Market Operations Weekly Report - Week Ended 19 April 2026

Overview

New Zealand hydro storage has increased from 104% to 108% of the historic mean for this time of year. This is largely driven by high North Island storage, which is currently at 206% of the historic mean.

This week's insight discusses a temporary change to the Scheduling, Pricing and Dispatch software (SPD) to resolve an issue that can result batteries being simultaneously instructed to charge and discharge.

Security of Supply

Energy

National hydro storage has increased to 108% of the seasonal mean at the end of last week. South Island hydro storage increased from 98% to 101% of the historic mean, despite lower than average inflows, as generators backed off. North Island storage increased from 196% to 206%.

Capacity

Residuals were healthy with high wind and geothermal generation at peaks. The lowest residual of 1259 MW occurred during the evening of Tuesday 14 April.

The N-1-G margins in the NZGB forecast are healthy through to mid June, but tighter spots are appearing that we recommend the industry watch closely. 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 increased from 719 GWh to 743 GWh for the week. The highest demand peak of 5,437 MW occurred at 6:00pm on Wednesday 15 April.

Weekly Prices

The average wholesale electricity spot price at Ōtāhuhu last week was $63/MWh, decreasing from $113/MWh the week prior. Wholesale prices peaked at $289/MWh at Invercargill at 11:30pm on Tuesday 14 April, with lower North Island transmission constraints limiting the ability of lower priced North Island hydro and thermal generation to flow southward.

Generation Mix

Wind generation increased from 10% to 14% of the mix. Hydro generation decreased to 51% of the mix, from 52% the week prior. Thermal generation decreased to 6% which is slightly below its yearly average of 7% of the mix. Geothermal increased from 26% to 27% of the mix with the highest recorded weekly geothermal contribution of 208 GWh. This was with the recent additions of new geothermal capacity at Ngā Tamariki and TOPP2 and a low quantity of outages with the pre-winter outage season finished.

HVDC

HVDC flow last week was mostly southward for the first time since September, with low South Island hydro generation. In total, 48 GWh was transferred south and 15 GWh was transferred north. Peak southward flow was 609 MW at 3:00 am on 13 April, the highest since May 2025.

Surveys and Engagement

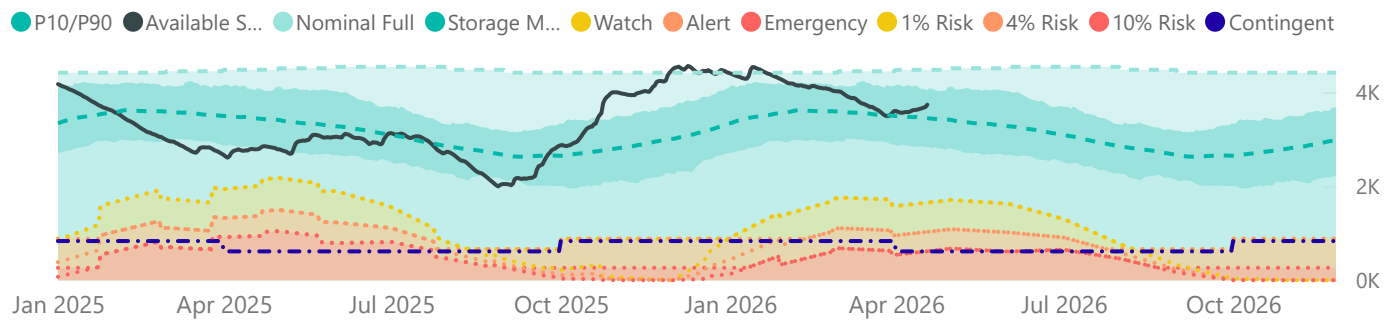
We have opened our Annual System Operator Participant Survey to provide an opportunity for participants to set out their expectations and help us understand how we are performing the System Operator service. If you have not received the survey but would like to have your say, you can complete it here. The survey closes 30 April 2026.

New Zealand Energy Risk

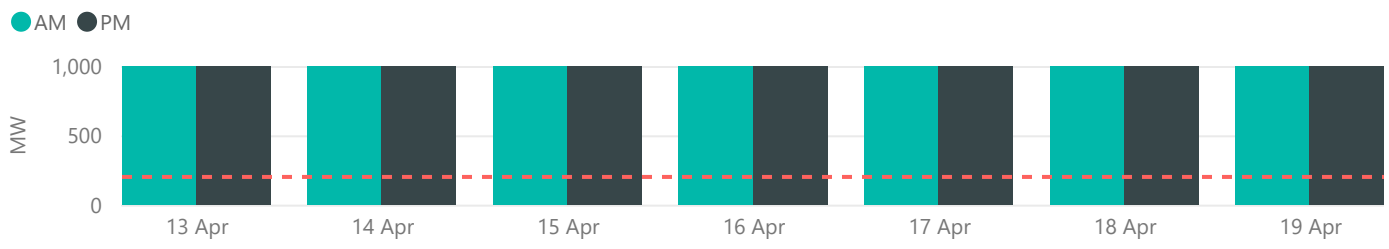
South Island Energy Risk

Normal Watch Alert Emergency

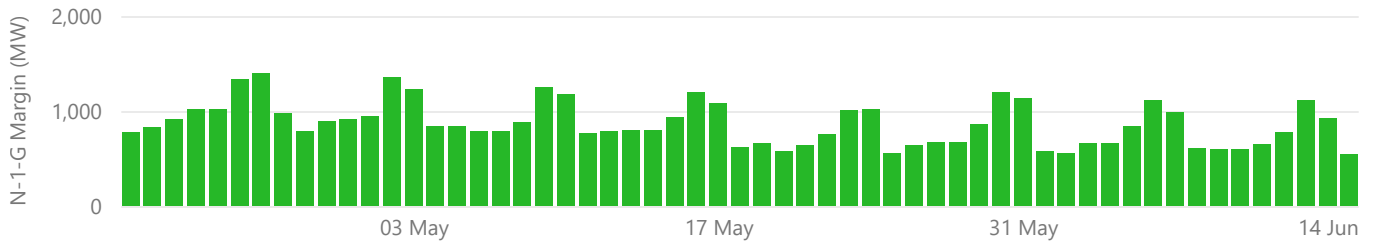
New Zealand Electricity Risk Status Curves (Available GWh)



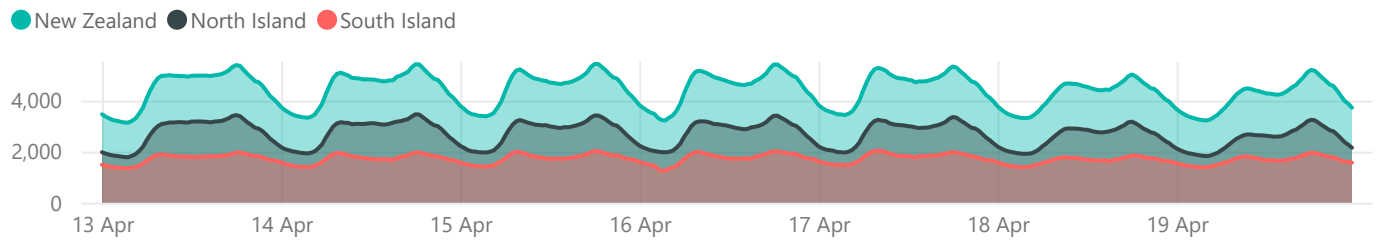
Lowest Residual Points - MW



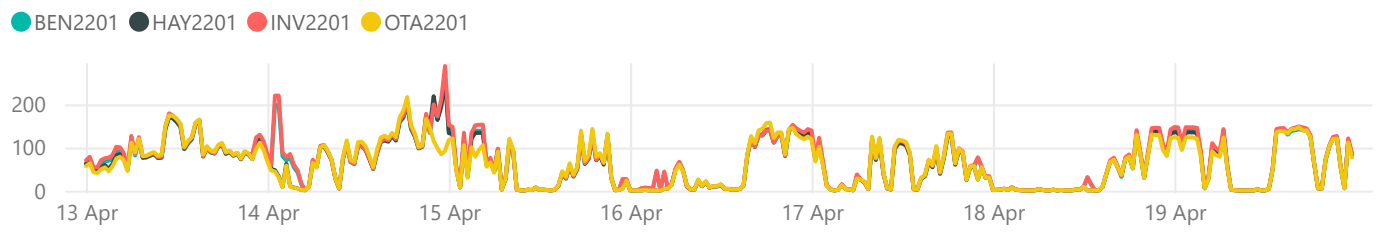
NZGB Look-Ahead (excluding next 7 days)



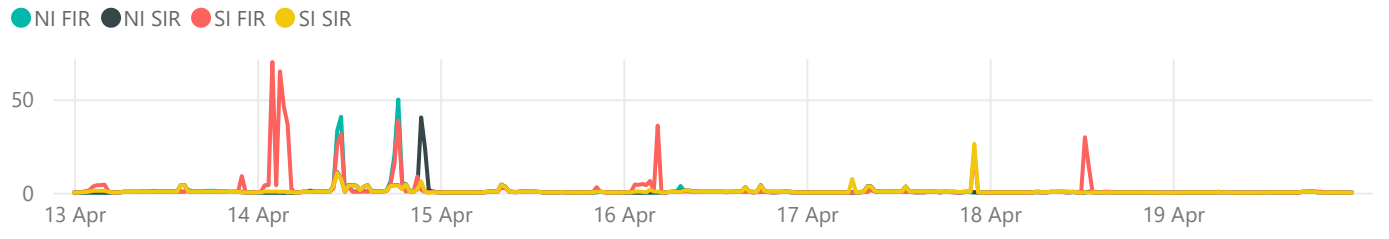
National Demand by Trading period - MW



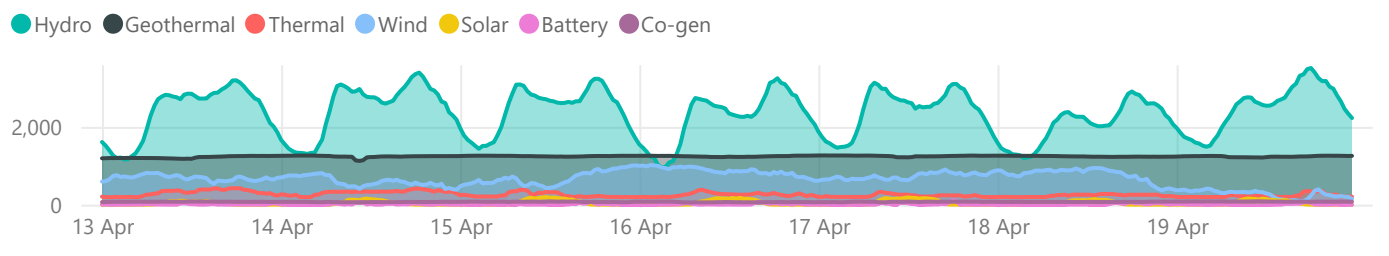
Energy Prices - $/MWh



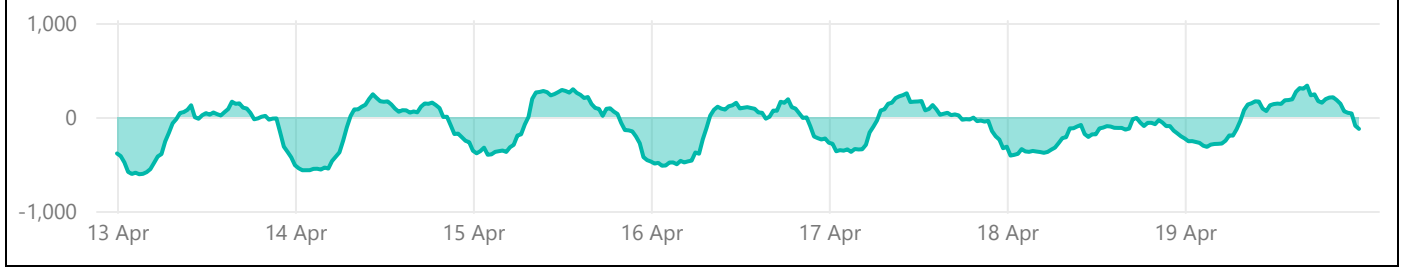
Reserve Prices - $/MW



Generation - MW



Net HVDC Transfer - MW (Northward positive)



Weekly Insight - Temporary solution to prevent non-physical dispatch of BESS

Transpower as System Operator (SO) is making a change to the Scheduling, Pricing and Dispatch (SPD) model to resolve an issue that can result in Battery Energy Storage Systems (BESS) being instructed to both charge and discharge simultaneously. This change is intended to be temporary and will be in place until improved market arrangements for BESS are implemented. These improved arrangements are currently being considered by the Electricity Authority (EA).[1]

Background

Grid-scale BESS are a relatively new class of asset within Aotearoa New Zealand's power system and electricity market. The oldest grid-scale BESS currently operating is Rotohiko near Huntly, which began operating in November 2023.

Because BESS are able to operate as both load and generation, they can trade a wider variety of electricity market products than other asset types. These include:

- Energy generation offers (ENOF)
- Generation reserve offers (TWRO)
- Dispatchable demand (DD) bids (ENDL)
- Interruptible load reserve (IL) offers (ILRO)

Note that to be cleared for a quantity of interruptible load reserve, a BESS must be simultaneously cleared for at least the same quantity of dispatchable demand.

Current market system regulations and software are designed to accommodate generators and loads as separate entities. Generators can trade energy and generation reserve, and loads can trade dispatchable demand and interruptible load reserve. As such, batteries are currently represented in the market as two distinct nodes, one generator and one load, which offer and bid separately.

Improved market arrangements for BESS

The EA is currently considering changes that would represent each BESS as a single node in the market. Traders would submit a single bi-directional energy offer for each BESS representing both their willingness to pay to charge (currently represented by their dispatchable demand bid) and the price at which they are willing to inject power (currently represented by their energy generation offer).[1] However, these changes require an EA decision, Code change [2] and subsequent SO implementation, meaning there is a significant lead time before they can be in place.

Non-physical dispatch solutions

In the meantime, the two-node market representation for BESS permits non-physical dispatch solutions in which SPD simultaneously dispatches generation from the generator node and dispatchable demand from the load node. This is most likely to occur when the island reserve price is high relative to the BESS's nodal energy price, so that scheduling dispatchable demand in order to access interruptible load reserve results in lower overall system cost, but the energy price is still high enough to clear the energy generation offer.

Temporary solution

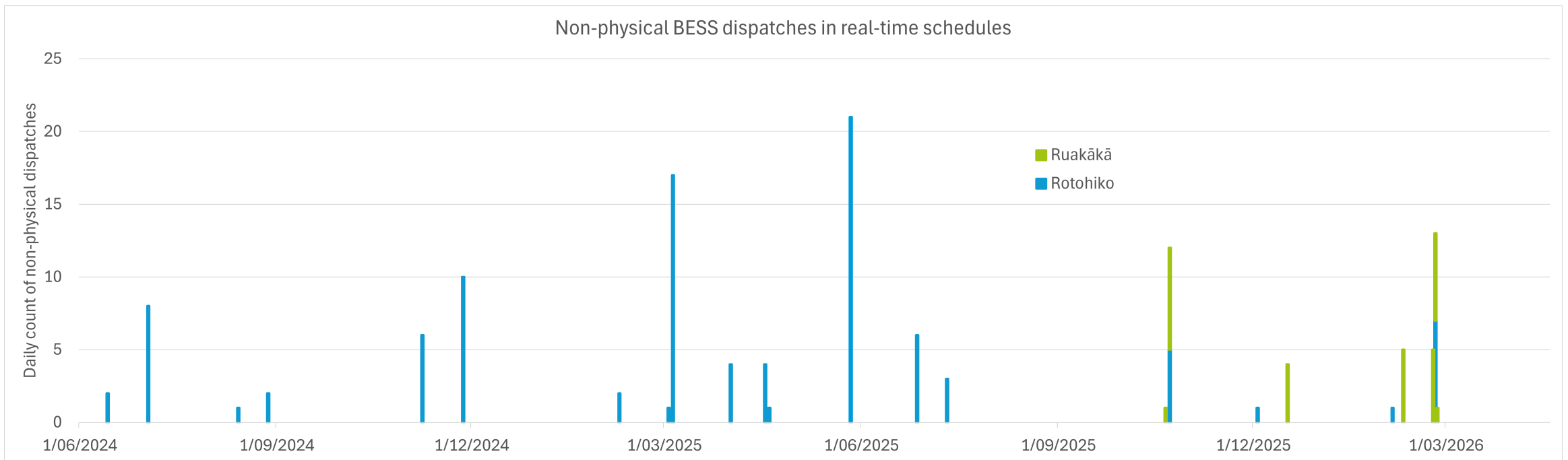
The SO will make a change to the SPD mixed integer linear program model to prevent non-physical dispatch solutions for BESS.[3] This will be achieved by adding a binary decision variable for each DD/generation pair that allows either generation from the generation node or DD and/or IL from the load node but not both. This is similar in principle to the binary decision variables which are used to prevent circulating line flows.[4] These new variables and constraints will be reflected in an update to the SPD formulation that will accompany this change, and this change will go through the usual SPD audit process.

Timeline

This temporary solution will be implemented alongside the planned tie-breaker market enhancement, by June 2026.[5]

Prevalence and impact

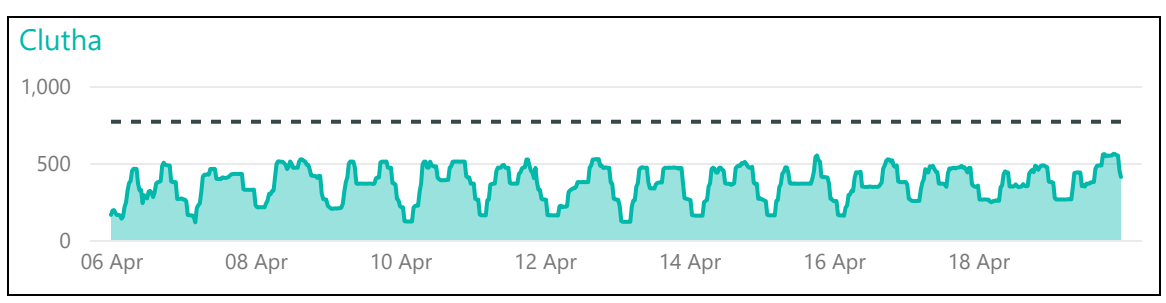
There have been 131 instances of non-physical BESS dispatch since the Rotohiko battery began participating in the electricity market. 102 of these were for Rotohiko and 29 were for Ruakākā. The timing of these is shown in the figure below. Non-physical dispatches require extensive manual intervention and micro-management from SO coordinators and asset owner generation controllers in real time, as well as placing additional burden on traders to offer in a way that avoids non-physical dispatches.

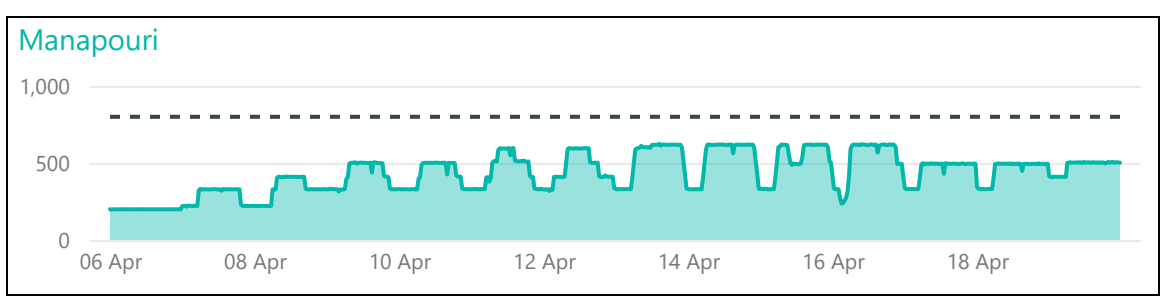


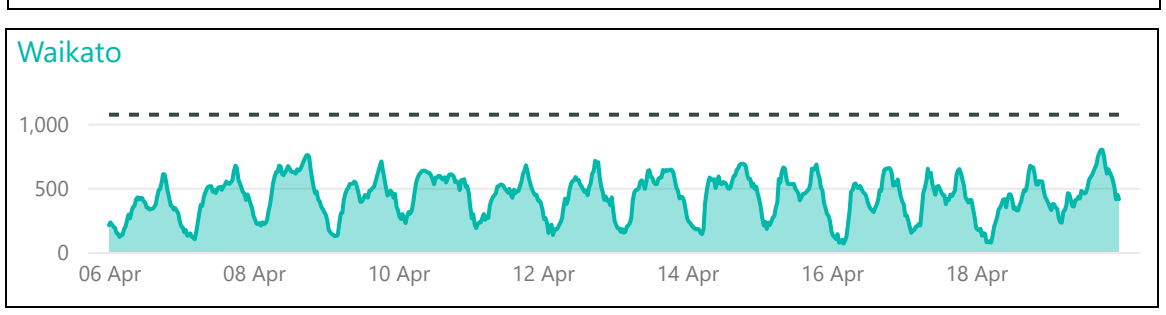
[1] Wholesale market arrangements for battery energy storage systems, Electricity Authority. Issues and Options Paper paragraph 5.22(a)
[2] The EA intends to release a consultation paper on a proposed Code amendment in May: Upcoming consultation papers on battery energy storage systems and hybrids | Electricity Authority
[3] This is the "linked nodes" solution presented in paragraph 5.22(b) of the EA's Issues and Options Paper
[4] See SPD model formulation section 7.1
[5] Code amendment omnibus #6 | Our consultations | Our projects | Electricity Authority

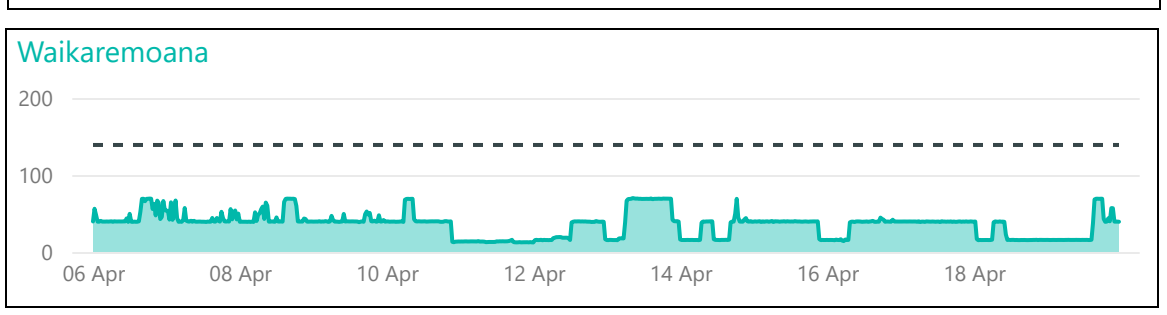
Generation Breakdown - Last Two Weeks

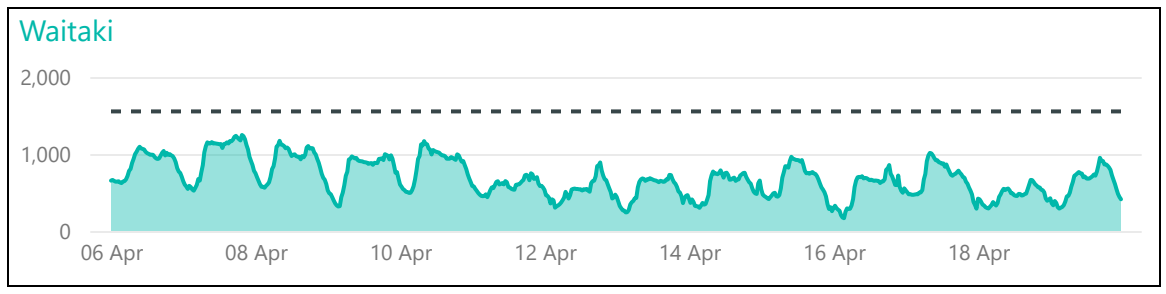
Measured in MW and displayed at trading period level for last 14 days

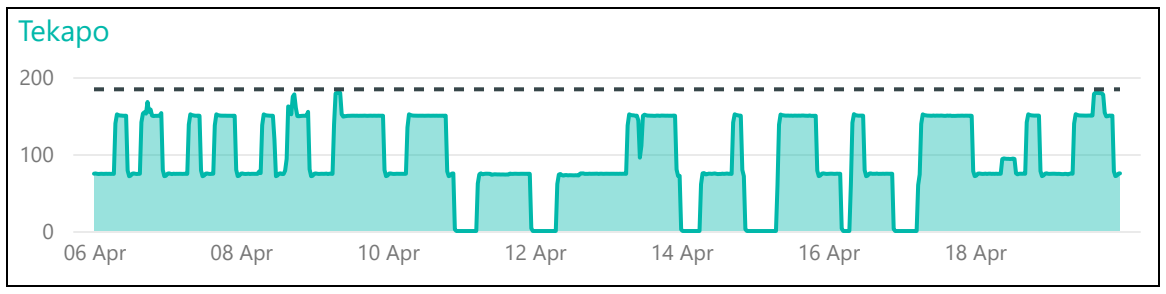


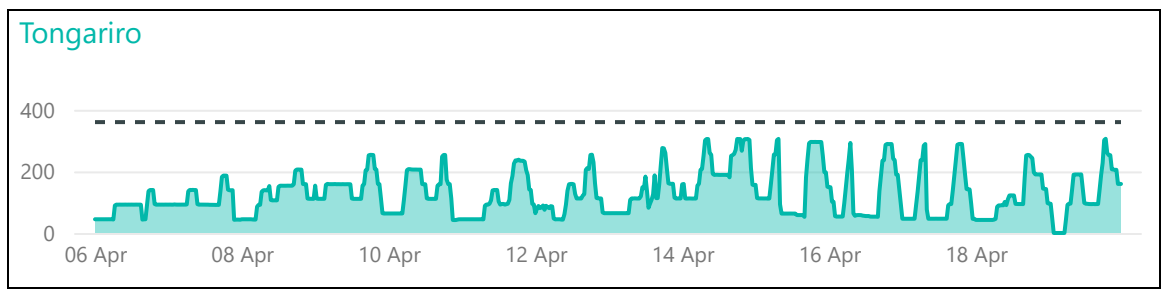


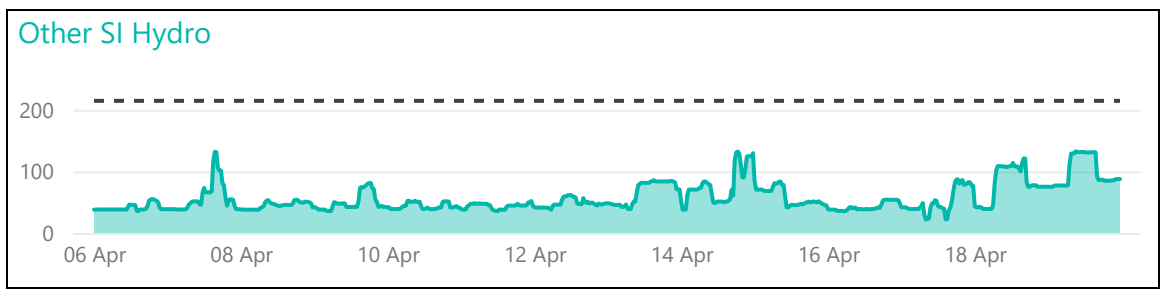


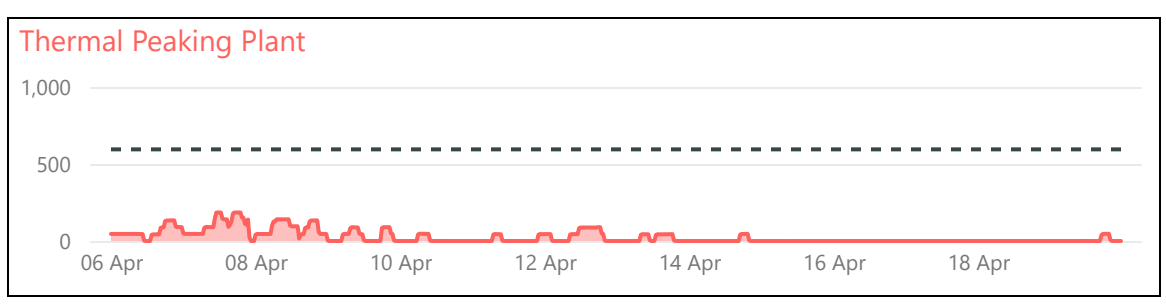


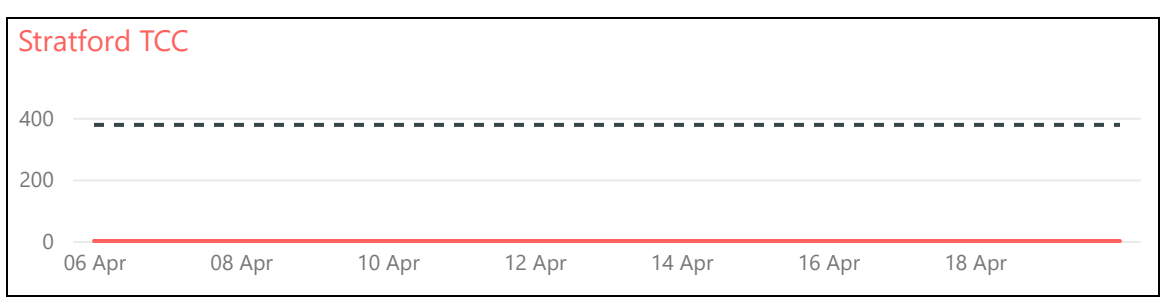


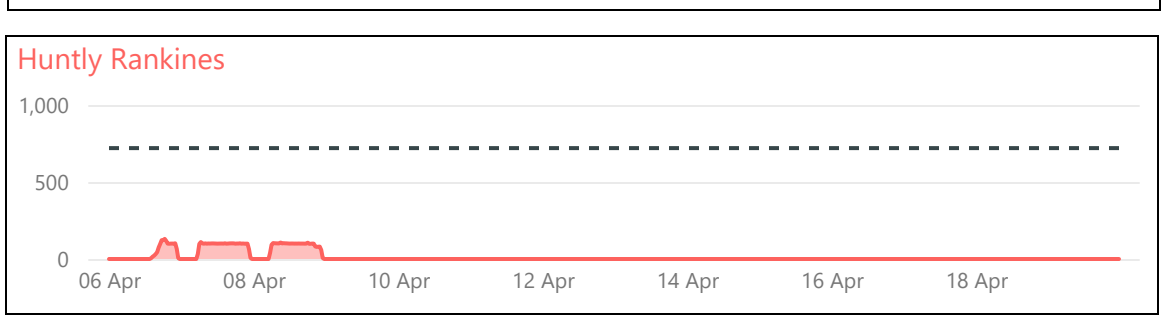


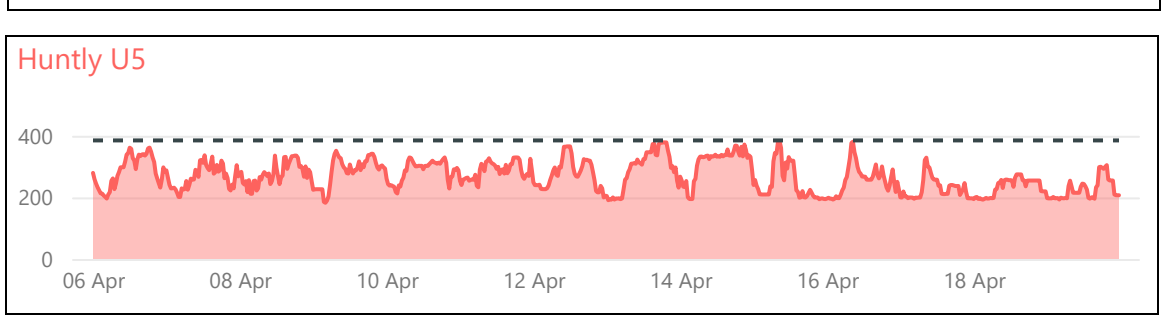


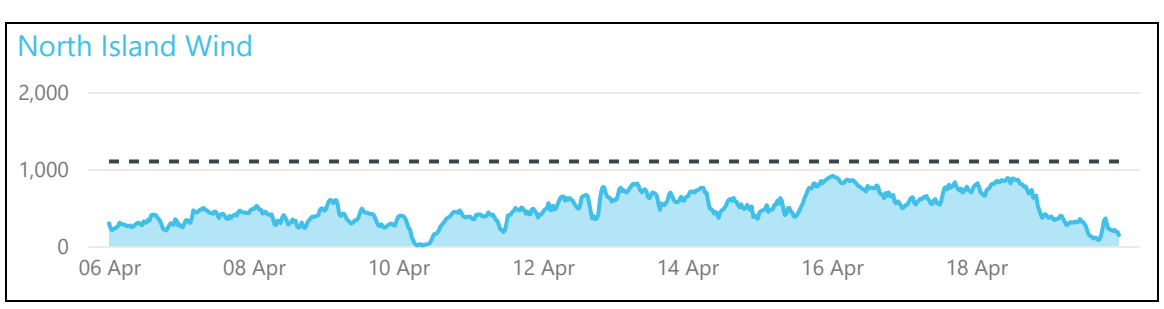


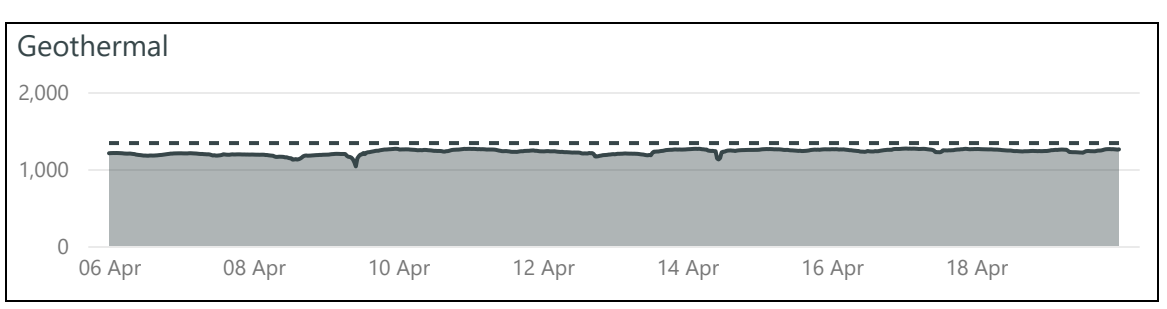


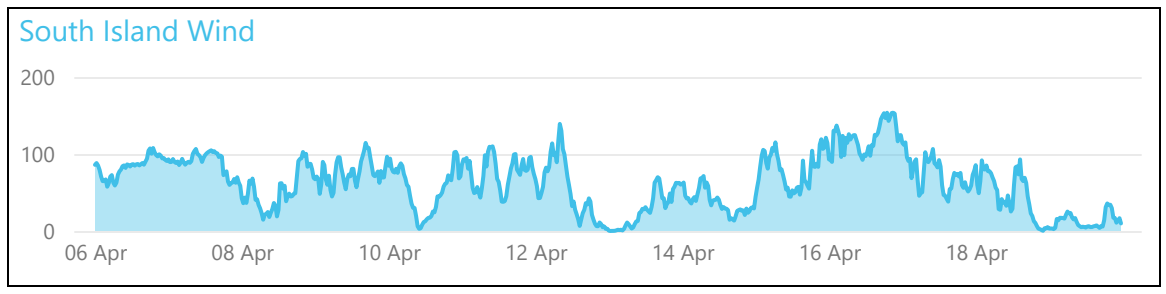


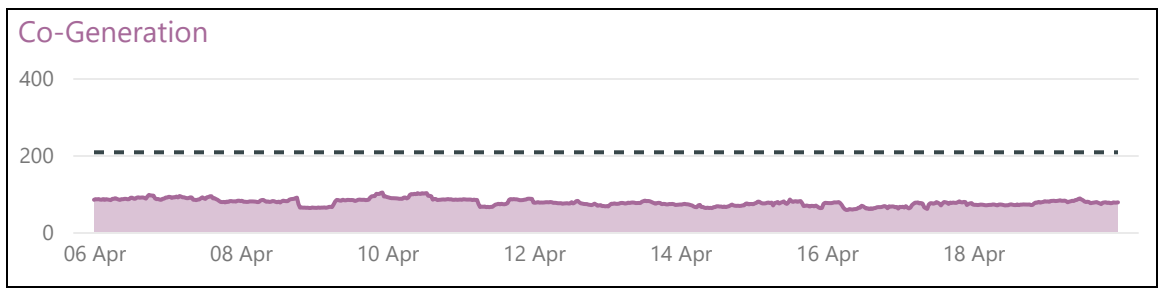


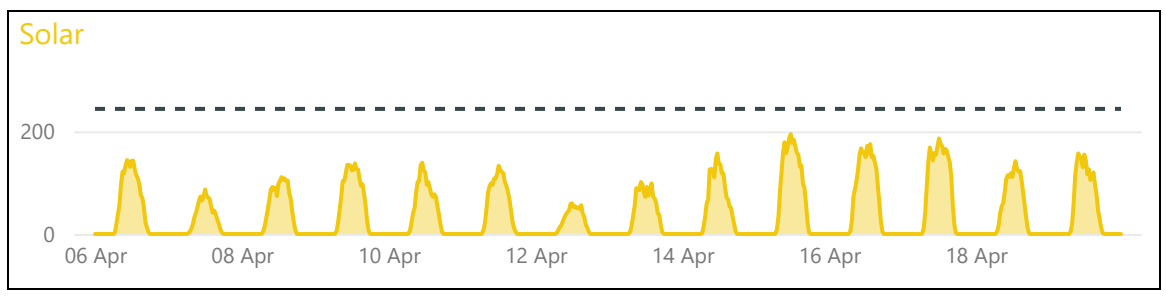


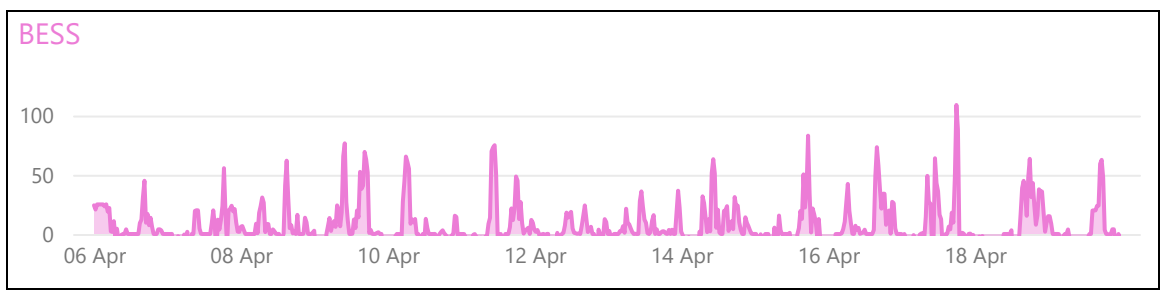






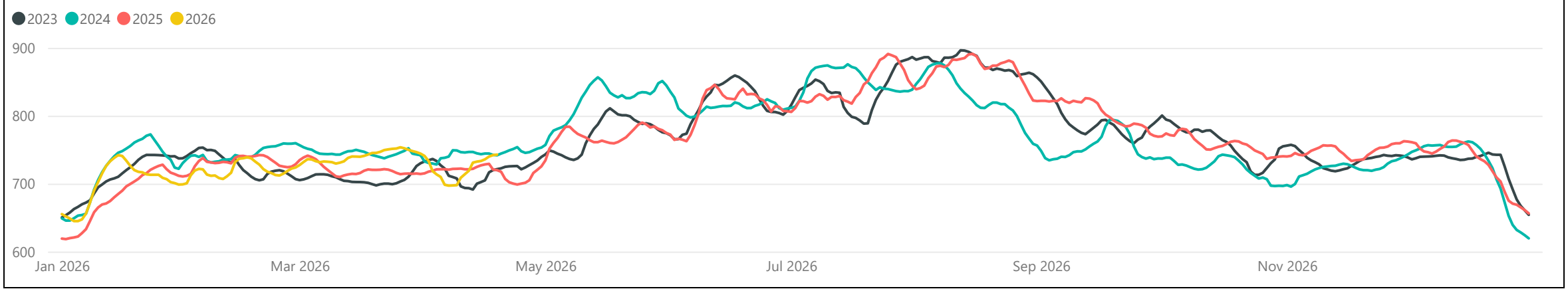




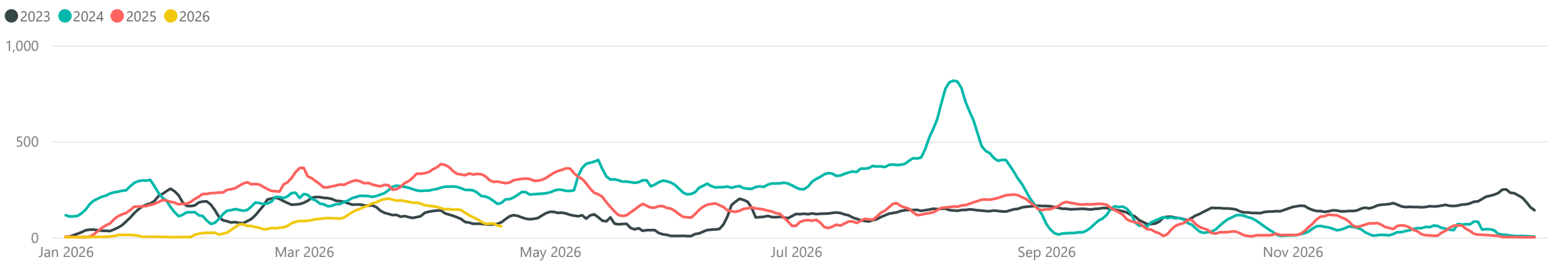


Weekly Profiles

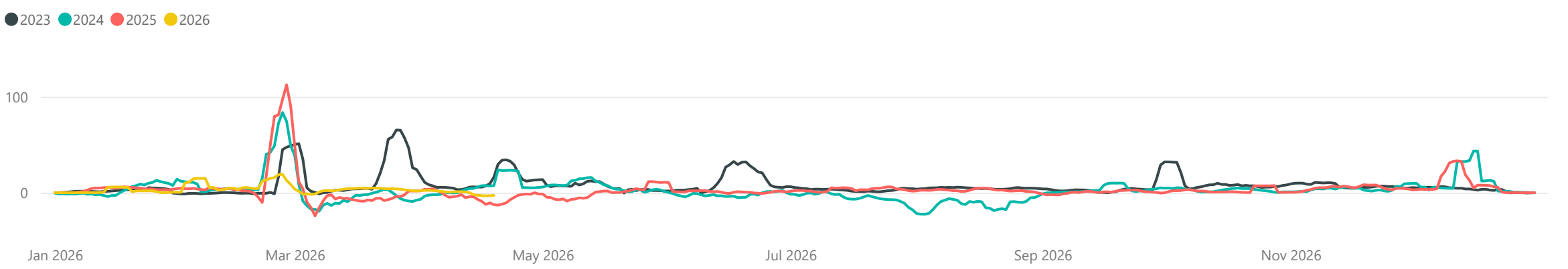
National Weekly Demand - GWh - 7 Day Rolling



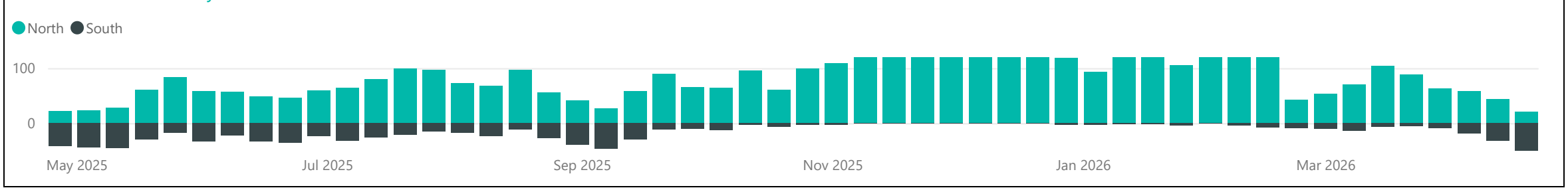
OTA2201 Weekly Rolling Average Spot Price - $/MWh



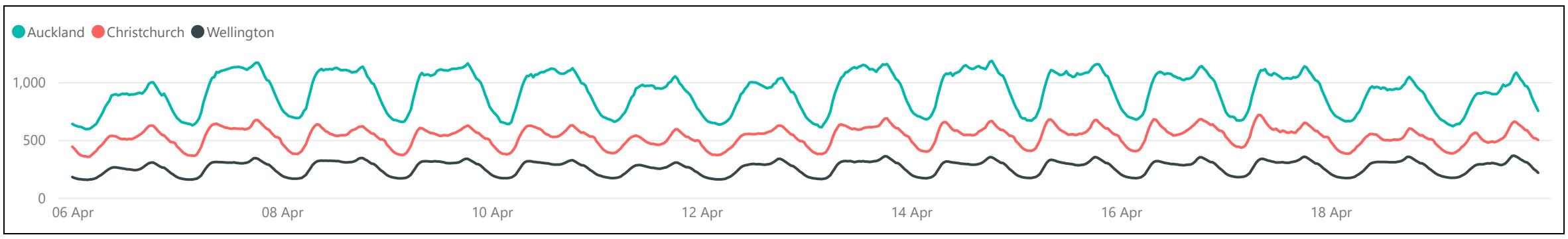
Weekly Rolling Price Separation (HAY2201 - BEN2201) - $/MWh



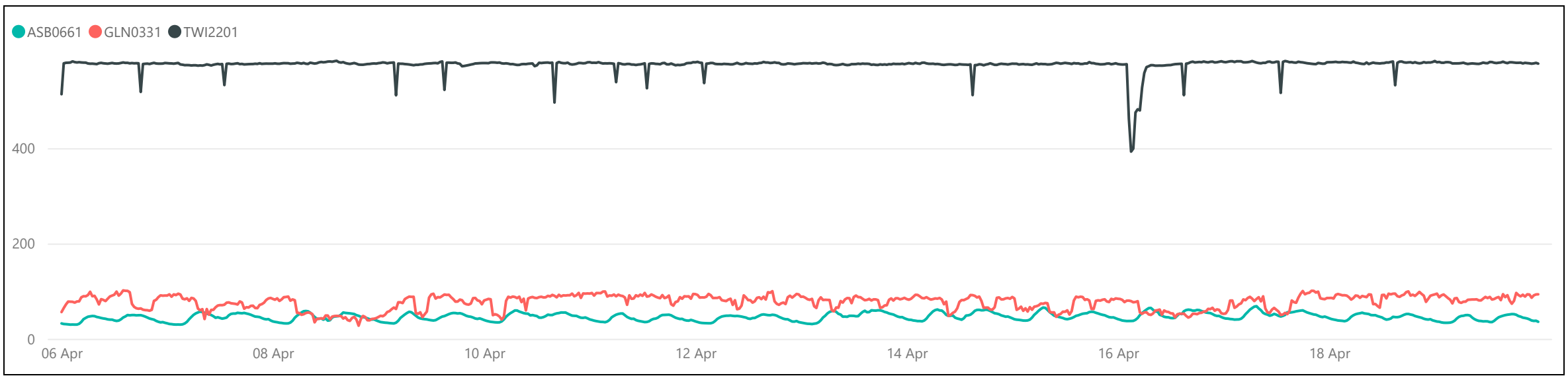
HVDC Transfer - Weekly GWh



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



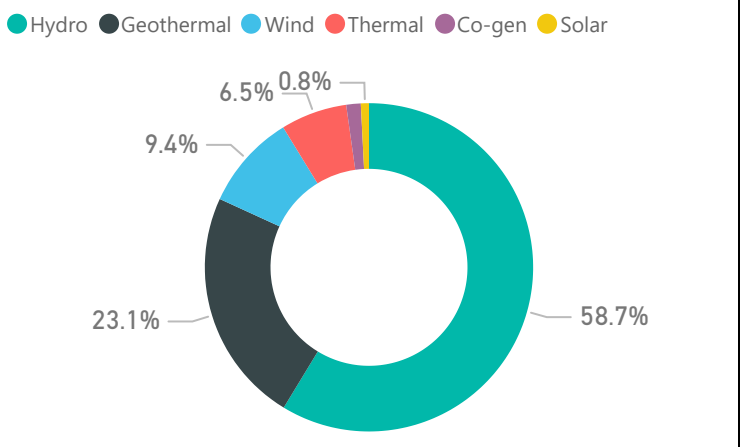
Non-Conforming Load Profiles - Last Two Weeks *Measured in MW shown by GXP*



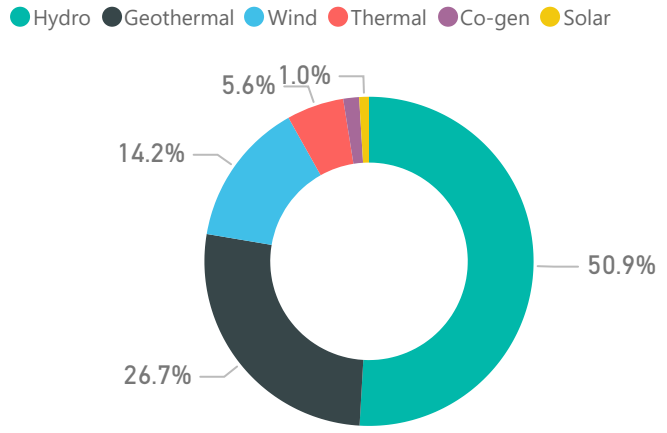
TRANSPOWER

Generation Mix

Last 52 Weeks Generation Mix - Weekly GWh



Last 7 Days Generation Mix - Weekly GWh



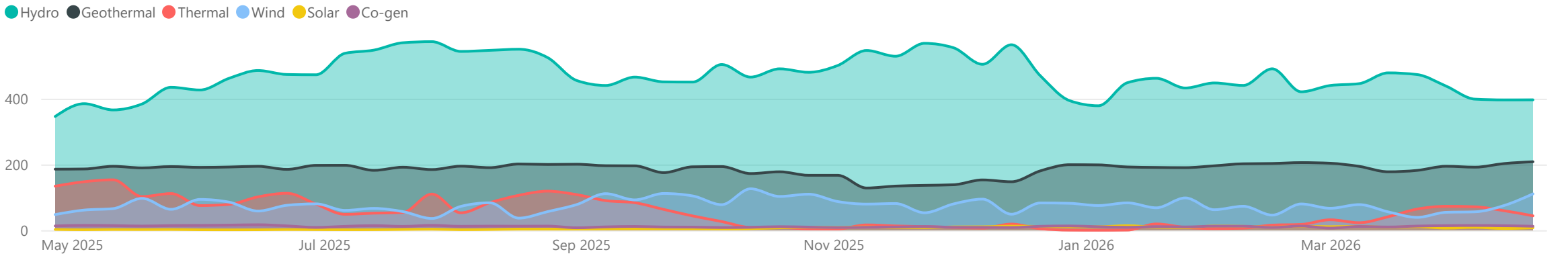
Average Metrics Last 7 Days

Renewable Percentage	CO2e Tonnes/Week	CO2e g/kWh
93%	38,685	50.1

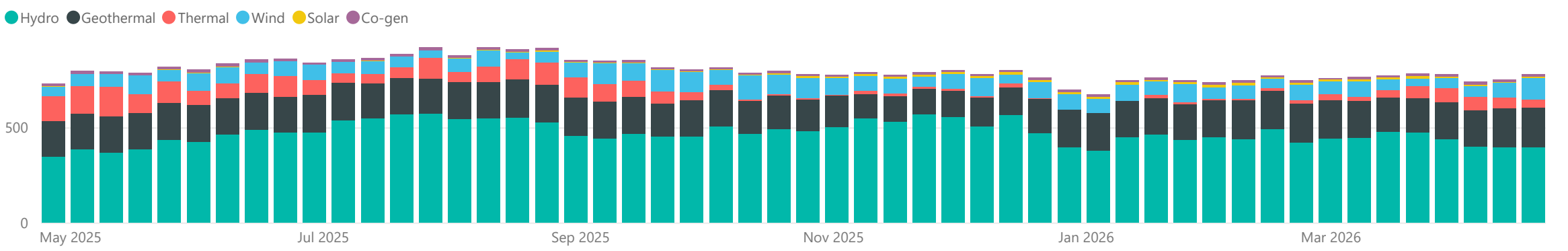
Average Metrics Last 52 Weeks

Renewable Percentage	CO2e Tonnes/Week	CO2e g/kWh
92%	47,919	58.8

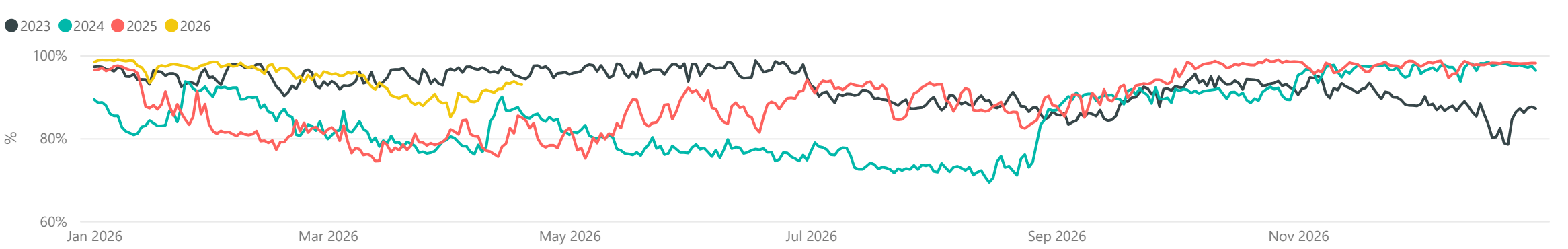
Weekly Generation Mix - GWh



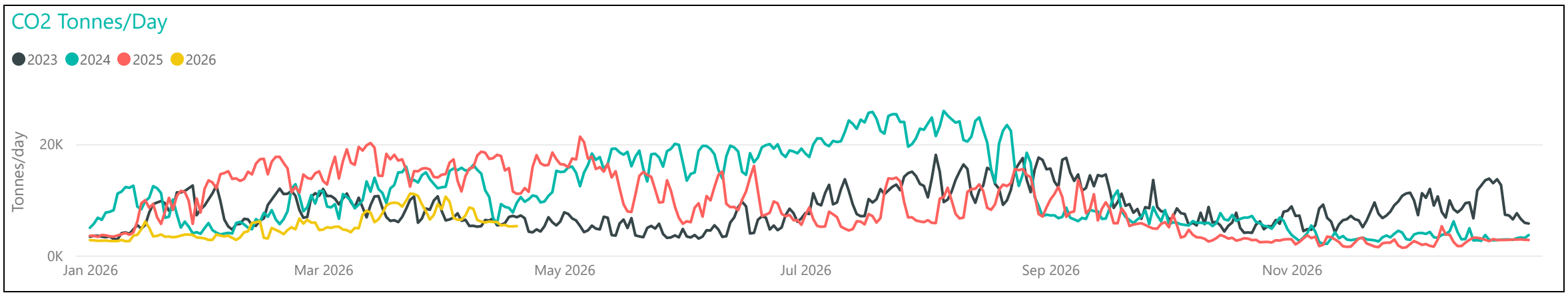
Weekly Generation Mix - GWh



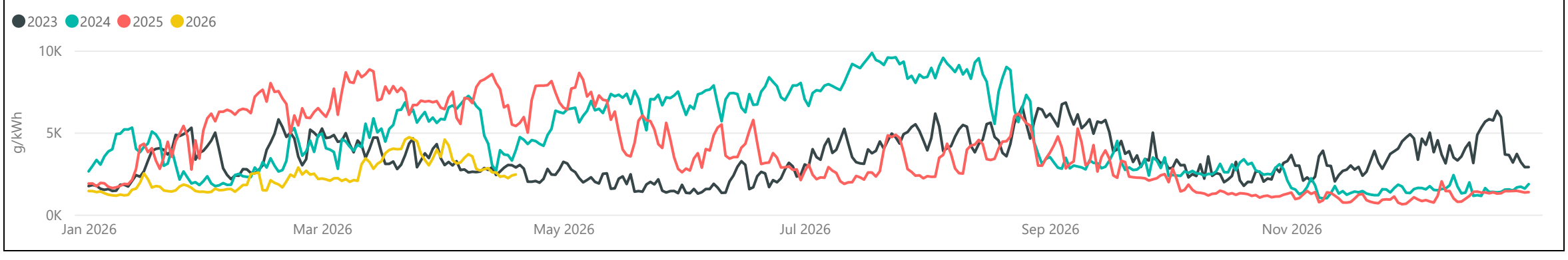
NZ Renewable Percentage



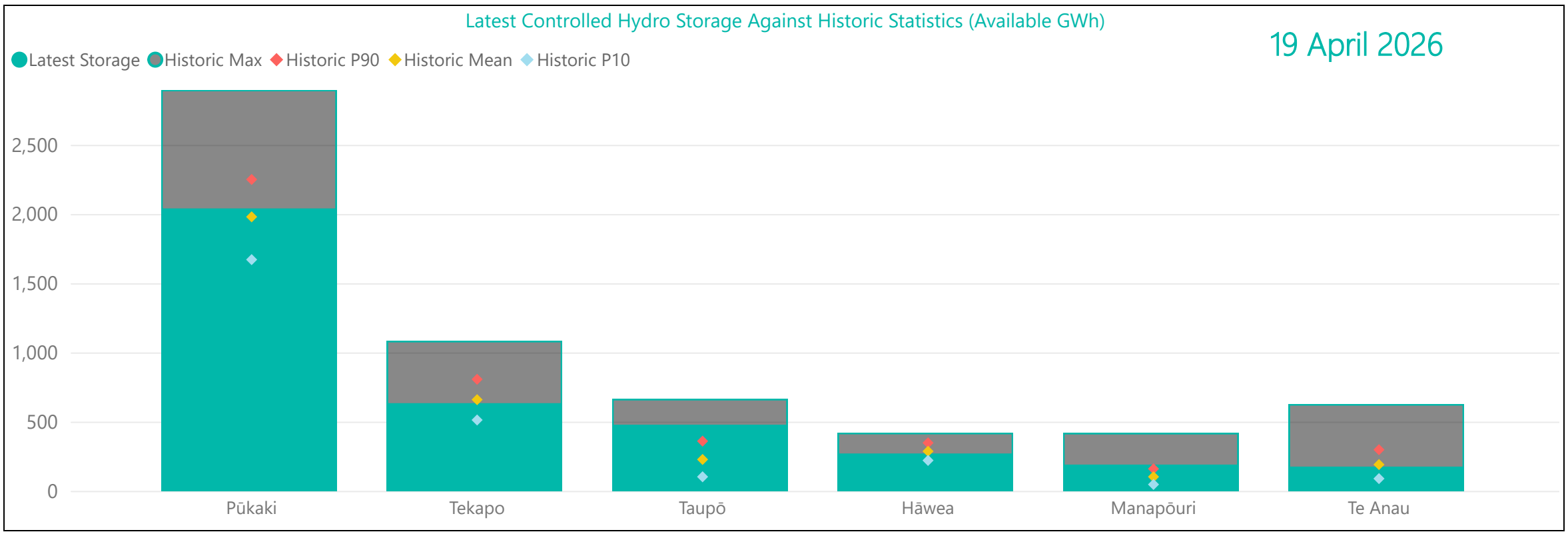
CO2 Tonnes/Day

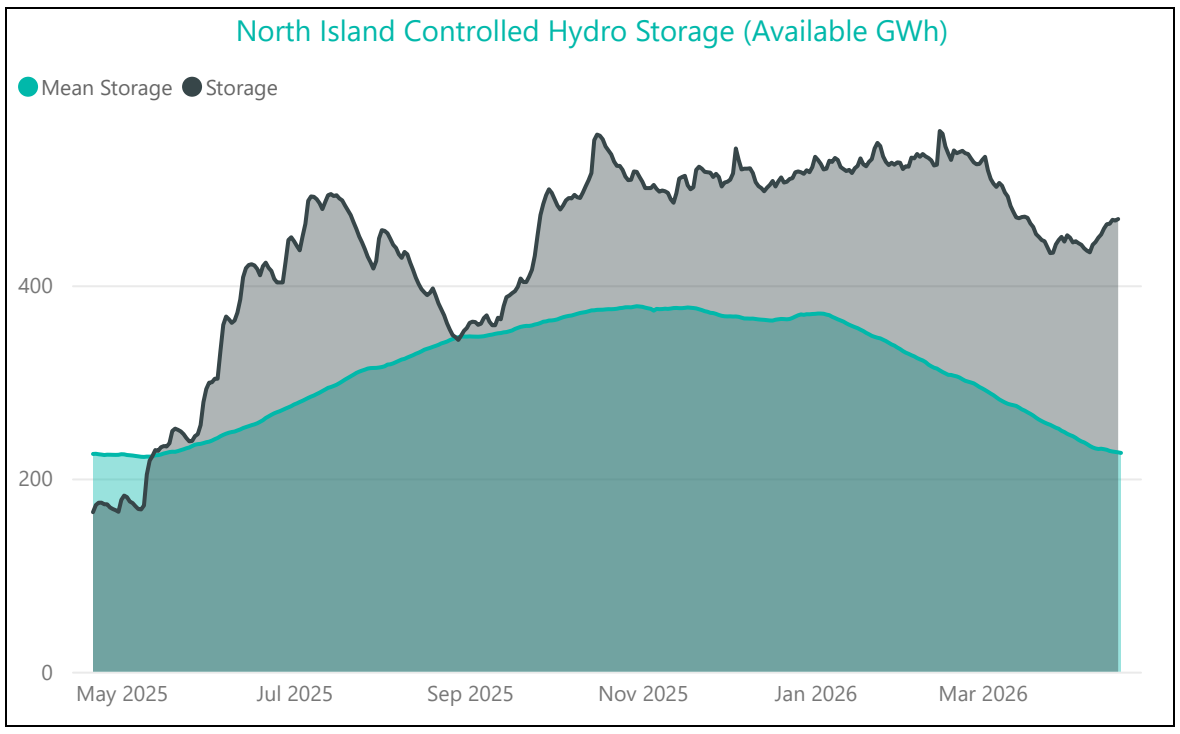


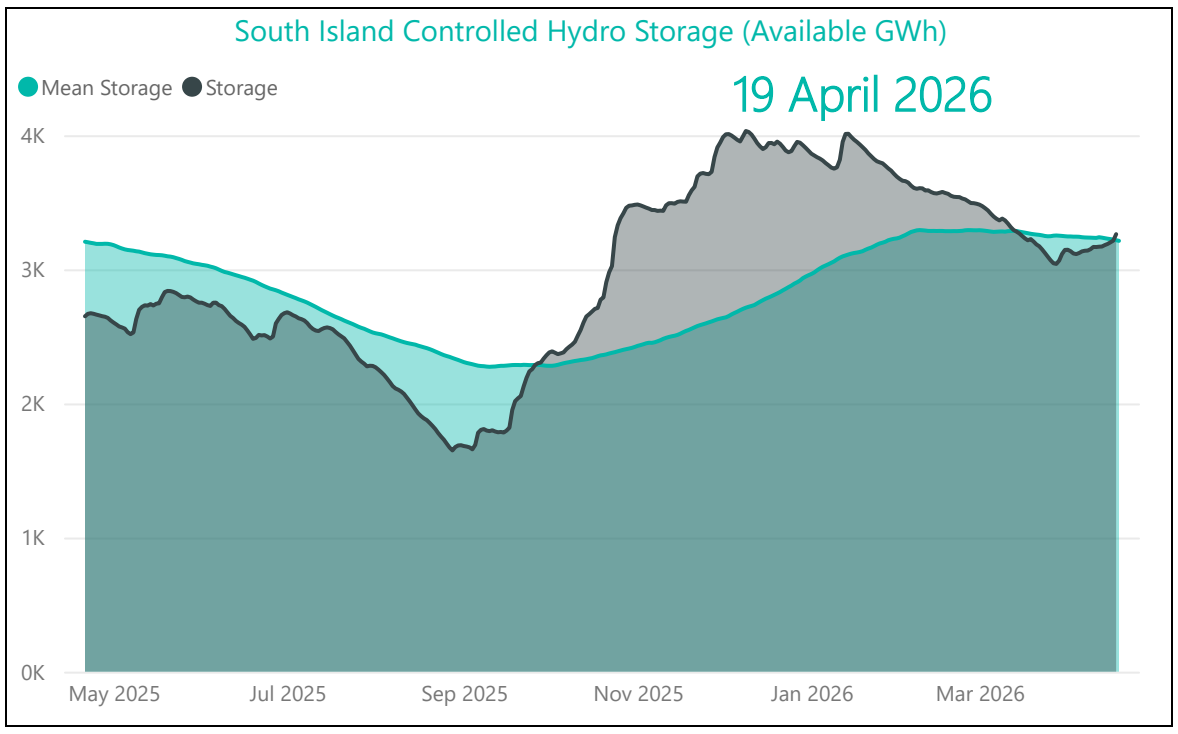
CO2 g/kWh

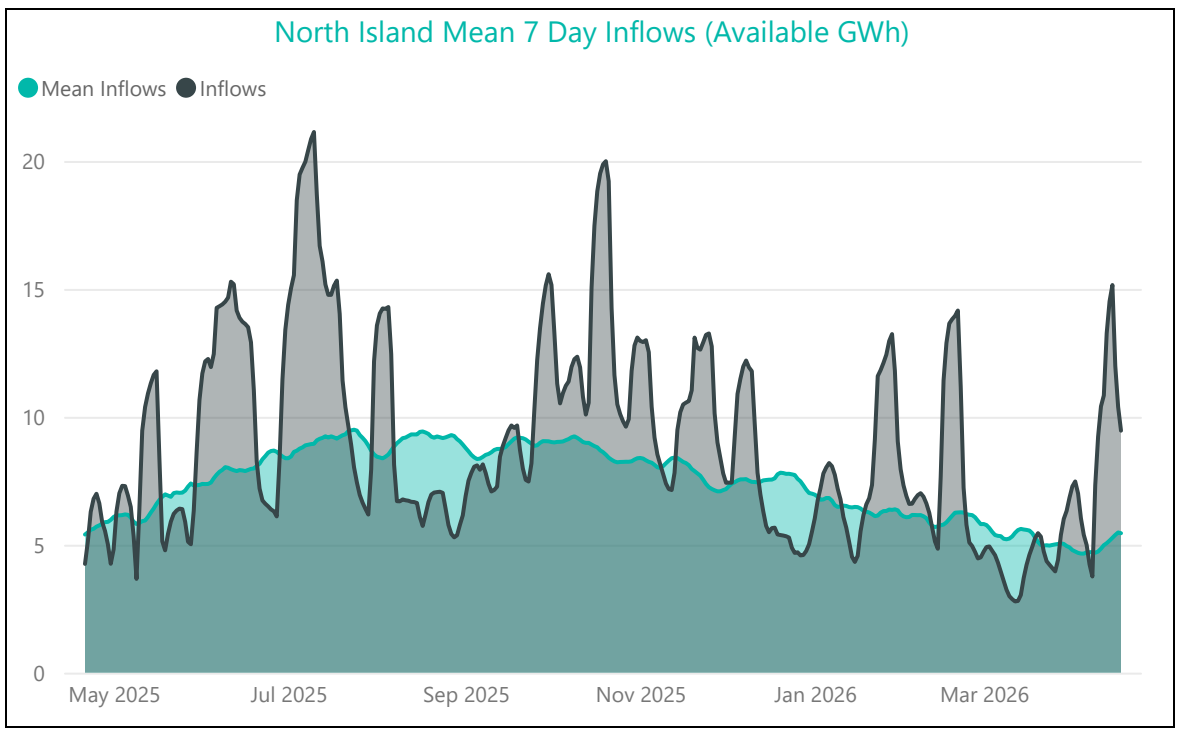


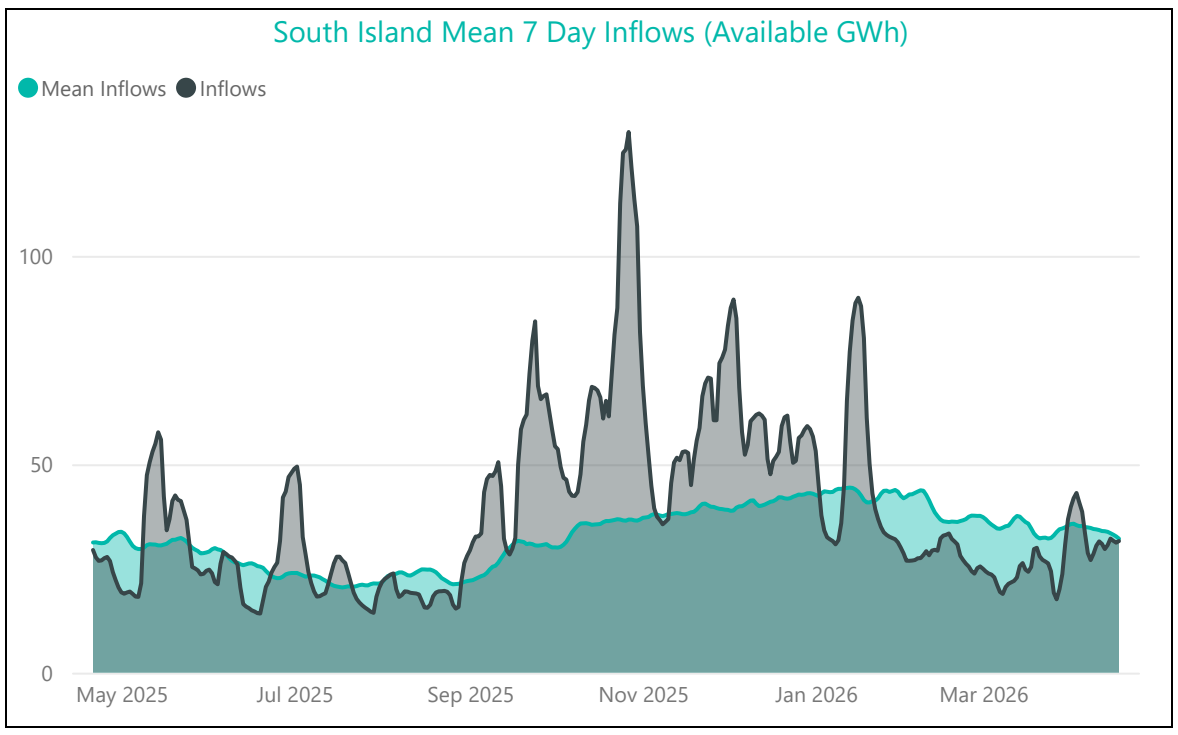
Hydro Storage











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

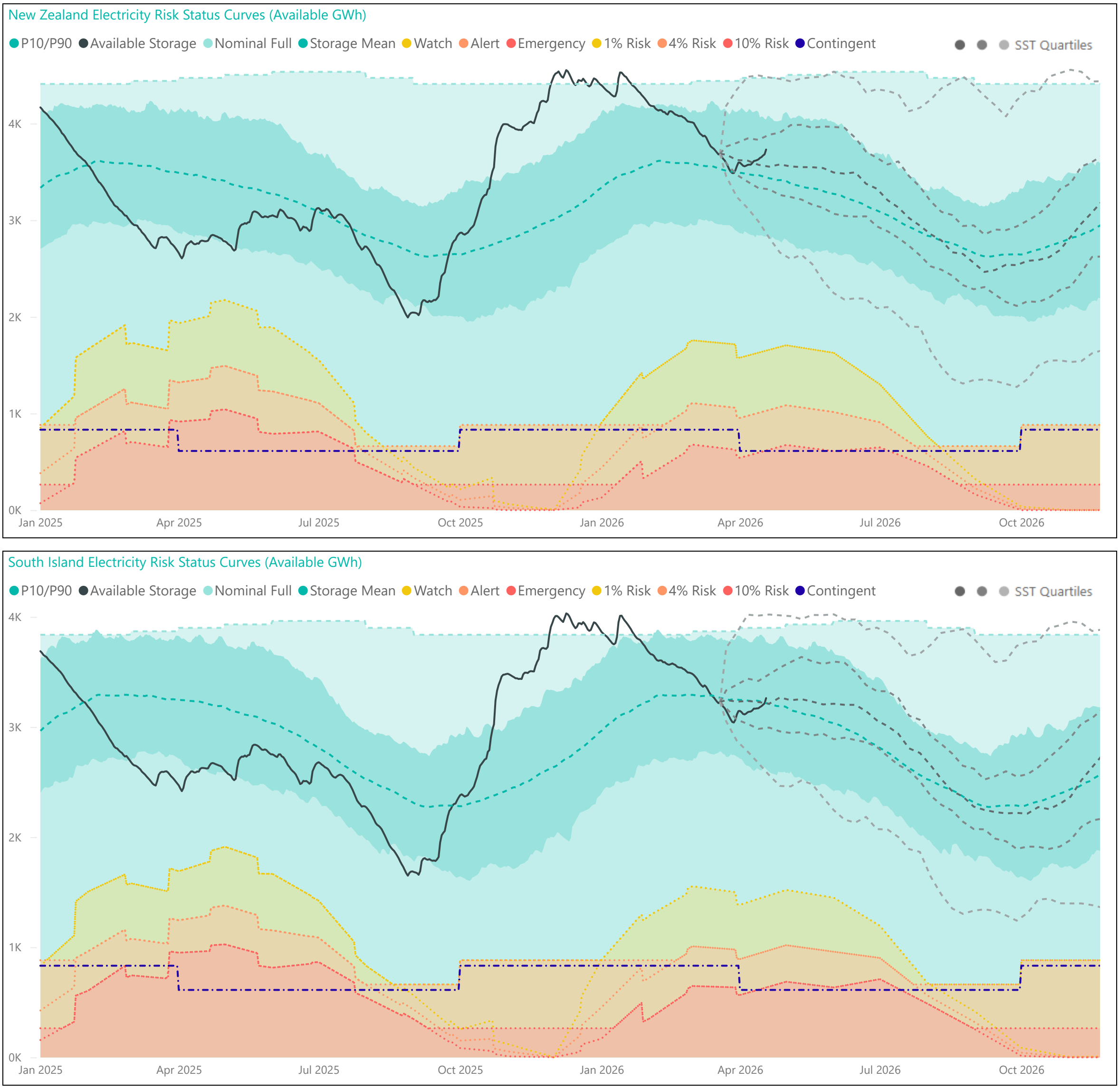
For any inquiries related to security of supply contact market.operations@transpower.co.nz

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).