

Weekly Market Movements - Week Ended 15 January 2023

Overview

National storage continues to trend downward, falling to 111.5% of average for the time of year. However, low rainfall in Southland has left Waiau catchment sitting at 38% of full. Thermal generation has risen to contribute 5.2% of the generation mix resulting in the renewable contribution falling to 92%, the lowest contribution percentage since August 2022.

This week's bite sized insight provides a summary of the recently released [2023 Security of Supply Outlook report](#).

Security of Supply Energy

National storage has fallen by four percent compared to the previous week, currently sitting at 111.5% of average for the time of year. South Island storage is at 107.5% of the historical average which is a five percent decrease compared to the previous week. It was high as a result of the wet winter and spring and is now declining rapidly consistent with La Nina conditions. As noted above, the Waiau catchment is at 38% of full.

North Island storage has risen two percent compared to the previous week, sitting at 146.6% of average for the time of year. The increase in North Island storage is partially due to the effects of ex-cyclone Hale. With North Island storage so high Waikaremoana has been operating at nearly full output since 10 January.

There has been an upwards trend in Maui's daily production values over the last two weeks with a handful of days exceeding 100TJ's per day.

Capacity

Residual generation continues to be healthy as we would expect for this time of year.

The NZGB margins are healthy but there is a low point towards the end of February due to planned HVDC outages for maintenance. The latest NZGB report covering through to the end of May is available on the [NZGB website](#).

Electricity Market Commentary

Weekly Demand

Demand increased five percent from the previous week up to 708GWh. Demand peaked at 4,982MW at 5:30pm on Tuesday the 10th. This week's peak demand was four percent higher than the previous week.

Weekly Prices

Wholesale prices increased from the previous week, up from \$32/MWh to \$53/MWh at Haywards as the contribution of thermal generation increased. Prices peaked at \$163/MWh at Haywards at 10:00pm on Sunday the 15th.

Generation Mix

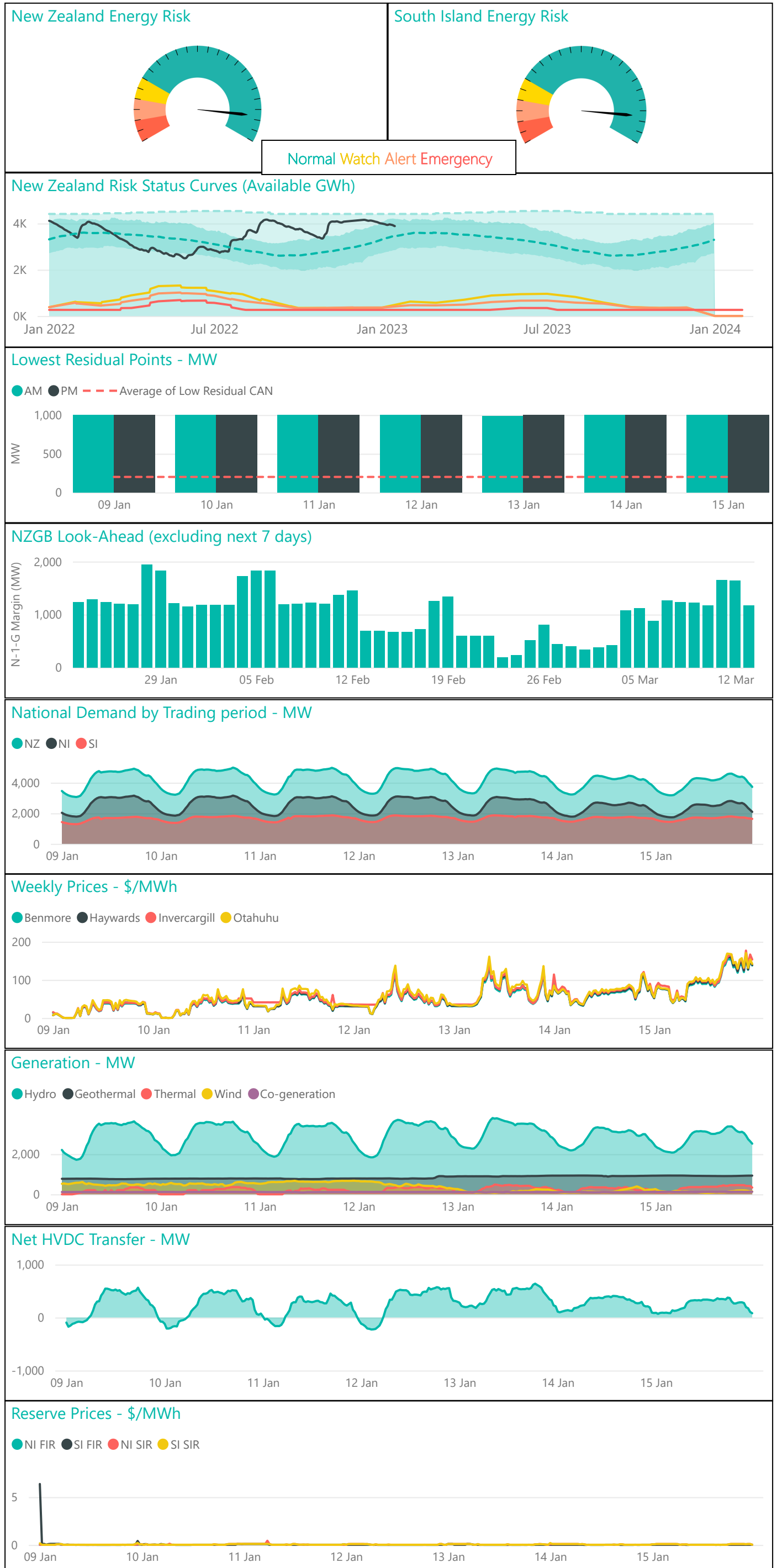
The percentage of renewable generation has fallen significantly compared to the previous week, contributing 92% of the generation mix. This is the lowest that the renewable contribution has been since August 2022. Hydro generation decreased from 69% to 66% of the energy mix, while thermal has risen significantly from 1.4% to 5.2% of the energy mix. Wind generation contributed 8.1% of the generation mix which is up from 7.4% the previous week.

HVDC

The DC transfer was predominantly northward this week. However, there were four overnight periods of southward transfer at the beginning of the week corresponding with periods of high North Island wind generation and low overnight load.

Upcoming HVDC Outages

There are a series of upcoming planned HVDC outages between 23 February and 06 March. Included in this is a bipole outage from 5:00am on 25 February until 18:00pm on 26 February.



2023 Security of Supply Outlook - Summary

What is Security of Supply?

Security of Supply is about ensuring that there is enough electricity to keep the lights on, now and in the months and years ahead. In New Zealand's power system there are two key components:

- **Capacity:** There must be sufficient generation capacity available to meet demand for electricity at any given point in time. I.e., meeting evening peaks. This is generally expressed in MW.
- **Energy:** There must be sufficient stocks of fuel (e.g., water, gas, and coal) to produce enough energy to meet demand for electricity until such times as those stocks can be replenished. I.e., meeting our energy needs for the whole week, month, or winter. This is generally expressed in GWh.

The system operator has analysed the winter peak **capacity** challenges experienced in 2021 and 2022 and explored the potential size and shape of the peak **capacity** challenge in 2023 in the [System Operator Winter Review Paper](#).

The [2023 Security of Supply outlook report](#) analyses the availability of the fuels necessary to produce **energy** to meet the demand for electricity throughout 2023.

Overall assessment for 2023

When looking ahead to 2023, there are similarities to 2022:

1. NIWA has indicated another La Niña event and subsequent dry summer/autumn is likely.
2. Daily national gas production is approximately the same going into 2023 compared to the beginning of 2022 (~375TJ/s).

While the prospect of another dry summer and autumn considered in isolation could be cause for concern there are number of positive impacts on energy security expected in 2023 outlined below.

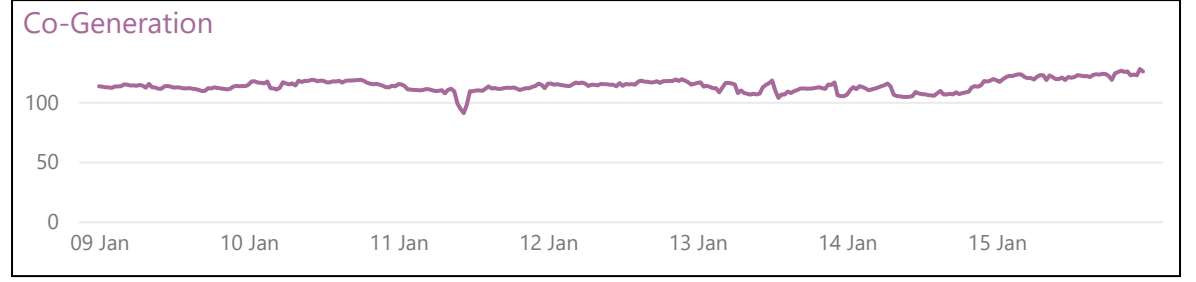
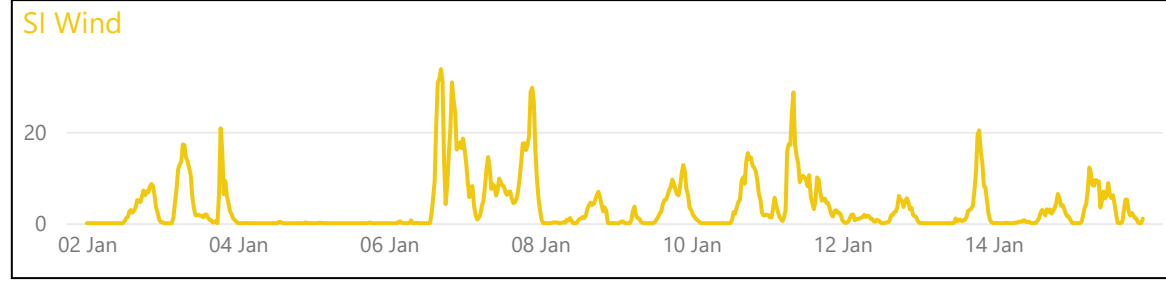
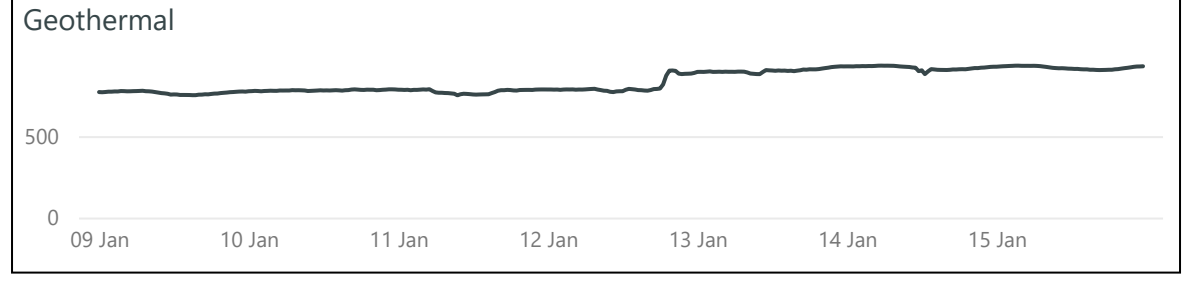
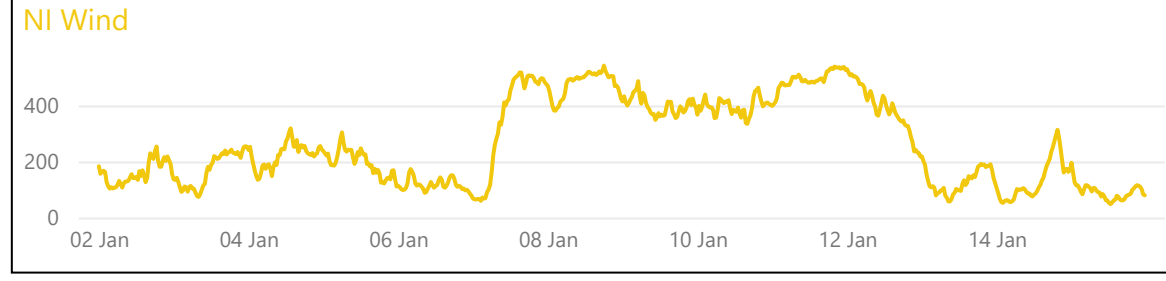
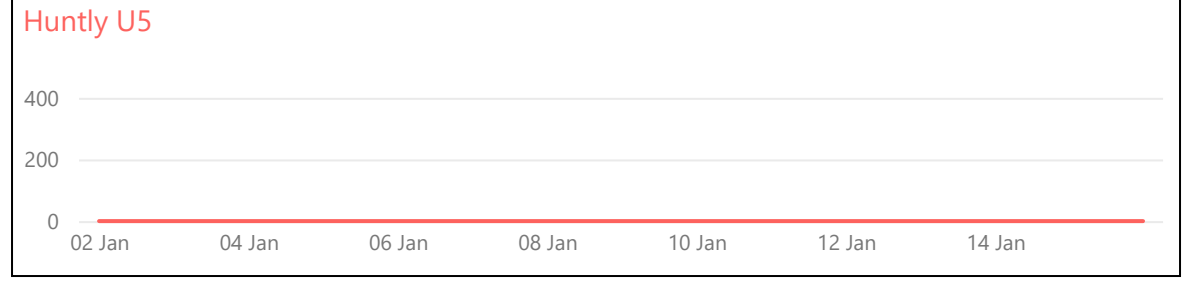
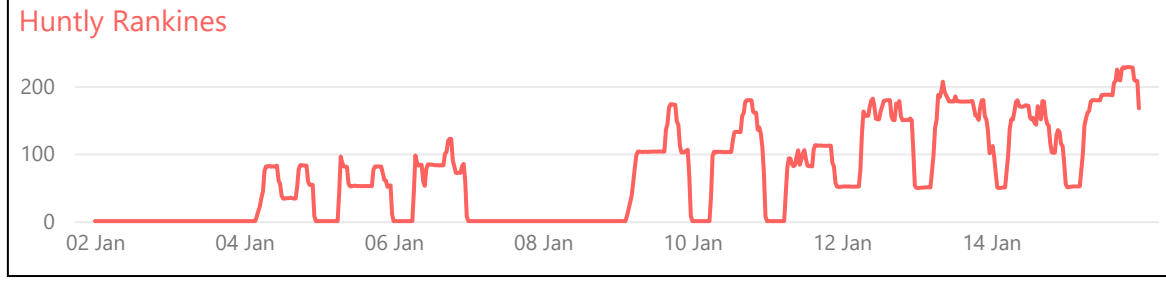
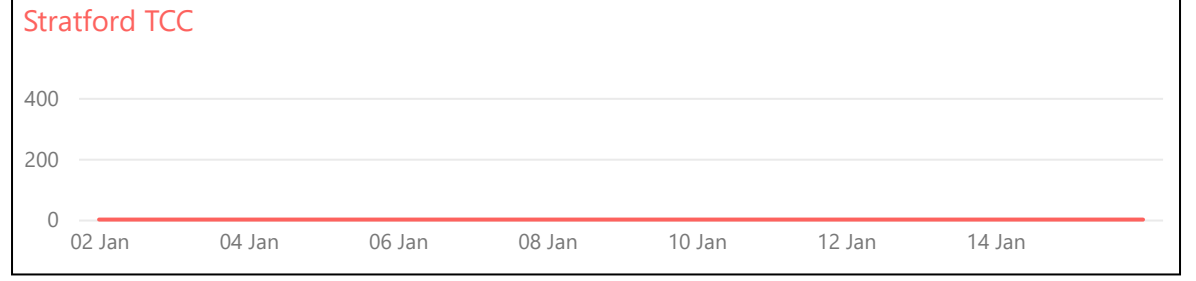
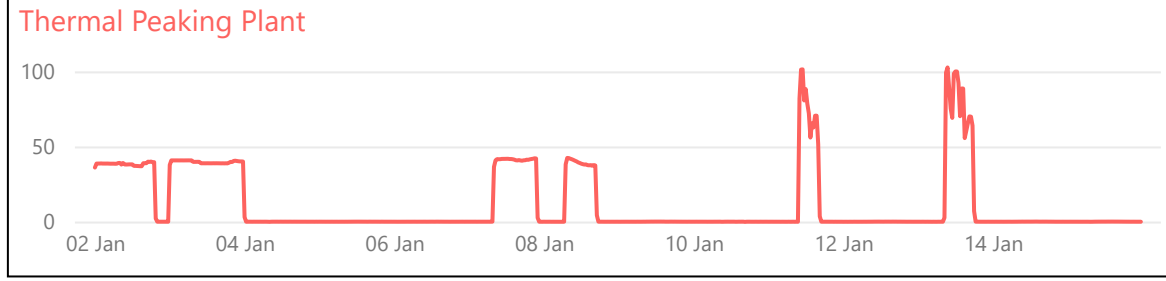
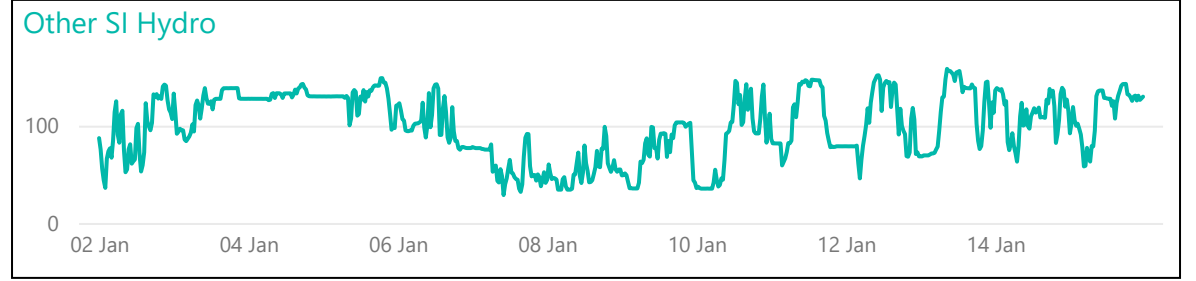
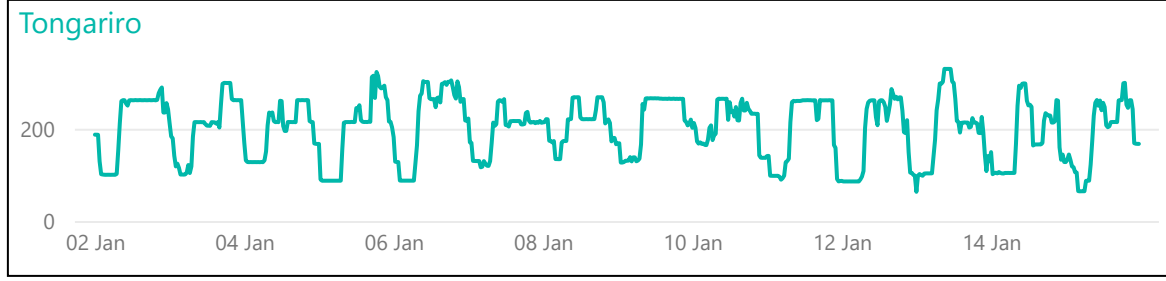
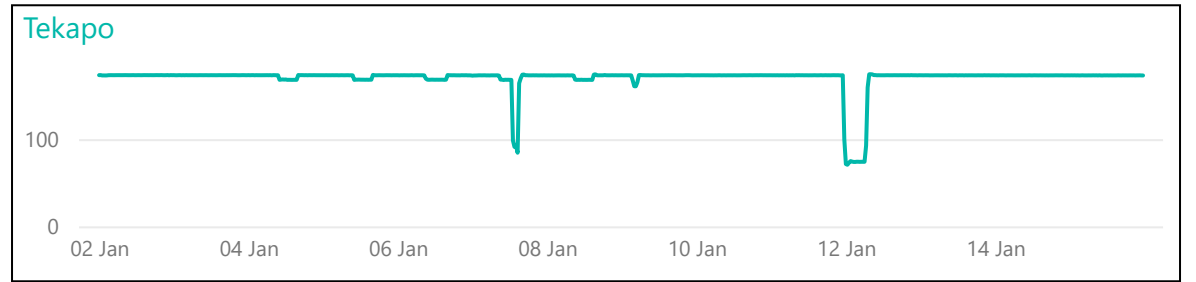
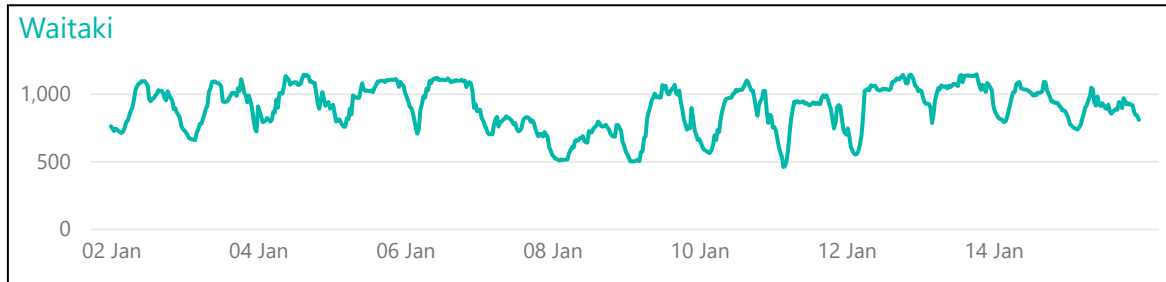
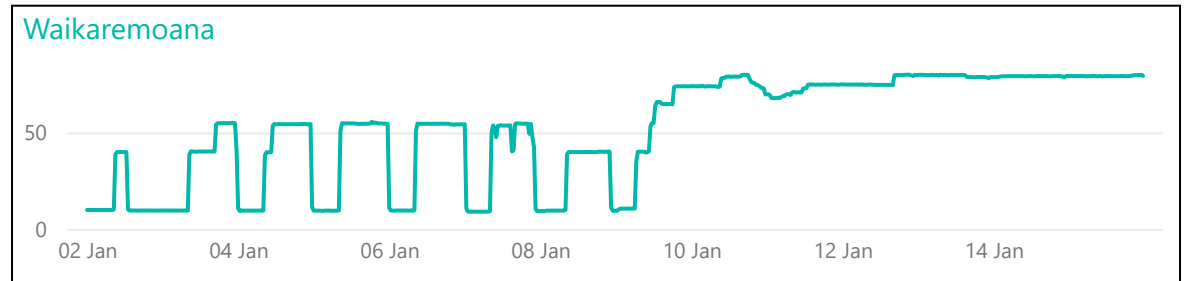
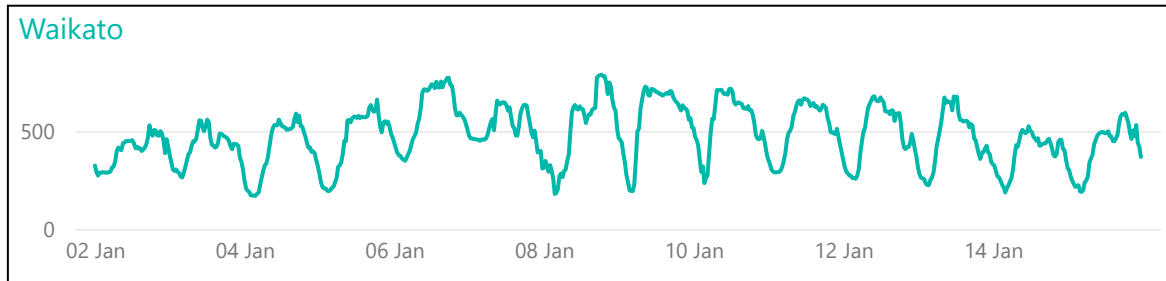
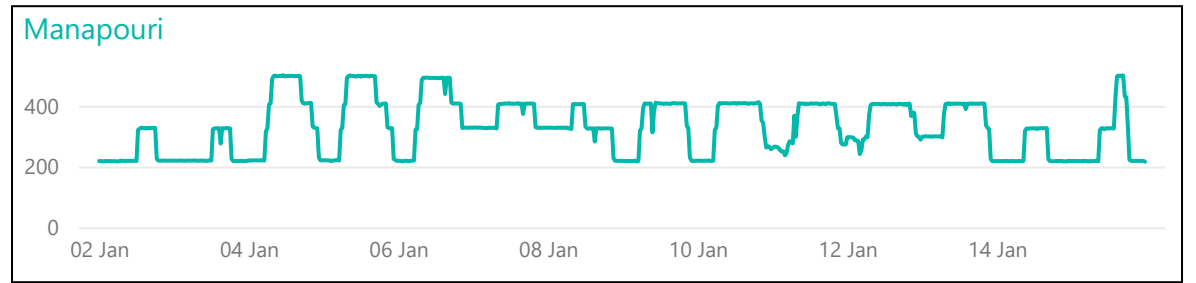
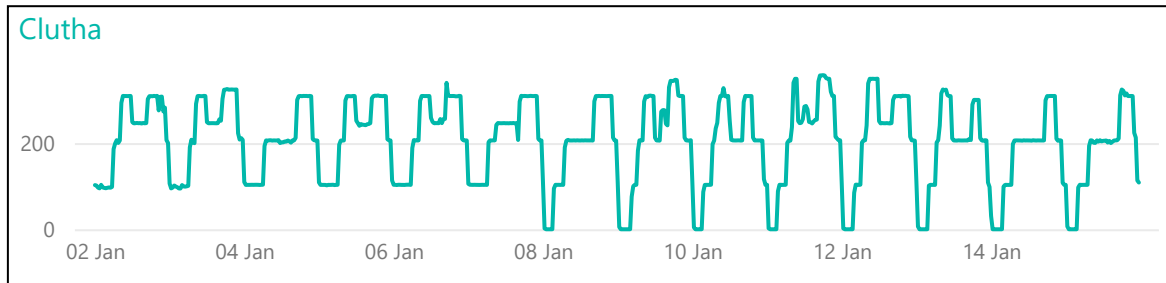
1. Due to a wet winter last year, hydro storage is currently higher than it was at this time in 2022, 116% of full for the time of year compared to 112%. A high starting hydro storage position is important with La Niña forecast increasing the likelihood of below average inflows through the first quarter of 2023.
2. Three Huntly Rankine units are available until the end of 2023. These units can run on coal or gas, increasing the diversity of fuel for the generation fleet if gas or coal were to become scarce.
3. The coal stockpile is currently high, sufficient to operate a 240MW baseload thermal unit for approximately 365 days.
4. Current levels of stored gas could power a 240MW baseload thermal unit for approximately 101 days¹.
5. In a dry year the thermal fleet could run largely unconstrained in the short term by relying on stored gas, coal imports, and the coal stockpile, or relying on commercial incentives to deallocate gas demand from the petrochemical sector to electricity generation like that observed during 2021.
6. The commercial arrangements observed in 2021 have demonstrated the market can facilitate reallocation of gas from the petrochemical sector to the generation sector. Though, this does not imply that the same commercial arrangements will be repeated this year².
7. Due to several new generators being commissioned, and factoring in decommissionings, by August there is expected to be an additional 86GWh/month of energy being produced, or 2.4% of typical winter demand. There is risk of commissioning dates slipping, but the trend suggests that more generation can be expected to come online as the year progresses.

¹ This assumes daily output from Ahuroa can be sustained, actual output rates will vary as storage levels decline.

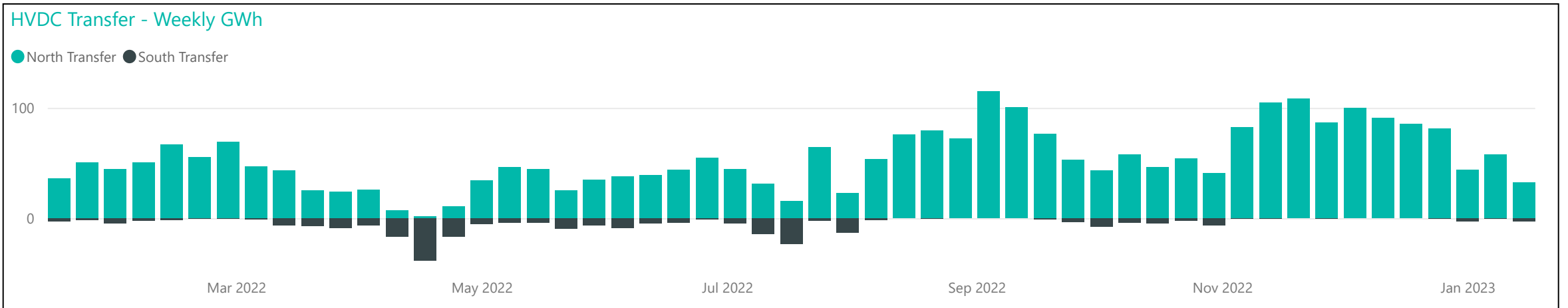
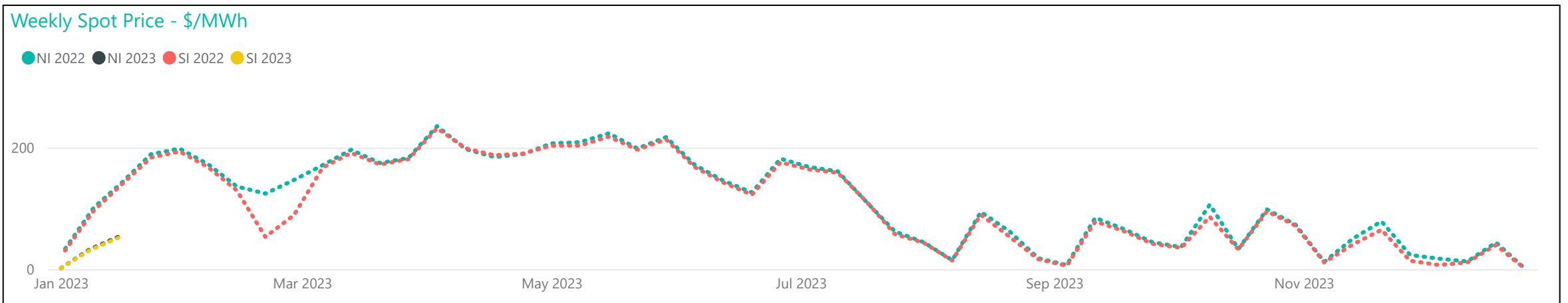
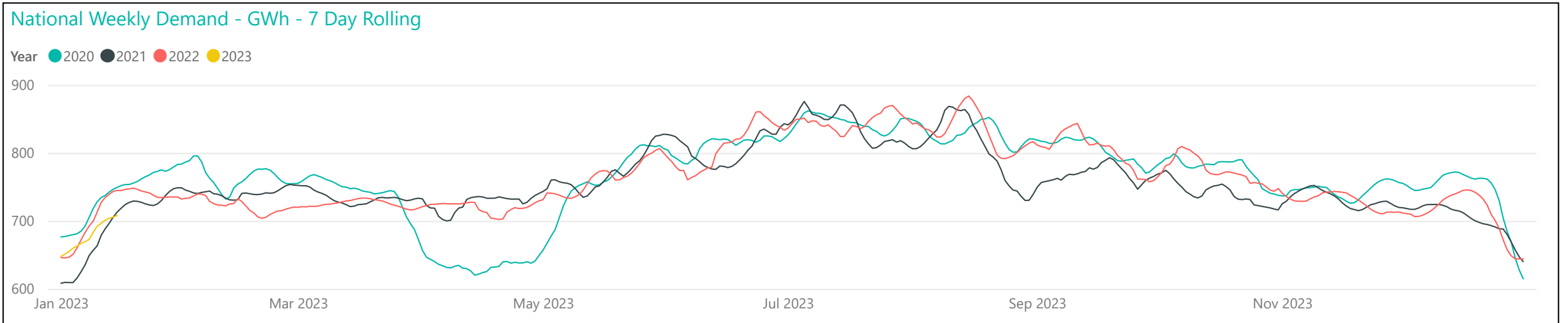
² In the recent [statement](#) from Contact Energy they confirmed they have "several mitigations available to limit the impact from the reduced capacity at AGS for winter 2023. These include entering flexible gas contracting arrangements and, if necessary, acquiring additional gas".



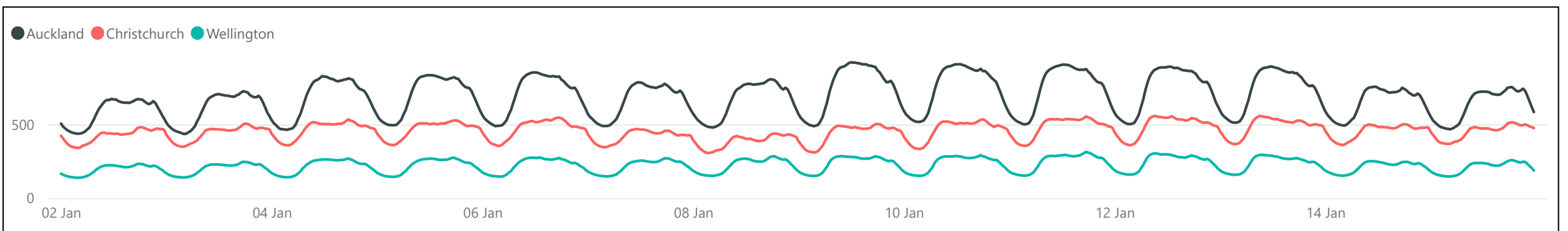
3. Generation Breakdown - Last Two Weeks *Measured in MW and displayed at trading period level for last 14 days*



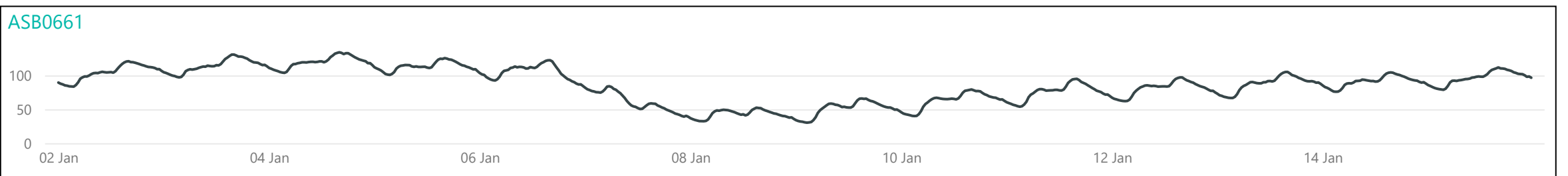
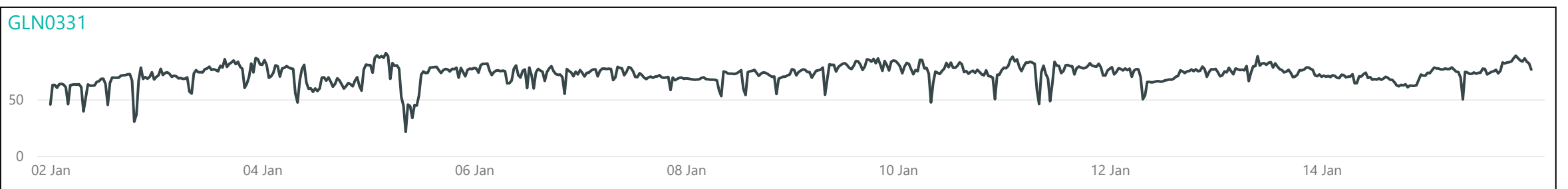
4. Weekly Profiles



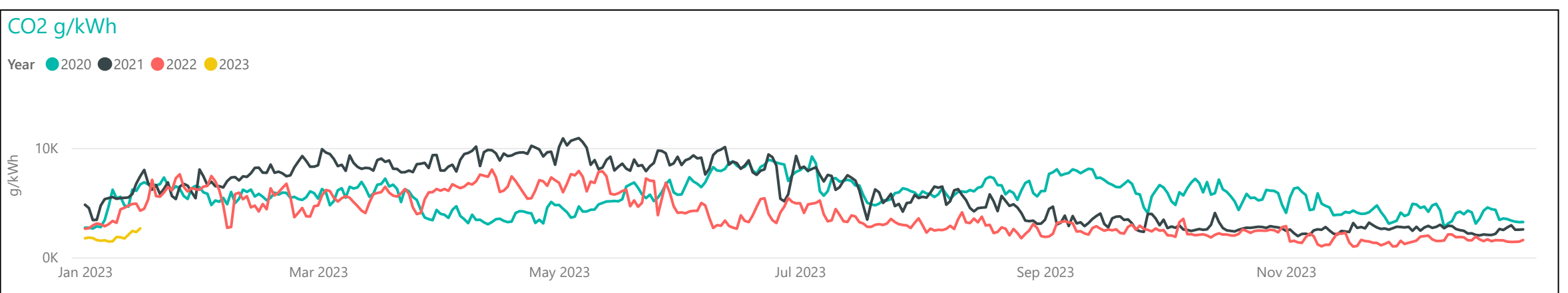
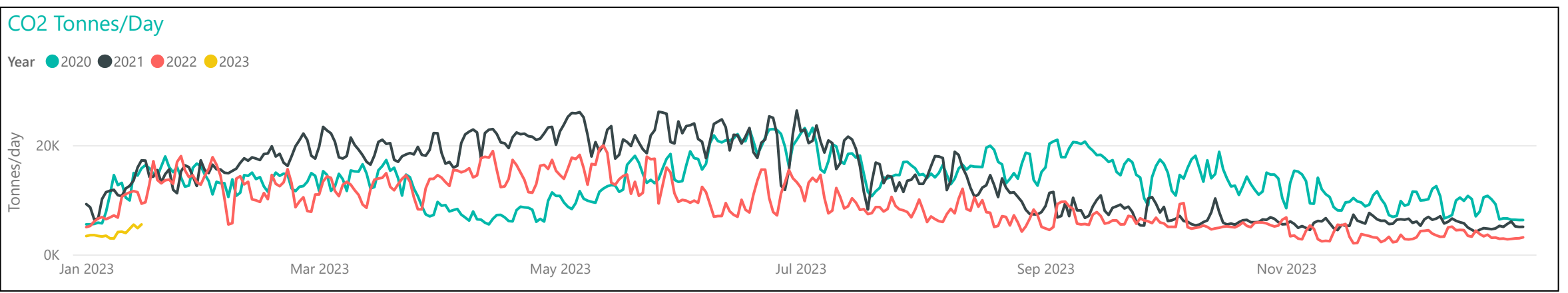
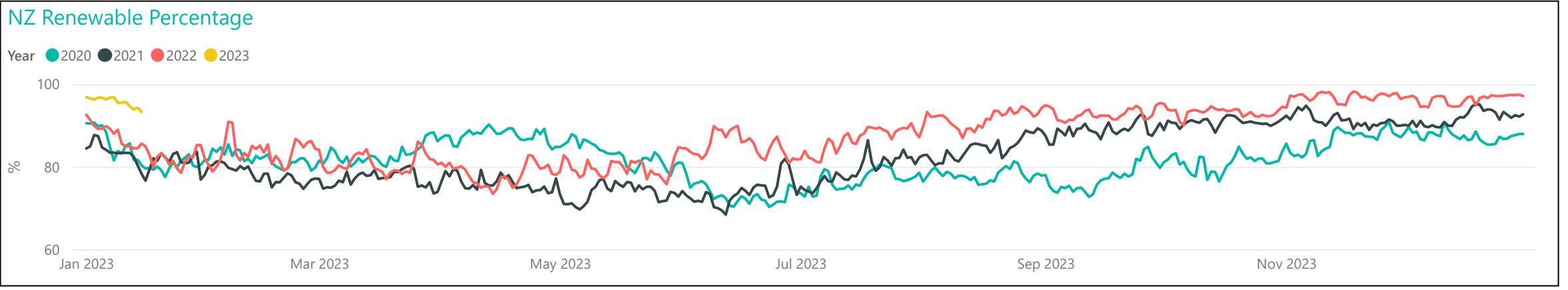
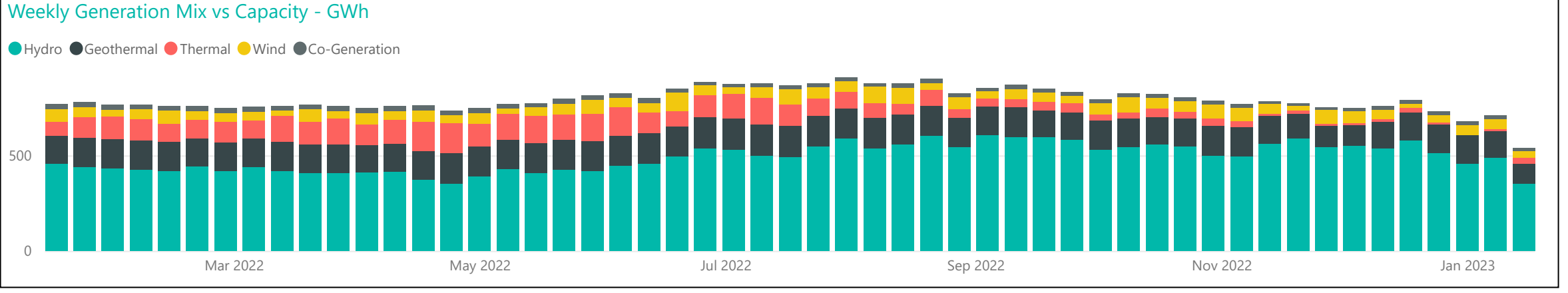
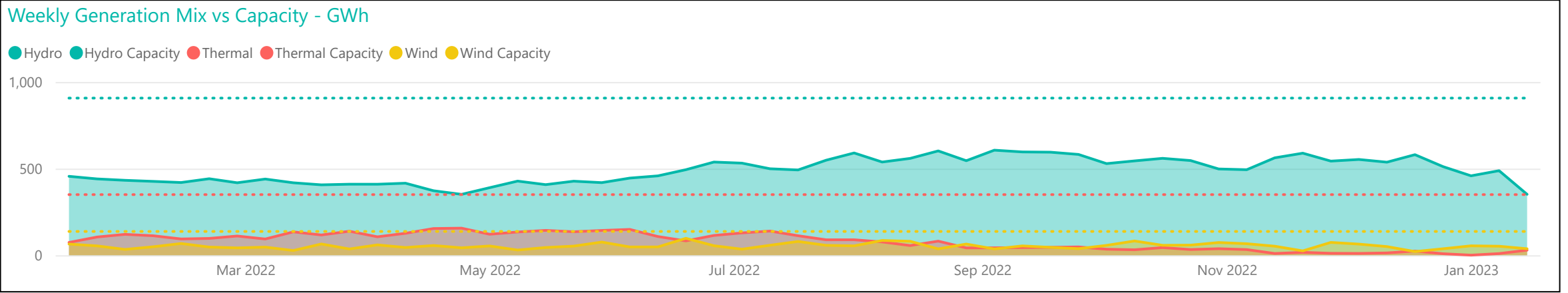
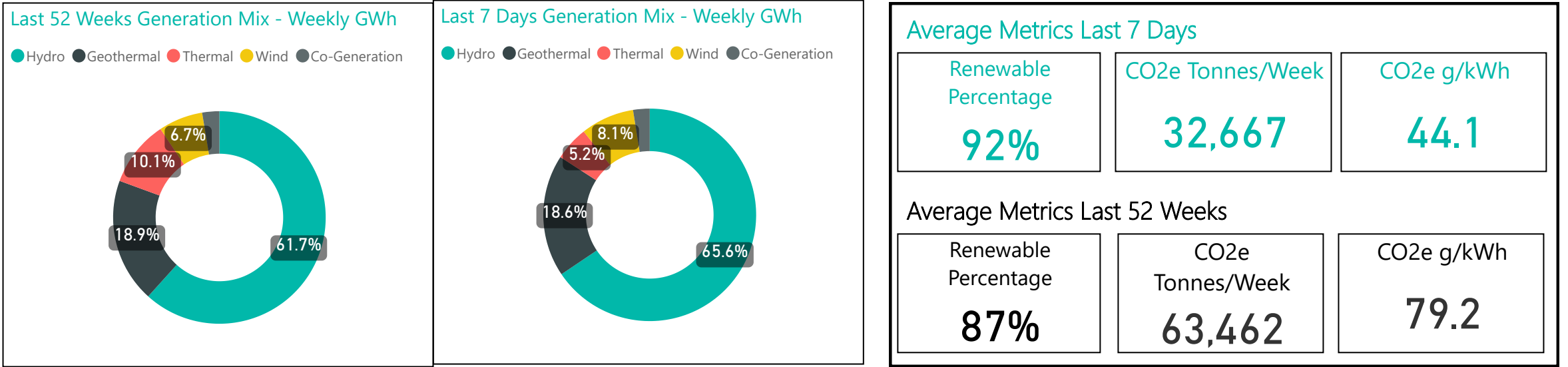
Conforming Load Profiles - Last Two Weeks *Measured in MW shown by region*



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

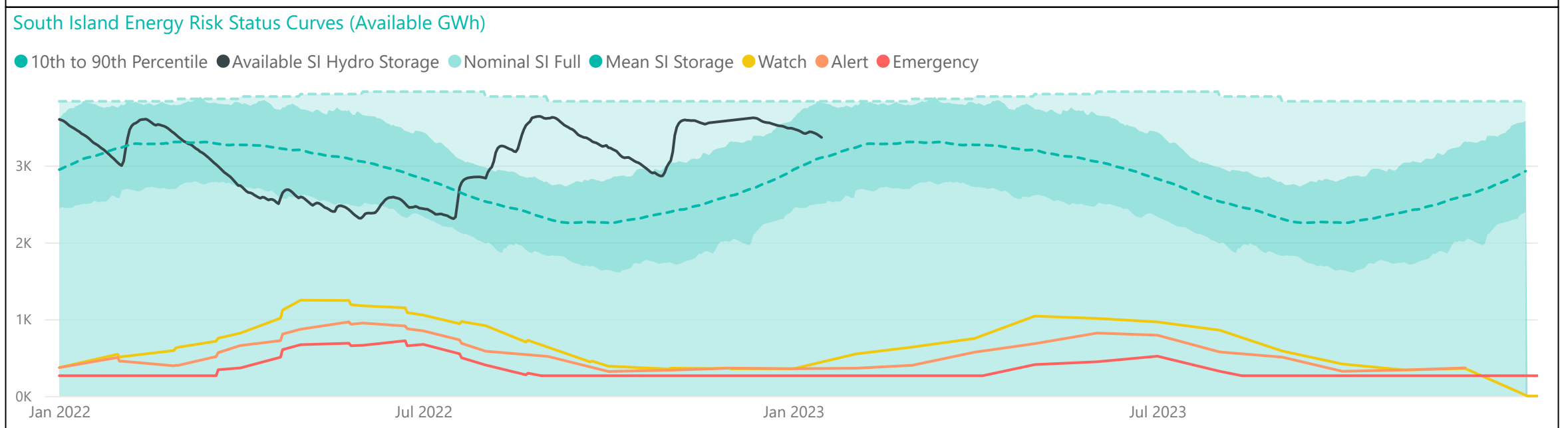
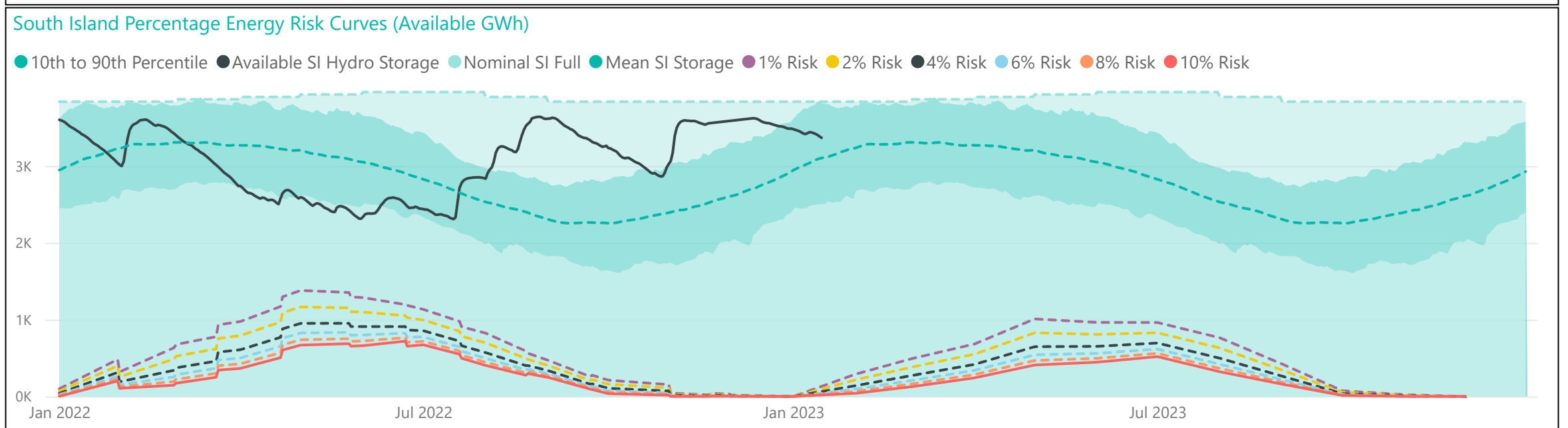
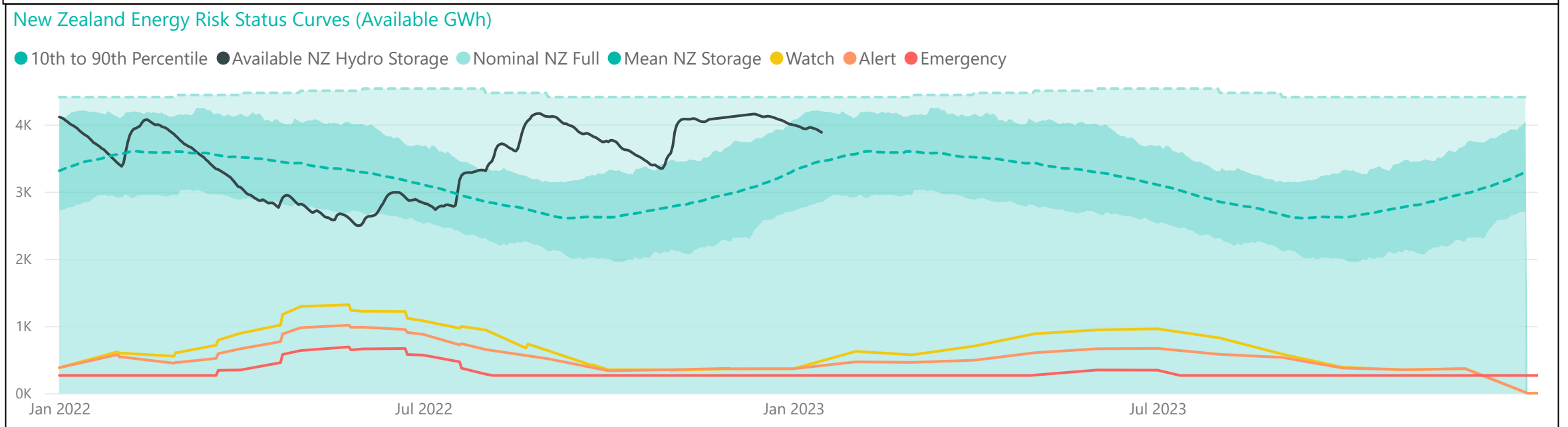
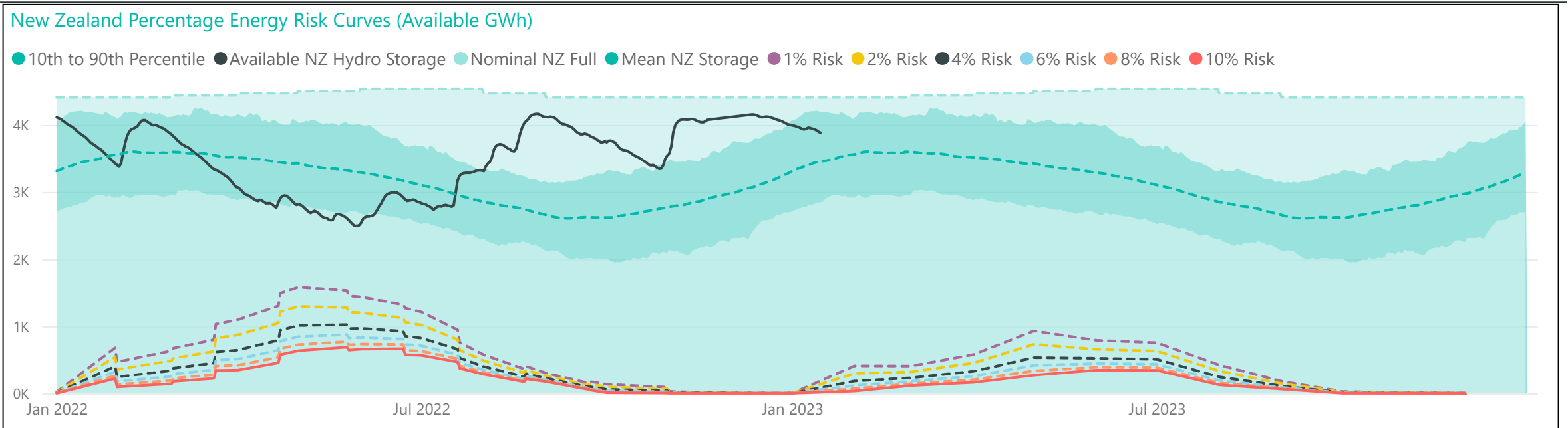


5. Generation Mix



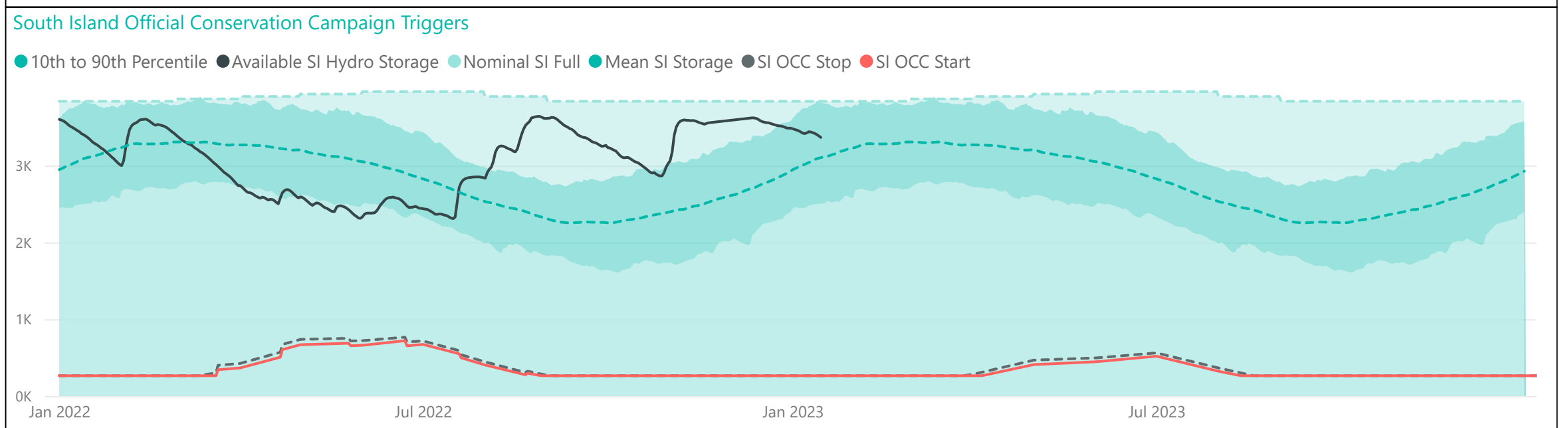
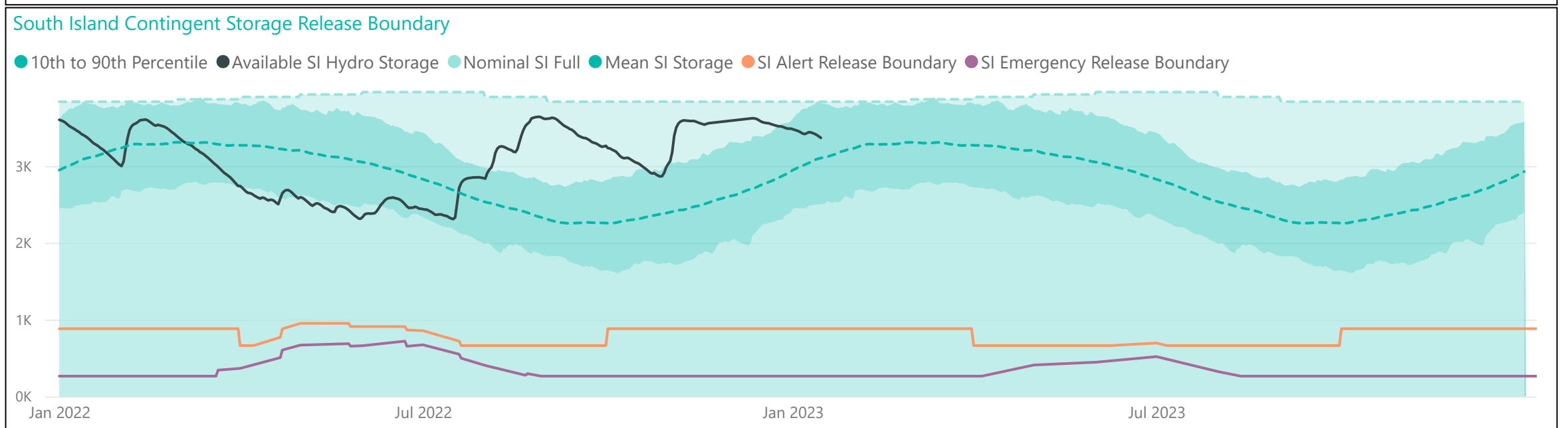
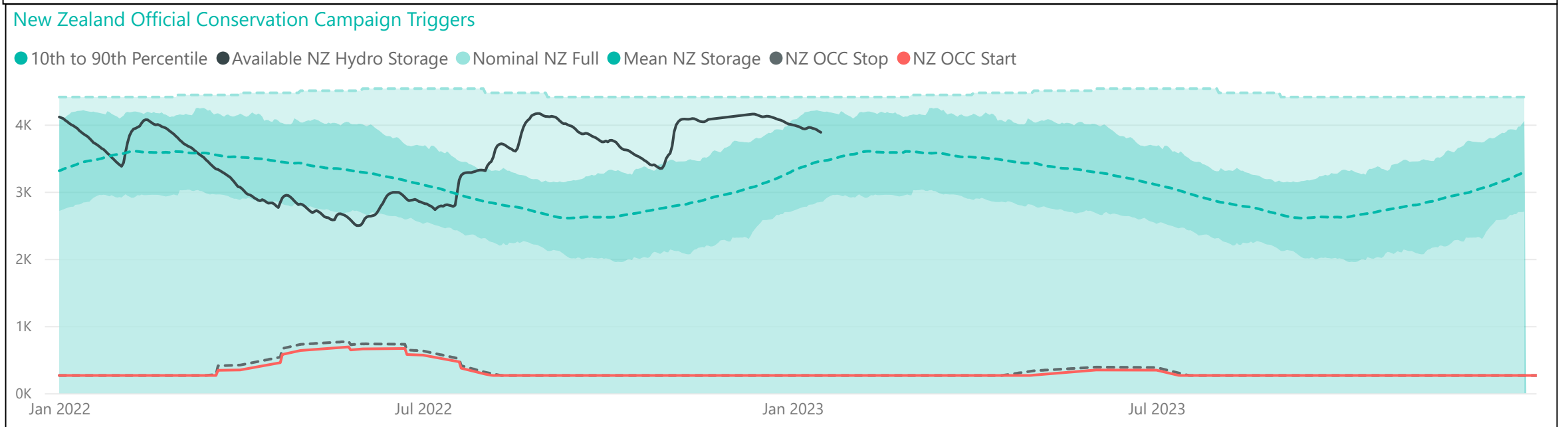
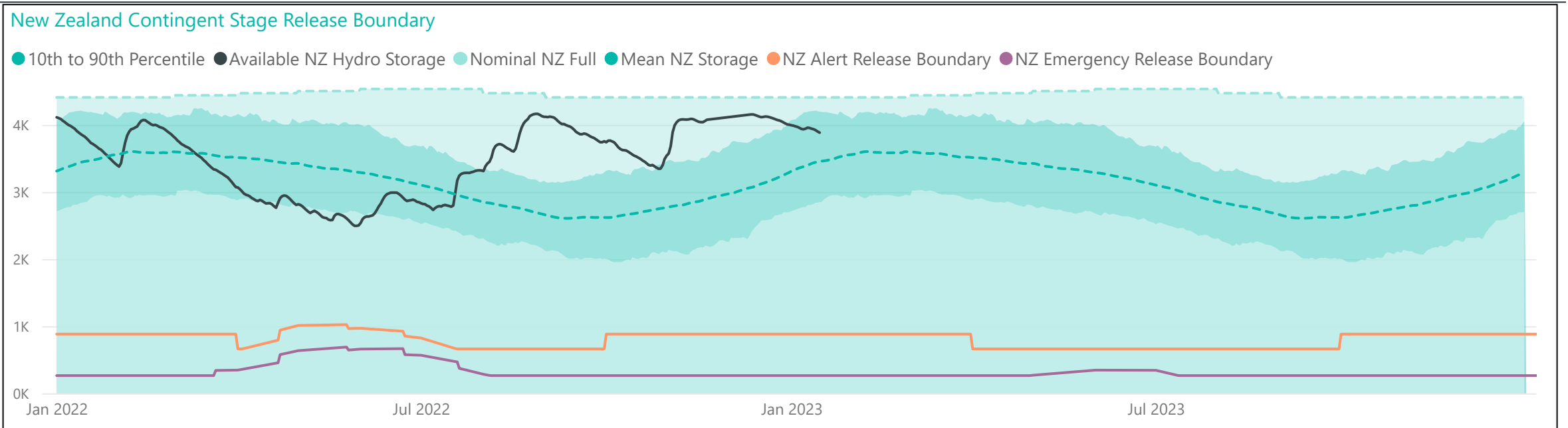


6. Energy Risk Curves

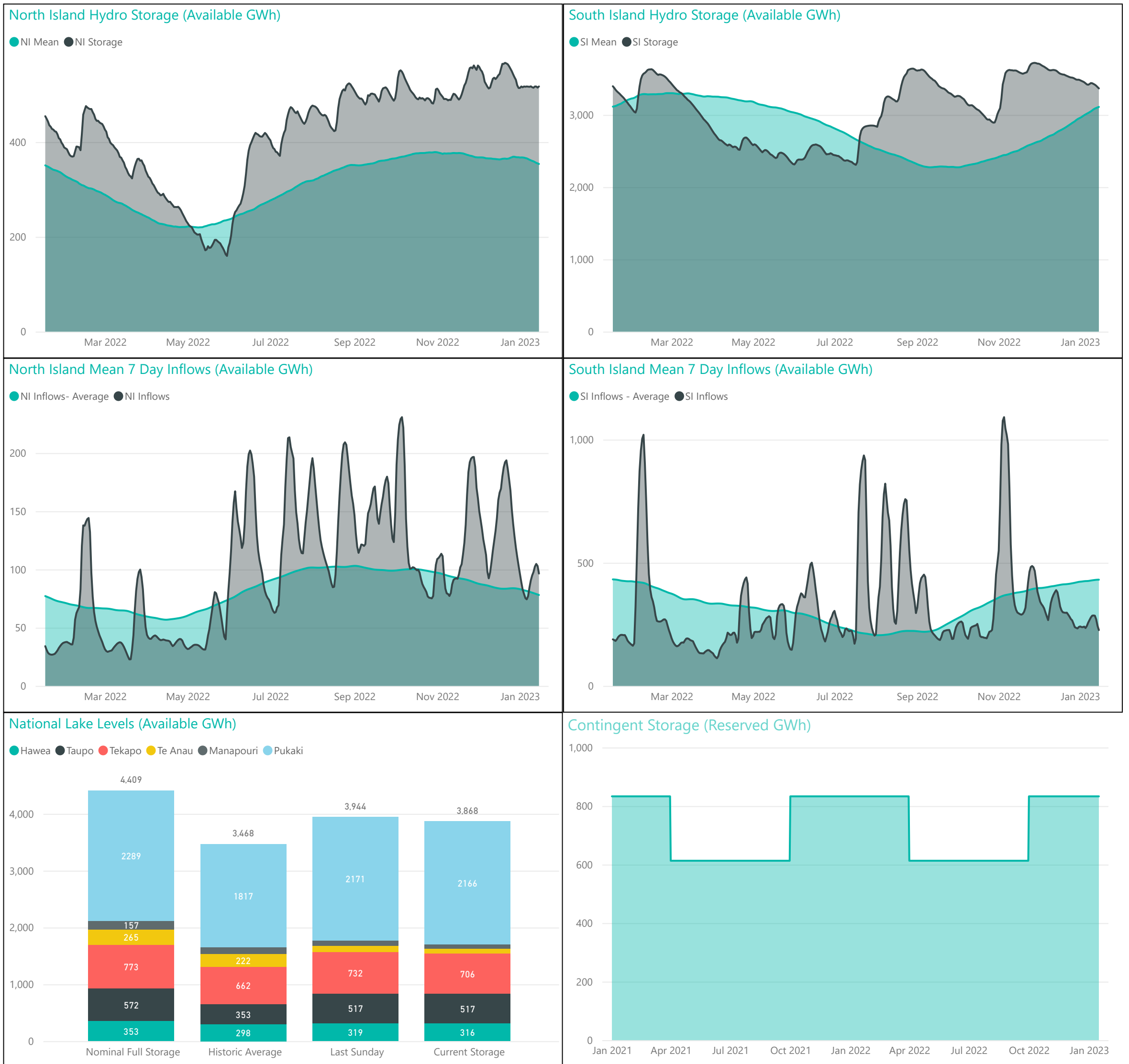




7. Release Boundaries and Campaign Triggers



8. 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>