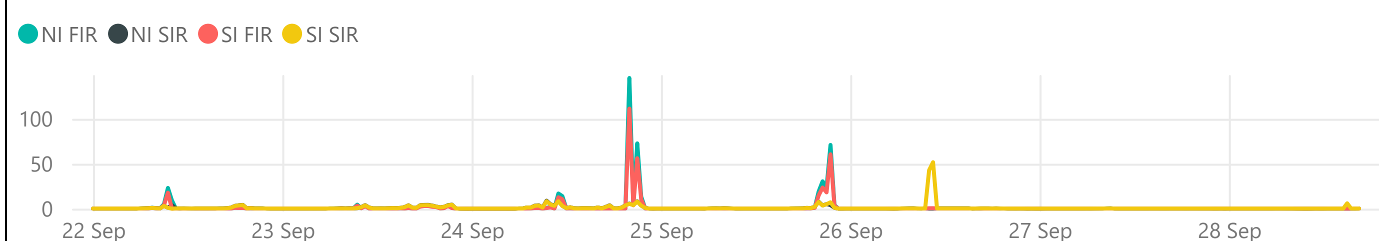
National Demand by Trading period - MW



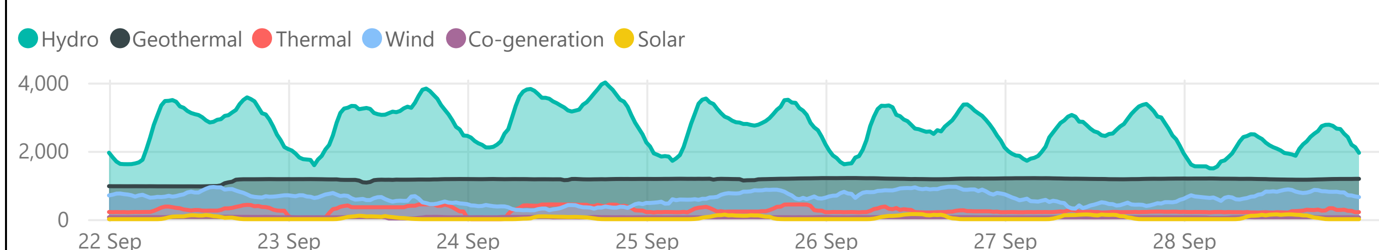
Energy Prices - $/MWh



Reserve Prices - $/MW



Generation - MW



Net HVDC Transfer - MW (Northward positive)

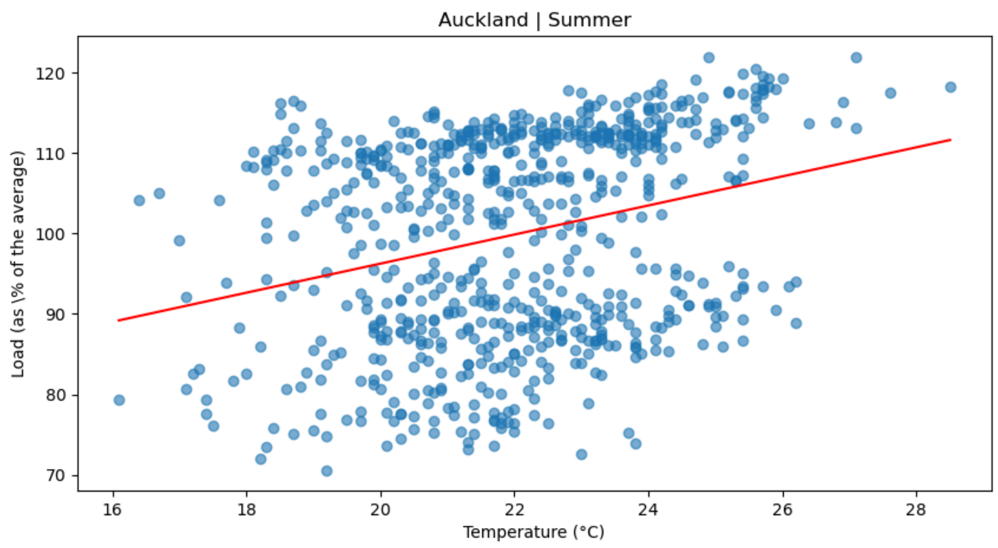
Weekly Insight - Regional conforming load sensitivities to temperature variance

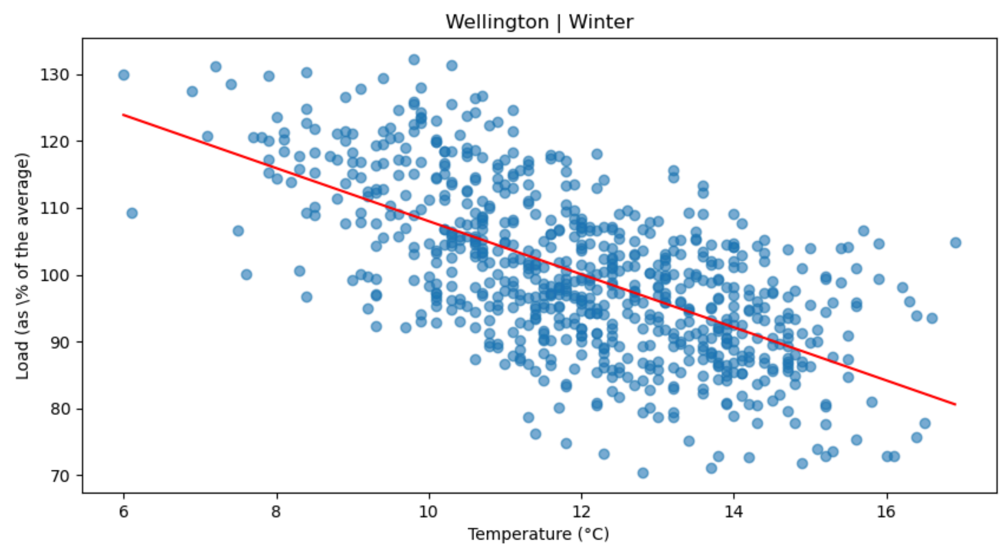
During the winter, temperature decreases can have significant effects on the national grid due to the increasing heating load. A notable example of this was the week of 21 July when New Zealand experienced a country-wide cold snap that resulted in a peak demand of 7,015 MW - among the top demand periods of all time in New Zealand. However, how does the demand change regionally? And by how much? This week's insight looks at the demand variance after a 1 degree drop at each region as a percent of their average during that season.

Summer and winter load profiles differ significantly in Aotearoa New Zealand. The daily load profile during summer is flatter and features less pronounced peaks compared to the winter load profile. This flat profile is mostly due to air conditioners running more frequently throughout the day, less requirements for lighting during the evenings, and warmer temperatures during the morning and evening. In contrast, winter peaks are far more pronounced during the morning and evening with demand dropping off during the middle of the day.

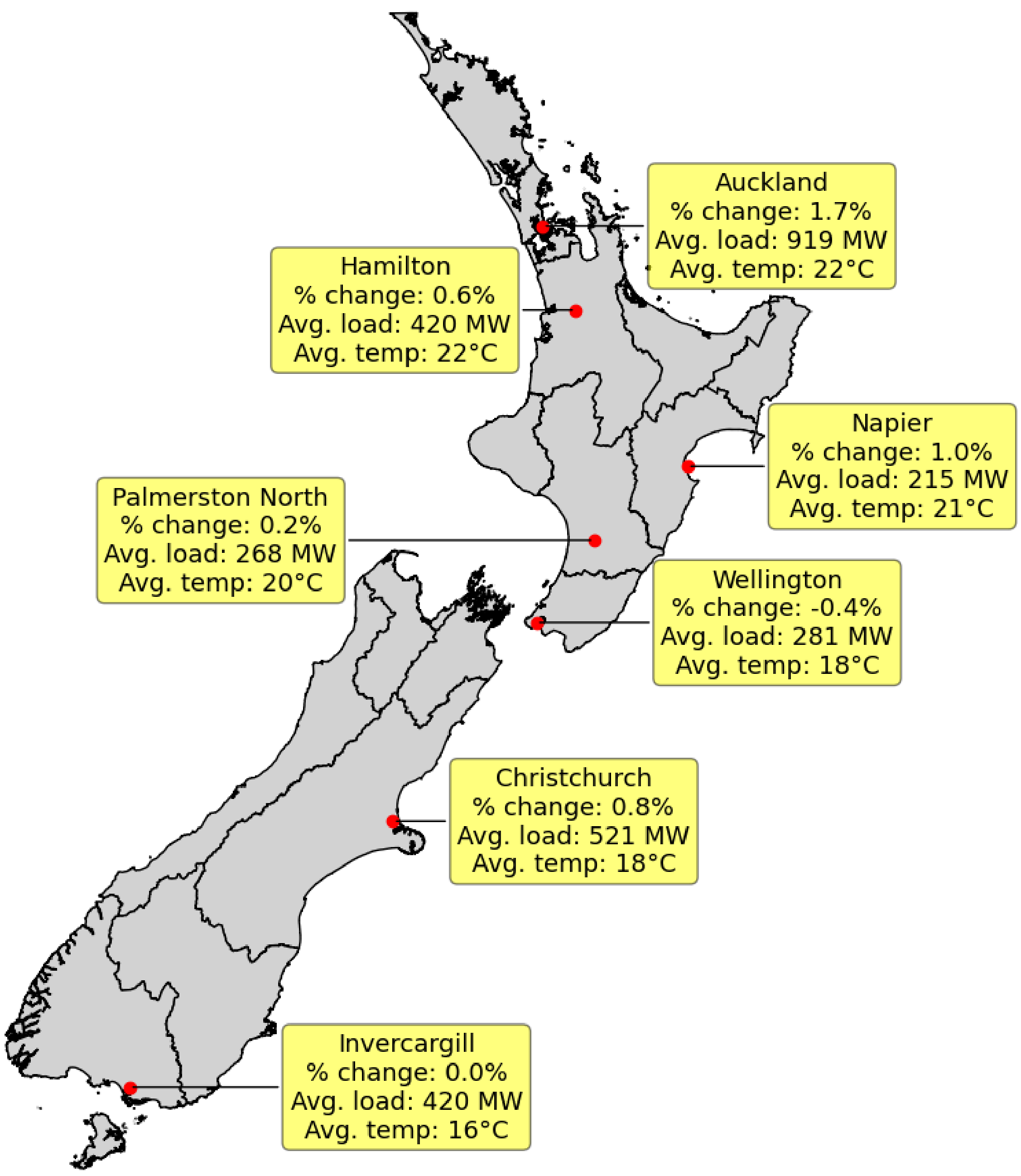
The effects of a flatter profile during the summer months means that many regions have less of a demand increase as temperatures rise in summer due to the already operating air conditioners. However, as we travel further north into regions such as Hamilton and Auckland, warmer climate regions tend to feel the effect of a 1 degree increase compared to the more moderate climate regions in the central and southern regions of New Zealand.

In winter, all regions see an increase in demand when temperatures drop 1 degree lower. Most notably, the Wellington region has the highest demand increase out of all that have been analysed. As we travel further south, the colder climate regions also tend to respond more to the effects of a 1 degree decrease compared to the rest of New Zealand.

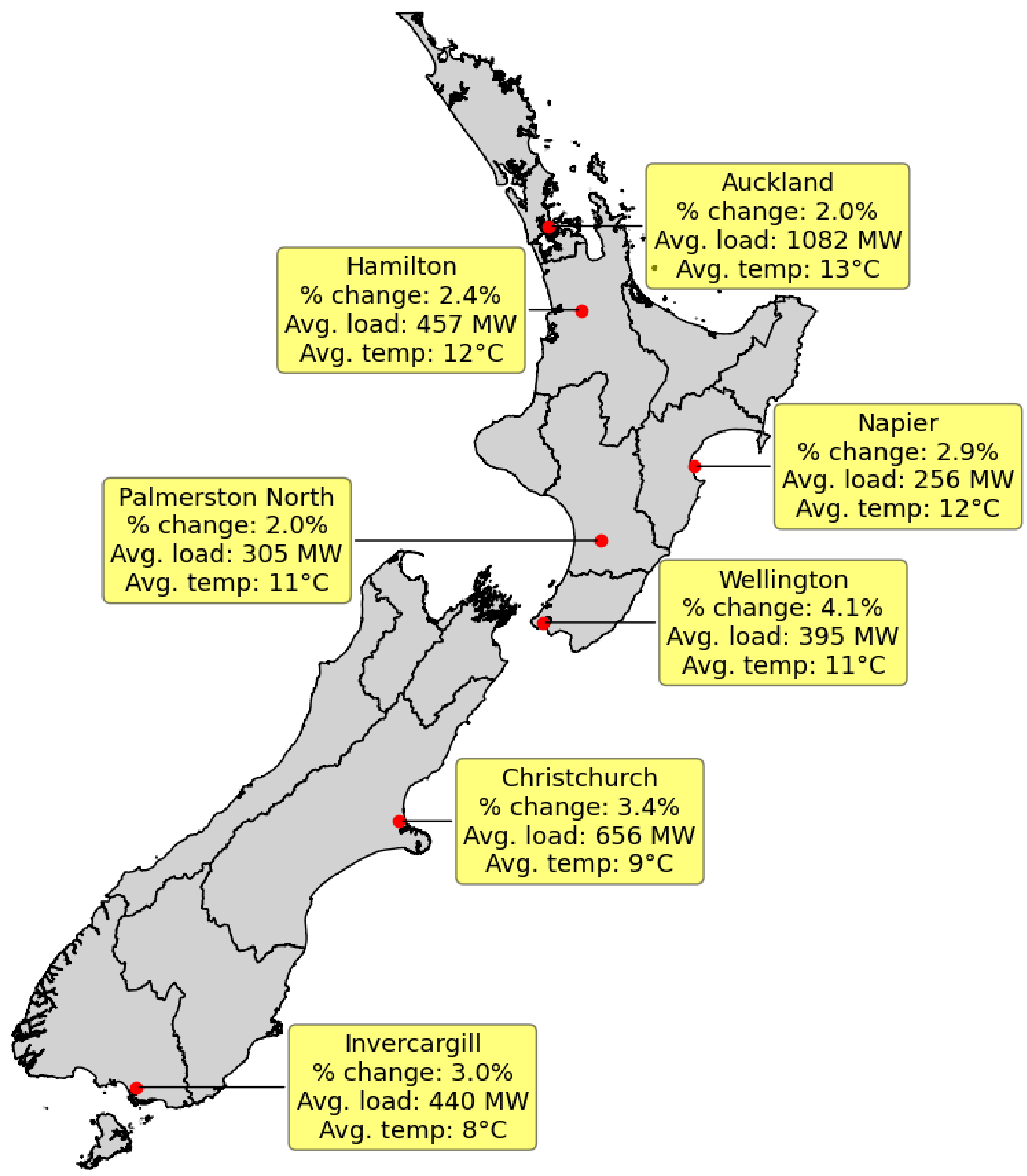




Regional Summer load (+1°C increase)



Regional Winter load (-1°C decrease)

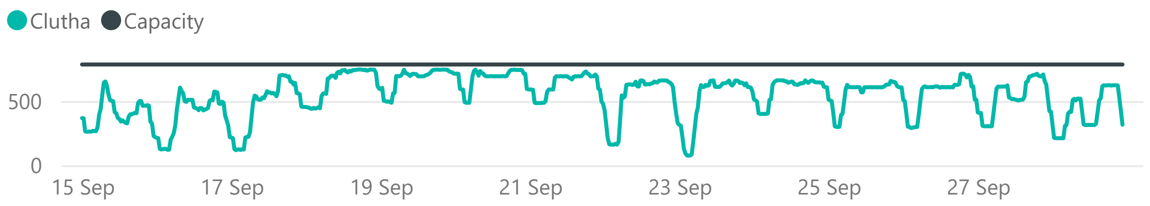


Each percentage change is calculated by fitting a linear model to the temperature (x) and the load as a percent of it's average (y). A 1 degree change is then calculated by y = m(avg. temp +- 1) + c, after m and c are fitted by the linear model. Each m and c are unique to the season, region and time of day.

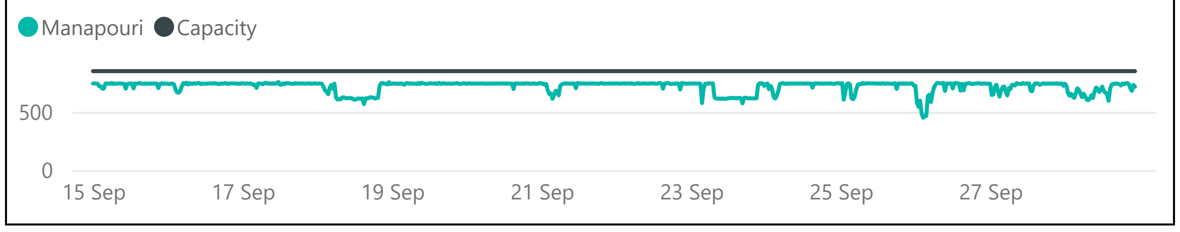
Generation Breakdown - Last Two Weeks

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

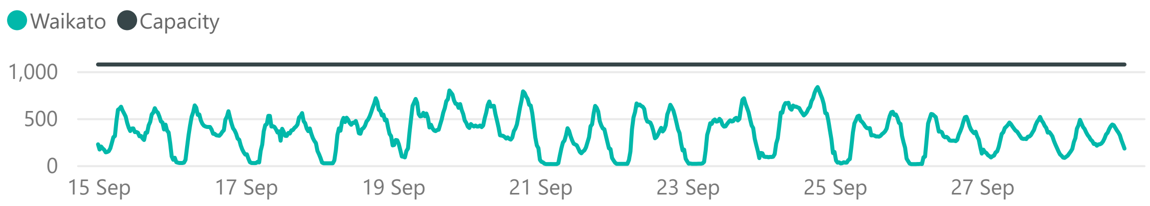
Clutha



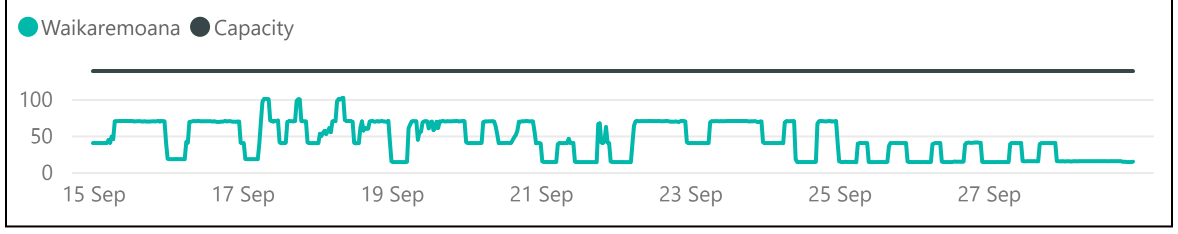
Manapouri



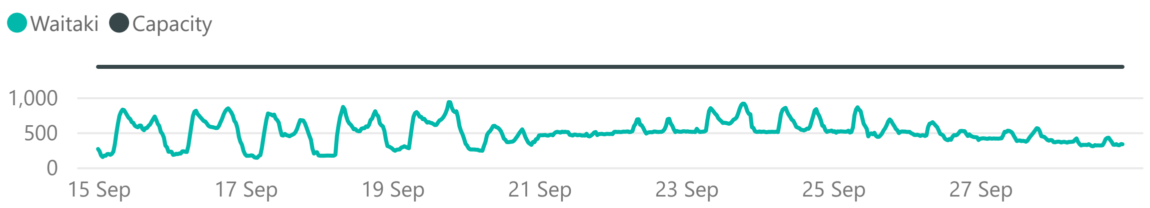
Waikato



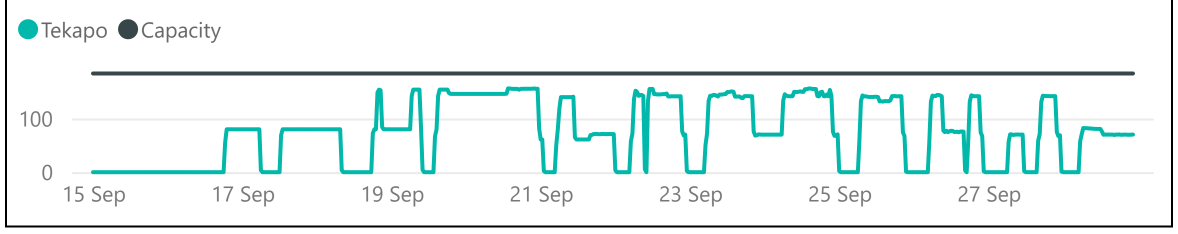
Waikaremoana



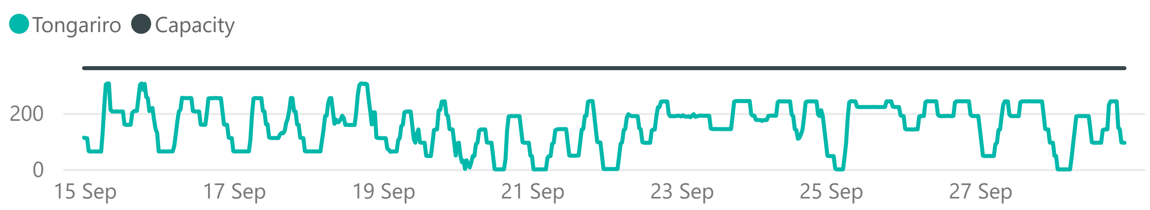
Waitaki



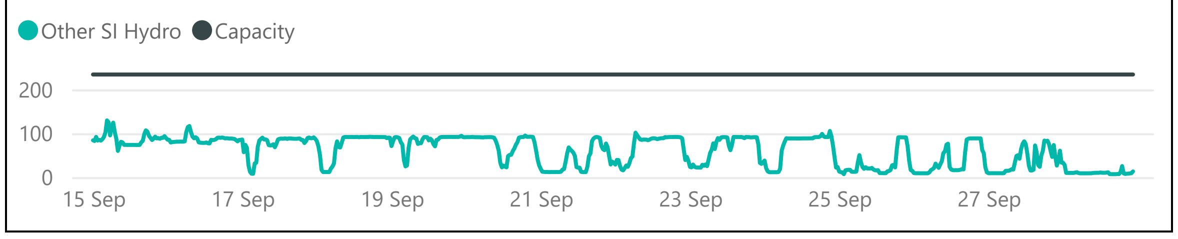
Tekapo



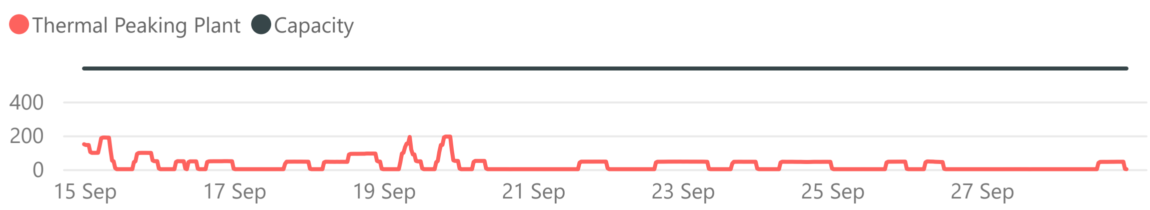
Tongariro



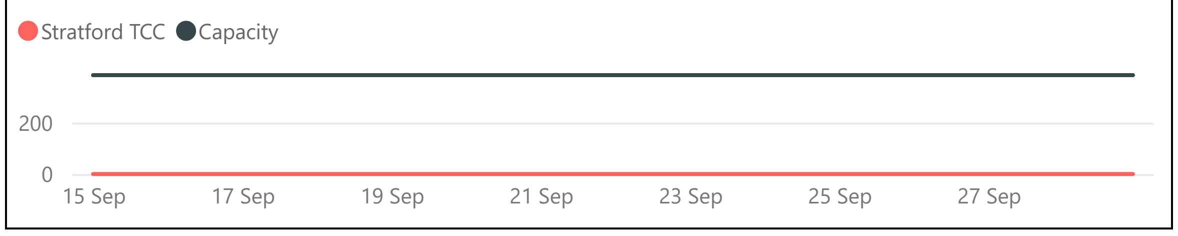
Other SI Hydro



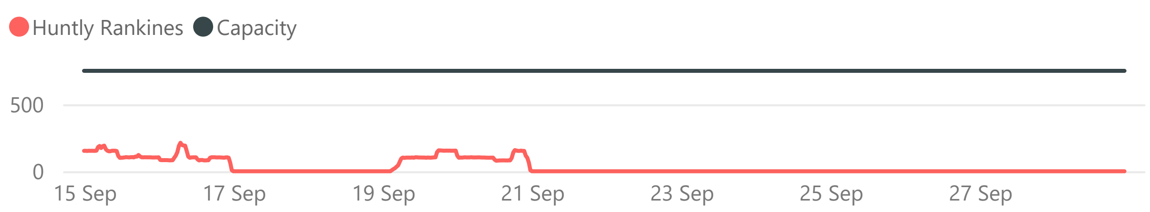
Thermal Peaking Plant



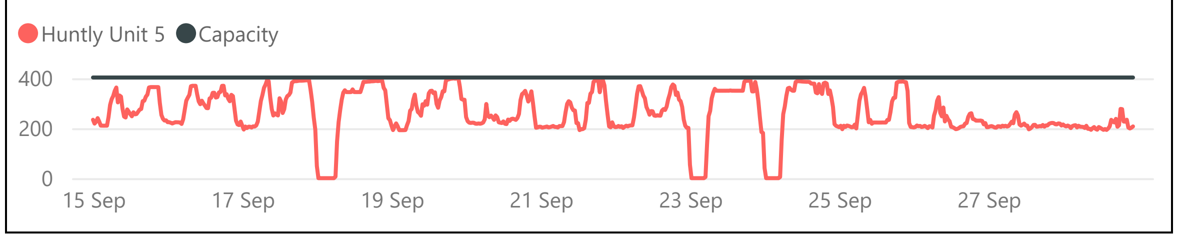
Stratford TCC



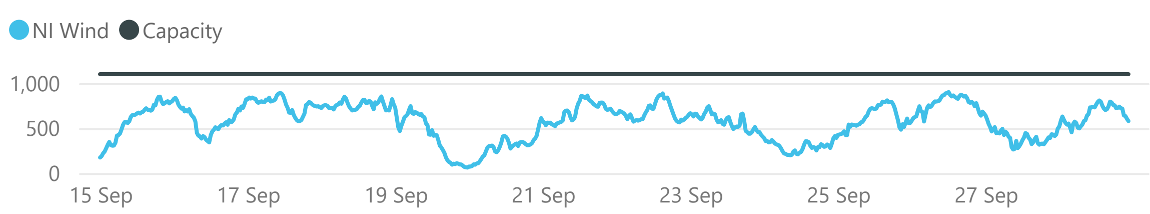
Huntly Rankines



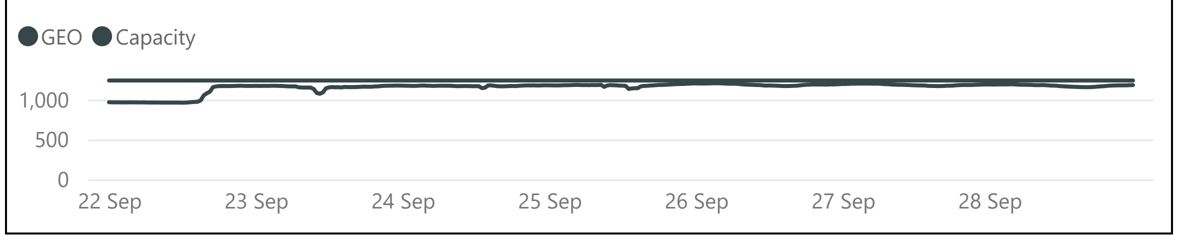
Huntly U5



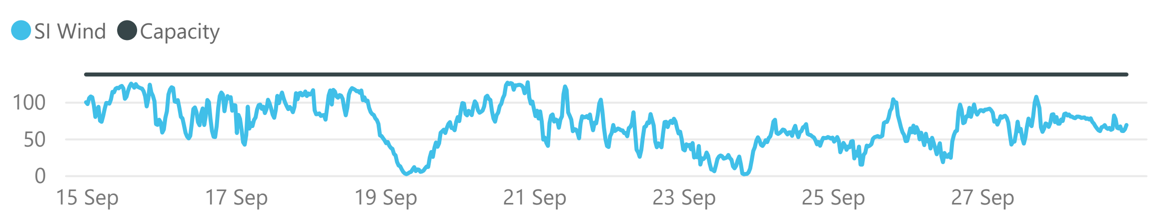
North Island Wind



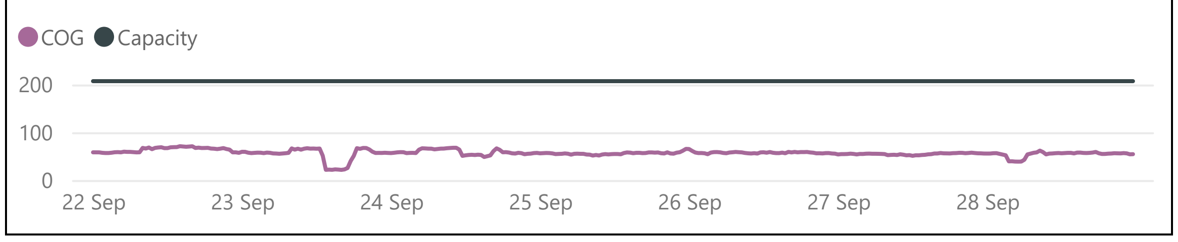
Geothermal



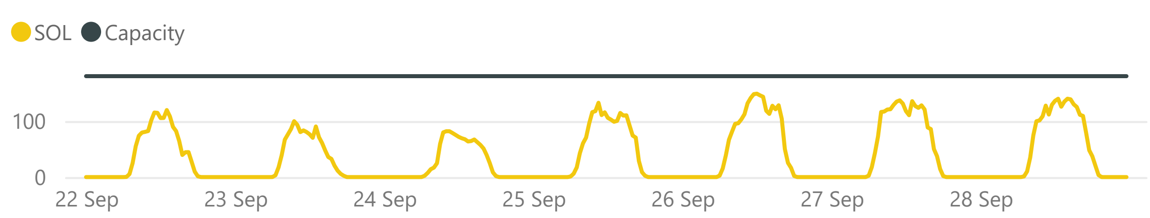
South Island Wind



Co-Generation

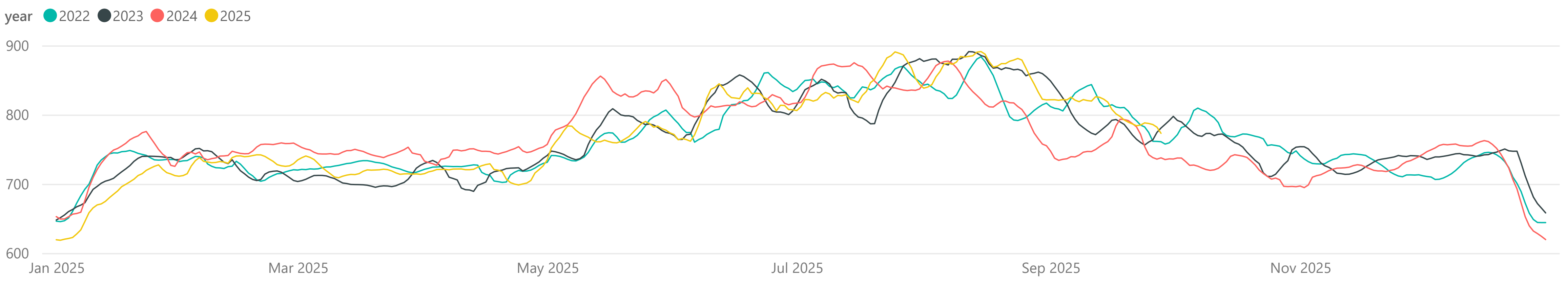


Solar

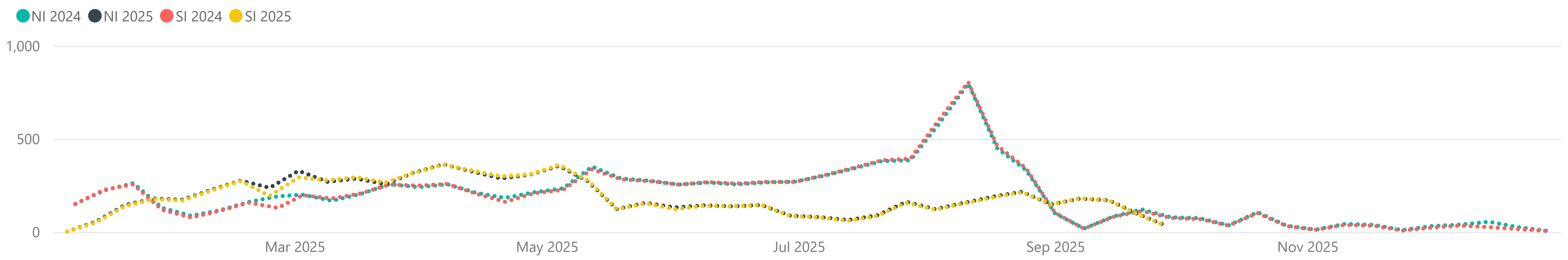


Weekly Profiles

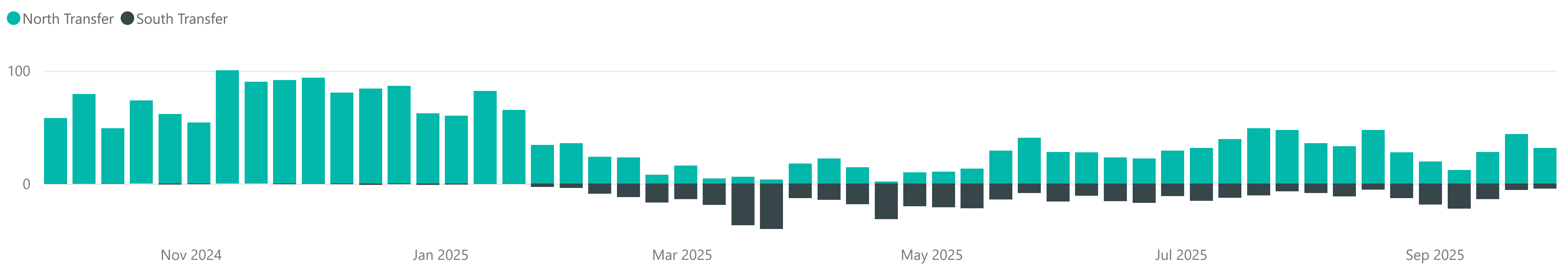
National Weekly Demand - GWh - 7 Day Rolling



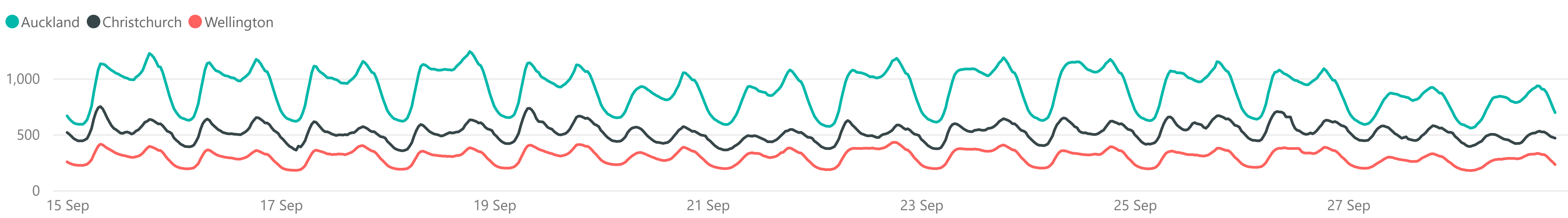
Weekly Spot Price - $/MWh



HVDC Transfer - Weekly GWh

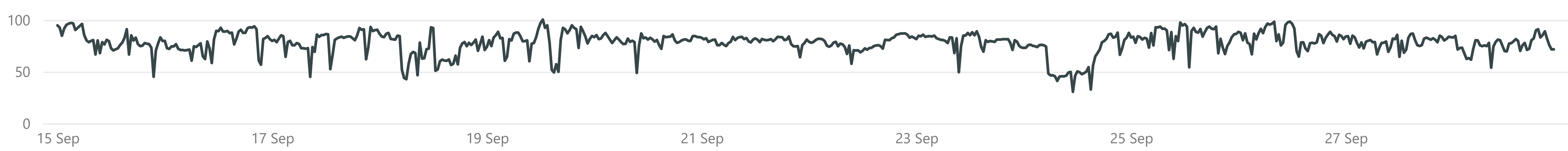


Conforming Load Profiles - Last Two Weeks *Measured in MW shown by region*

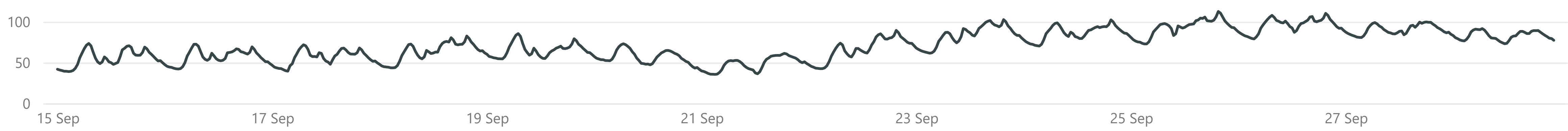


Non-Conforming Load Profiles - Last Two Weeks *Measured in MW shown by GXP*

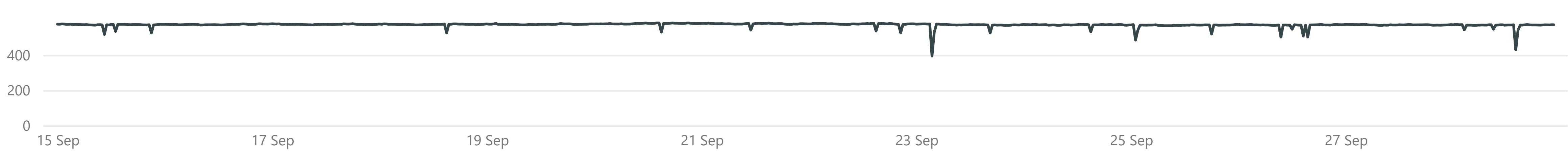
GLN0331



ASB0661

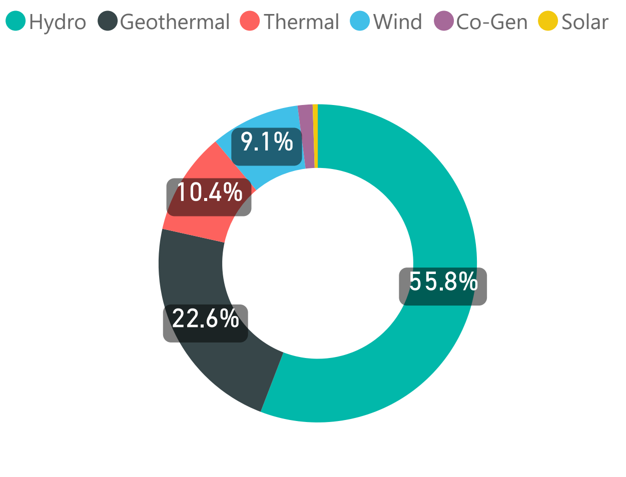


TWI2201

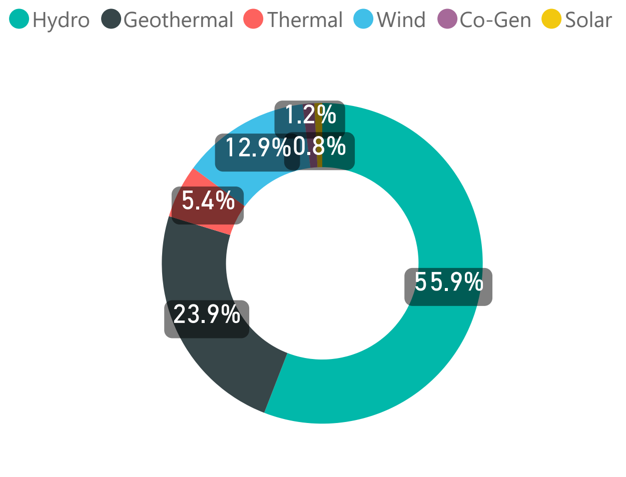


Generation Mix

Last 52 Weeks Generation Mix - Weekly GWh



Last 7 Days Generation Mix - Weekly GWh



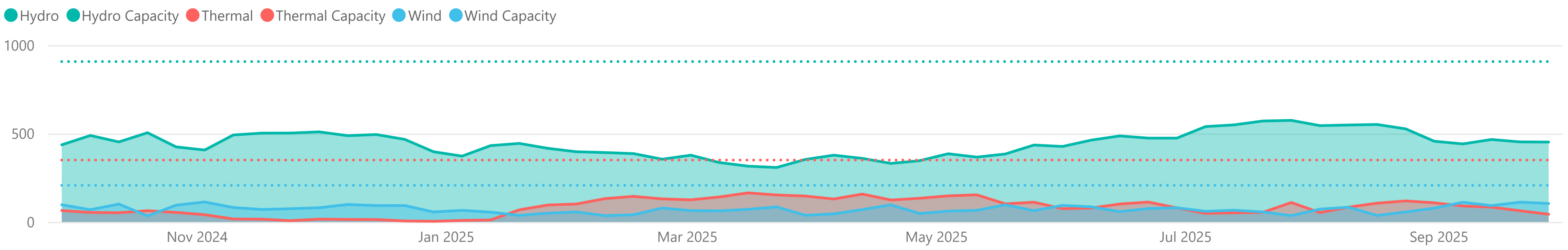
Average Metrics Last 7 Days

Renewable Percentage	CO2e Tonnes/Week	CO2e g/kWh
94%	37,326	46.1

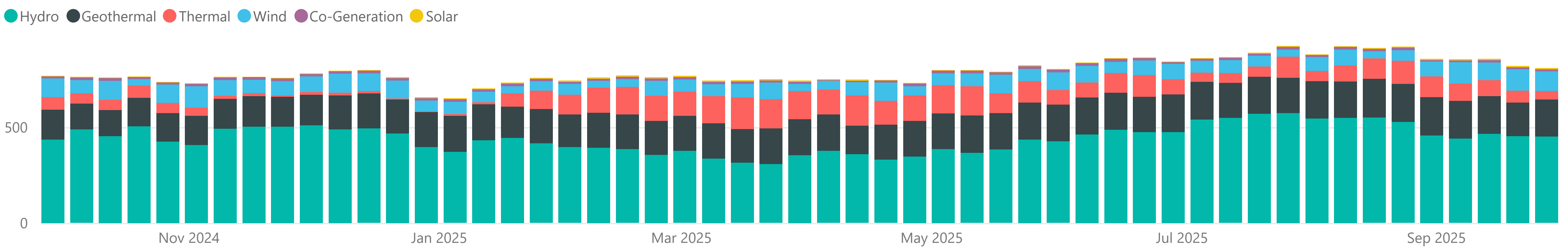
Average Metrics Last 52 Weeks

Renewable Percentage	CO2e Tonnes/Week	CO2e g/kWh
88%	67,069	84.7

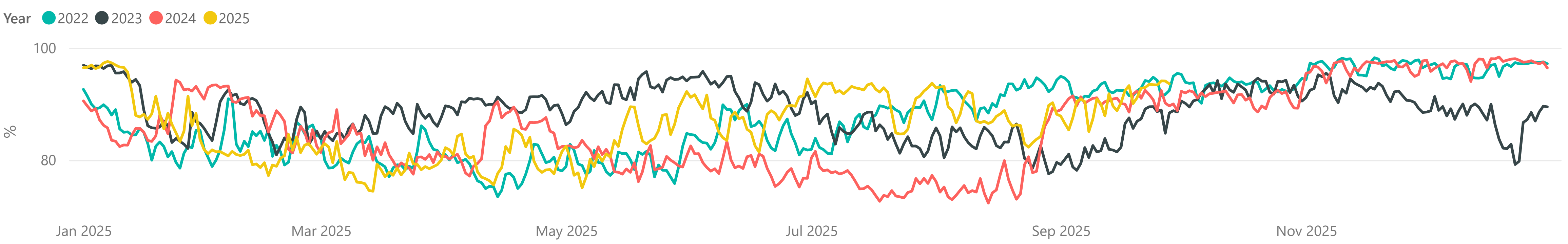
Weekly Generation Mix vs Capacity - GWh



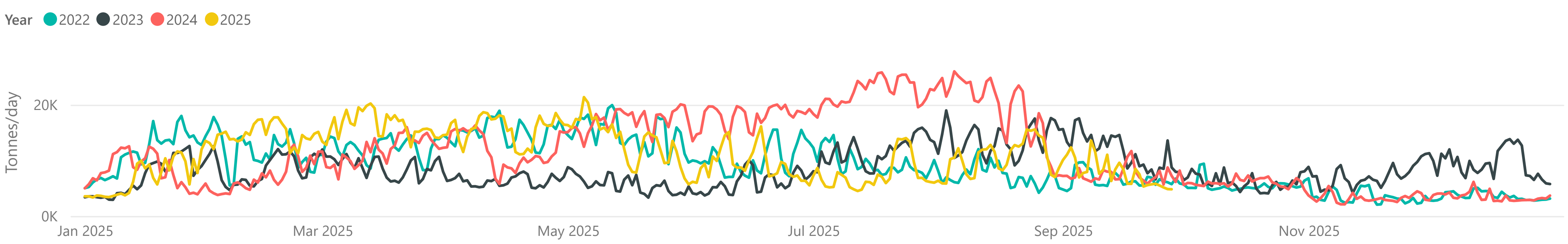
Weekly Generation Mix - GWh



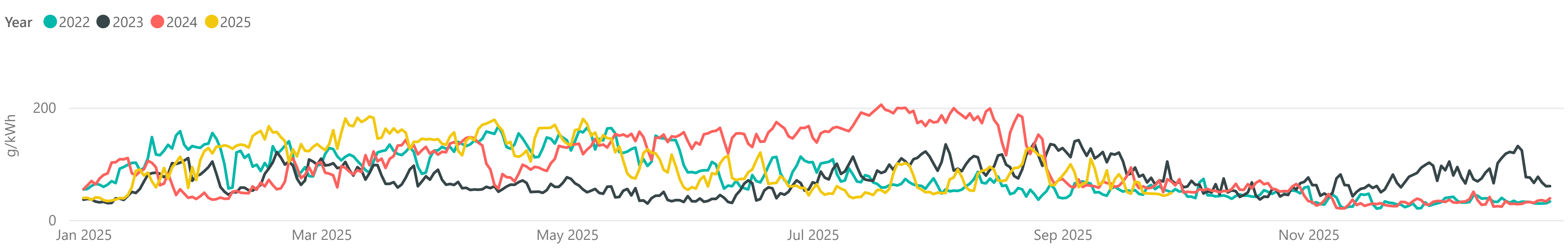
NZ Renewable Percentage



CO2 Tonnes/Day

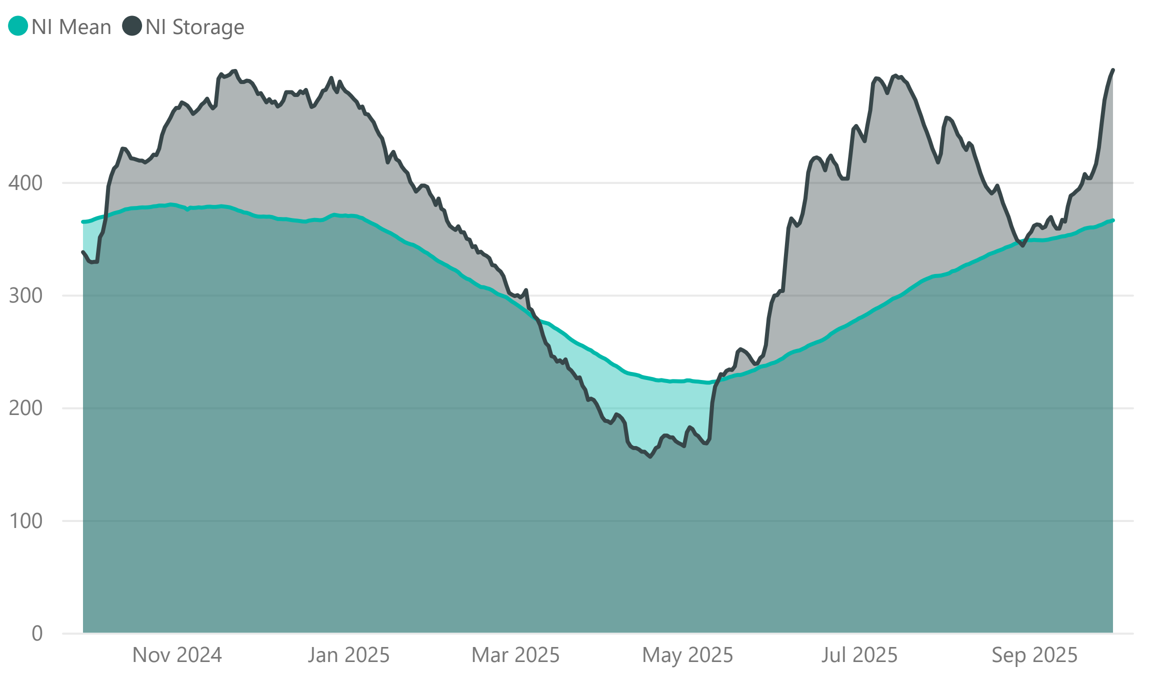


CO2 g/kWh



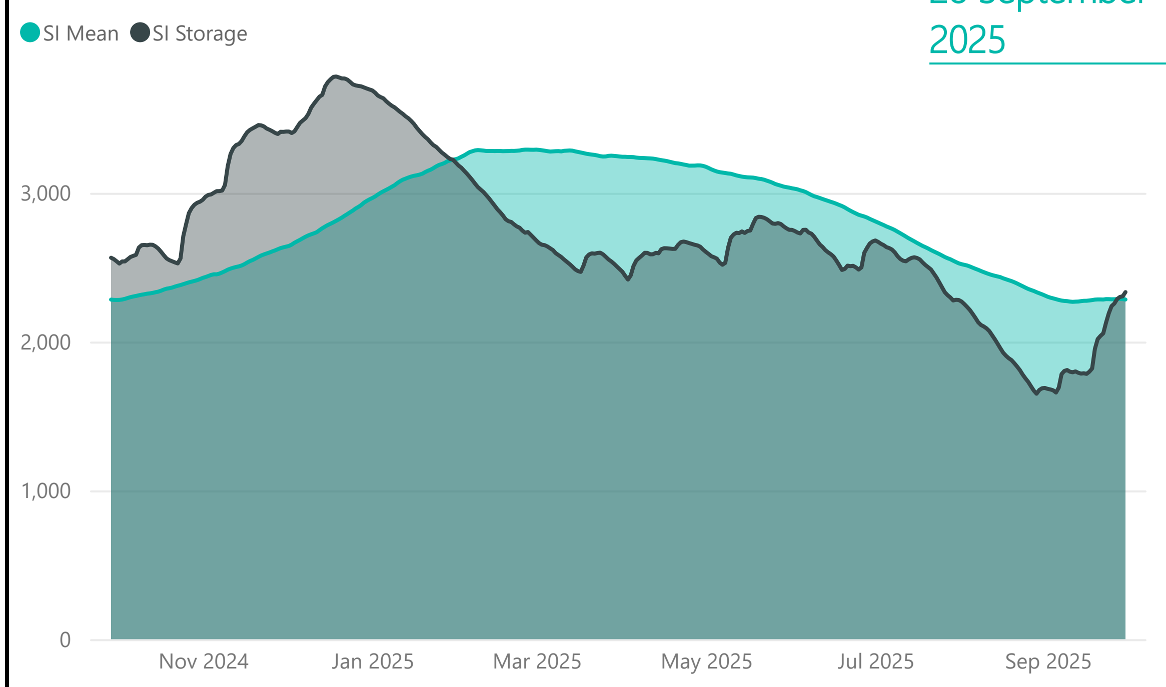
Hydro Storage

North Island Hydro Storage (Available GWh)

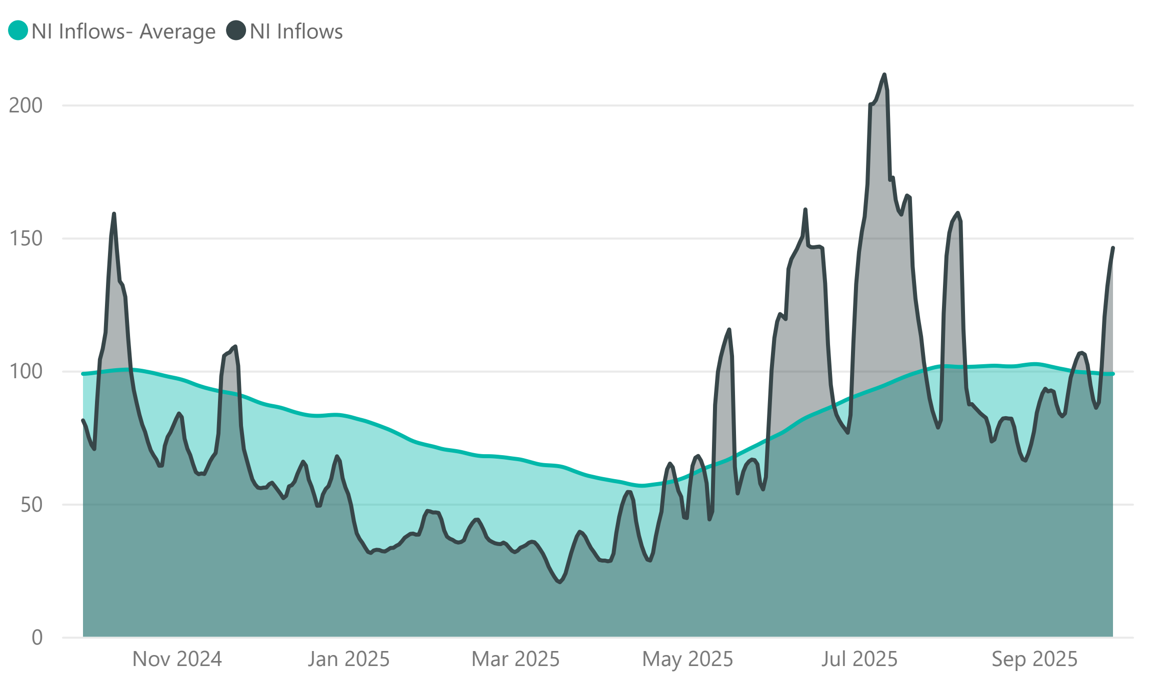


South Island Hydro Storage (Available GWh)

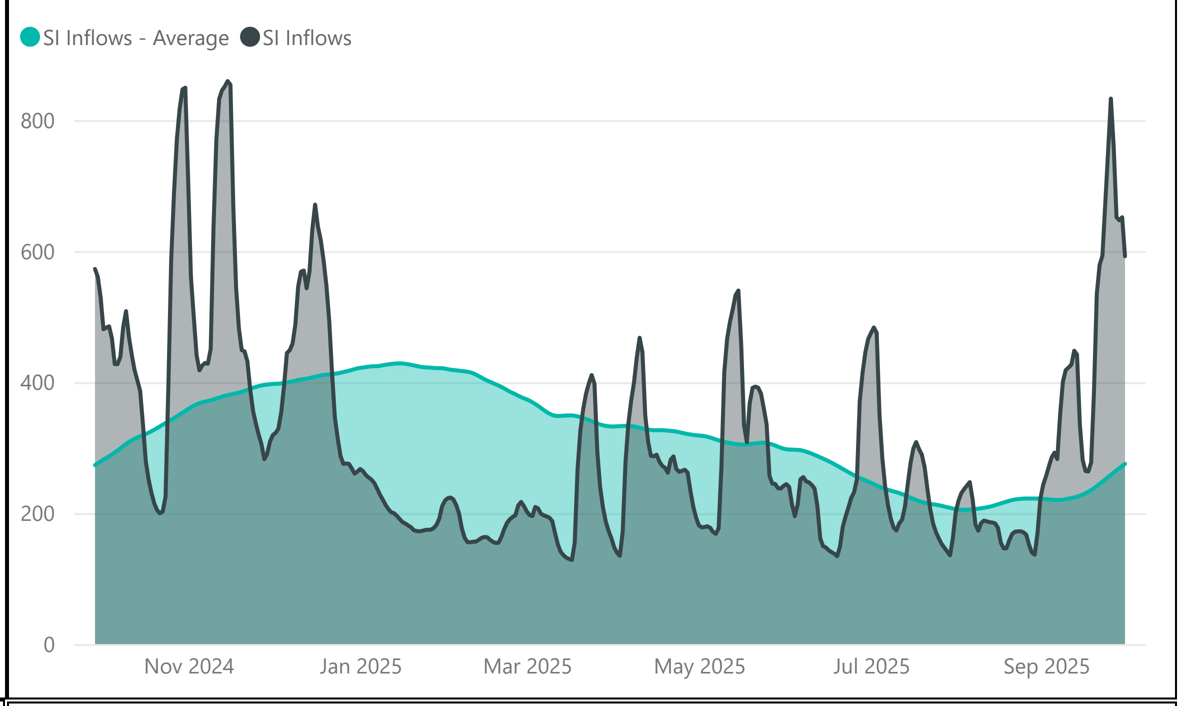
28 September 2025



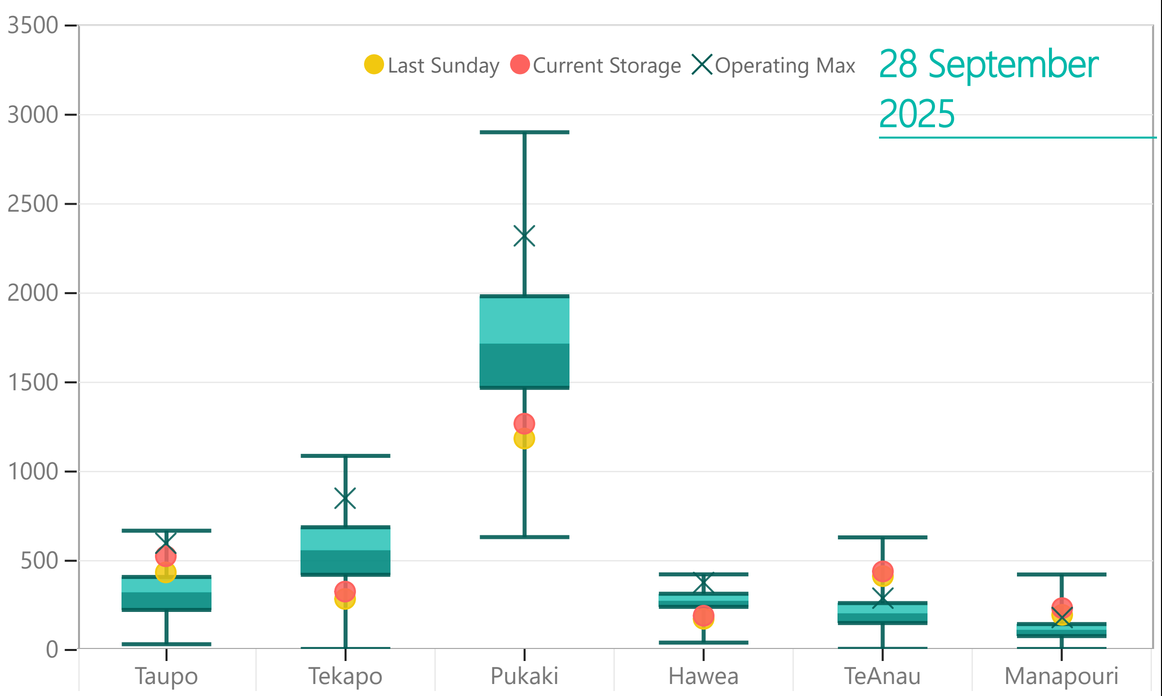
North Island Mean 7 Day Inflows (Available GWh)



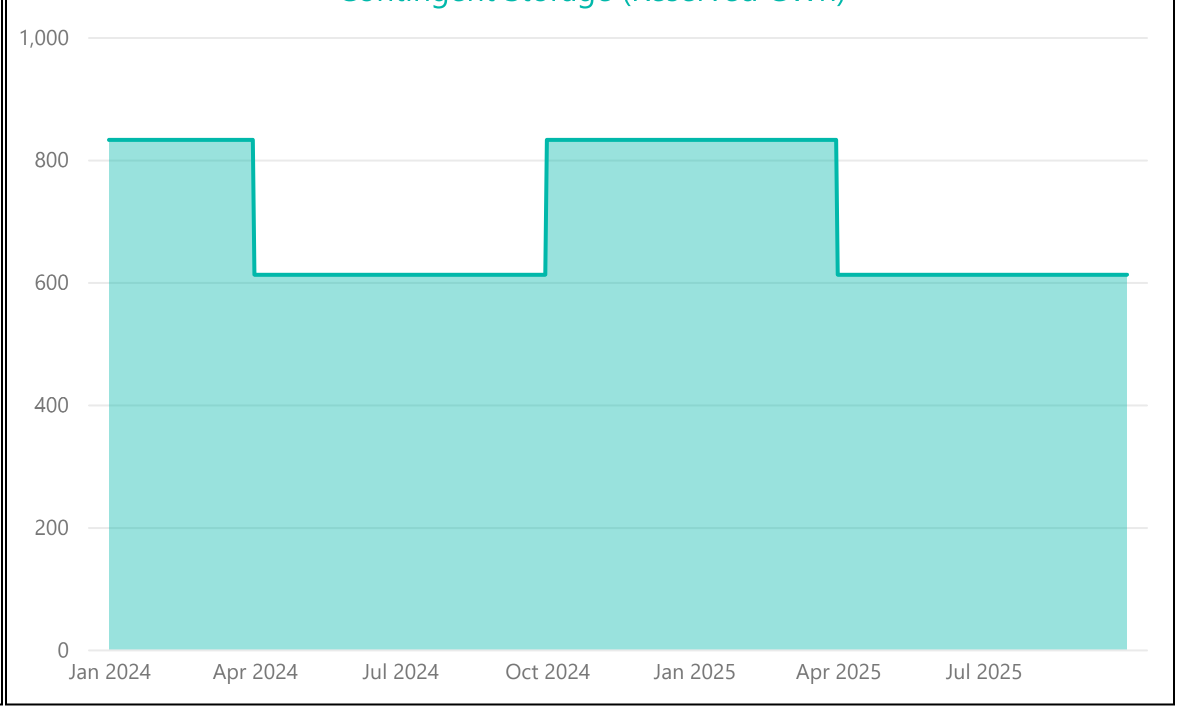
South Island Mean 7 Day Inflows (Available GWh)



National Lake Storage (Available GWh) Against Historic Levels



Contingent Storage (Reserved GWh)



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

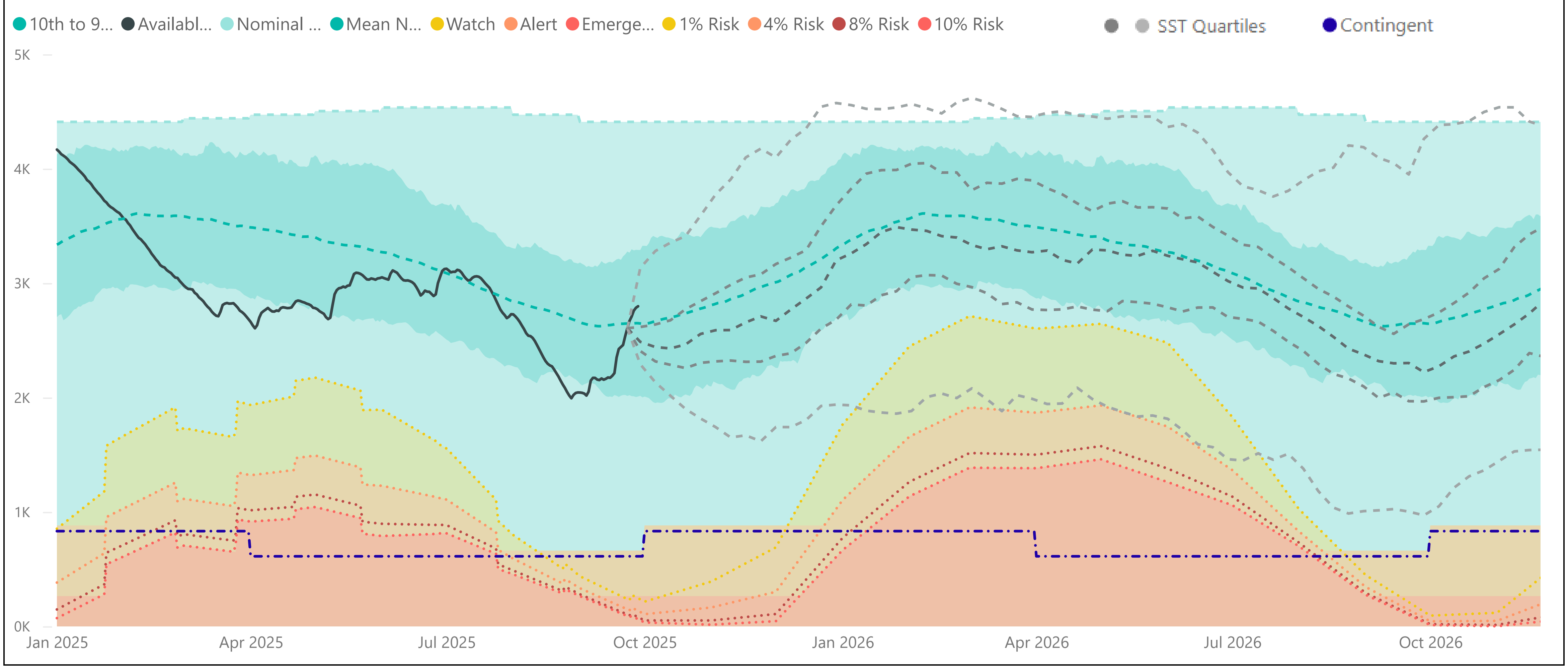
Hydro data used in this report is sourced from *NZX Hydro*.

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.

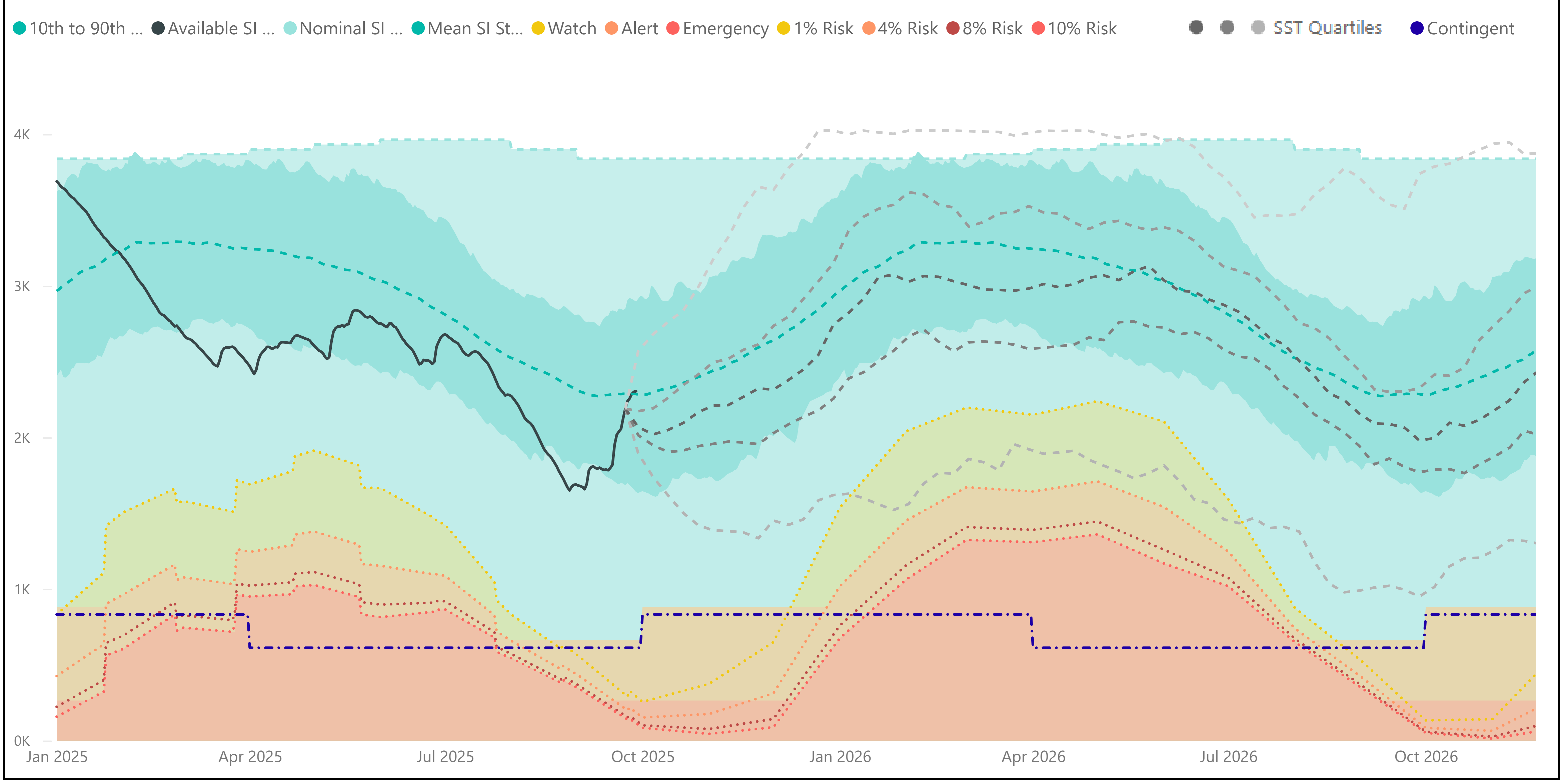
Further information on the methodology of modelling electricity risk curves may be found here: https://www.transpower.co.nz/system-operator/security-supply/hydro-risk-curves-explanation

Electricity Risk Curves

New Zealand Electricity Risk Status Curves (Available GWh)



South Island Electricity Risk Status Curves (Available GWh)



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).