Market Operations Weekly Report - Week Ended 29 March 2026

Overview

New Zealand hydro storage has decreased from 103% to 100% of the historic mean for this time of year. In line with this, renewable generation decreased to 89% of the weekly generation mix.

This week's insight looks at an example of solar generation curtailment and dispatch tiebreaker.

Security of Supply

Energy

National hydro storage has decreased to 100% of the seasonal mean at the end of last week. South Island hydro storage decreased from 97% to 94% of the historic mean, and North Island storage increased from 173% to 180%.

Capacity

Residuals were healthy with the lowest residual of 954 MW occurring during the morning of Wednesday 25 March.

The N-1-G margins in the NZGB forecast are healthy through to mid May. 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 slightly decreased from 749 GWh to 748 GWh for the week, and is in line with average demand at this time of year over the past three years. The highest demand peak of 5,460 MW occurred at 9:30am on Tuesday 24 March.

Weekly Prices

The average wholesale electricity spot price at Ōtāhuhu last week was $179/MWh, decreasing from $198/MWh the week prior. Wholesale prices peaked at $276/MWh at Ōtāhuhu at 4:30pm on Wednesday 25 March.

Generation Mix

Wind generation increased from 5% to 7% of the mix. Hydro generation decreased to 57% of the mix, from 61% the week prior. Thermal generation increased to its yearly average of 9% of the mix. Geothermal was at 24% of the mix and solar contributed to 1% of the generation mix.

HVDC

HVDC flow last week was predominantly northward with the exception of some brief periods of overnight low southward flow. These periods coincided with periods of high wind generation and lower North Island demand. In total, 57 GWh was transferred north and just 5 GWh was transferred south.

Surveys and Engagement

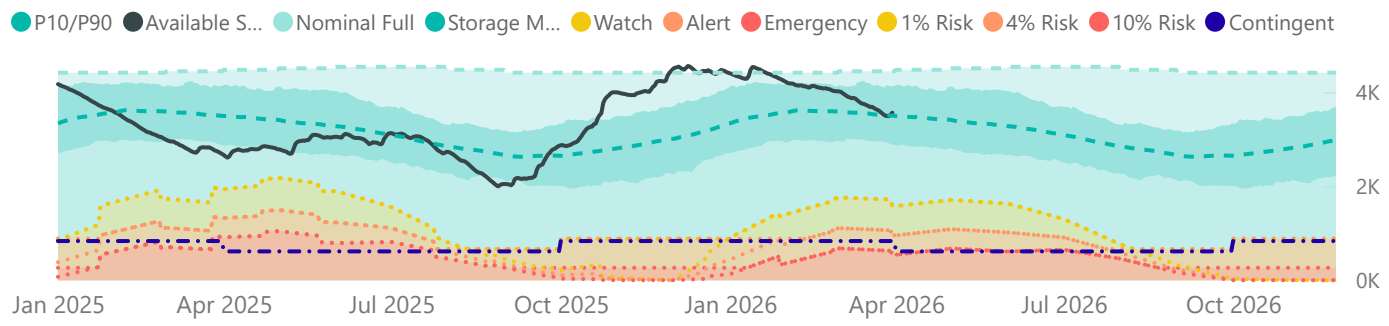
We have opened our Annual System Operator Participant Survey to provide an opportunity for participants to set out their expectations and help us understand how we are performing the System Operator service. If you have not received the survey but would like to have your say, you can complete it here. The survey closes 17 April 2026.

New Zealand Energy Risk

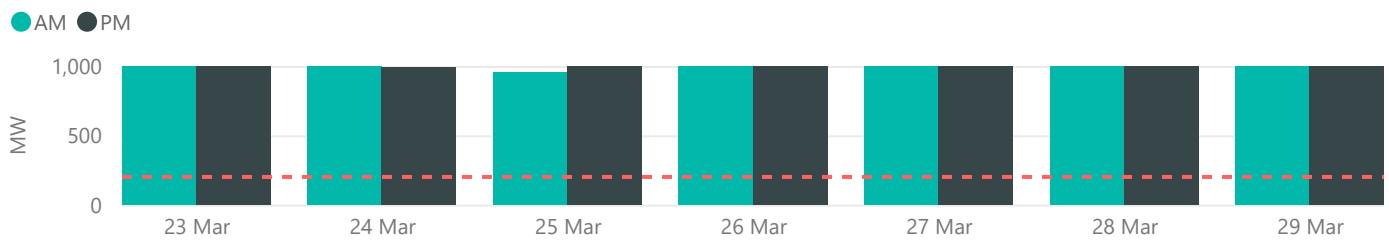
South Island Energy Risk

Normal Watch Alert Emergency

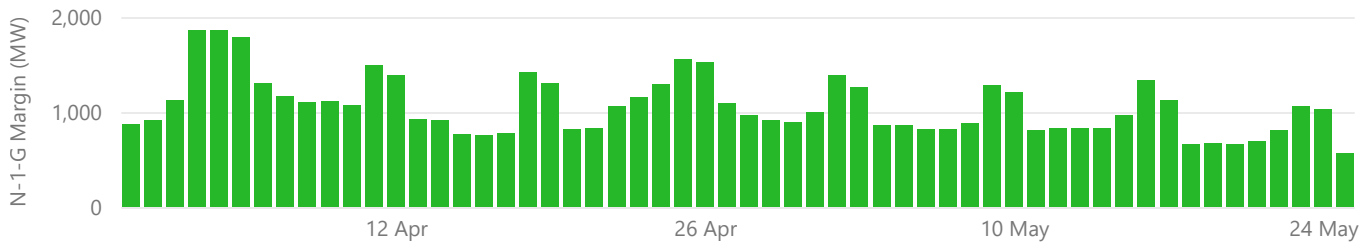
New Zealand Electricity Risk Status Curves (Available GWh)



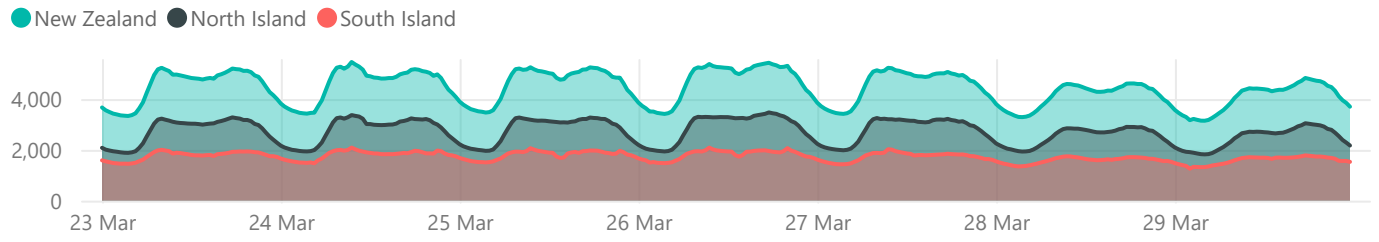
Lowest Residual Points - MW



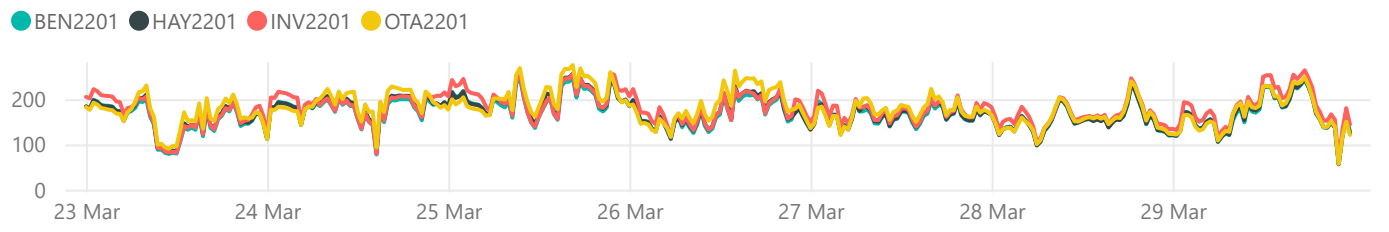
NZGB Look-Ahead (excluding next 7 days)



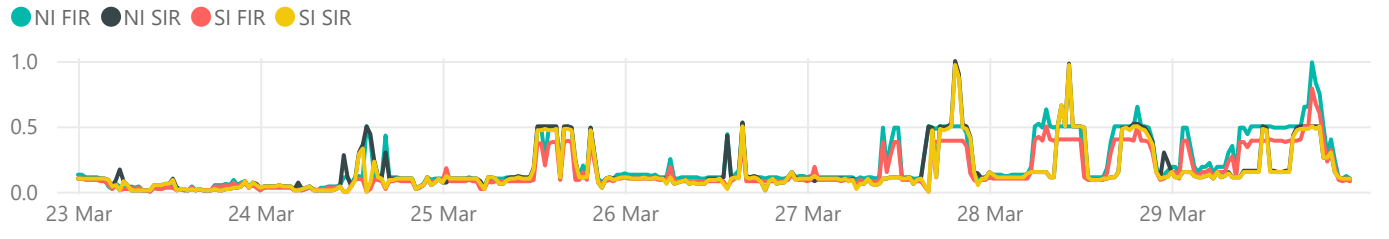
National Demand by Trading period - MW



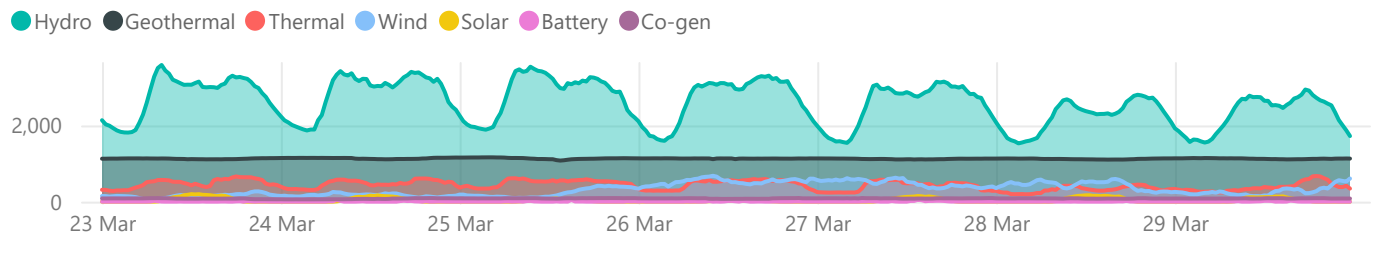
Energy Prices - $/MWh



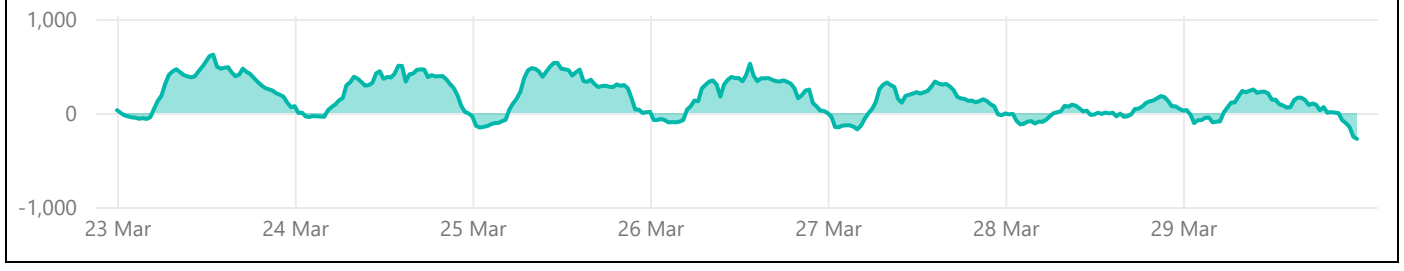
Reserve Prices - $/MW



Generation - MW



Net HVDC Transfer - MW (Northward positive)



Weekly Insight - Northland solar generation curtailment and dispatch tie-breakers

Increased volumes of intermittent generation in some parts of the transmission network can lead to situations where the local availability of very low-priced generation (typically wind, solar or geothermal) exceeds a network export limit and generation needs to be curtailed (i.e. dispatched to generate less than its potential at the time). There are two challenges in these situations: managing inflexible generation and ensuring that curtailment of flexible generators follows fair and predictable rules.

This week's insight looks at a period of excess generation at the Kaikohe (KOE) market node (due to a transmission network outage constraining dispatch for a period) where multiple solar farms were curtailed disproportionately. This arbitrary disproportionate curtailment is a feature of the existing market system that the System Operator's proposed tiebreaker provisions [1] are designed to solve.

This period of excess generation also required manual intervention by National Control Centre (NCC) coordinators on 17 March to prevent inflexible geothermal generation at Ngāwhā (NGB) from being curtailed.

The example at Kaikohe (KOE):

Dispatch data for the Kaikohe (KOE) area solar generation shows discrete curtailment episodes driven by the recent KOE-MPE transmission circuits outage, which temporarily restricts the remaining lines to a lower continuous flow limit.

The KOE market node is the connection point for three large-scale solar farms: Pukenui Solar Farm (PSF), Twin Rivers Solar Farm (TRS), and Kaitaia Solar Farm (KTS). Ngāwhā (NGB) is inflexible geothermal generation also connected at KOE. These all inject generation at the KOE market node as shown in SPD diagram in Figure 1.

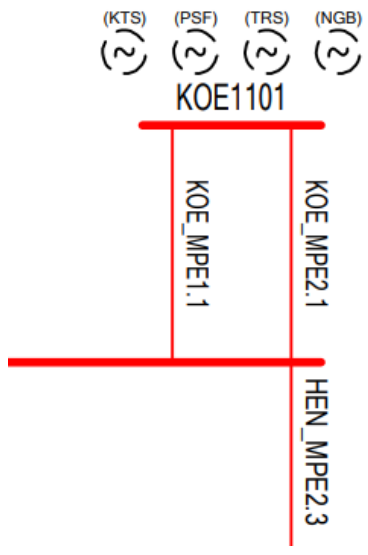
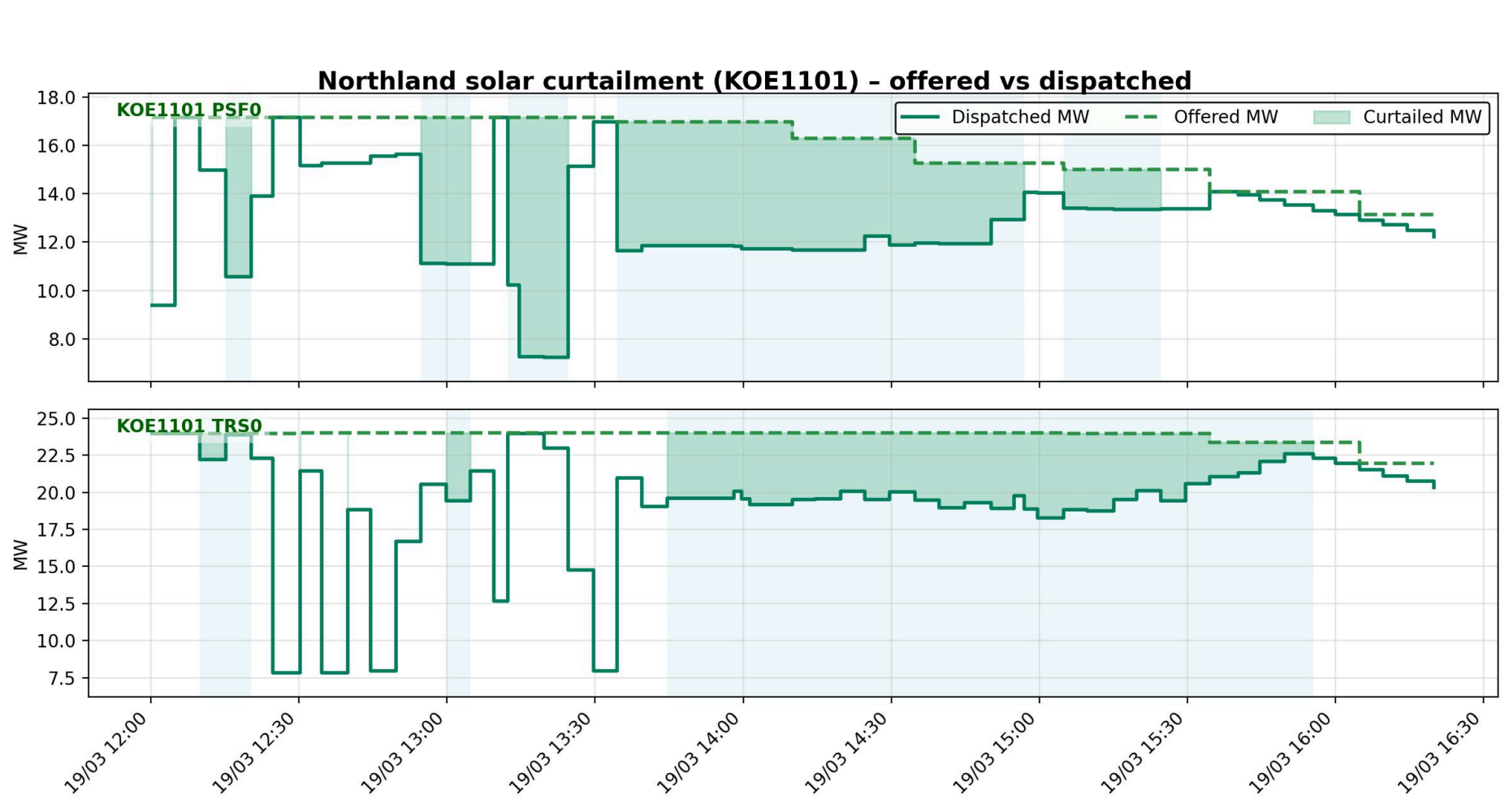


Figure 2 illustrates dispatch on 19 March where offered solar output exceeds dispatched output and one solar farm is constrained back, while other nearby solar farms continue to generate.

During non-curtailed periods (unshaded regions in Figure 2), the visible gap between a solar farm's maximum offered capacity and its actual dispatch reflects natural variations in weather conditions (irradiance, cloud cover etc) driving the real-time forecast, rather than system-imposed curtailment. It highlights how curtailment outcomes can depend on how limited transmission capacity is allocated across multiple generators at the same location.

For some of the intervals shown in Figure 2, only one solar farm was constrained back, even though multiple solar farms were offering generation at the same node. Under current dispatch arrangements, capacity is not automatically shared across identically priced offers. This means curtailment can fall disproportionately on a single farm rather than being distributed across all contributing generators.



Weekly Insight Cont.. - Northland solar generation curtailment and dispatch tie-breakers

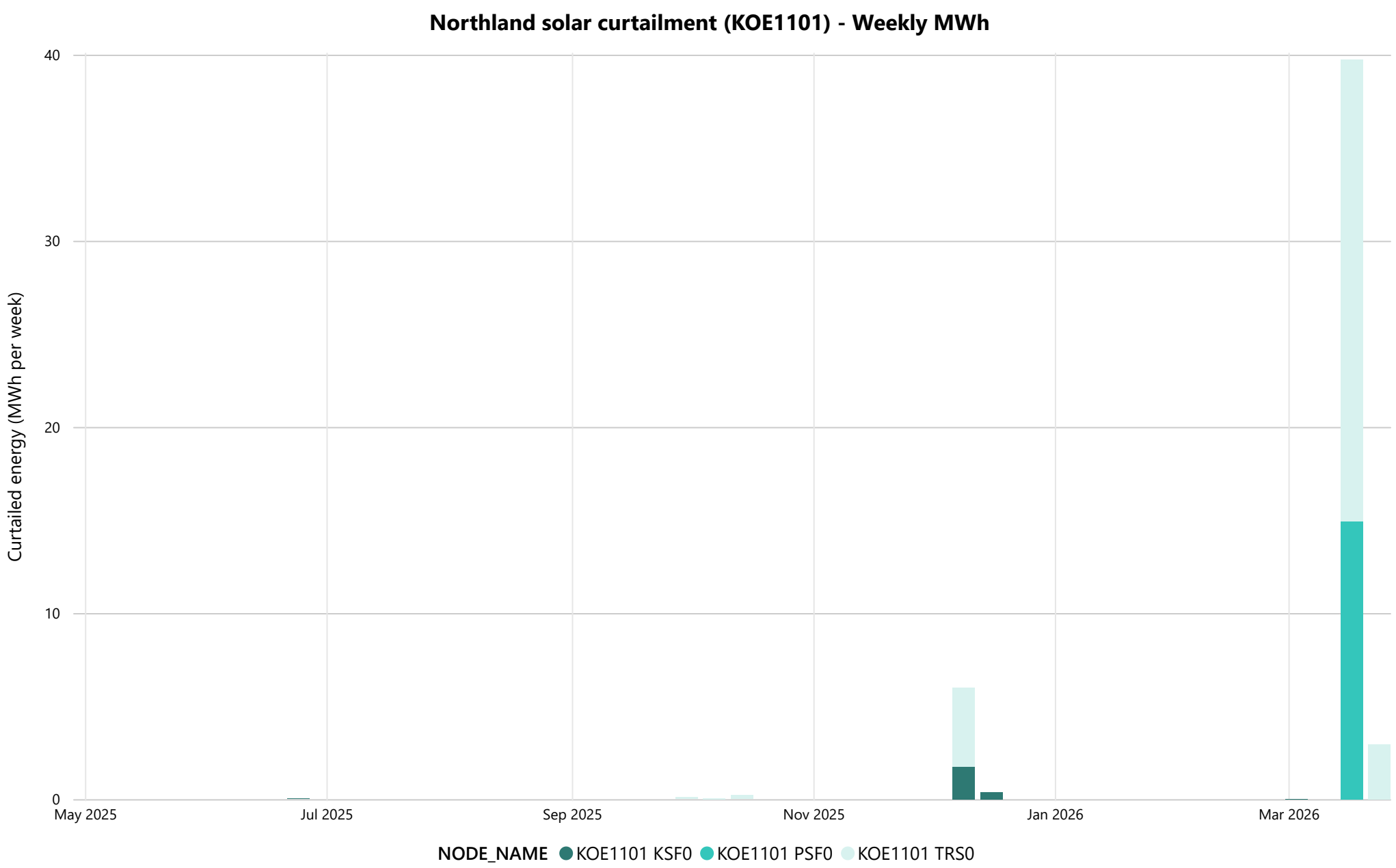
Figure 3 aggregates these outcomes into weekly curtailed energy by generator, showing that the impact is uneven across both time and location, with a few specific weeks driving the bulk of total curtailed volume. This shows how short-lived curtailment events translate into material impacts when they persist across multiple dispatch intervals.

From an operational perspective, these outcomes reflect the interaction between surging midday solar injections and the physical limits of the local transmission network (as was seen during the KOE-MPE transmission outages on 16-19 March). As solar capacity in Northland has expanded, midday export flows from the KOE market node operate closer to security limits under specific conditions. This increases the likelihood of security constraints binding during peak irradiance. Also, these constraints stem from a dynamic mix of outages, contingency requirements, and broader system conditions, reflecting real-time operational limits rather than a structural inability to always accommodate solar generation.

As these constraint-driven conditions become more frequent, tie-breaker situations where multiple generators offer at identical prices in a constrained area are increasingly appearing in real-time dispatch.

Concluding:
Looking forward, patterns such as those observed at KOE could become more frequent as new intermittent generation is connected across the network in areas that are constrained or become so for some periods of time.

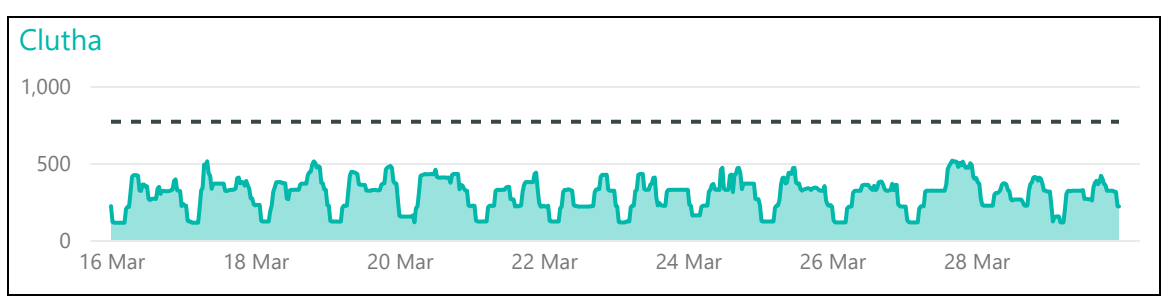
While the absolute volume of curtailed energy remains modest at present, the anticipated increase in large-scale, intermittent generation will increase the frequency of security constraints and tie-breaker situations, particularly during low-load, high-generation periods. This underscores the necessity for automated market settings and operational tools for a scalable solution for maintaining system security with a diverse generation mix.

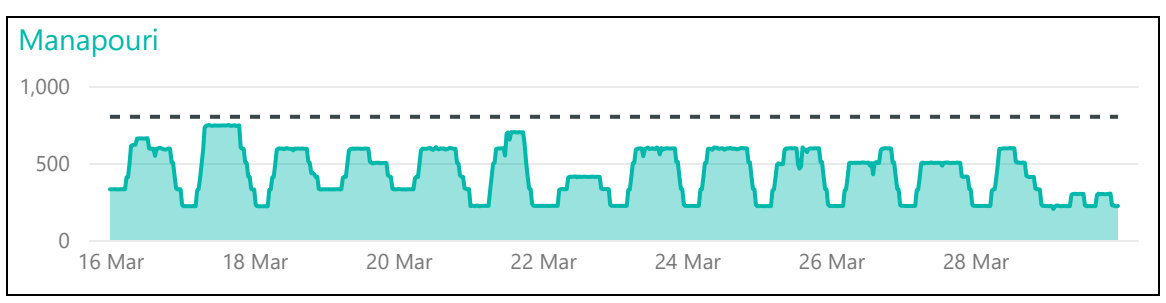


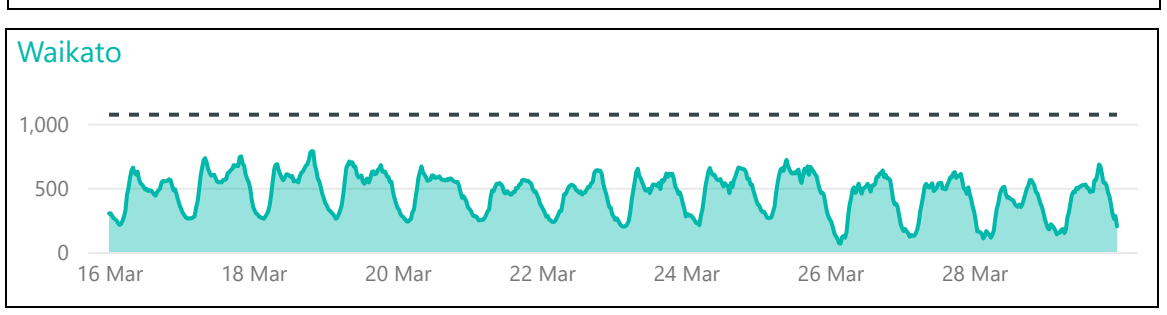
[1] TP_Sub_Code_Omnibus_#6_23Feb2026.

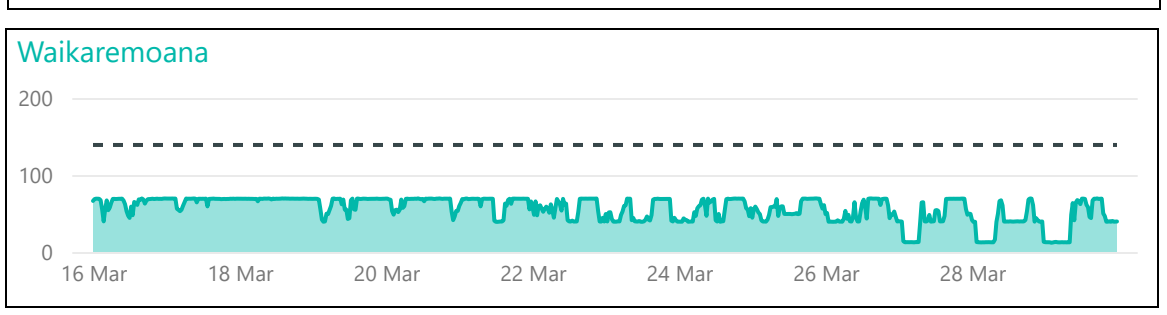
Generation Breakdown - Last Two Weeks

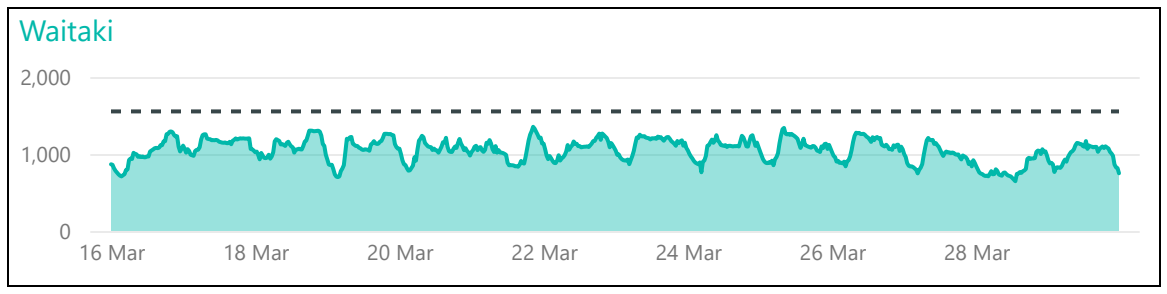
Measured in MW and displayed at trading period level for last 14 days

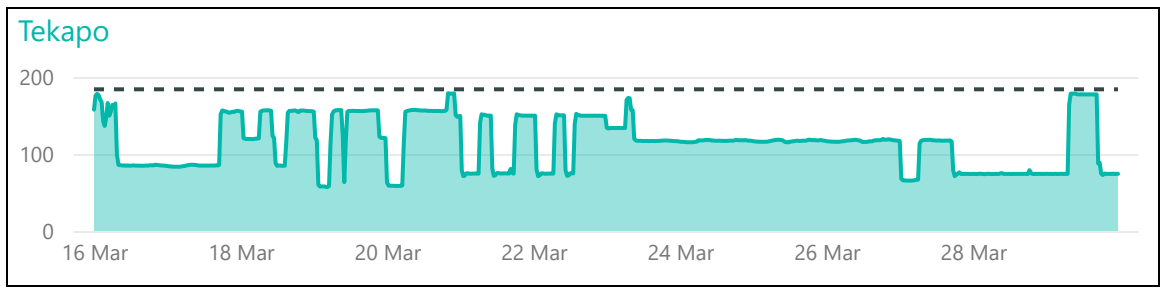


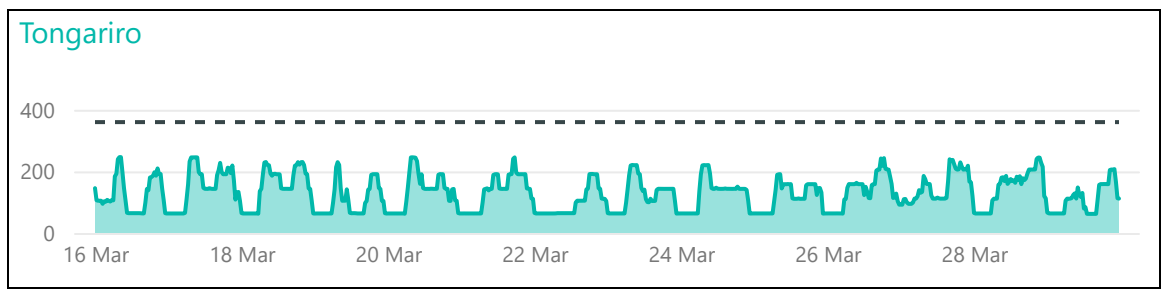


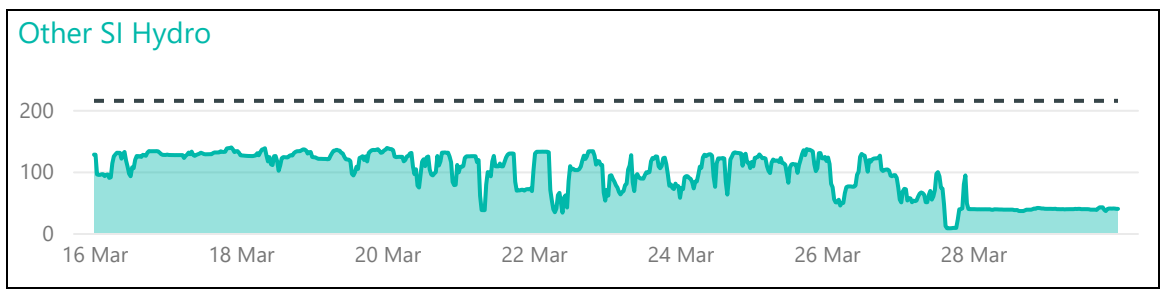


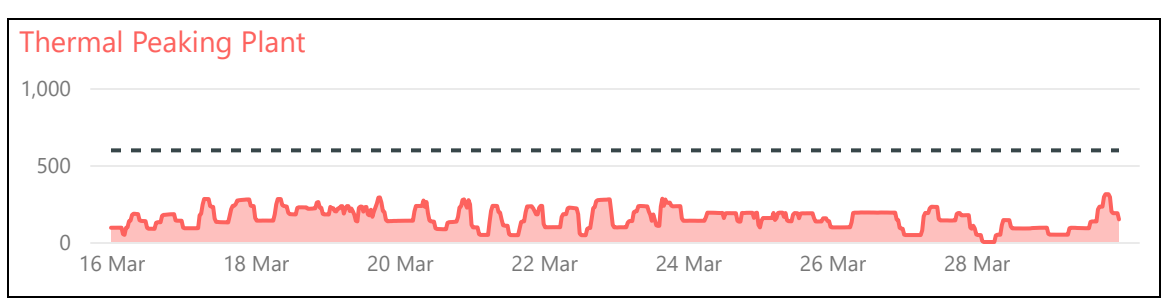


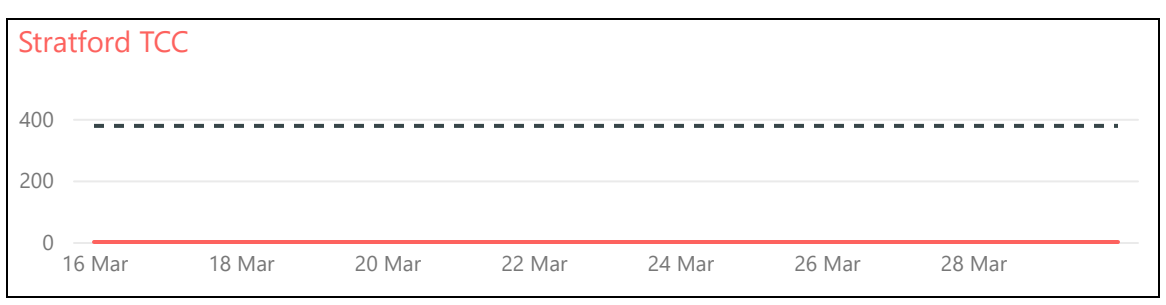


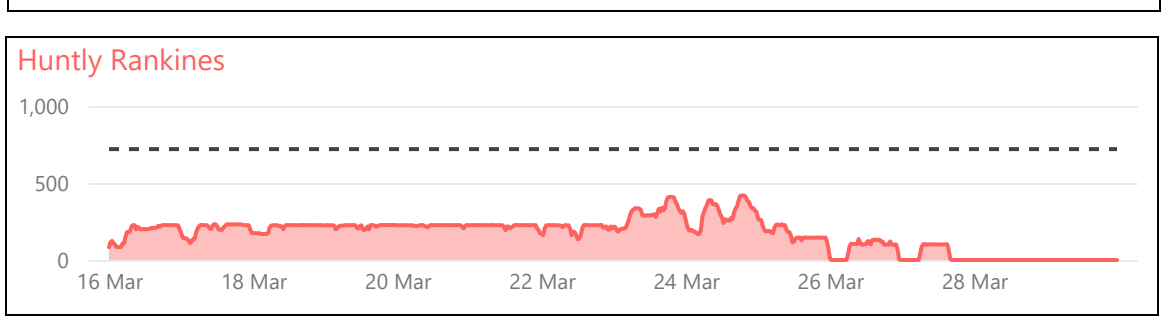


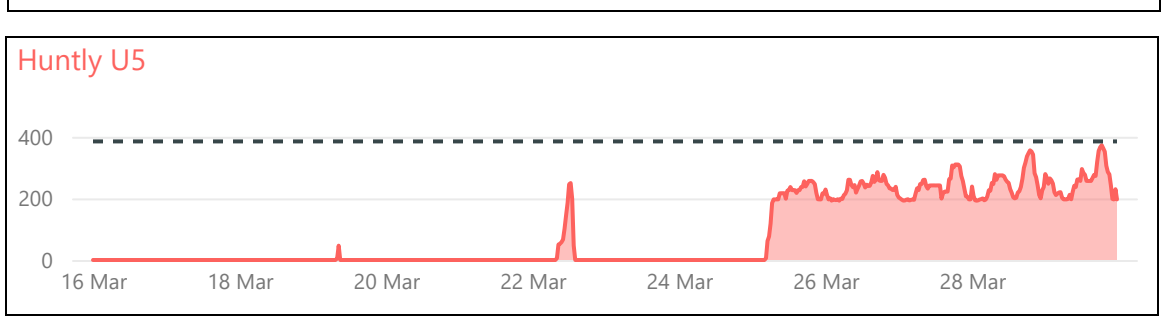


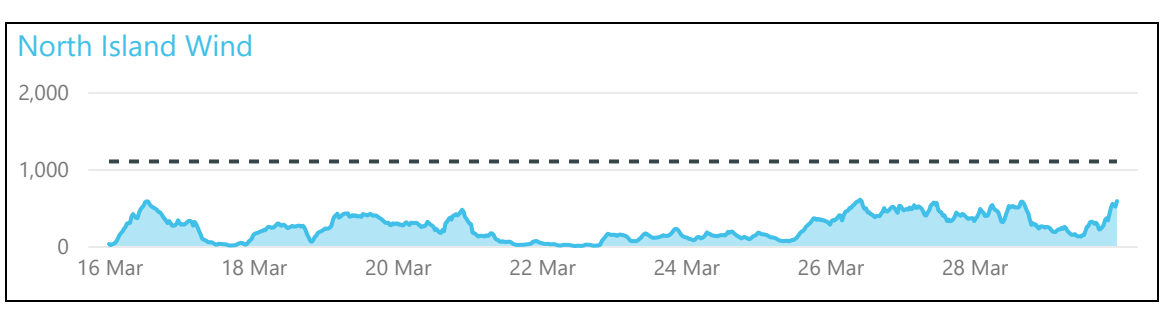


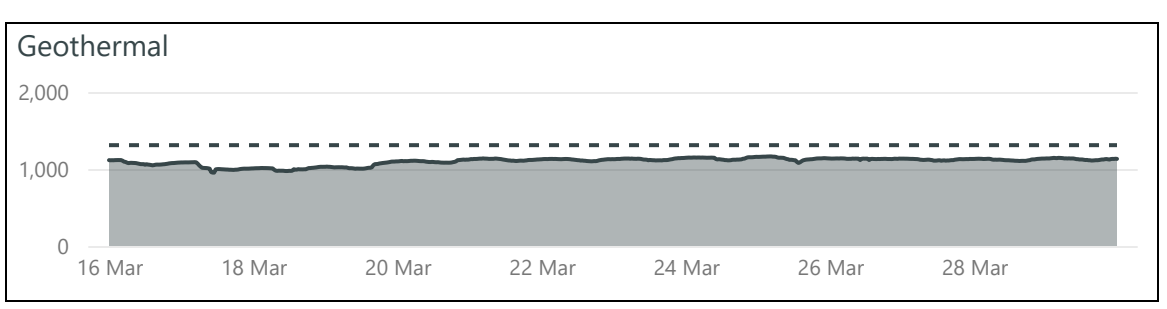


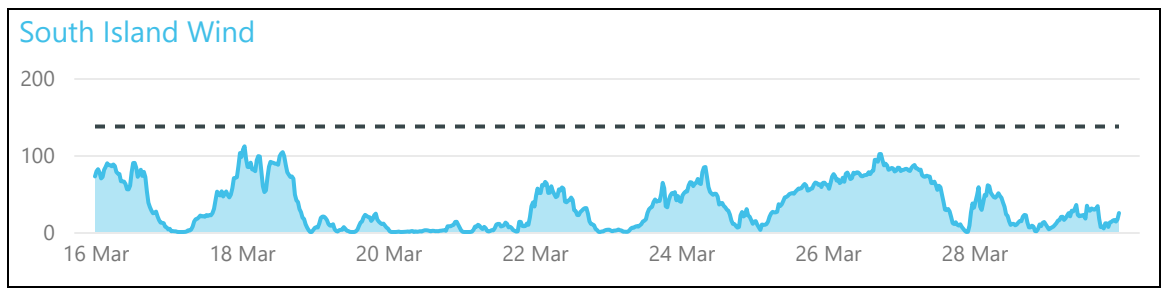


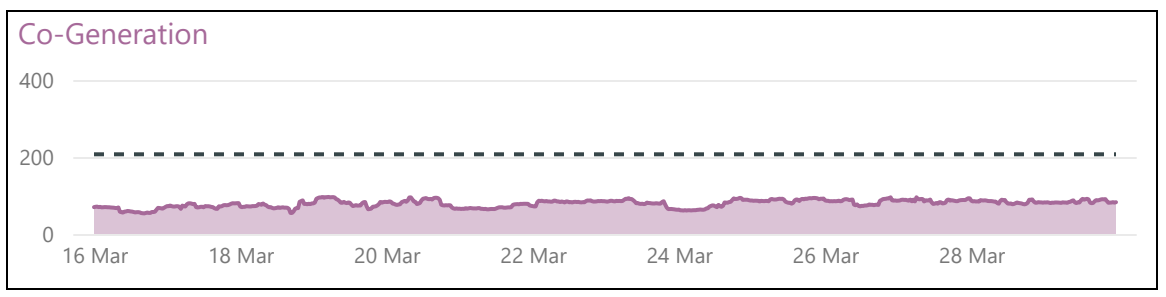


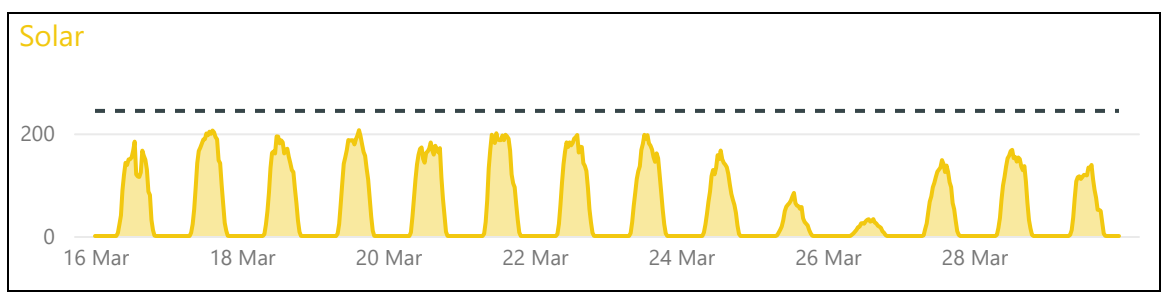


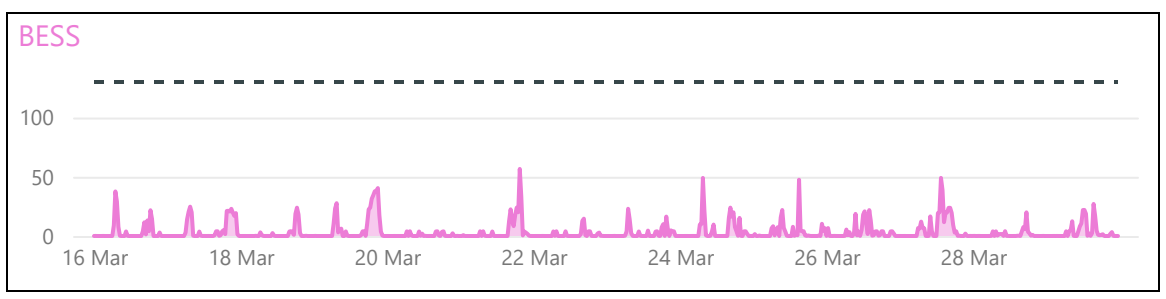






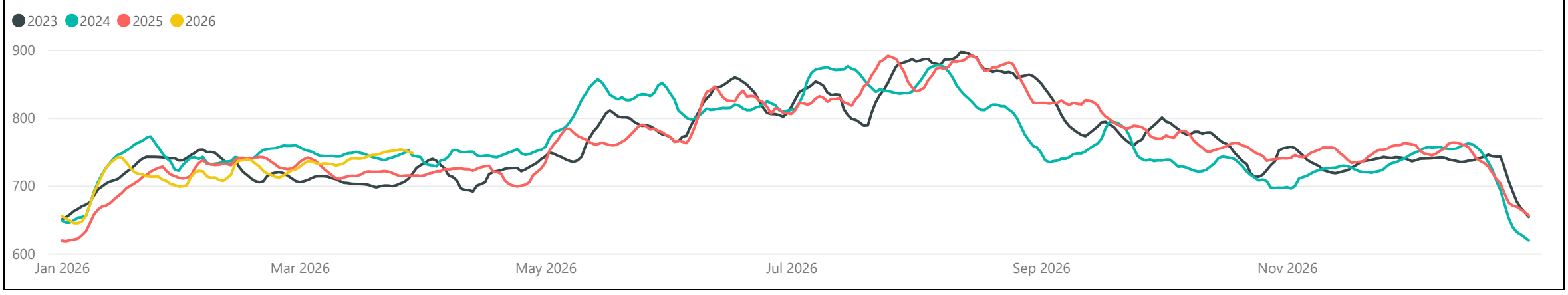




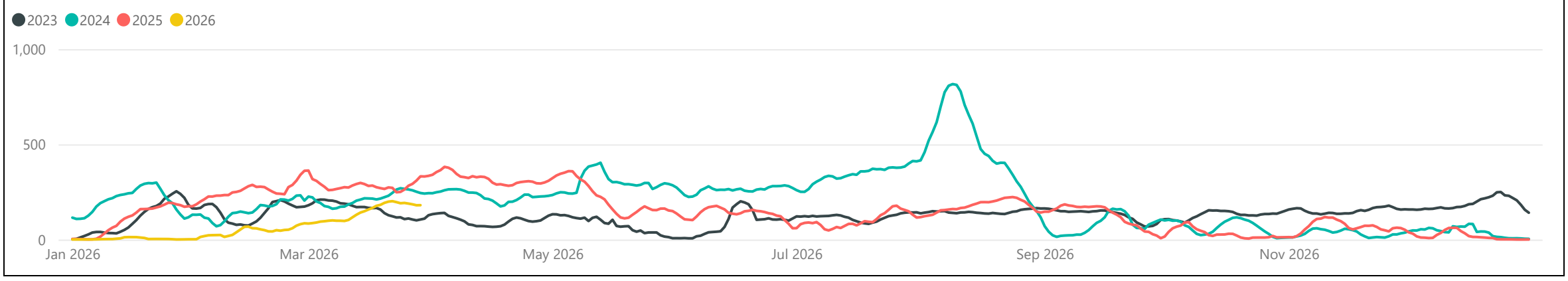


Weekly Profiles

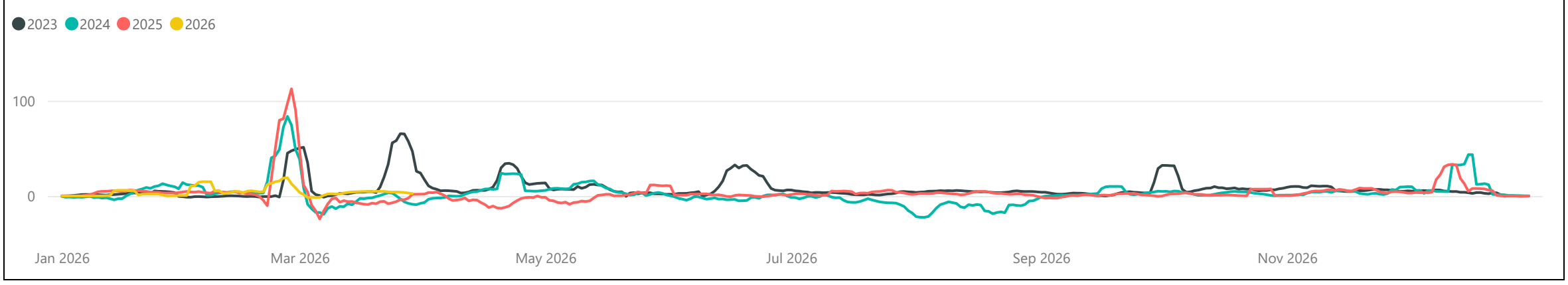
National Weekly Demand - GWh - 7 Day Rolling



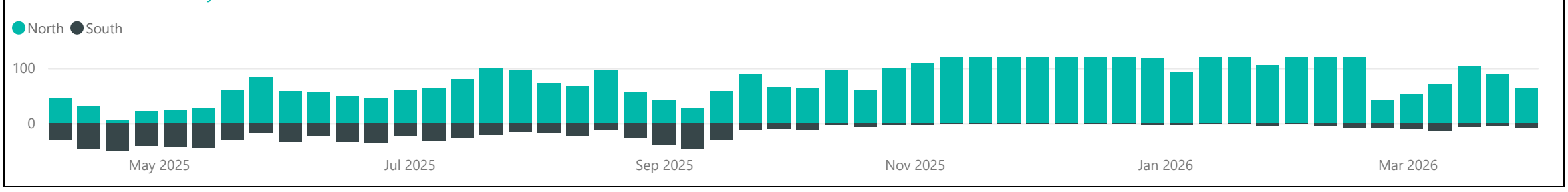
OTA2201 Weekly Rolling Average Spot Price - $/MWh



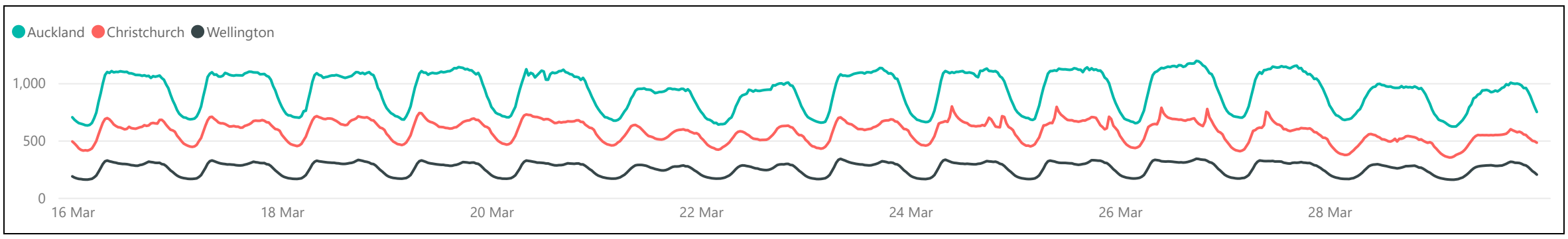
Weekly Rolling Price Separation (HAY2201 - BEN2201) - $/MWh



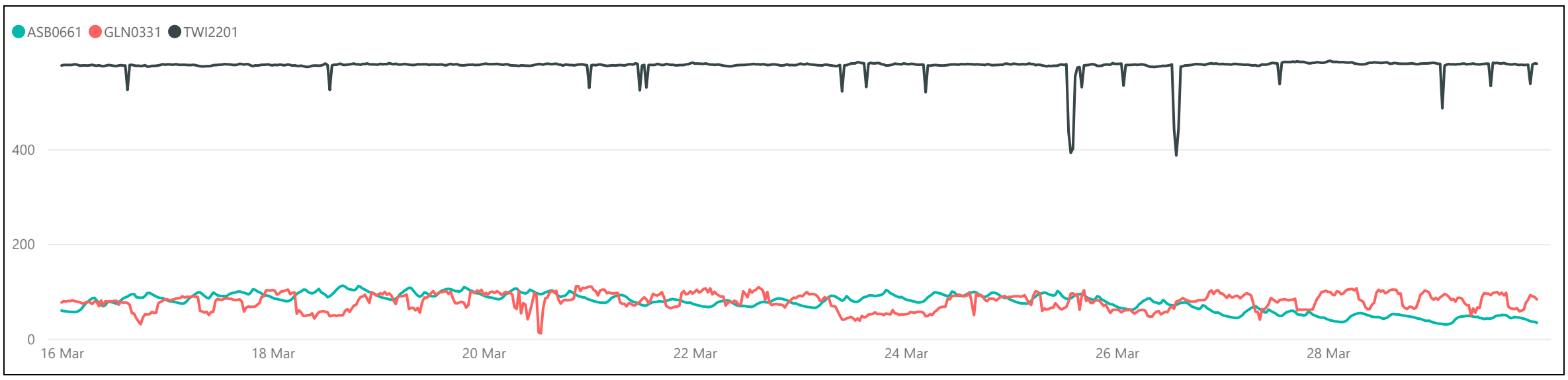
HVDC Transfer - Weekly GWh



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



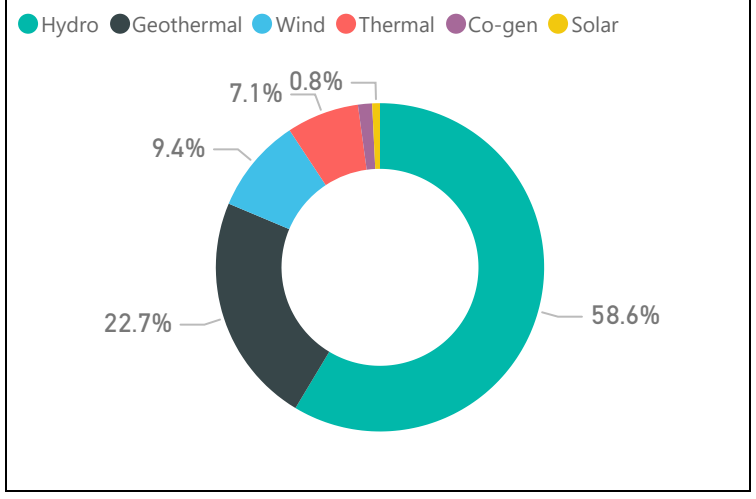
Non-Conforming Load Profiles - Last Two Weeks *Measured in MW shown by GXP*



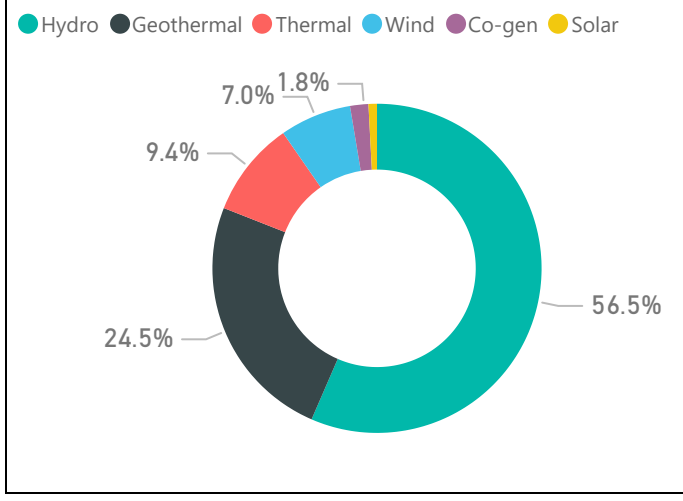
TRANSPOWER

Generation Mix

Last 52 Weeks Generation Mix - Weekly GWh



Last 7 Days Generation Mix - Weekly GWh



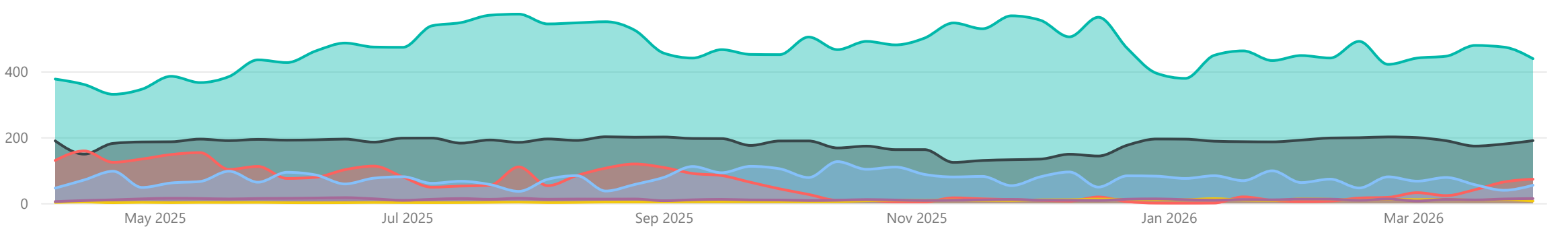
Average Metrics Last 7 Days

Renewable Percentage	CO2e Tonnes/Week	CO2e g/kWh
89%	63,749	81.1

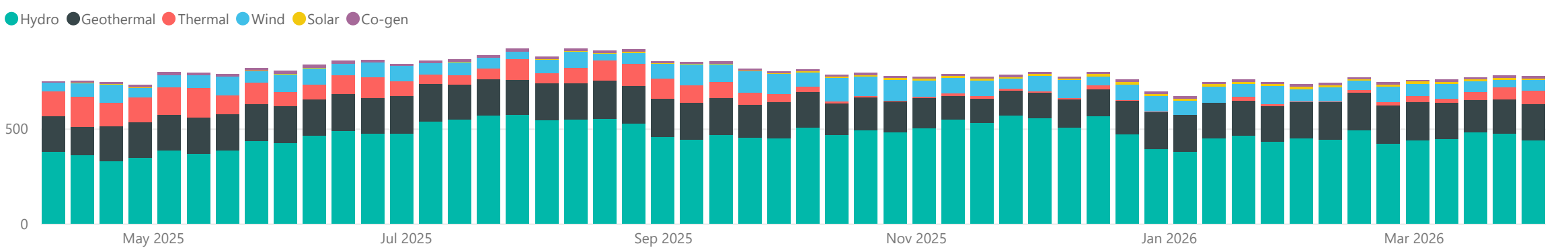
Average Metrics Last 52 Weeks

Renewable Percentage	CO2e Tonnes/Week	CO2e g/kWh
91%	51,374	63.5

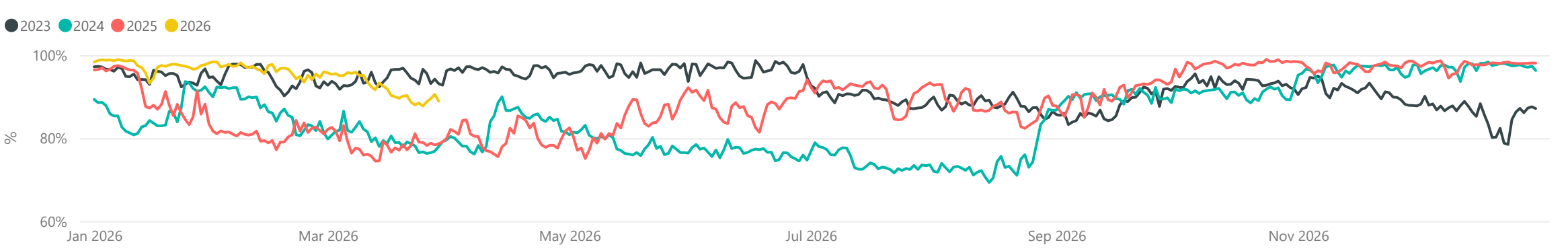
Weekly Generation Mix - GWh



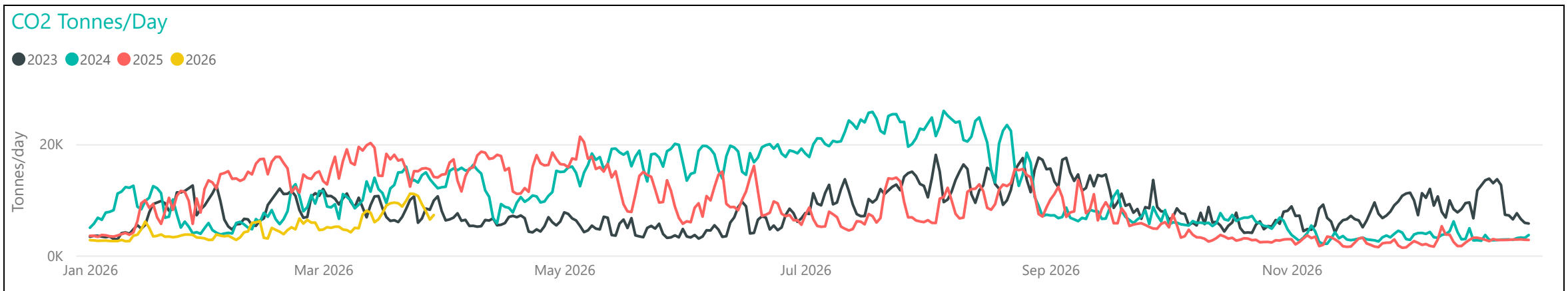
Weekly Generation Mix - GWh



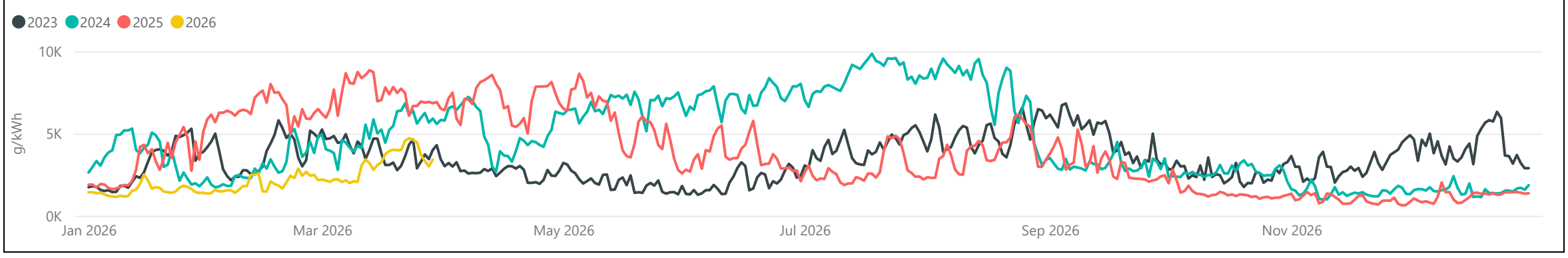
NZ Renewable Percentage



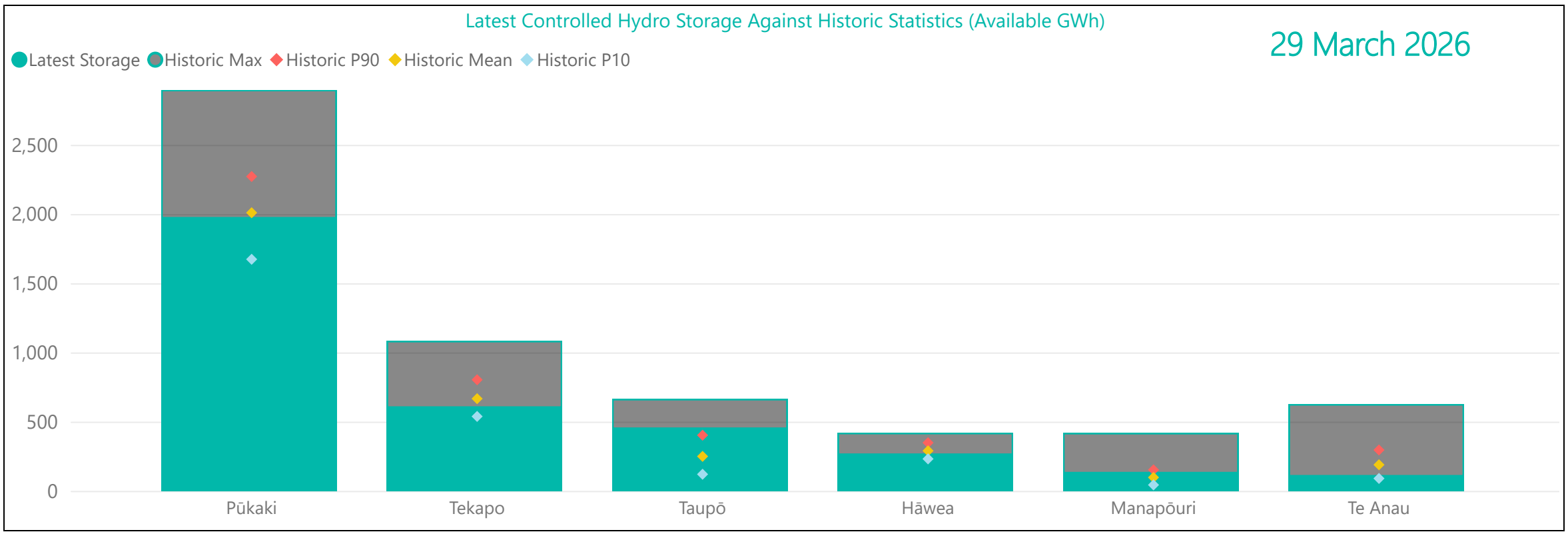
CO2 Tonnes/Day

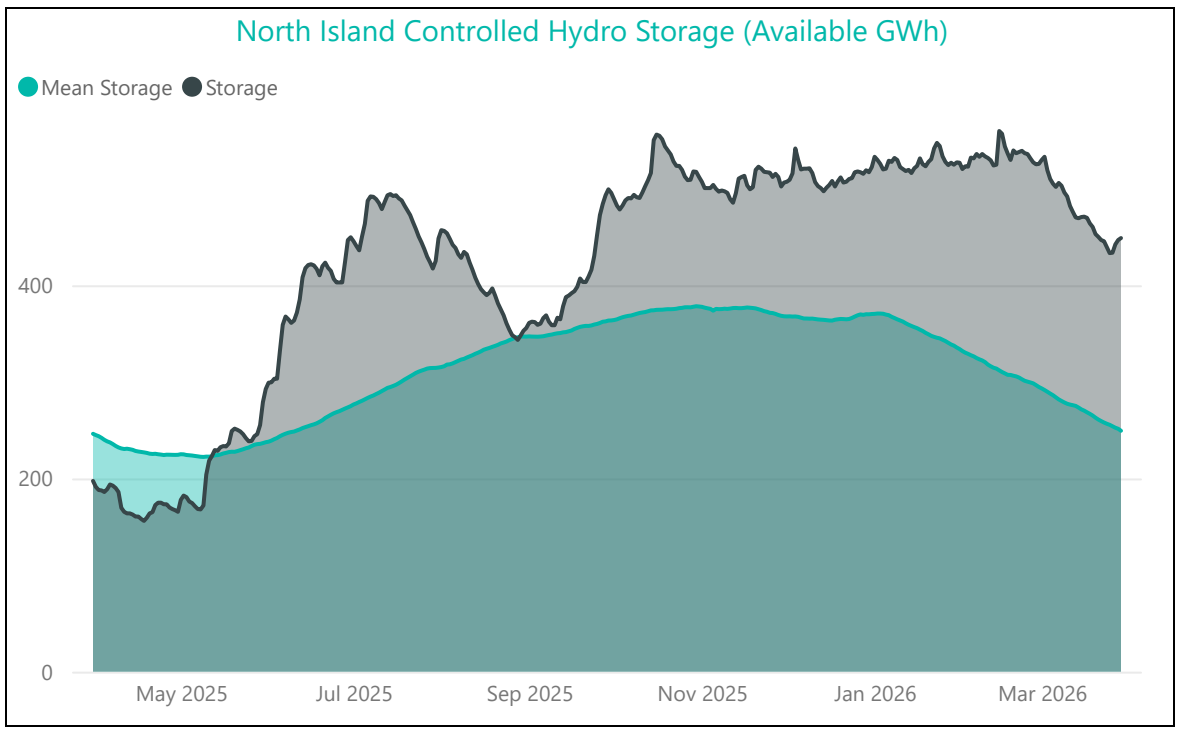


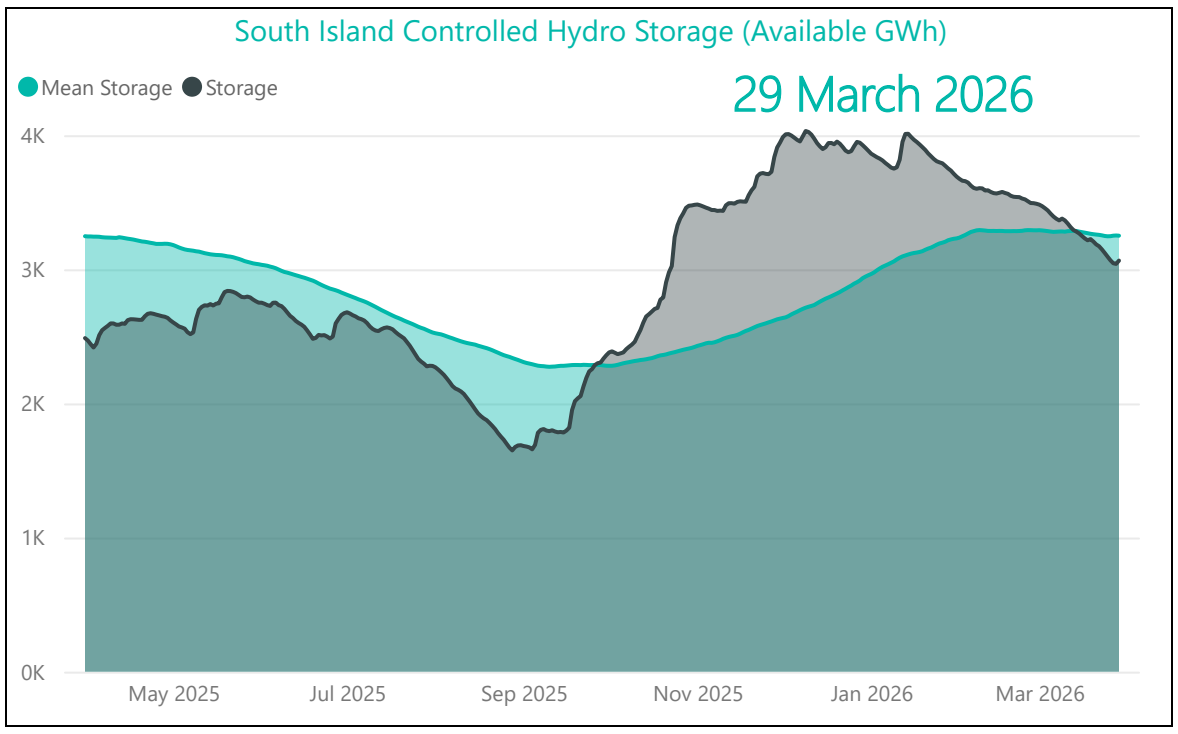
CO2 g/kWh

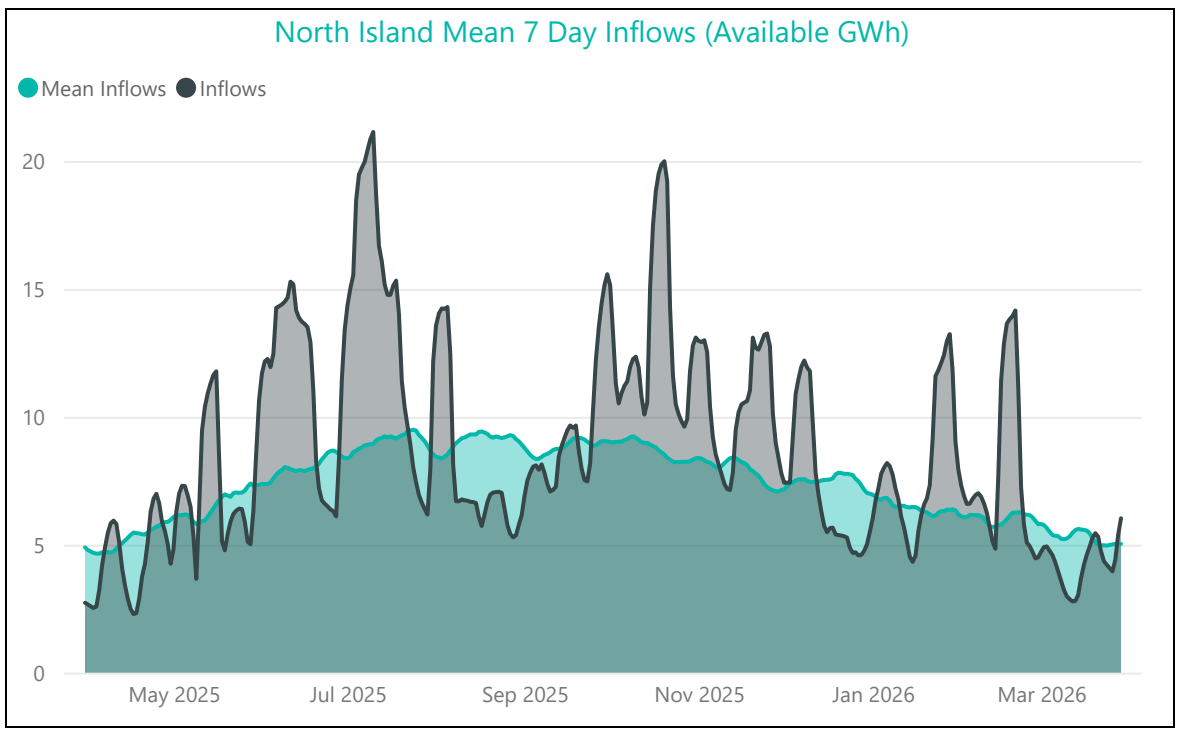


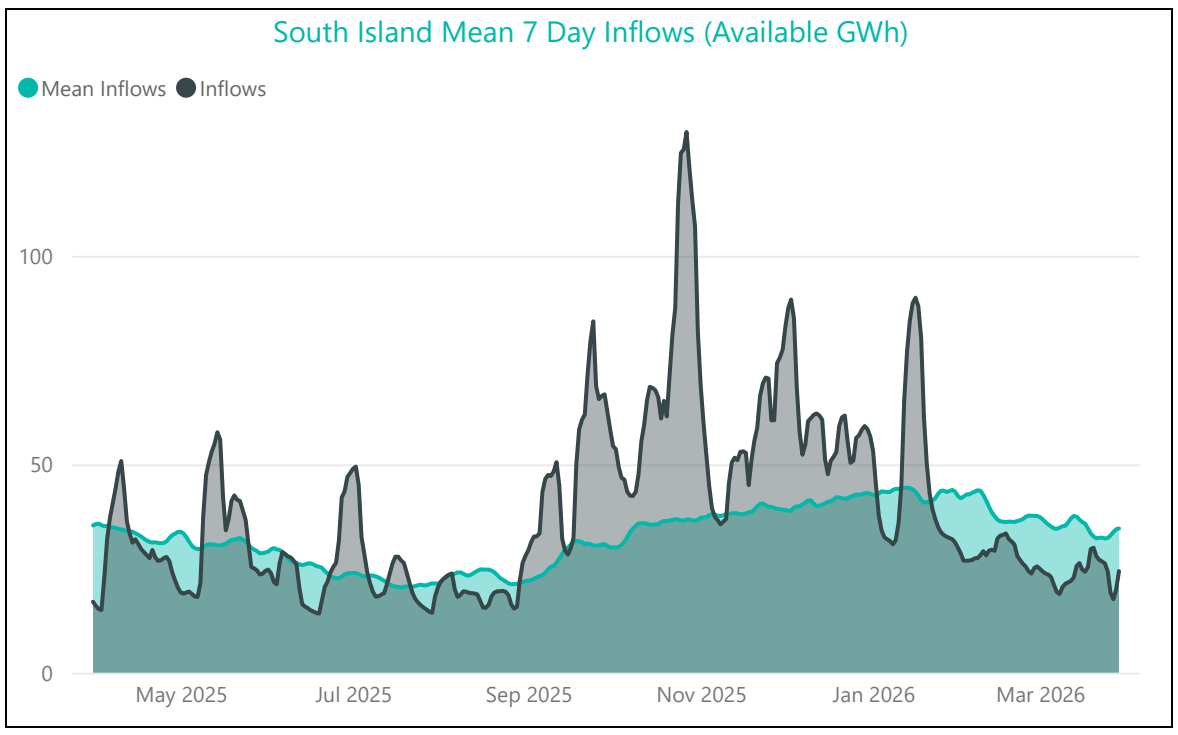
Hydro Storage











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

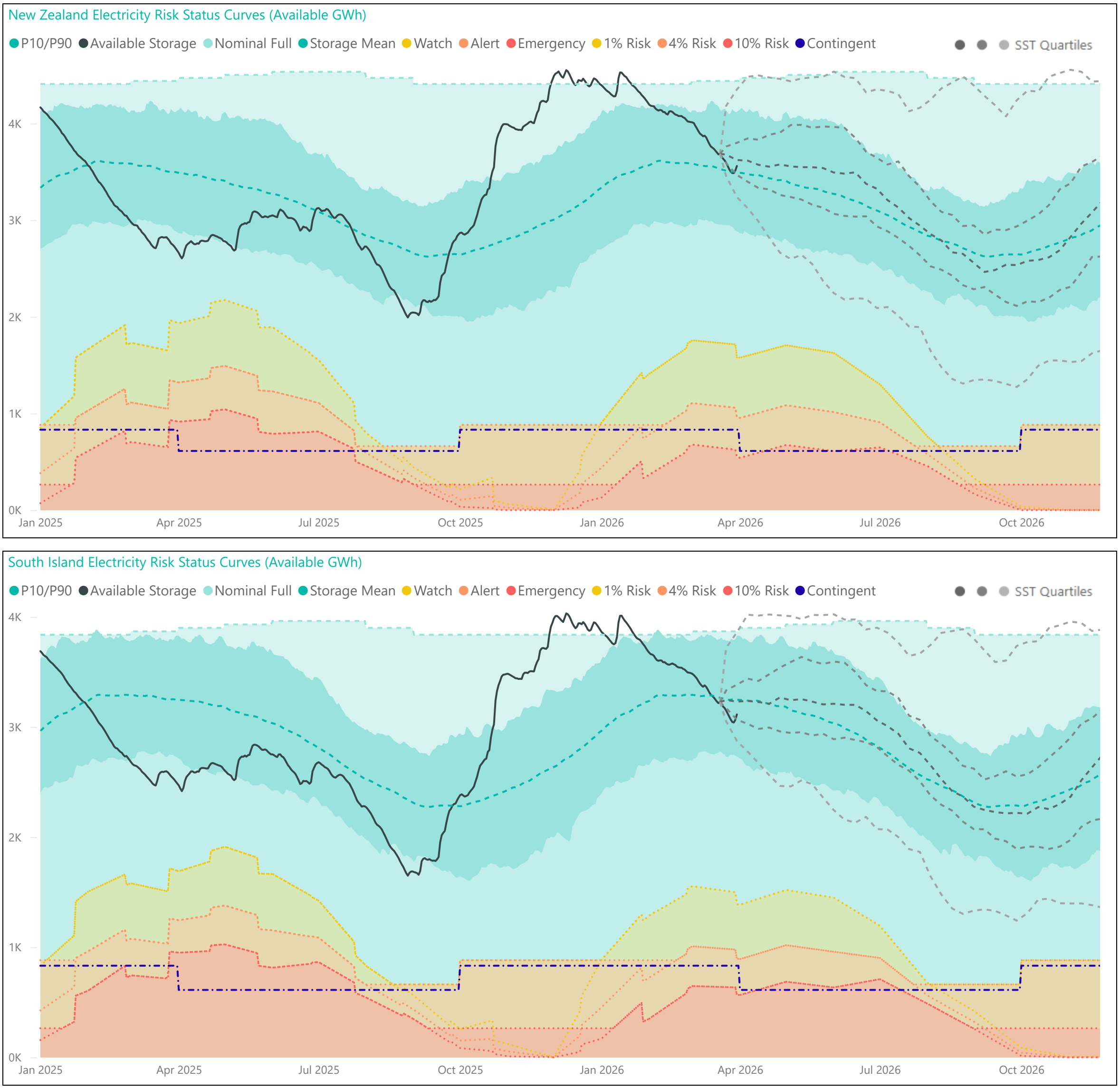
For any inquiries related to security of supply contact market.operations@transpower.co.nz

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).