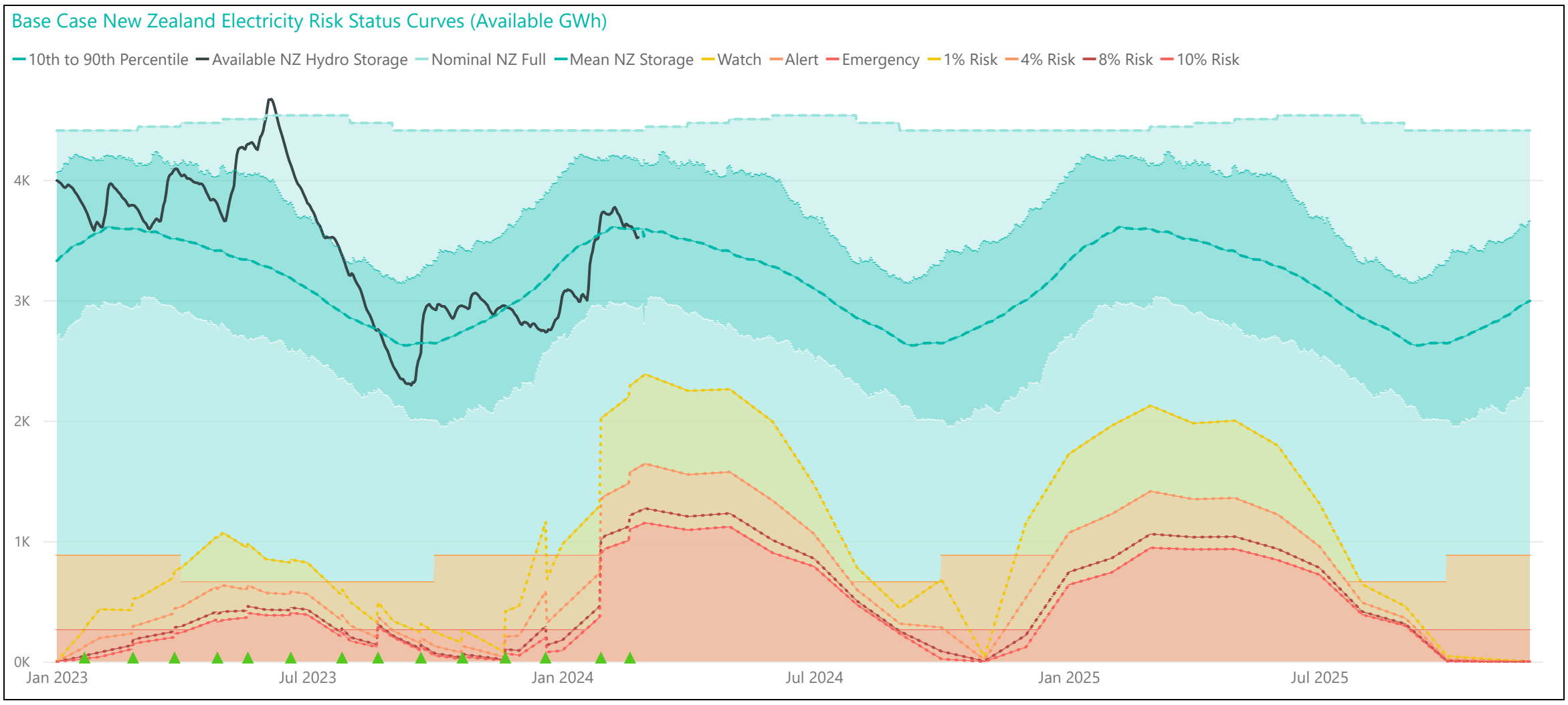
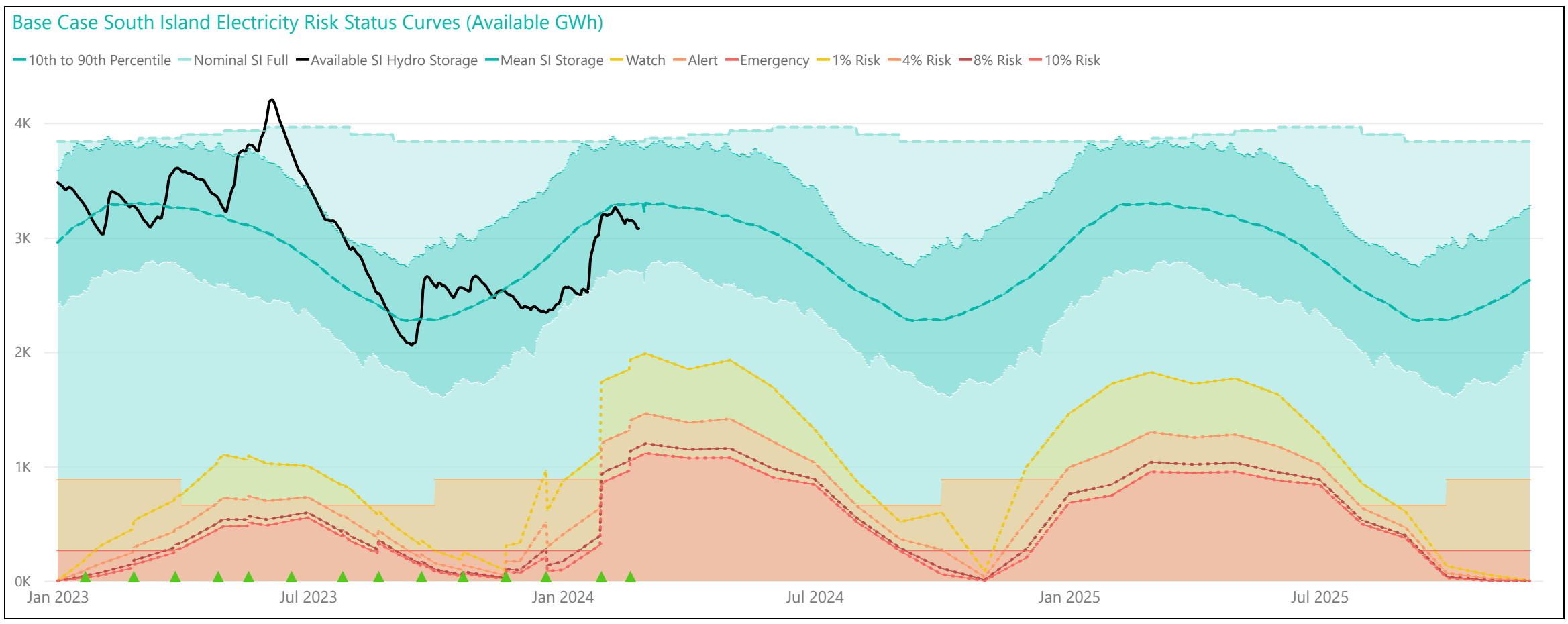
Base Case - Electricity Risk Curves ERCs

Monday, 19 February 2024

The February 2024 ERC update was published on 27 February with the following updates:

- Reduced coal stockpile based on quarterly performance report from Genesis Energy
- Reduced gas storage
- Gas storage delivery rate
- Planned generation outages
- Future generator capacities and commissioning dates





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).

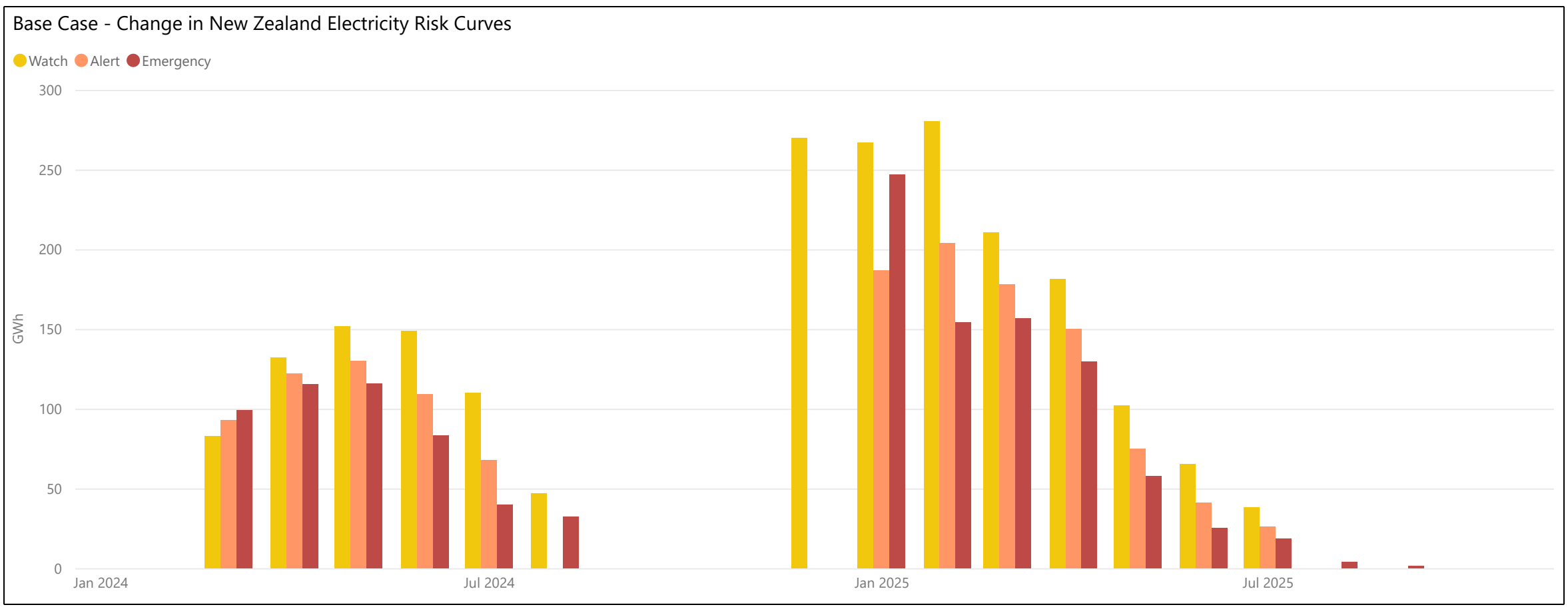
Note: The floor is equal to the amount of contingent hydro storage that is linked to the specific electricity risk curve, plus the amount of contingent hydro storage linked to electricity risk curves representing higher levels of risk of future shortage, if any. The buffer is 50 GWh.

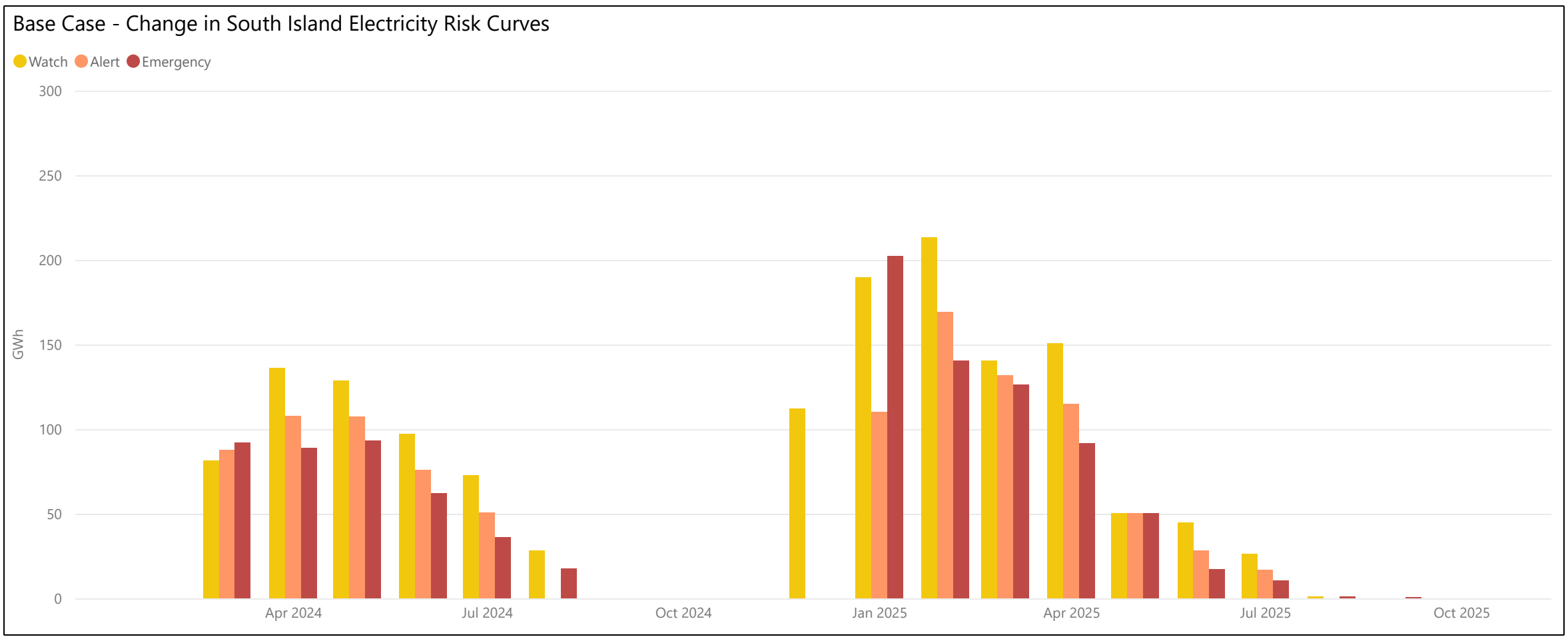
Base Case - Changes in the Electricity Risk Curves From Previous Month

Monday, 19 February 2024

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

The level of the curves has increased since the January update. This is mostly due to the reduction in stored coal, with some contribution from the reduction in stored gas. Coal and gas storage values are updated quarterly so this represents a change in stored fuel since November, not a change since the last ERC update in January.





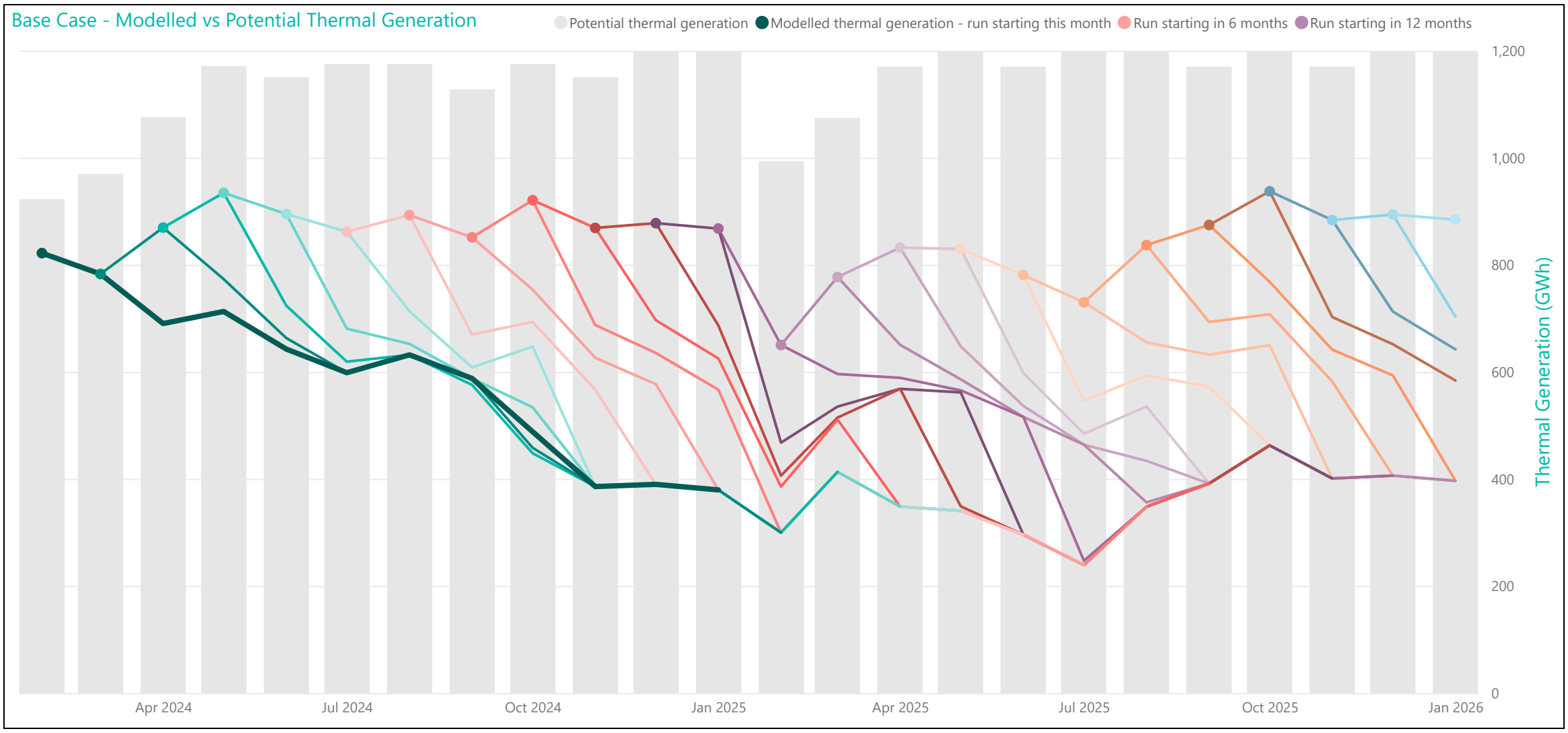
Base Case - Thermal Deratings

Monday, 19 February 2024

The thermal deratings and key considerations for the February 2024 ERC update are below:

- Thermal deratings remain high throughout 2024 and 2025. These deratings mean there would be limited response from thermal generation in a prolonged period of very low hydro inflows, even if the units are available. Note that these deratings could change if more coal or gas is made available for electricity generation.
- The size of Huntly's coal stockpile is now 731 kilotons, 15% lower than at the last quarterly update.
- There are gas production outages in March and April 2024.
- Gas storage levels remain high enough to fuel TCC for ~3 months (ignoring draw down rates).

On the chart below, potential thermal generation is the total capacity of available units. Modelled thermal generation is what those units could generate using the gas and coal available for electricity generation. There is a separate model run starting each month, with the start of each run shown by a dot. Each run starts with a stockpile of stored coal and gas, and modelled generation tends to decline initially as this stockpile is consumed.



Modelled Thermal Generation (GWh) by Run Month

Run Month	2024-02	2024-03	2024-04	2024-05	2024-06	2024-07	2024-08	2024-09	2024-10	2024-11	2024-12	2025-01	2025-02	2025-03	2025-04	2025-05	2025-06	2025-07	2025-08	2025-09	2025-10	2025-11	2025-12	2026-01
2024-02	822	783	690	713	643	598	632	588	488	386	390	379												
2024-03		783	869	773	663	598	632	588	458	386	390	379	300											
2024-04			869	934	724	619	632	576	448	386	390	379	300	413										
2024-05				934	895	681	652	588	534	386	390	379	300	413	348									
2024-06					895	862	713	608	647	386	390	379	300	413	348	341								
2024-07						862	893	670	693	567	390	379	300	413	348	341	296							
2024-08							893	851	754	626	577	379	300	413	348	341	296	239						
2024-09								851	921	688	635	567	300	413	348	341	296	239	348					
2024-10									921	869	697	625	386	511	348	341	296	239	348	391				
2024-11										869	878	686	406	515	568	349	296	239	348	391	463			
2024-12											878	868	468	535	568	562	296	239	348	391	463	401		
2025-01												868	650	596	589	565	516	247	348	391	463	401	406	
2025-02													650	777	650	586	516	464	356	391	463	401	406	396
2025-03														777	832	648	536	464	434	391	463	401	406	396
2025-04															832	829	598	484	535	391	463	401	406	396
2025-05																829	781	546	593	572	463	401	406	396
2025-06																	781	730	655	632	650	401	406	396
2025-07																		730	837	693	708	582	406	396
2025-08																			837	874	768	641	593	396
2025-09																				874	937	702	652	584
2025-10																					937	884	713	642
2025-11																						884	894	703
2025-12																							894	884
2026-01																								884

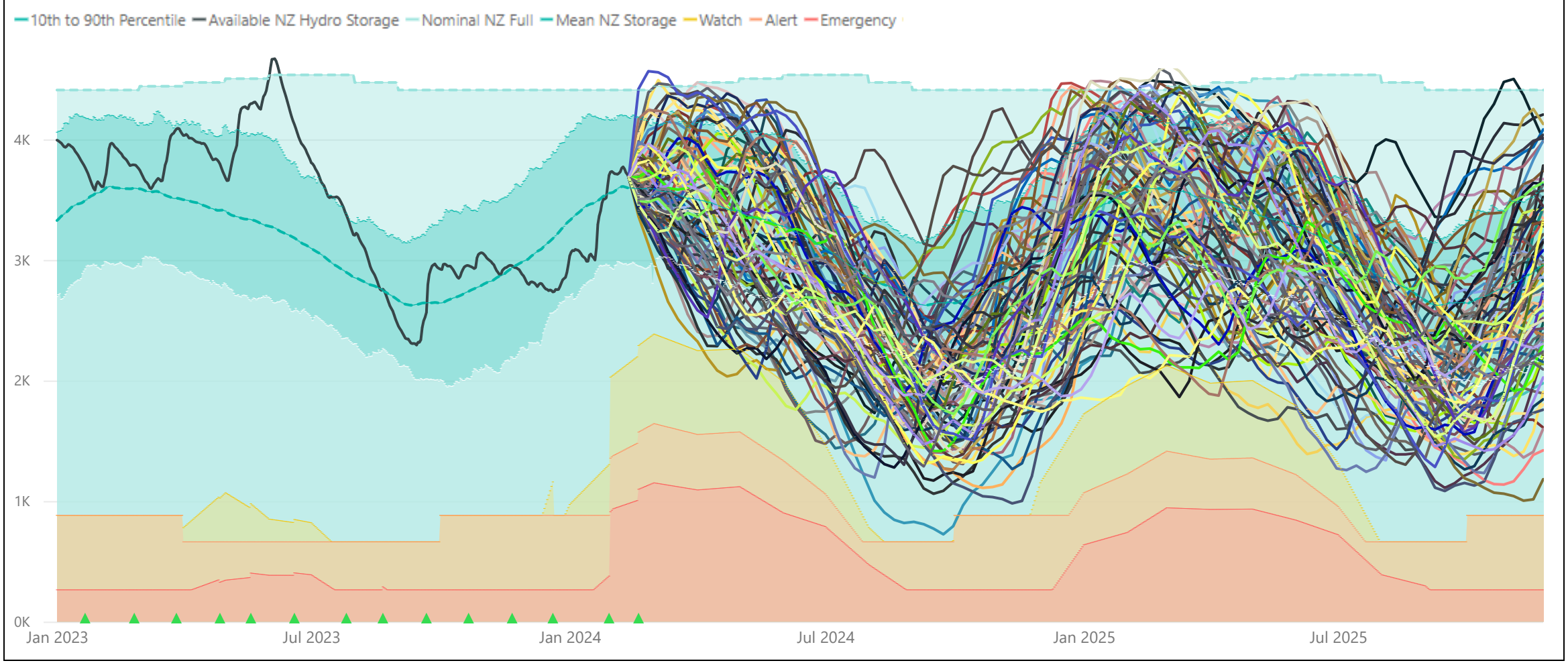
Base Case - Simulated Storage Trajectories (SSTs)

Monday, 19 February 2024

The February SST update is shown below:

- Start storage is near average.
- Seven of the 92 modelled SSTs cross the NZ watch status curve in winter 2024, and six cross the watch status curve in winter 2025.
- One SST crosses the NZ alert status curve in spring 2024.
- One SST crosses the South Island watch status curve in winter 2024, and seven cross the watch status curve in winter 2025.
- Two SSTs cross the South Island alert status curve in spring 2024, and two cross the alert status curve in spring 2025.

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



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