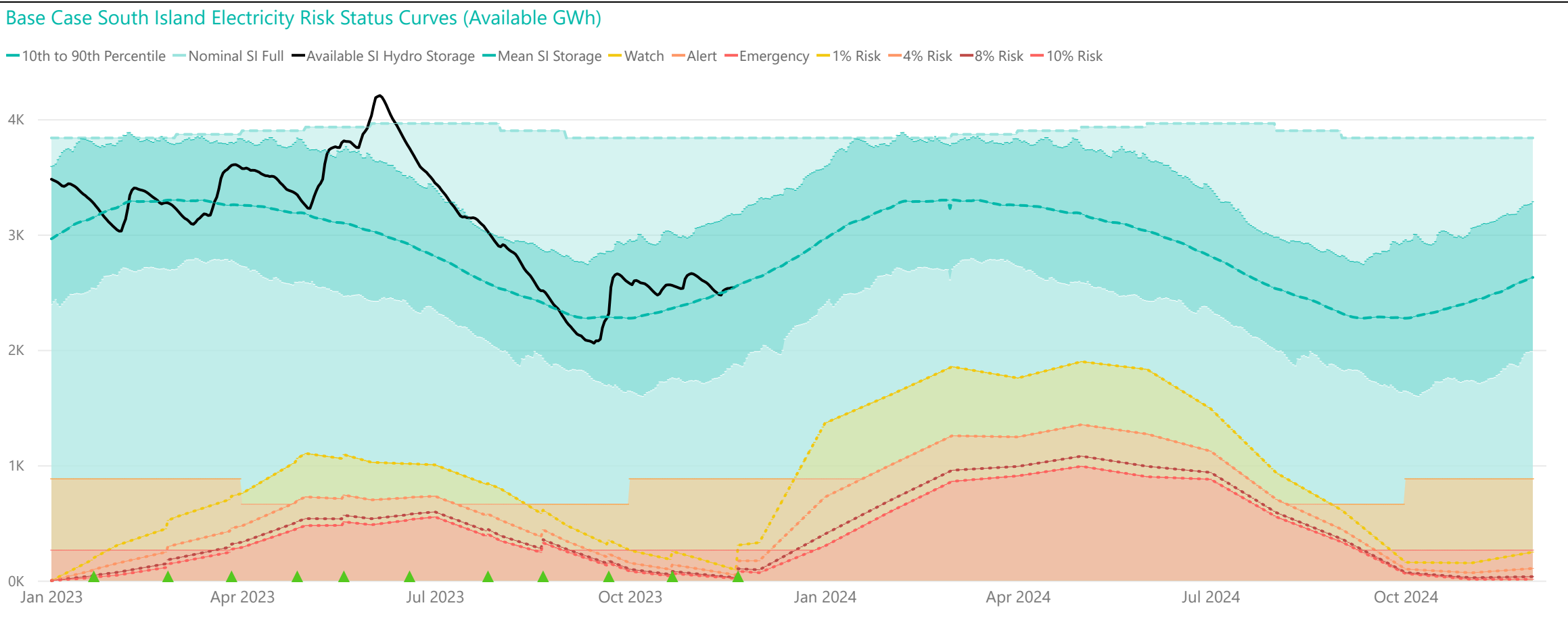
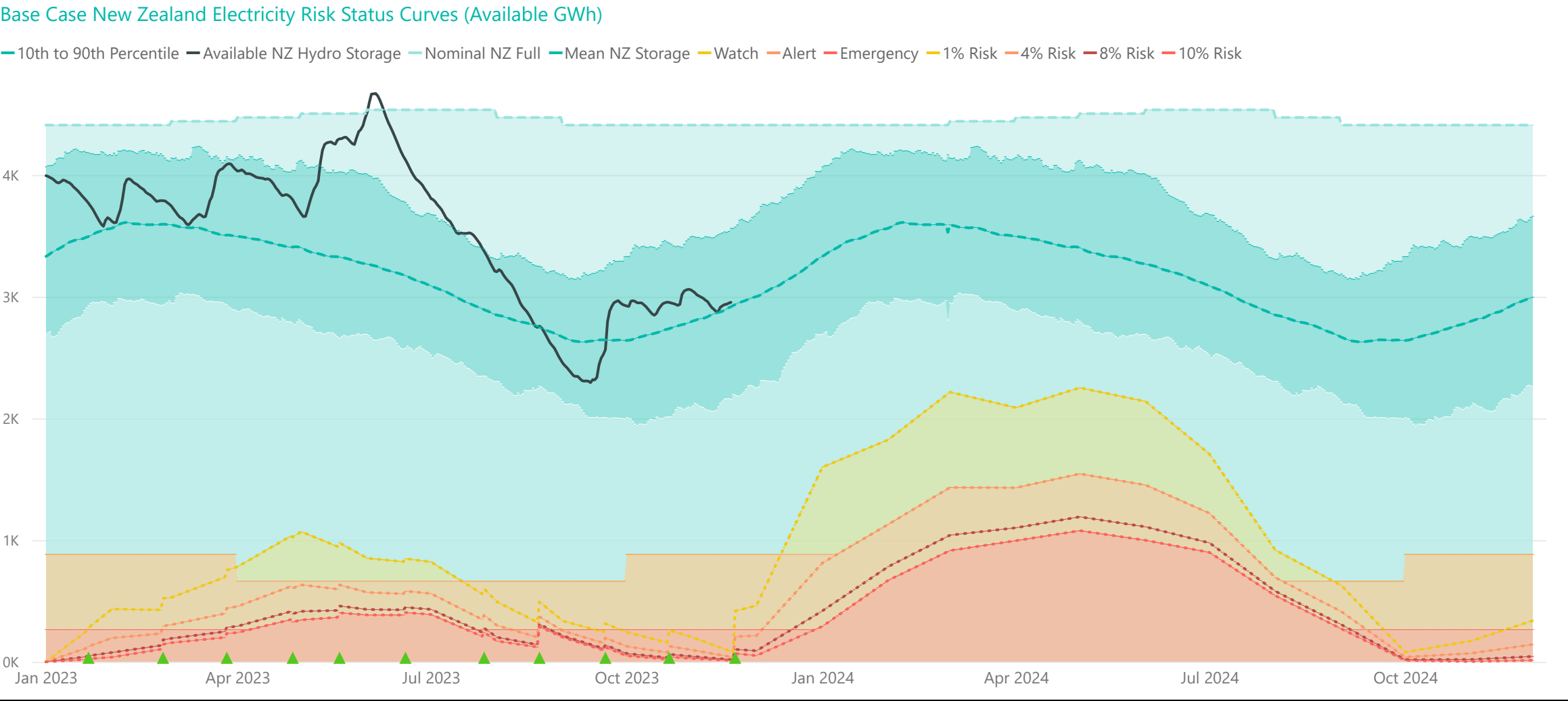




Base Case - Electricity Risk Curves ERCs

Tuesday, 21 November 2023

- The November 2023 ERC update was published on 21 November with the following updates:
- In line with Contact's announcement, Tauhara B commissioning has been delayed by two quarters (modelled commissioning date has changed from 1 March 2024 to 1 October 2024). This has a significant impact on the curves as the energy that would have come from Tauhara B over winter 2024 now has to be made up by existing hydro generation.
 - Updated gas storage drawdown.
 - Updated planned generation outages.



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

Triggers and actions of Watch/Alert/Emergency status are set only by the official base case curves (not scenario curves).

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.



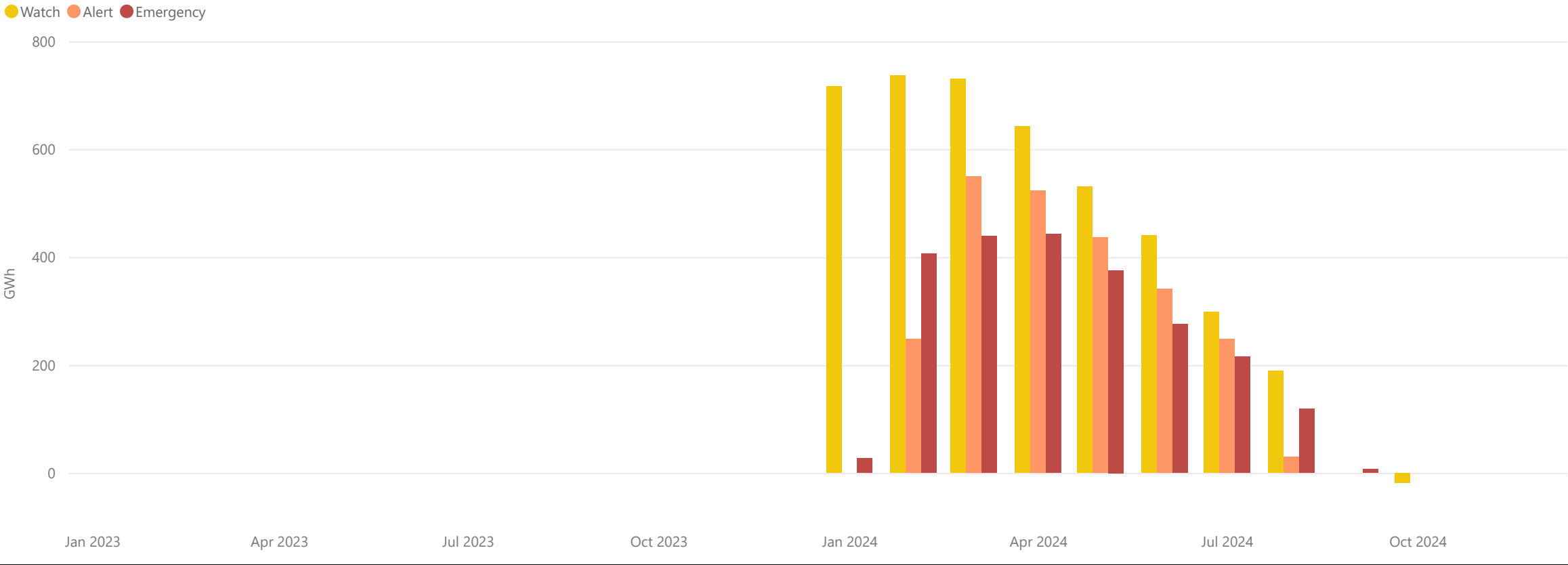
Base Case - Changes in the Electricity Risk Curves From Previous Month

Tuesday, 21 November 2023

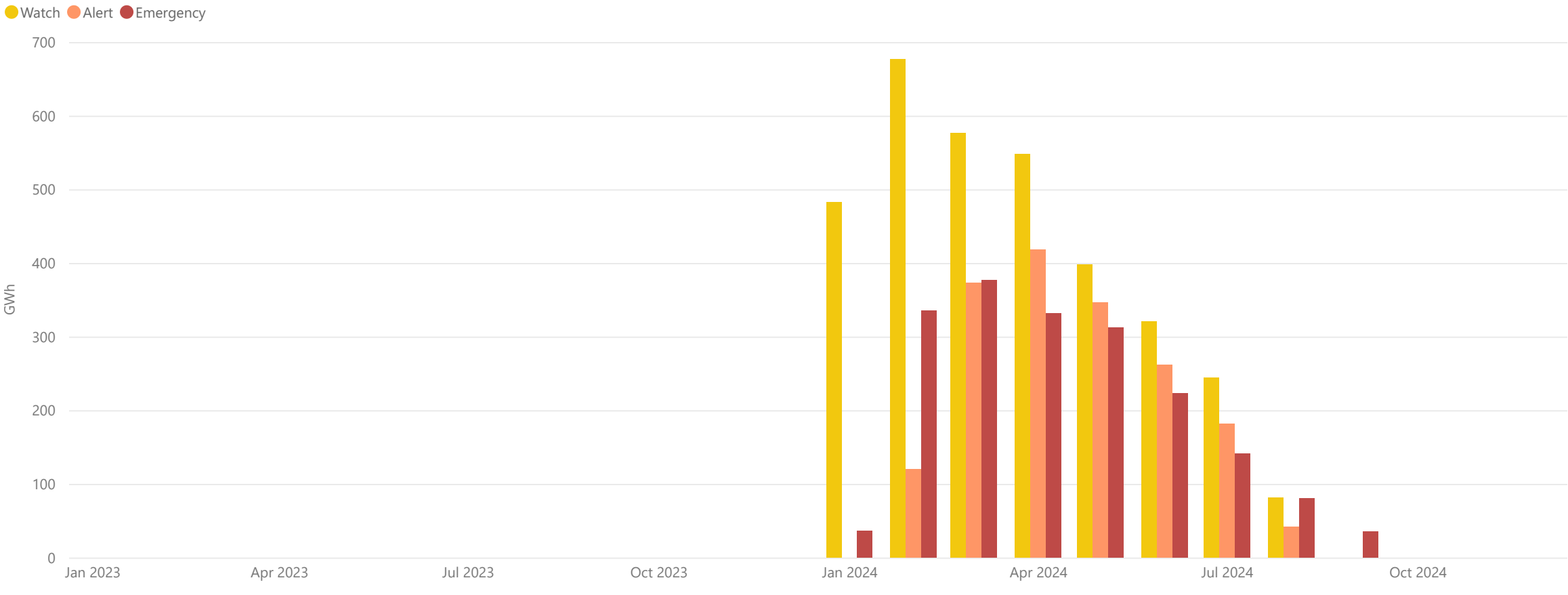
The changes to the Watch/Alert/Emergency curves compared to last month are shown below.

There is a significant increase in the curves this month. This is mainly due to the delayed commissioning of Tauhara B. Tauhara B running at full capacity for the length of the modelled commissioning delay equates to roughly 800 GWh. This energy must come from elsewhere and thus storage is drawn down much faster throughout winter.

Base Case - Change in New Zealand Electricity Risk Curves



Base Case - Change in South Island Electricity Risk Curves





The thermal deratings and key considerations for the November 2023 ERC update are:

- Gas storage levels remain high enough to fuel TCC for ~3 months.
- There is still a large gas production outage in November 2023, but due to generator outages aligning this does not result in any gas constrained deratings.
- There are still high thermal deratings throughout most of 2024 and into 2025, however only after gas storage has been depleted. Note that these deratings could change if gas production forecasts are updated or formal agreements around gas reallocation are made.
- These deratings mean there would be limited response from gas generation in a prolonged dry sequence, even if the units are available.

[illegible]



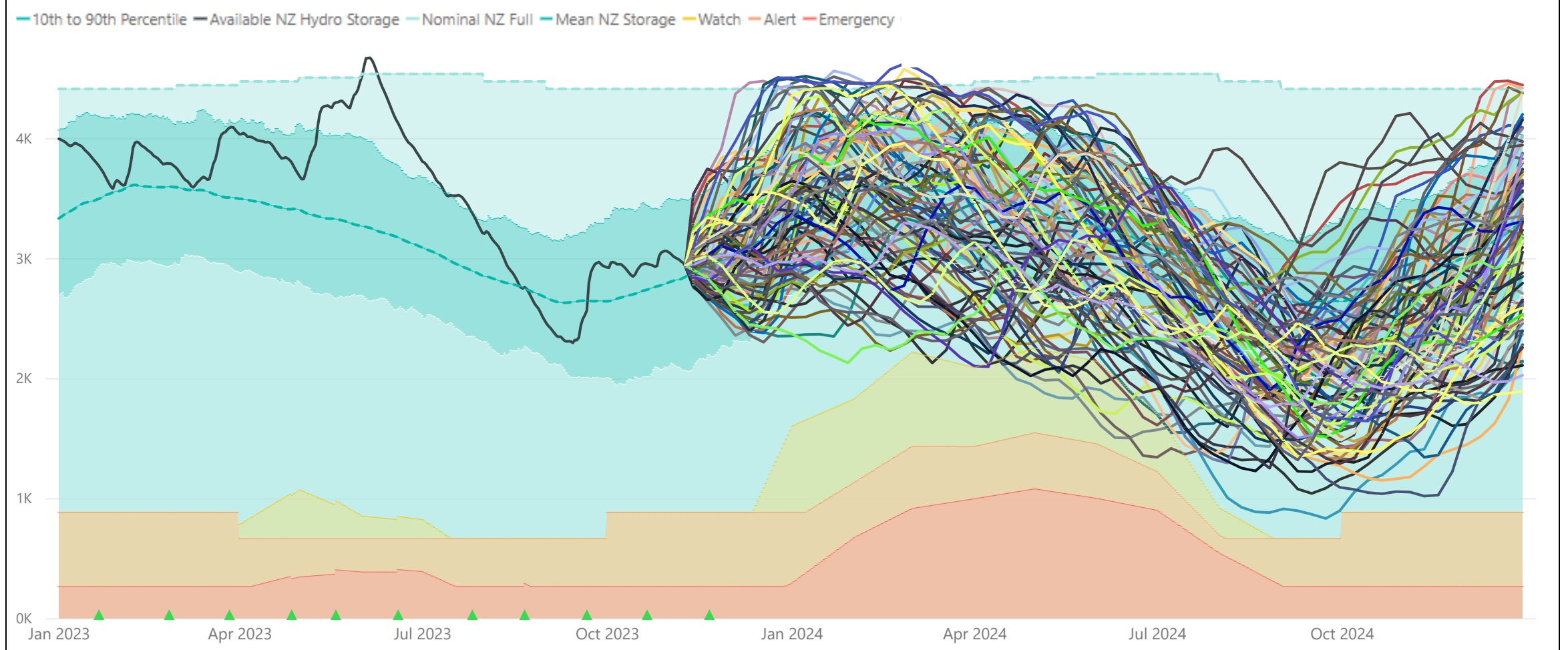
Base Case - Simulated Storage Trajectories (SSTs)

Tuesday, 21 November 2023

The November SST update is shown below:

- There is now a near average start storage value.
- 14 out of the 89 SSTs now cross into the New Zealand watch curve but none cross into Alert or Emergency.
- Seven of the 89 SSTs cross into the South Island watch curve, with one crossing into Alert in late 2024. None of the South Island SSTs cross the Emergency curve.

Base Case - New Zealand SST Electricity Risk Status Curves (Available GWh)



Base Case - South Island SST Electricity Risk Status Curves (Available GWh)

