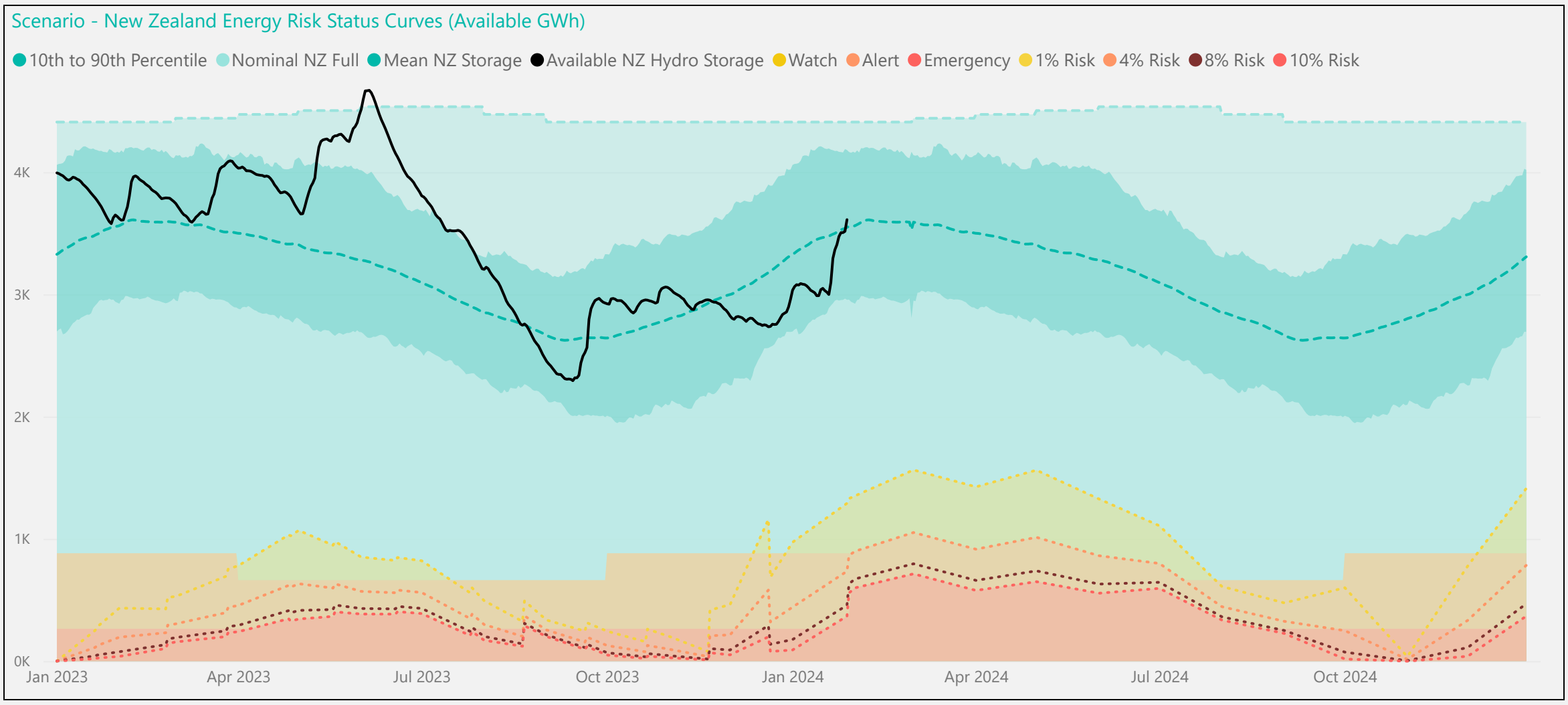
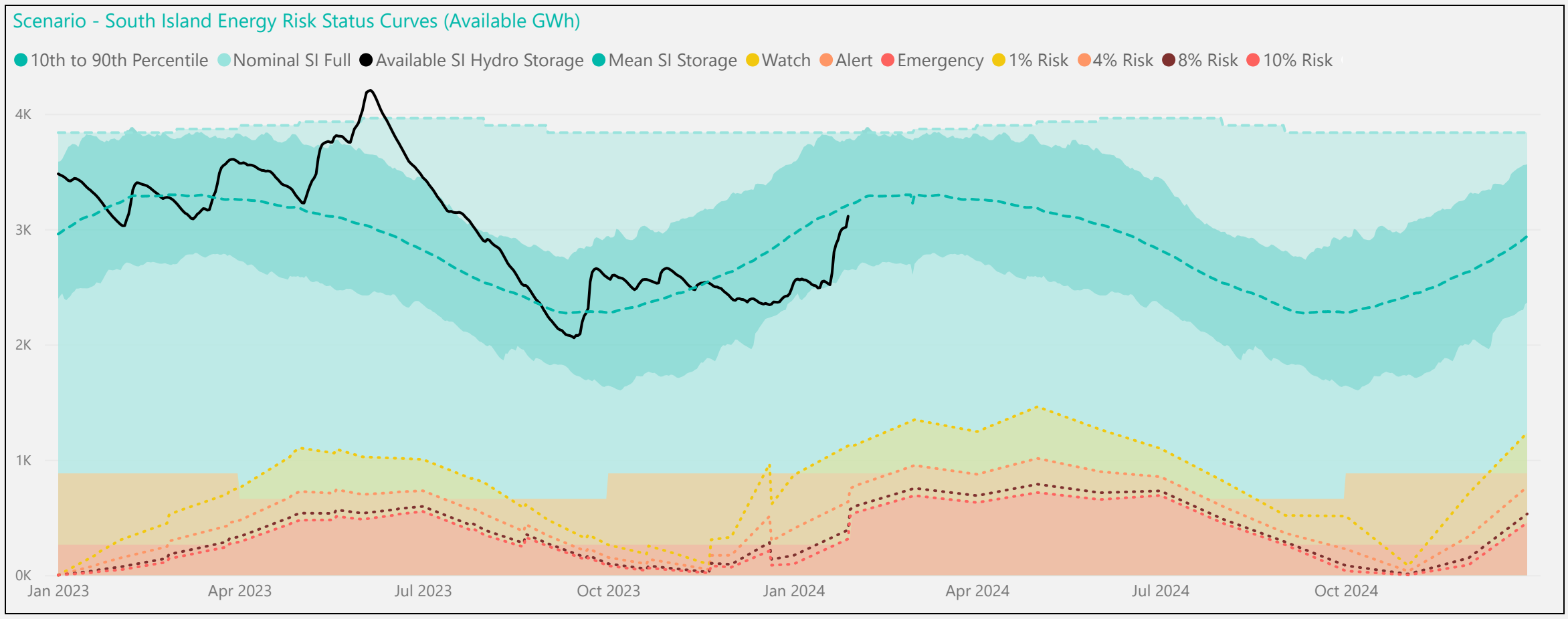
Increased Gas Reallocation Scenario - Electricity Risk Curves

Our base case Electricity Risk Curves (ERCs) include thermal generator deratings to reflect potential constraints to gas and coal supply in 2024 in the event of a security of supply dry year emergency. The base case deratings assume a baseline ~20 TJ/day of gas demand reallocation from the petrochemical sector to electricity generation, and more when there is a formal agreement in place.

This scenario shows the impacts a further ~80TJ/day of gas would have on the ERCs. With the recently decreased gas production forecasts we have run a scenario which assumes an ~80TJ/day increase in gas demand flex from the petrochemical sector, to use for electricity generation over 2024 winter months (June-August). While we consider this scenario, we are not aware of any existing formal agreements of this nature.

The January 2024 ERC Winter 2024 Gas Reallocation Scenario is shown below.
With an additional ~80TJ/day of gas supply available (on top of the ~20 TJ/day baseline) for electricity generation over winter 2024, the New Zealand emergency curve would decrease by up to 400 GWh, and the watch would decrease by up to 740 GWh. This can be seen when comparing the plots below with the base case ERCs, or by looking at the changes in curves on the next page.

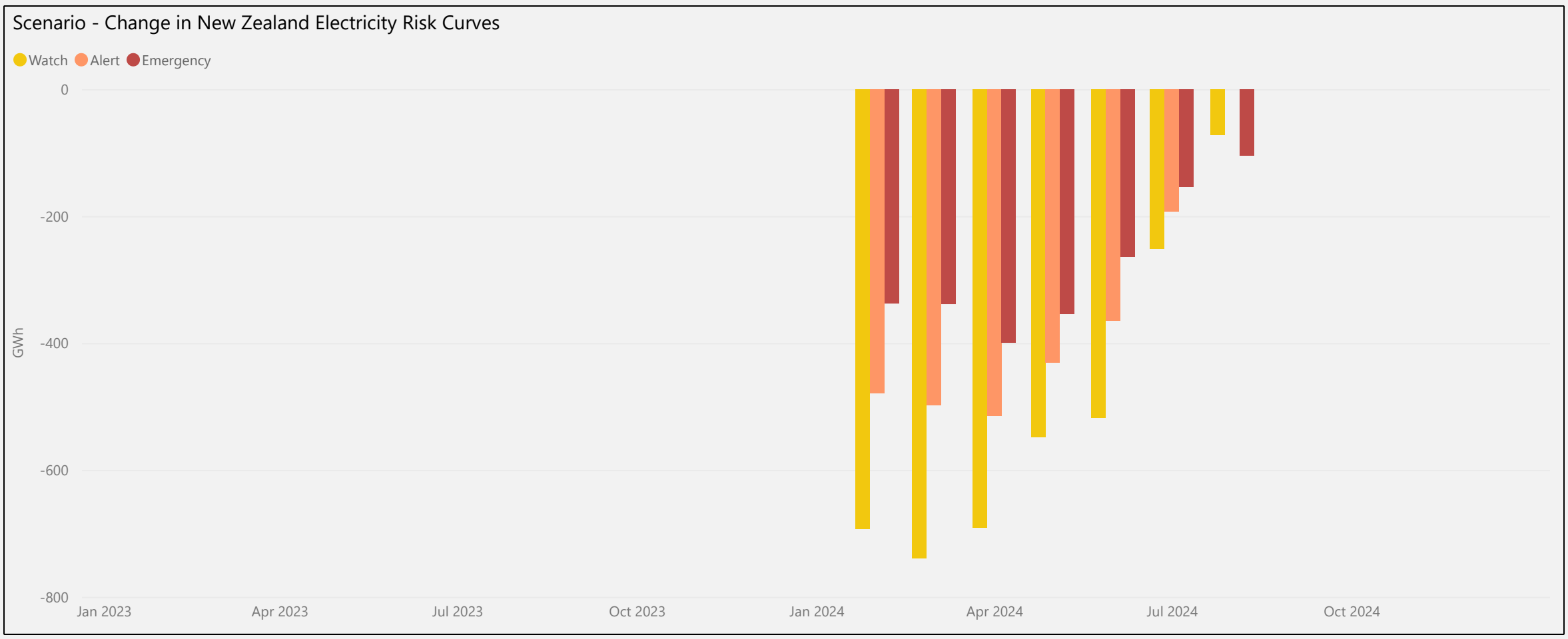


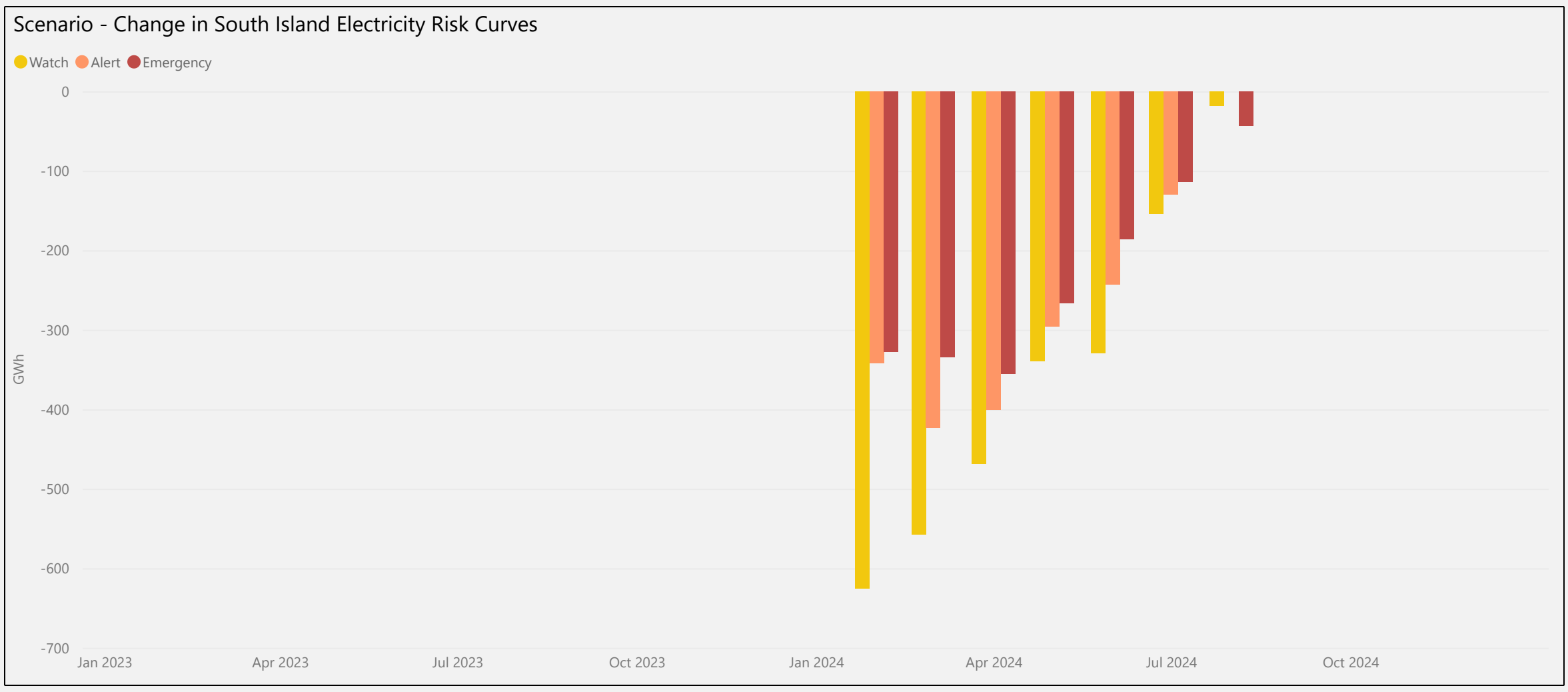


Scenario - Changes in the Electricity Risk Curves from the Base Case

The changes to the scenario Watch/Alert/Emergency curves compared to the base case are shown below.

The decrease in these curves is solely the result of the increase in assumed gas available for generation under the gas reallocation scenario. Thermal deratings during the winter months are significantly reduced under this scenario due to the additional gas available for electricity generation. Resultantly the curves have decreased substantially over the first half of 2024.



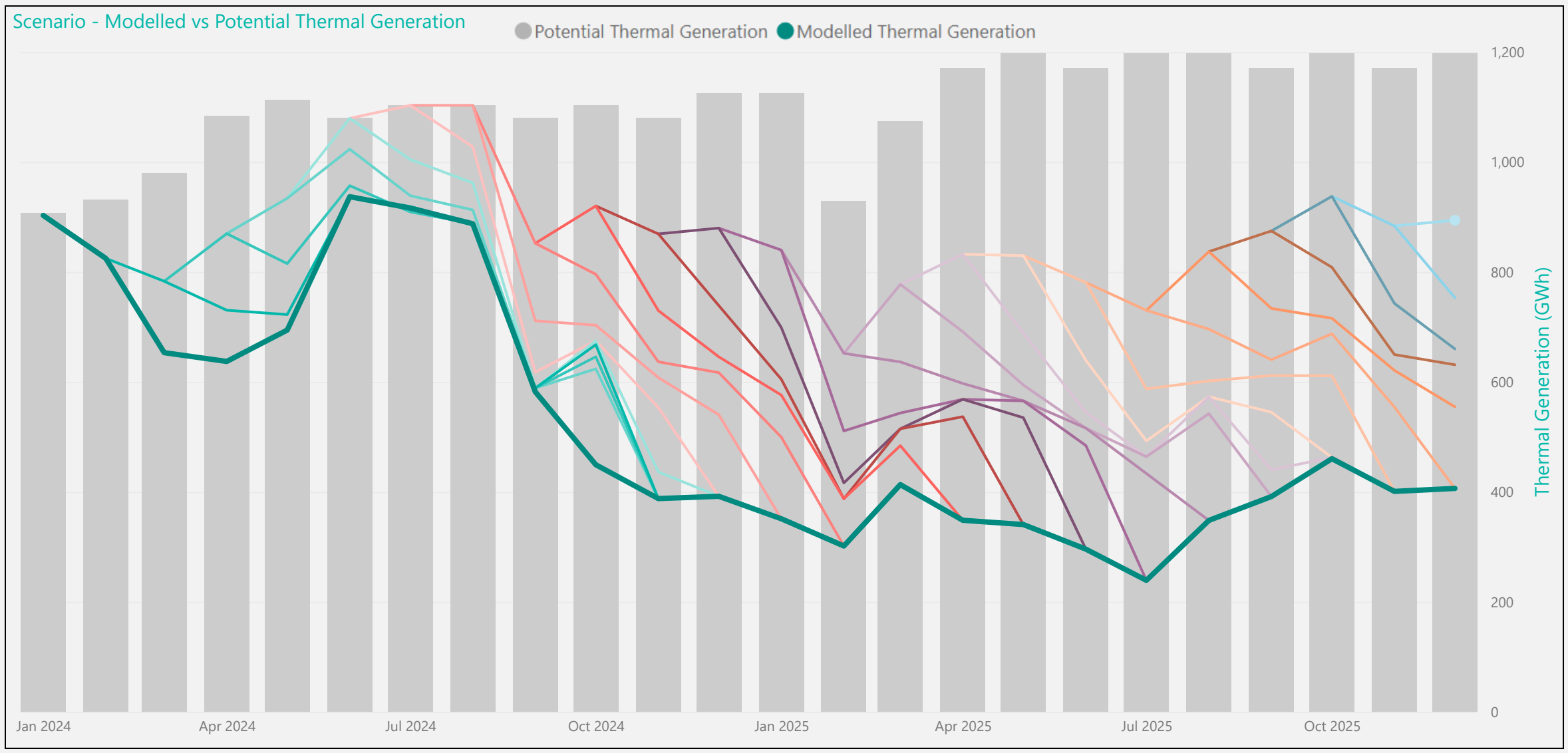


Scenario - Thermal Deratings

The thermal deratings and key considerations for the January 2024 ERC Winter 2024 Gas Reallocation Scenario are below:

- Gas supply reallocation from the petrochemical sector to electricity generation is assumed to be ~100 TJ/day, over June-August 2024, ignoring formal agreements. The deratings over this period are resultantly lower than the base case.
- The rest of the key considerations are the same as in the base case.

Scenario - Modelled vs Potential Thermal Generation



Modelled Thermal Generation (GWh) by Run Month

	2024-01	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
2024-01	902.66	824.61	653.00	637.07	694.09	936.66	916.01	887.46	581.87	449.24	387.66	391.80												
2024-02		824.61	782.92	730.22	722.29	936.66	918.53	887.48	588.66	667.55	387.66	391.80	350.96											
2024-03			782.92	869.54	814.92	956.66	909.09	887.46	588.66	645.58	387.66	391.80	350.96	301.44										
2024-04				869.54	933.78	1,023.13	938.53	912.55	588.66	623.61	387.66	391.80	350.96	301.44	413.07									
2024-05					933.78	1,079.16	1,004.24	961.74	588.66	674.79	436.19	391.80	350.96	301.44	413.07	348.18								
2024-06						1,079.16	1,102.79	1,027.45	617.43	674.79	553.37	391.80	350.96	301.44	413.07	348.18	340.50							
2024-07							1,102.79	1,102.79	710.97	702.98	607.70	540.22	350.96	301.44	413.07	348.18	340.50	295.74						
2024-08								1,102.79	851.92	795.61	636.47	616.69	499.38	301.44	413.07	348.18	340.50	295.74	239.00					
2024-09									851.92	919.81	729.62	645.45	575.85	387.32	483.92	348.18	340.50	295.74	239.00	347.96				
2024-10										919.81	868.98	738.63	604.62	387.32	514.53	536.59	340.50	295.74	239.00	347.96	391.38			
2024-11											868.98	879.59	698.61	416.09	514.53	568.22	534.78	295.74	239.00	347.96	391.38	462.55		
2024-12												879.59	839.57	510.61	543.30	568.22	565.39	484.16	239.00	347.96	391.38	462.55	400.75	
2025-01													839.57	651.75	636.19	596.99	565.39	515.78	433.28	347.96	391.38	462.55	400.75	406.14
2025-02														651.75	777.15	691.08	594.16	515.78	463.88	542.24	391.38	462.55	400.75	406.14
2025-03															777.15	832.03	688.50	544.55	463.88	572.85	439.91	462.55	400.75	406.14
2025-04																832.03	829.46	639.07	492.65	572.85	544.75	462.55	400.75	406.14
2025-05																	829.46	780.65	587.17	601.62	611.42	610.98	400.75	406.14
2025-06																		780.65	729.98	695.81	640.19	687.44	554.12	406.14
2025-07																			729.98	836.77	733.41	715.63	620.80	554.56
2025-08																				836.77	874.37	808.26	649.56	631.02
2025-09																					874.37	937.26	742.60	659.79
2025-10																						937.26	883.56	752.82
2025-11																							883.56	893.78
2025-12																								893.78

Scenario - Simulated Storage Trajectories

The reduction in the risk curves due to the scenario means no SSTs cross any Status Curves in winter next year. However, it remains in October that 1 SST crosses the NZ Alert Status Curve and 2 cross the SI Alert Status Curve.