TRANSPOWER

System Operator Industry Forum

9 December 2025

Today's agenda

- Key messages
- Market update
- NZGB update
- Outage update – next 4 weeks
- Kaikohe – Maungatapere SPS
- Operational update
- SO generation commissioning update
- Consultations, publications and events
- Questions / Patai

Key Messages

- National hydro storage is above nominal full levels leading to low levels of thermal generation and high levels of renewables.
- High outage volumes and critical outages on the Wairakei ring cause over supply of renewables some regions and reliance on thermal generation in others.
- Participants are asked to be responsive when needed and keep offers up-to-date.

Market update

Energy: National hydro storage

National storage remains above the nominal full level, with some catchments at their historic max. Storage is the highest it has been at this time of year since December 2019.

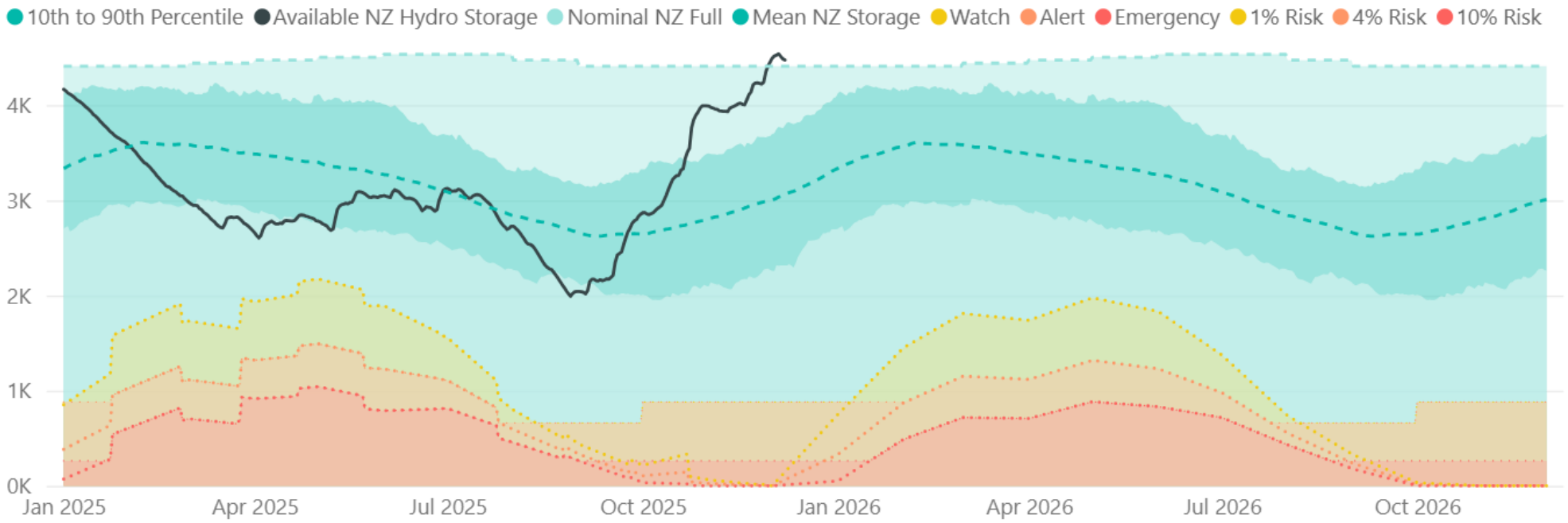
	Hydro storage level (% of mean ▲/▼)		
	New Zealand	South Island	North Island
Last forum	142%	143%	138%
Now	146% ▲	147% ▲	141% ▲

Note: these numbers include contingent storage, so they differ from those reported by NZX

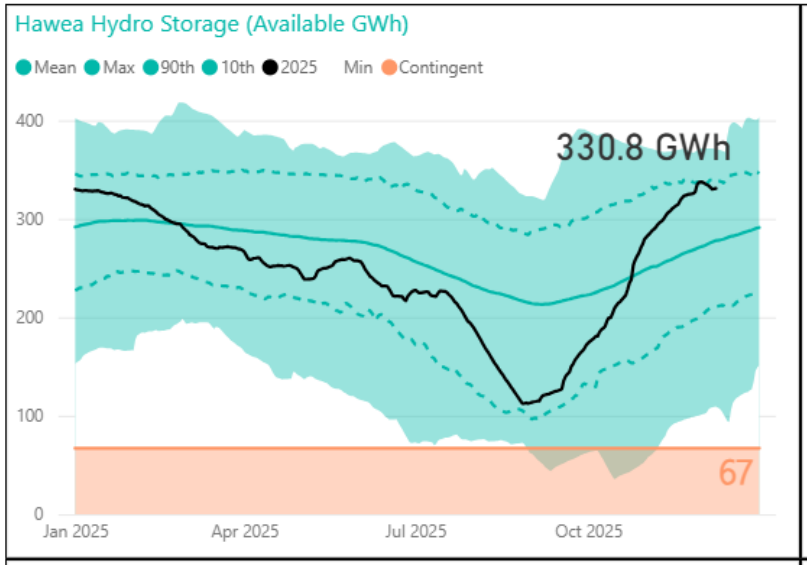
New Zealand Energy Risk

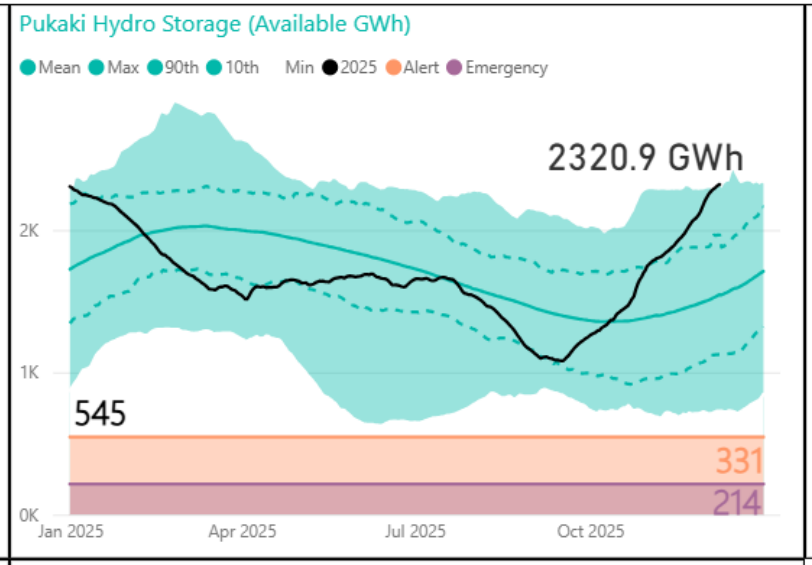
South Island Energy Risk

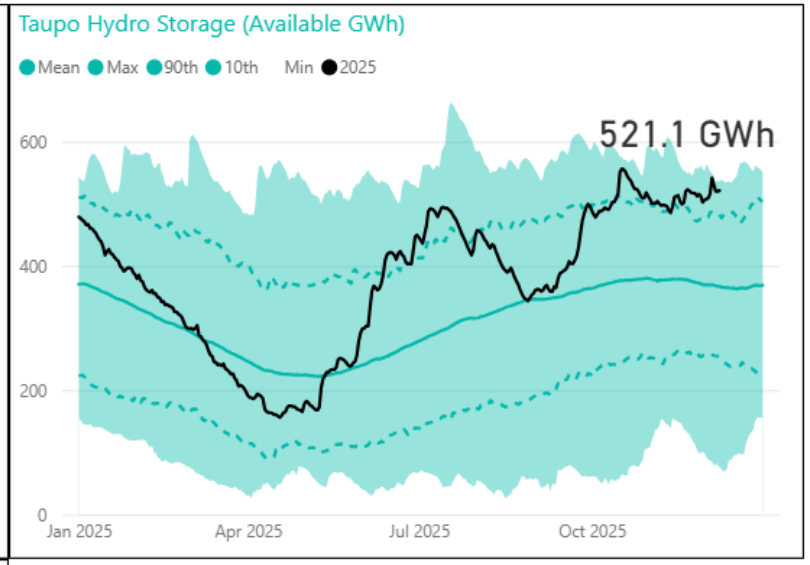
New Zealand Electricity Risk Status Curves (Available GWh)

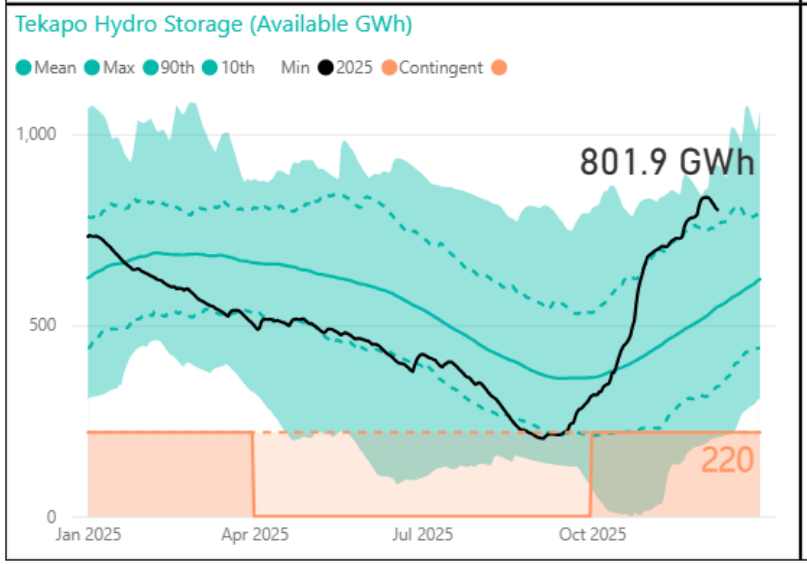


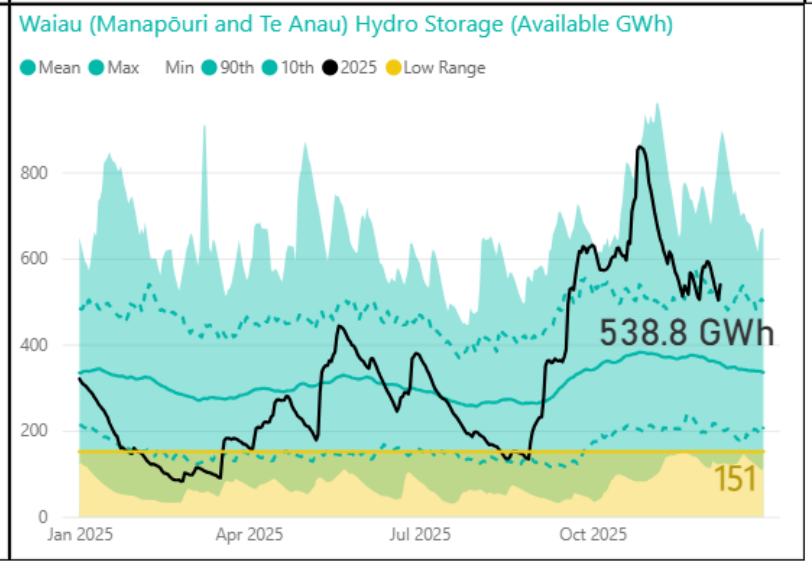
Hydro storage by catchment







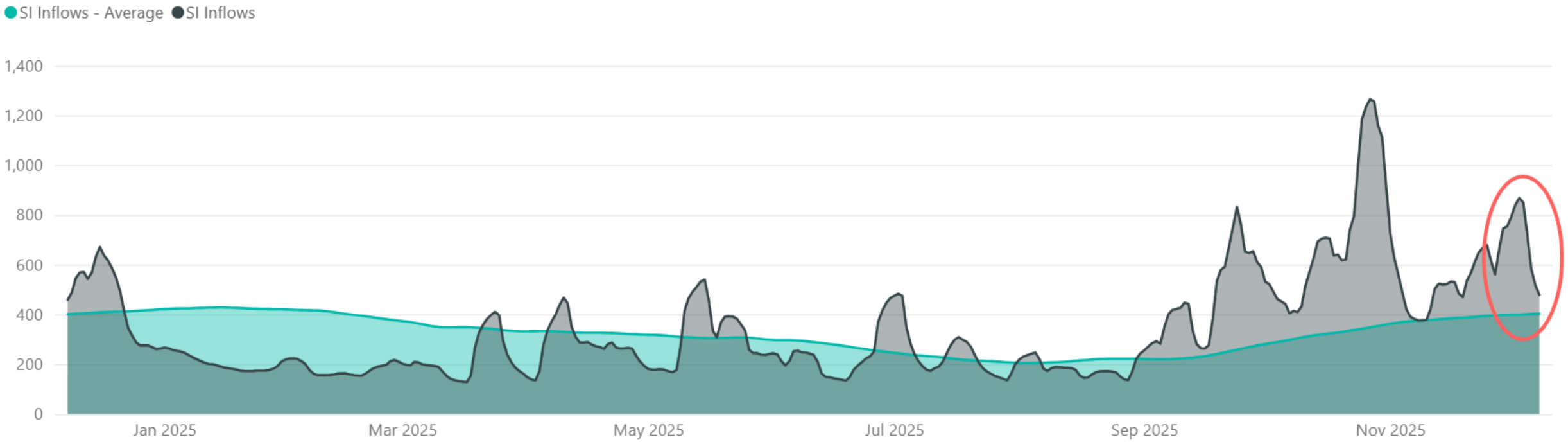




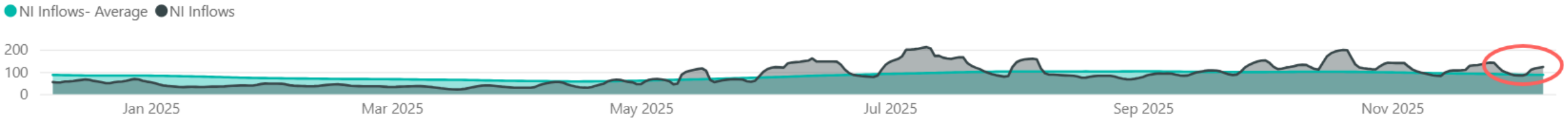
Lake	Current (%) avg
nz_controlled	146
si_controlled	146
hawea	119
pukaki	150
manapouri	137
te_anau	158
tekapo	146
taupo	142

Hydro inflows

South Island Mean 7 Day Inflows (Available GWh)



North Island Mean 7 Day Inflows (Available GWh)



Hydro November Energy Security Outlook

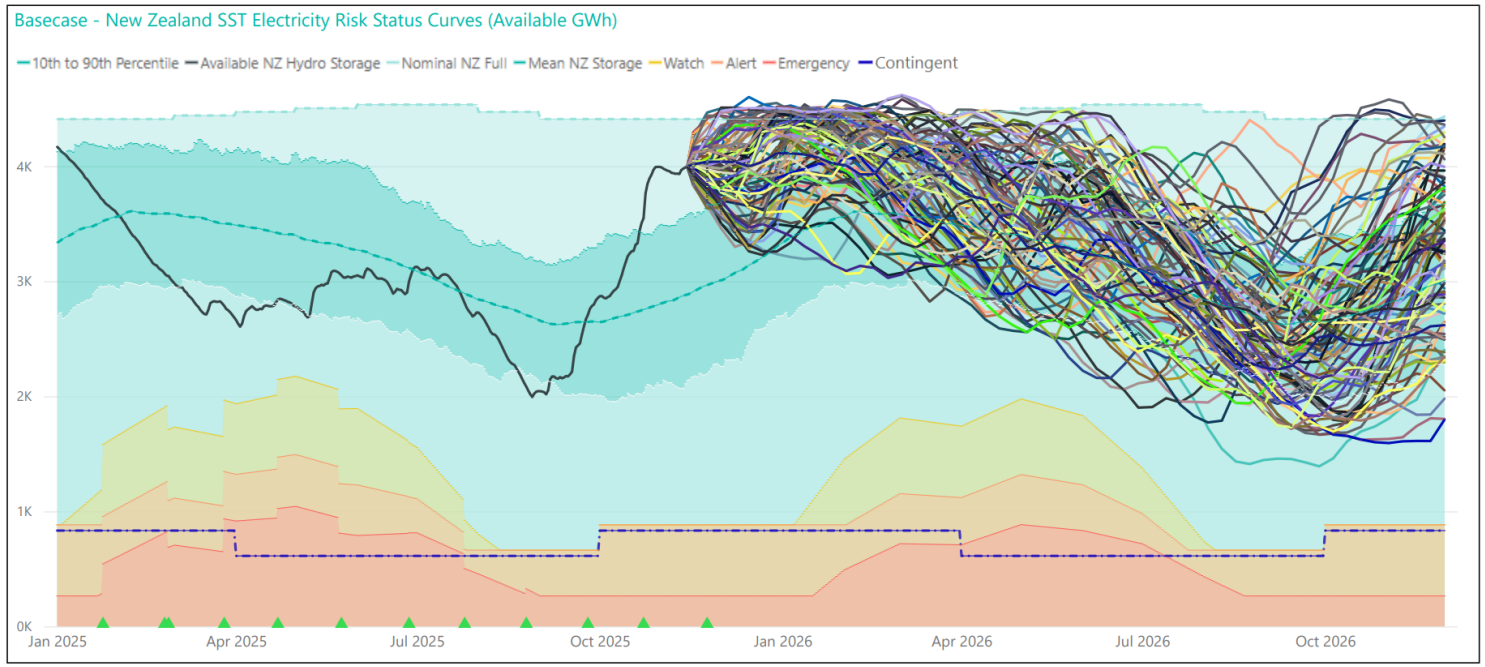
Changes this update:

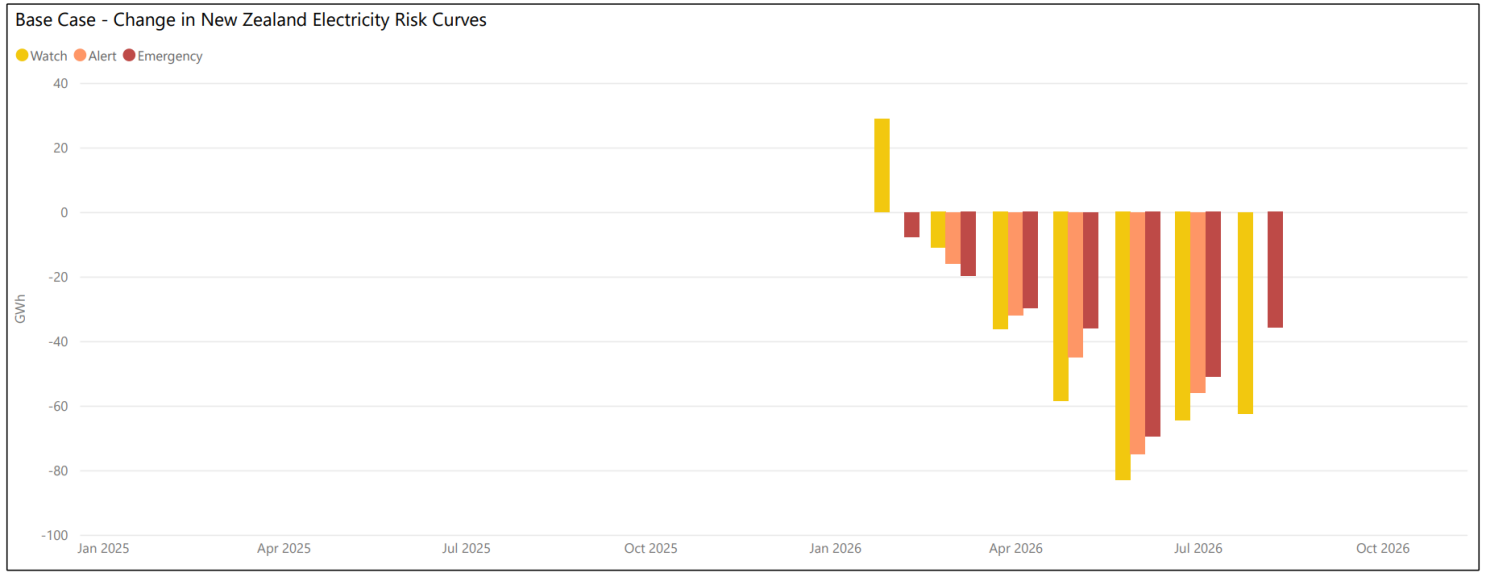
- A significant increase in Ahuroa gas storage
- An increase in the coal stockpile
- A decreased gas production forecast for the next 12 months

Minor changes in curves from October update:

- -80 GWh Watch (June 2026)
- -70 GWh Emergency (June 2026)
- +30 GWh Watch (Feb 2026)

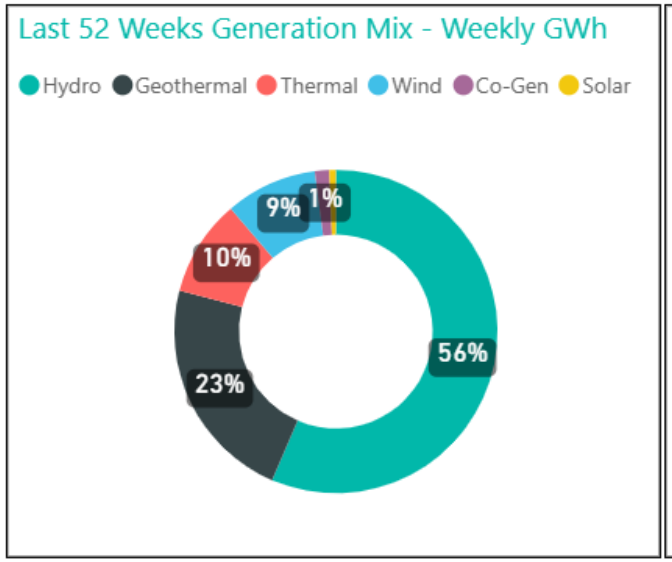
No SSTs cross any risk curves.

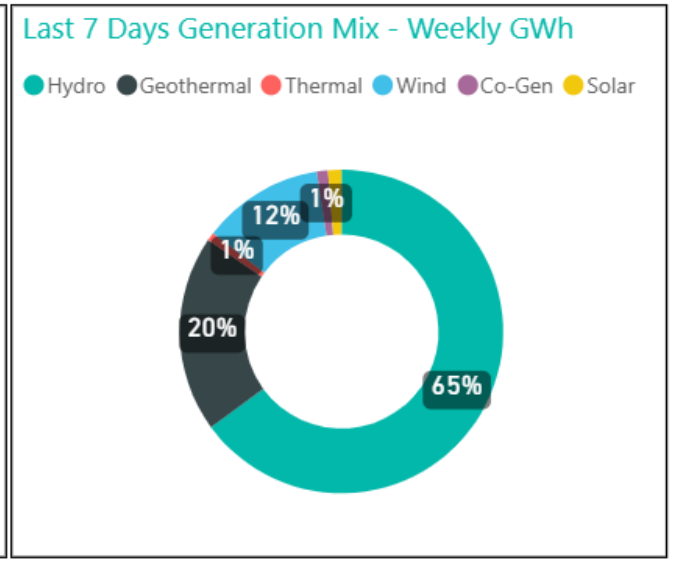


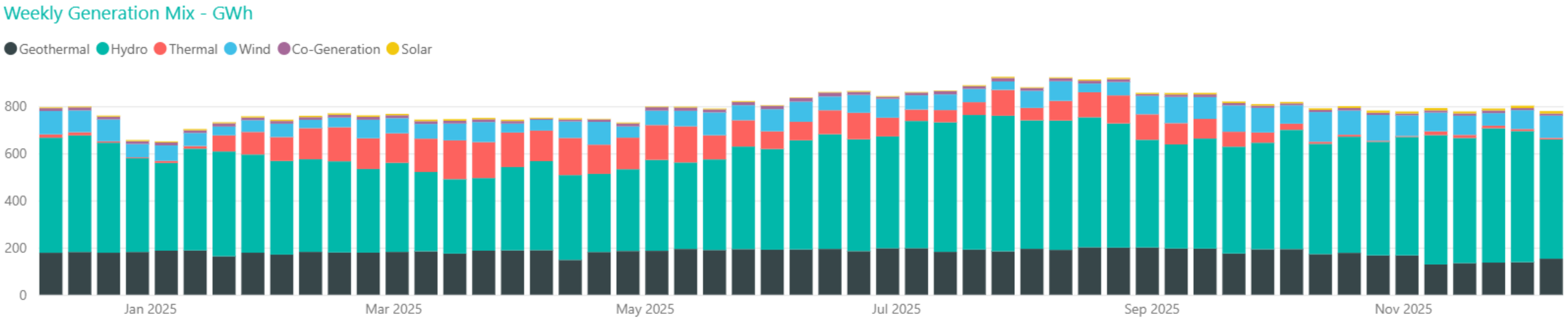


Generation mix

- Hydro generation share high at 65%
- Wind generation above average at 12%
- Thermal generation low at 0.8% with high hydro, low prices
- Geothermal increased to 20% with outages returning, TOPP2 coming online
- Renewable share >97% for the ninth week in a row

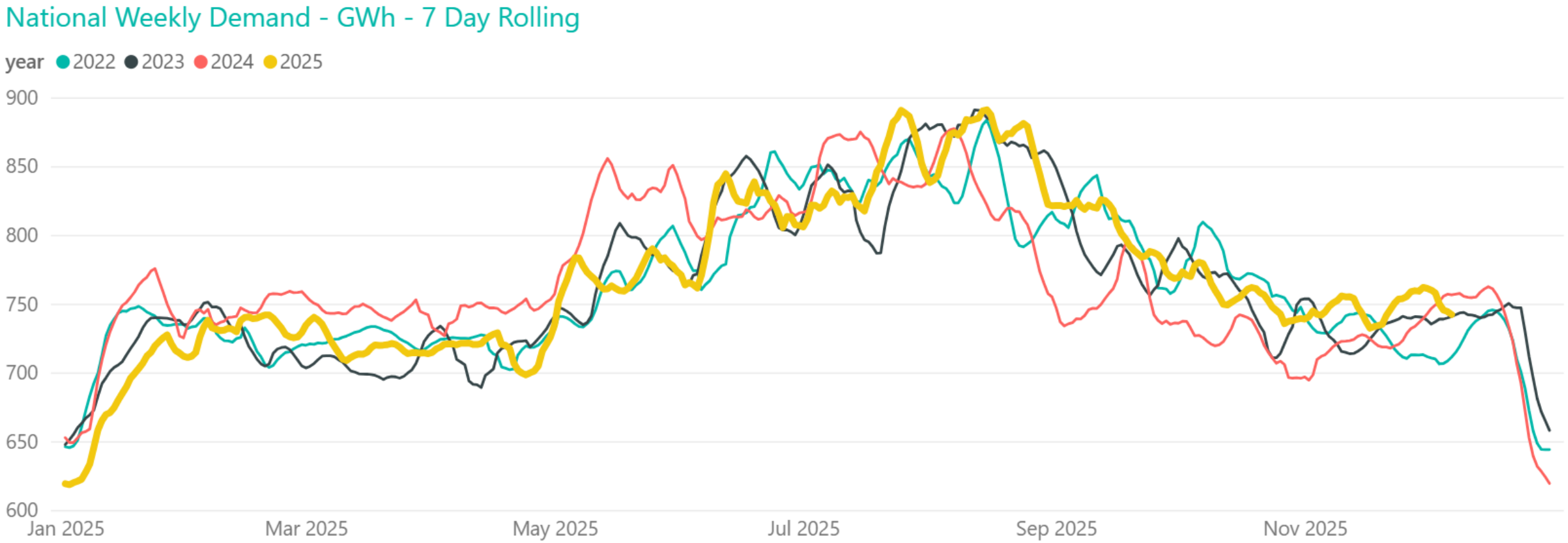






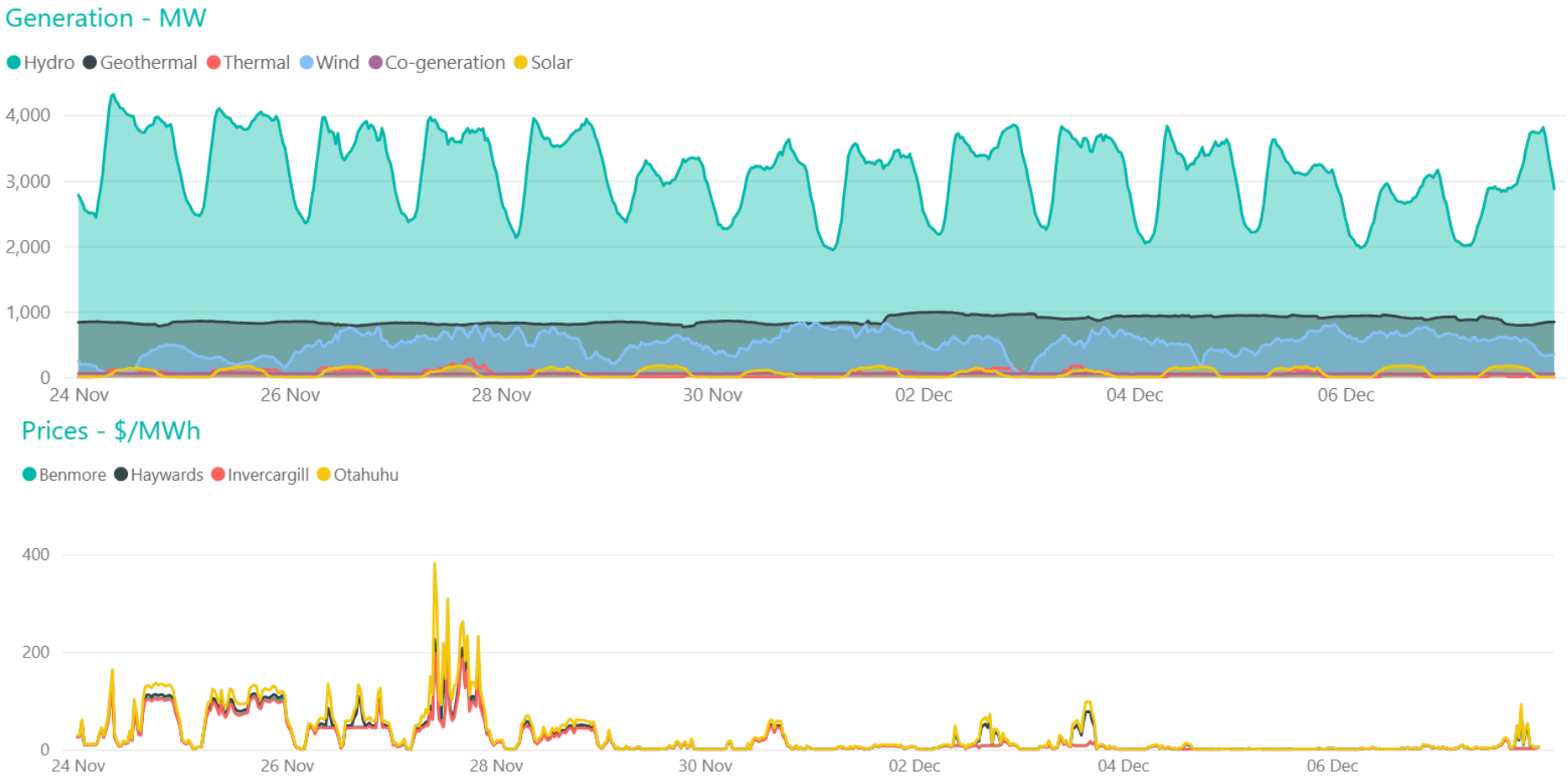
Demand

- Demand was higher than average for the last week of November due to hot weather, particularly in the upper north island, but dropped in the first week of December with more moderate temperatures.



Pricing

- Average Ōtāhuhu price was $8/MWh last week, and $41/MWh the week prior
- Peak of $381/MWh at Ōtāhuhu, 10:00 am on Thursday 27 November. Some price separation occurred within the North Island, with constraints binding due to transmission outages.

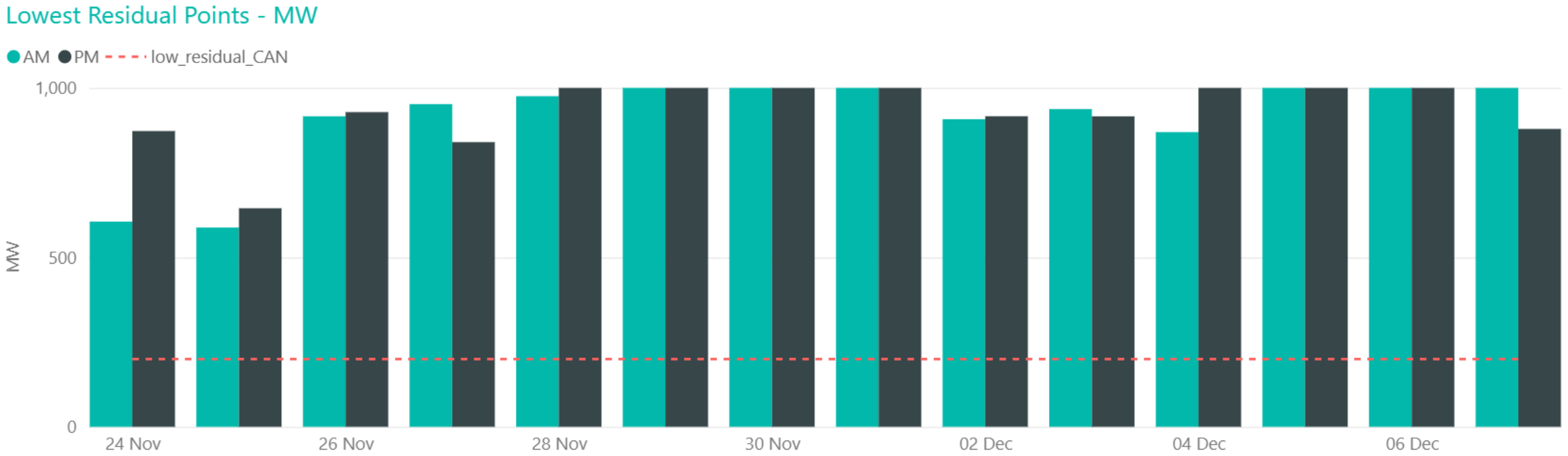


HVDC transfer

- HVDC transfer has been entirely northward with very high South Island hydro storage
- Daytime transfer sometimes limited by HVDC physical capacity with multiple AC assets on outage
- Past fortnight 176 GWh sent north, 0 GWh sent south

Capacity residual margins

- Healthy residuals with moderate demand levels
- Lowest residual 588 MW (Tuesday 25 November)

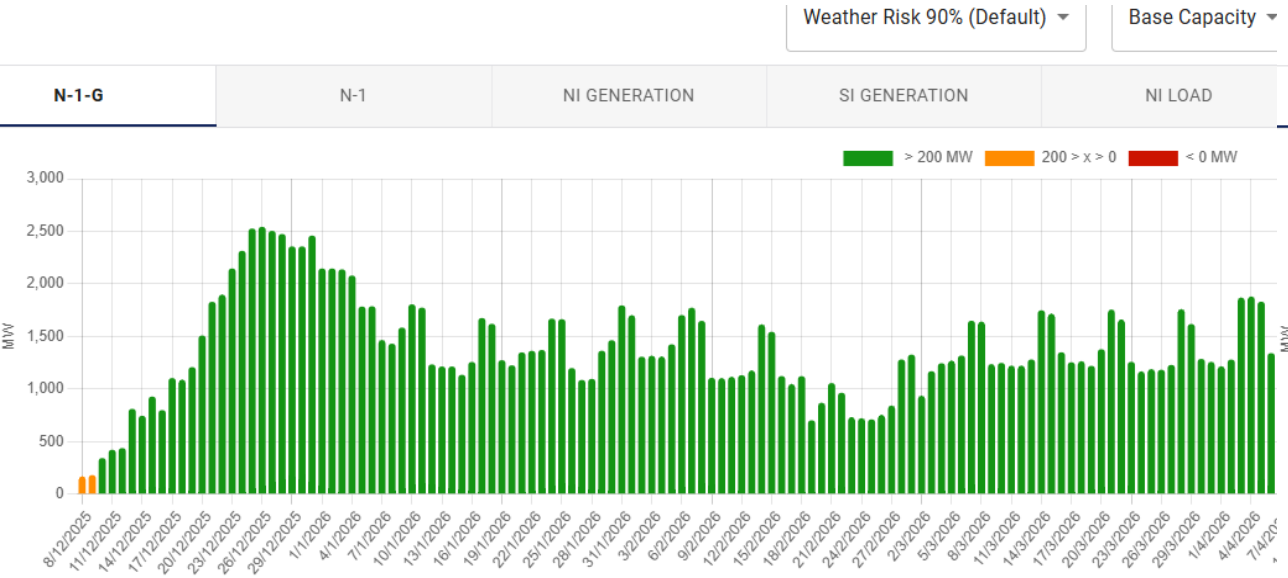


NZGB update

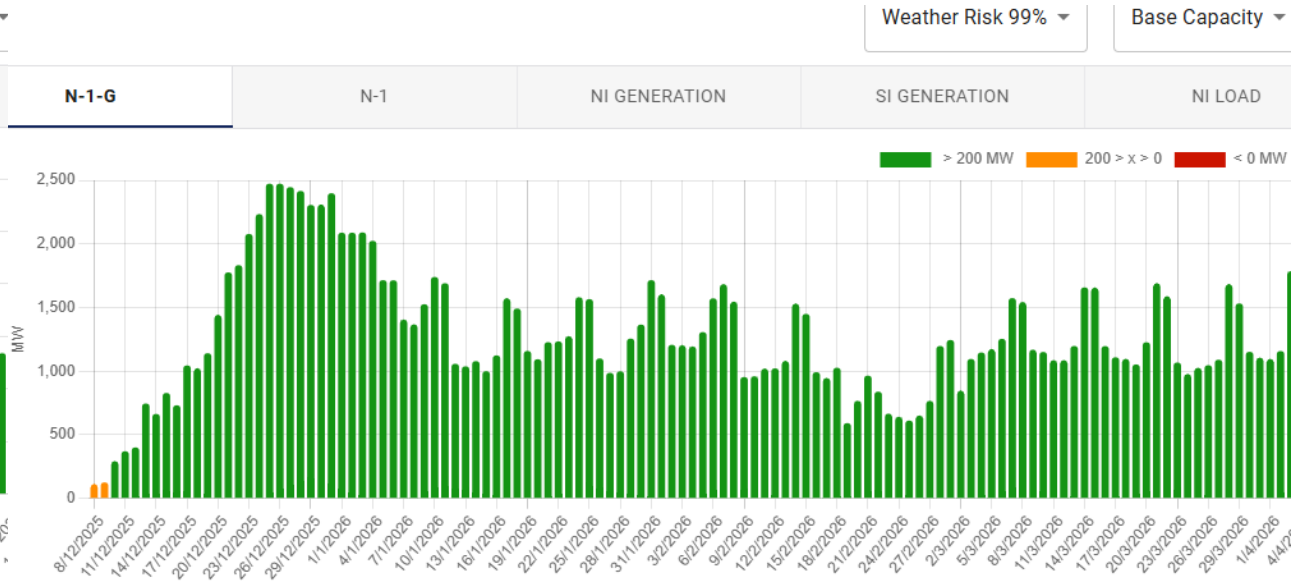
NZGB update: base capacity N-1-G

- N-1-G margins are currently showing healthy values, except for this week where lower margins are seen due to the WKM_WRK outage.
- Under the 99th percentile load, which we would expect under a cold snap, the margins drop but are still healthy

Base case capacity at 90%
- ***This triggers the CAN process***
- Assumes all generation available in POCP is offered
- It uses 20% of total wind capacity



90th percentile load



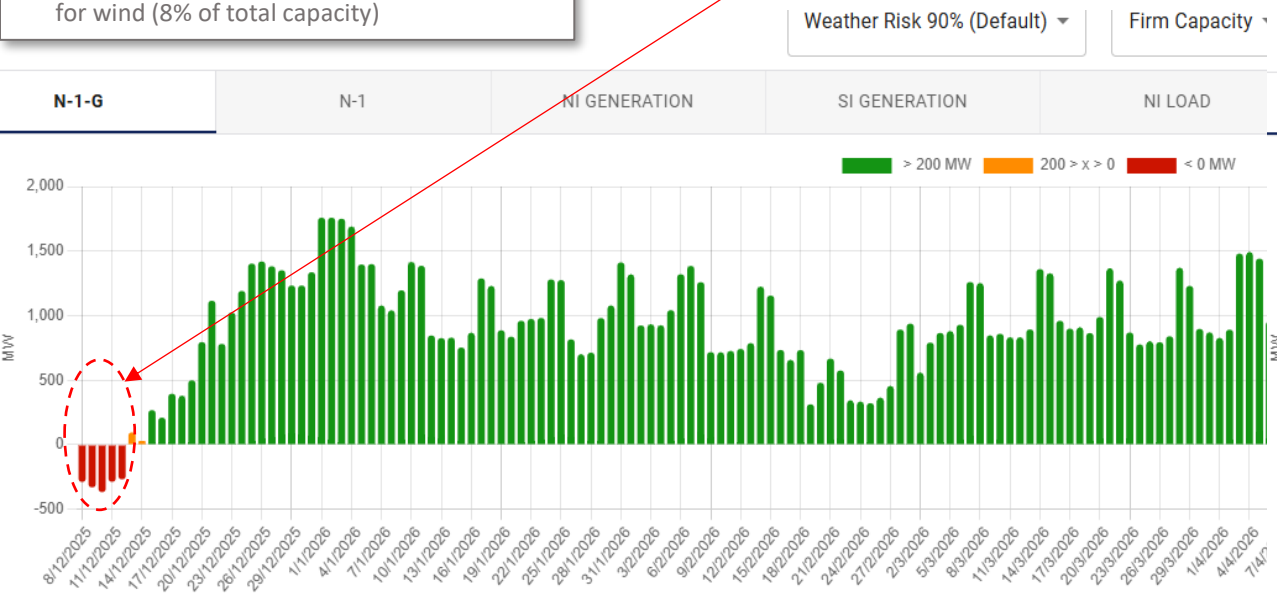
99th percentile load

NZGB update: firm capacity only N-1-G

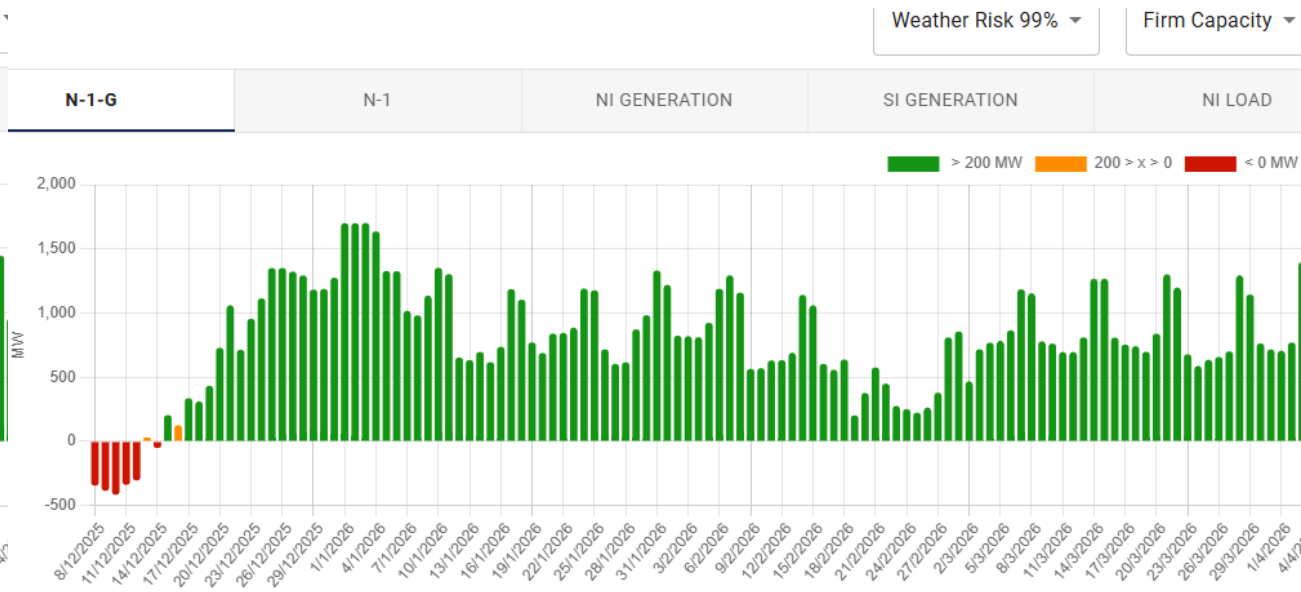
- Firm capacity scenario reflects units that historically operate for at least 90% of AM & PM peaks.
- Any shortfall or low margin periods highlight the potential reliance on these units to be available to cover N-1-G
- This means we are relying on the market to coordinate especially slow starting thermal units, to get through high peak load periods

Firm capacity removes
- TCC (-360MW) all months
- HLY 5 (-405MW)
- 2 HLY Rankines from 1st Oct to 31 Dec 2025, and 2 Rankines over the remaining months
- It uses the lowest 10th percentile generation for wind (8% of total capacity)

WKM-WRK-1 outage

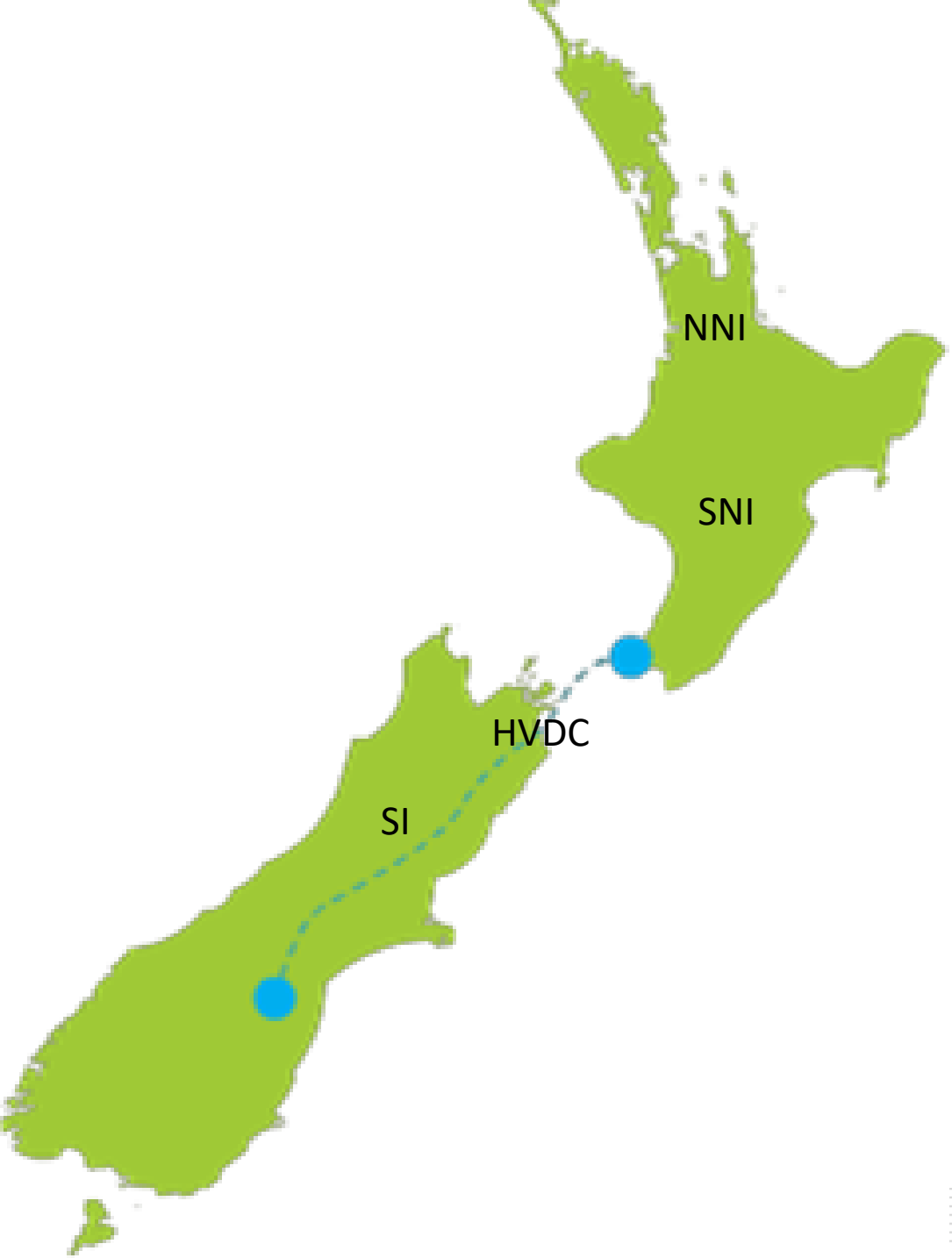


90th percentile load



99th percentile load

Outages next 4 weeks



Outages

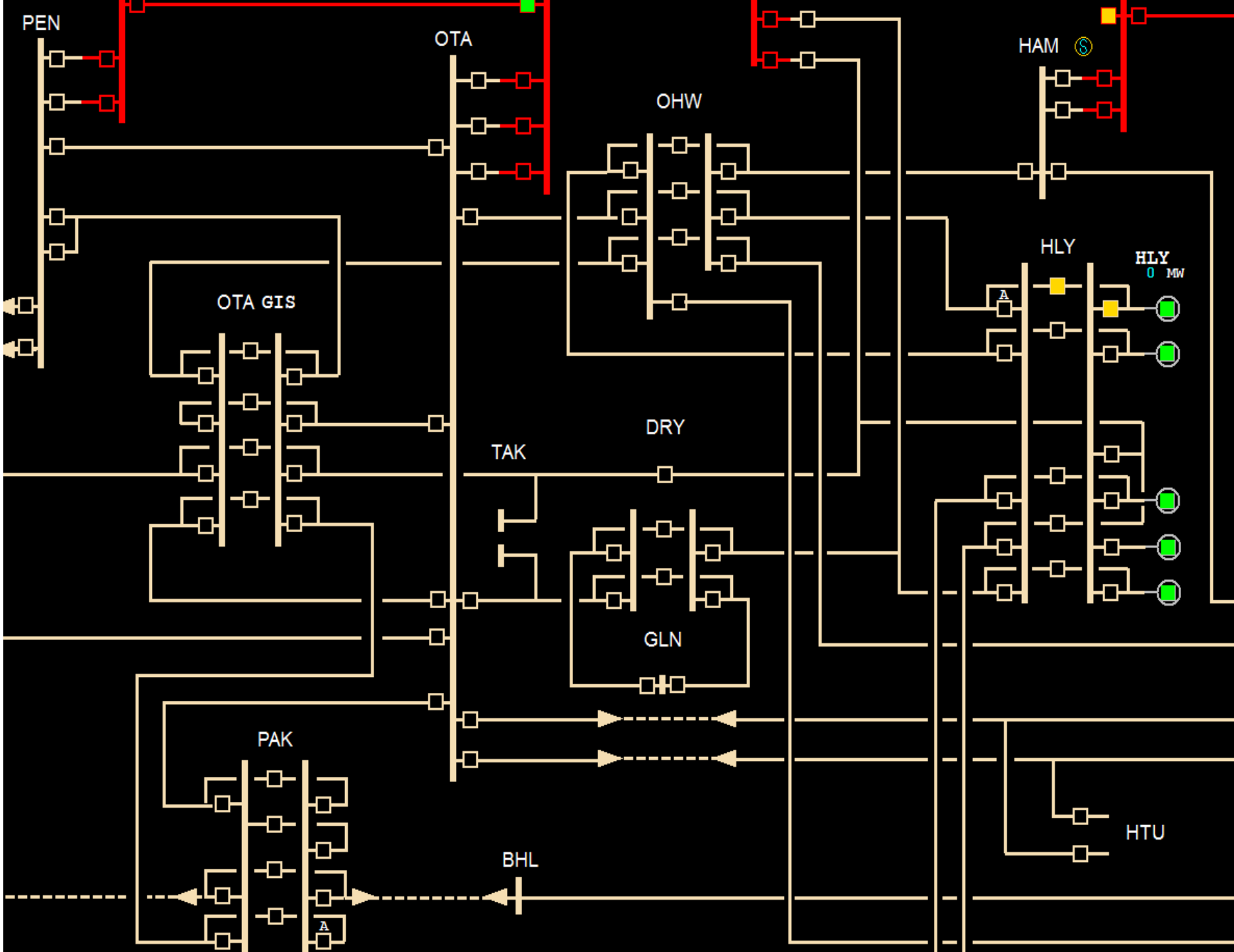
- NNI outages
- SNI outages
- SI outages

Asset owners

- Check in POCP for detailed dates
- Consider the impact on your own outages

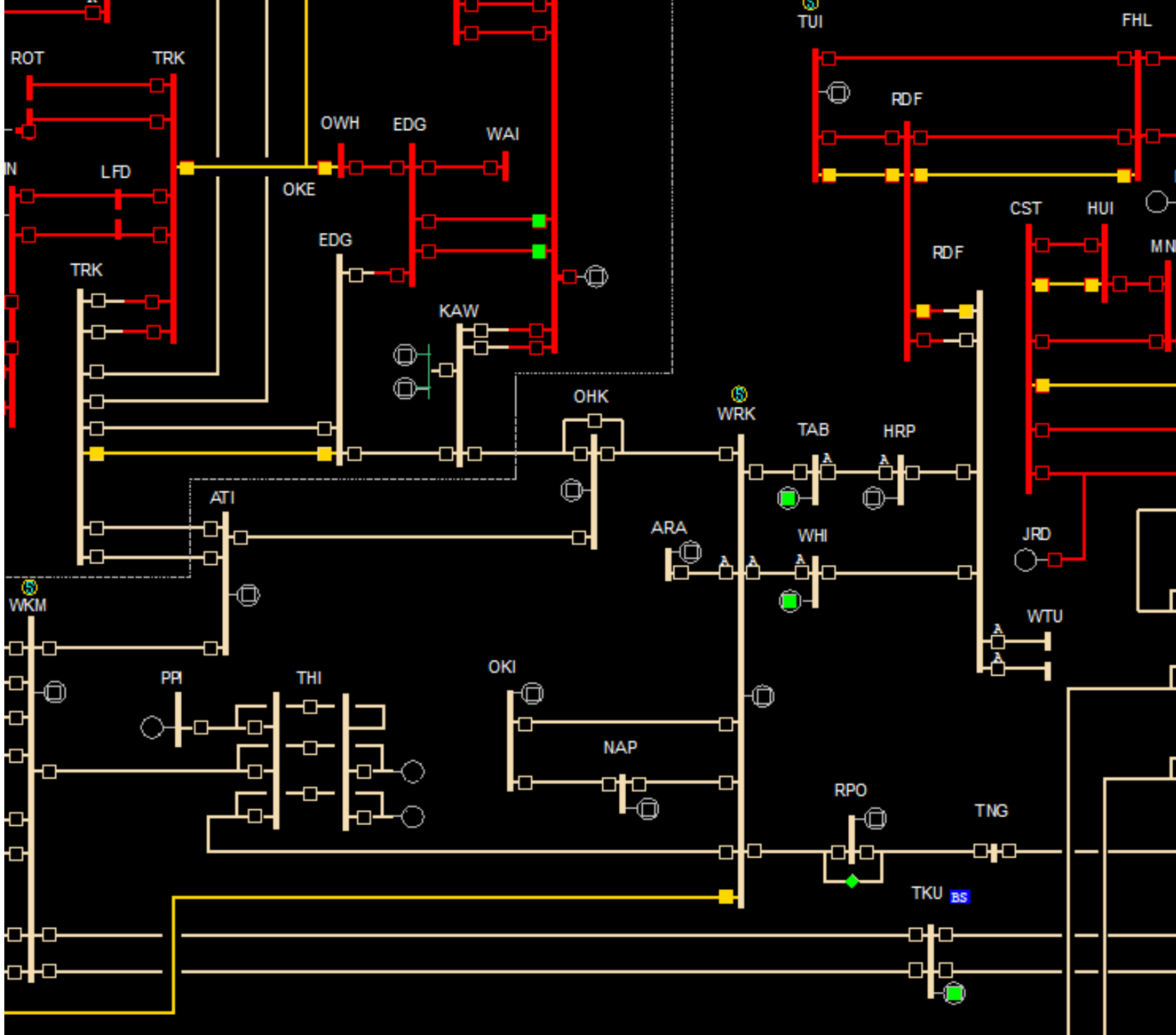
NNI Outages

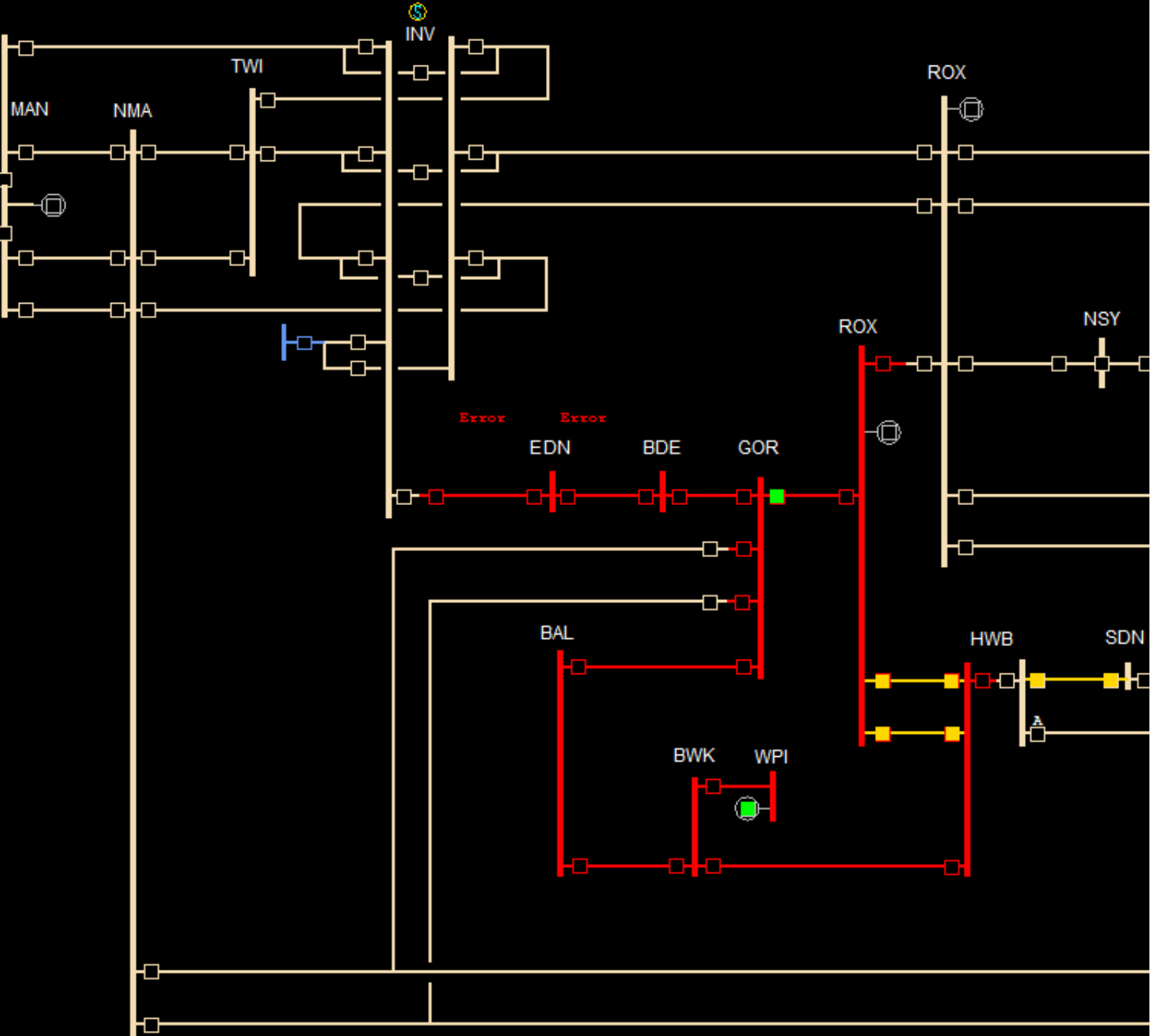
- Weeks of 15/22/29 Dec
  - No significant outages
- Week of 5 Jan
  - OTA_SWN_1
  - HEN_SWN_1
- Week of 12 Jan
  - OTA_SWN_1
  - HEN_SWN_1
- Week of 19 Jan
  - OTA_PEN_6
  - OHW_WKM_1
  - EDG_TRK_1



SNI Outages

- Week of 15 Dec
  - TKU_WKM_1
  - BPE_TKU_1
  - TKU_CB_128
- Weeks of 22/29 Dec and 5 Jan
  - No significant outages
- Week of 12 Jan
  - TKU_WKM_2
  - BPE_TKU_2
  - BPE_BRK_1
- Week of 19 Jan
  - TKU_WKM_2
  - BPE_TKU_2
  - BPE_BRK_2

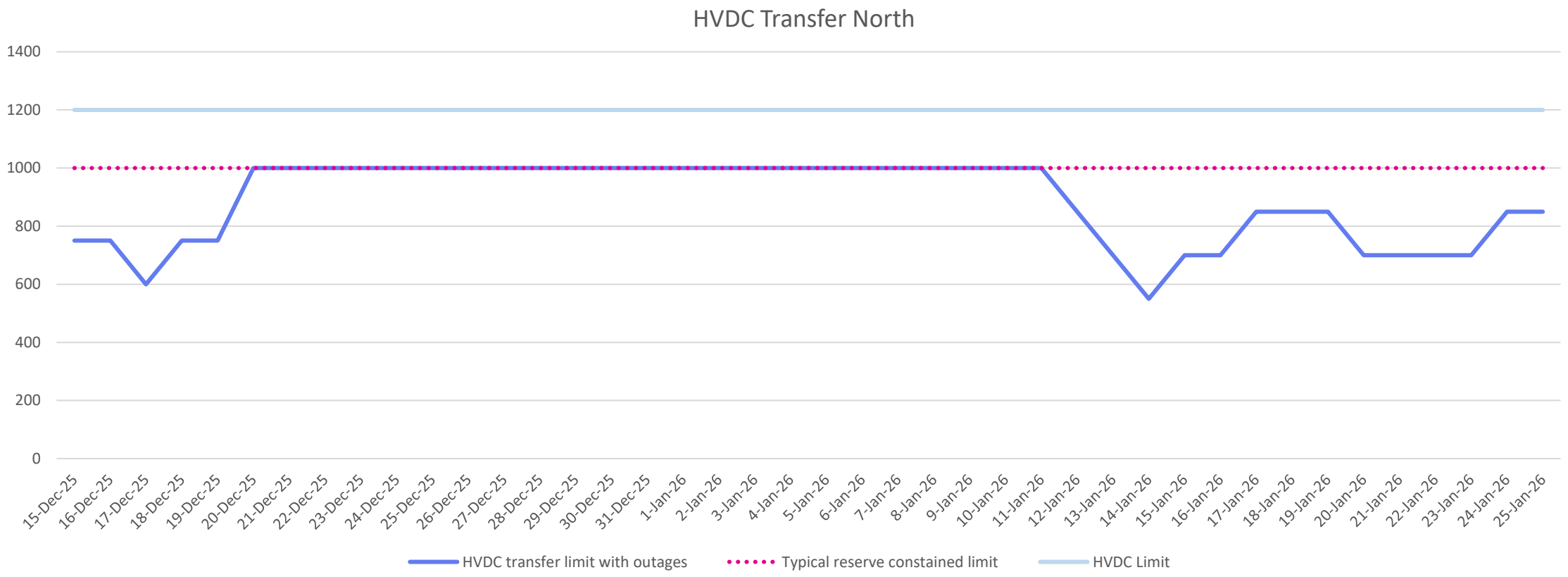


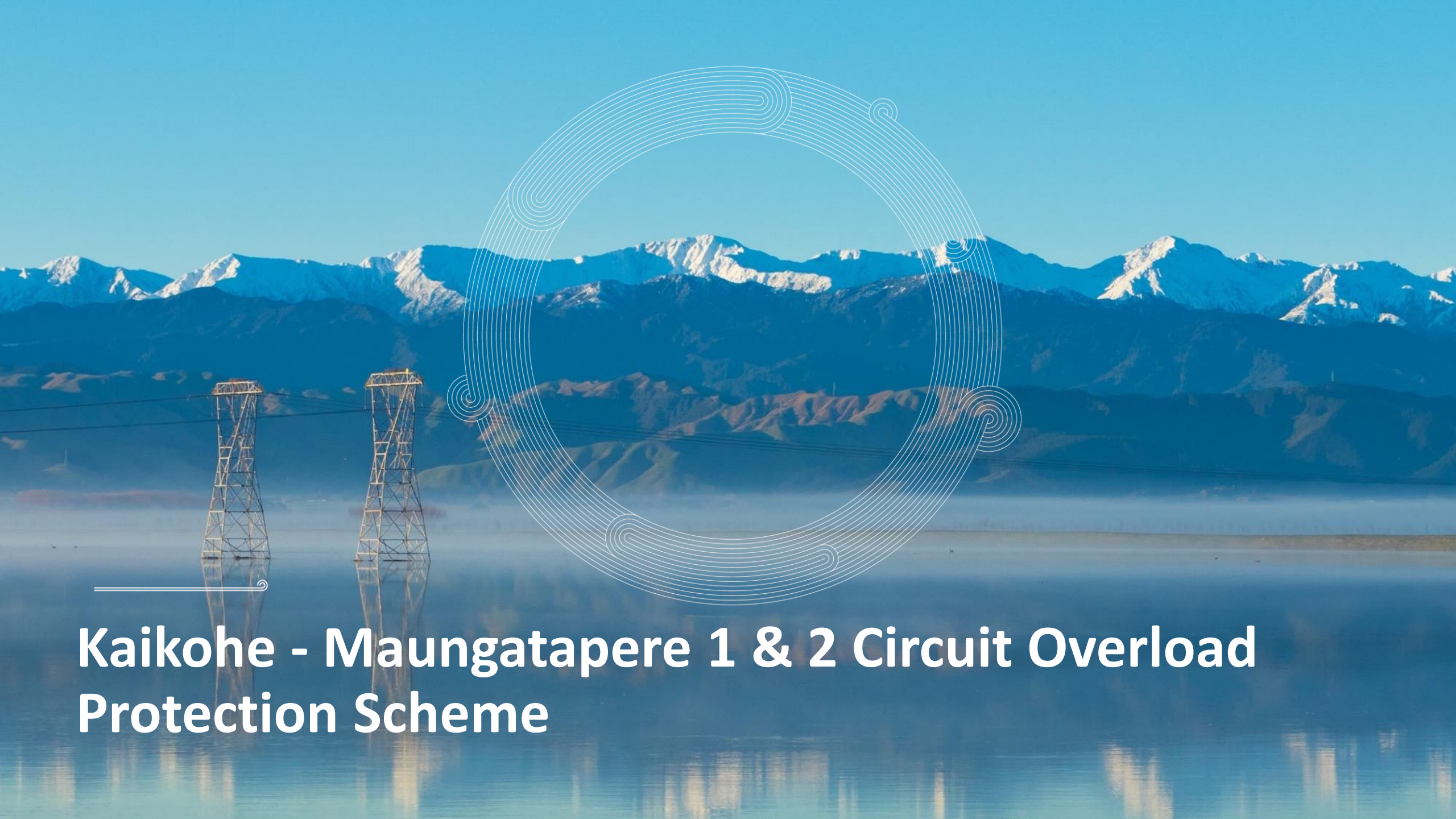


SI Outages

- Week of 15 Dec
  - ISL_KIK_1
  - MAN_NMA_1
  - MAN_NMA_2
- Weeks of 22/29 Dec and 5 Jan
  - No Significant Outages
- Week of 12 Jan
  - ROX_TMH_2
  - KIK_STK_2
- Week of 19 Jan
  - BRY_ISL_1
  - NMA_GOR_TMH_1
  - NMA_TWI_1

HVDC North transfer limit





Kaikohe - Maungatapere 1 & 2 Circuit Overload Protection Scheme

Kaikohe (KOE) - Maungatapere (MPE) Circuit Overload Protection Scheme

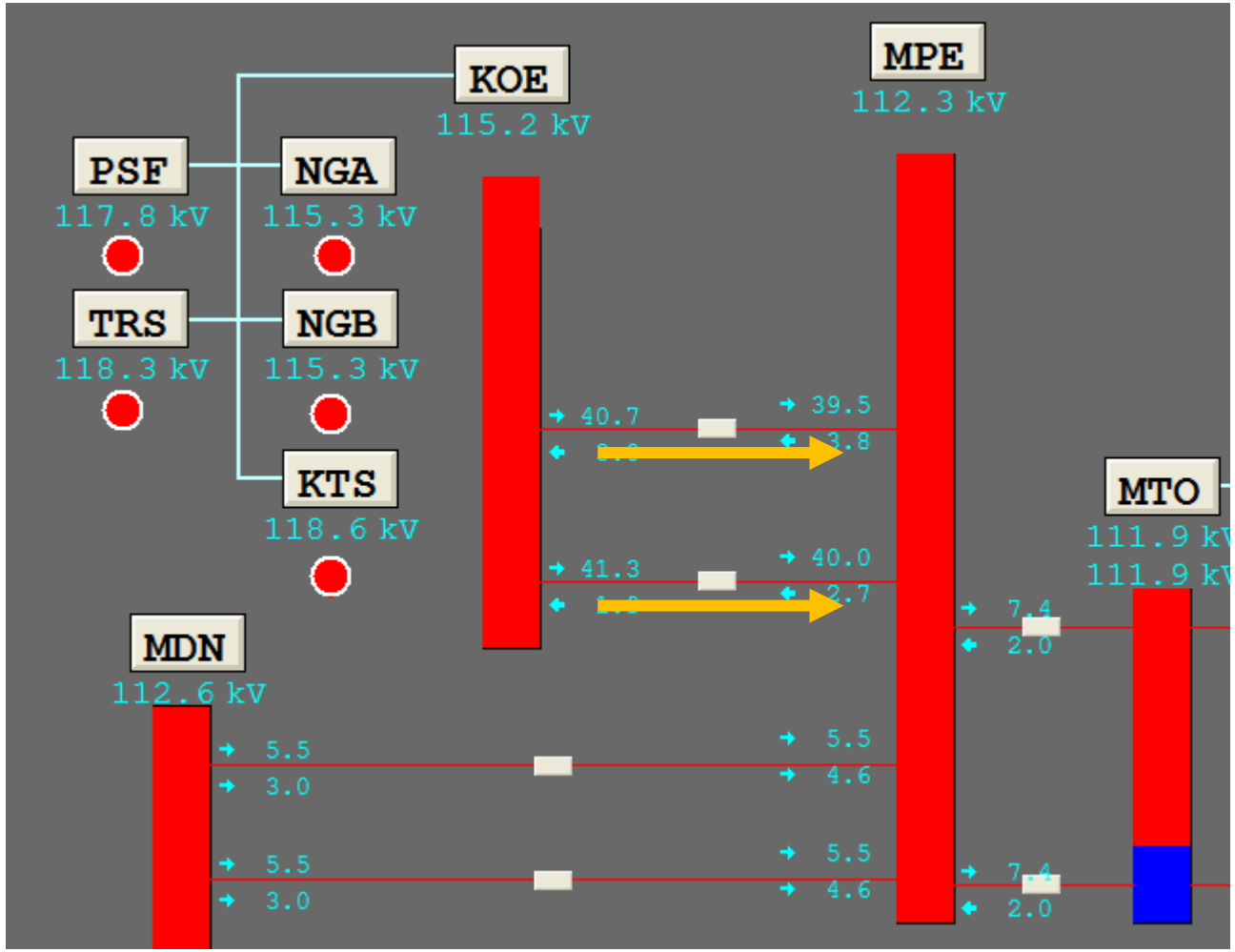
- The Northland region is commissioning additional solar generation.
- By the end of 2025, the available generation capacity is expected to exceed the n-1 rating of the Kaikohe–Maungatapere–1 & 2 (KOE-MPE-1 & 2) circuits.
- To avoid restricting this increased generation output an SPS scheme will be implemented on 10 December to enable the loading on the circuits to exceed the n-1 capacity.

- This will be a runback scheme with the following solar farms included in the scheme:
  - Kaitaia Solar Farm (KTS) – 24MW
  - Pukenui Solar Farm (PSF) – 20MW
  - Twin Rivers Solar Farm (TRS) – 24MW

What does the scheme do?

1) Stage 1: Run back generation within Top Energy's network in response to an overload above 95% of the seasonal rating on either of the KOE_MPE 1 or 2 circuits.

2) Stage 2: Trip the affected circuit if the generation cannot be reduced below 100% of the seasonal rating within an appropriate time.

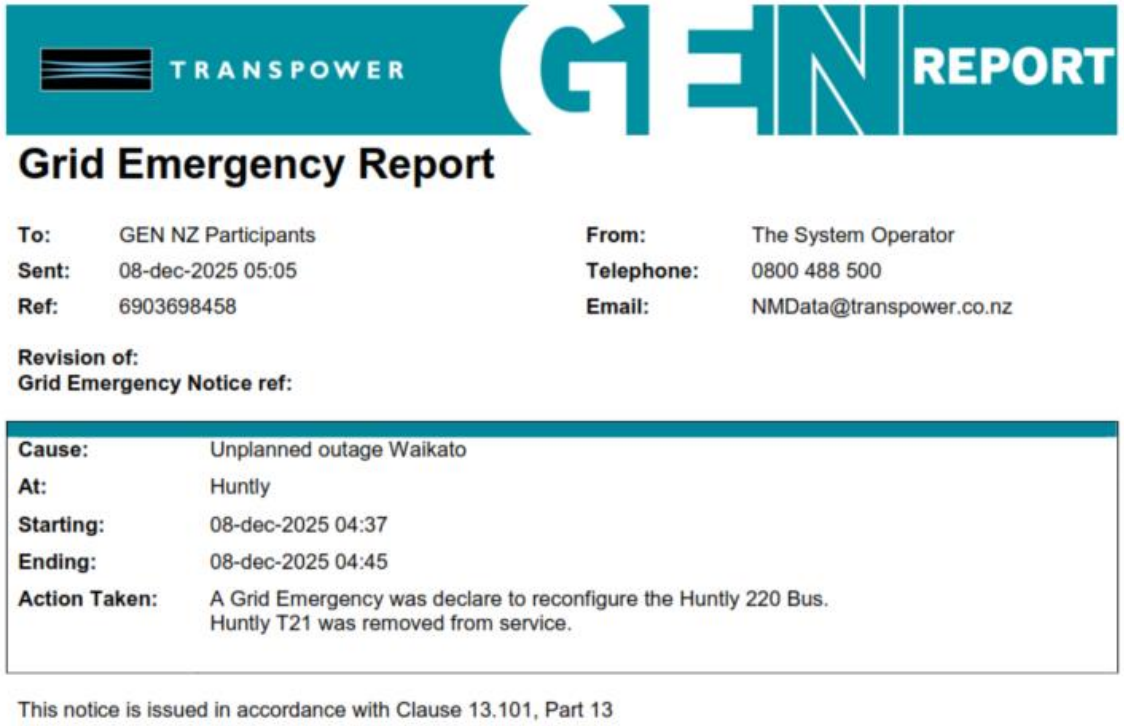


Without SPS	With SPS
Constrains 128MW total generation to the N-1 capacity of KOE-MPE 1 & 2 110 kV circuits (70MW flow on the circuits)	No Constraints - (Up to 125MW flow on the circuits) Enables additional 55MW generation export out of the region pre contingently, most value in summer.

Operational update

Grid Emergency – 8/12

- Unplanned Outage Waikato: Huntly Generator Tripped
- Huntly 220kV bus reconfigured to remove Huntly T21 from service
- No impact to consumers



TRANSPOWER GEN REPORT

Grid Emergency Report

To:	GEN NZ Participants	**From:**	The System Operator
Sent:	08-dec-2025 05:05	**Telephone:**	0800 488 500
Ref:	6903698458	**Email:**	NMData@transpower.co.nz

Revision of:
Grid Emergency Notice ref:

Cause:	Unplanned outage Waikato
At:	Huntly
Starting:	08-dec-2025 04:37
Ending:	08-dec-2025 04:45
Action Taken:	A Grid Emergency was declare to reconfigure the Huntly 220 Bus. Huntly T21 was removed from service.

This notice is issued in accordance with Clause 13.101, Part 13

Operational Notices Project

We’re changing the system for how we send Operational Notices (~April 2026)

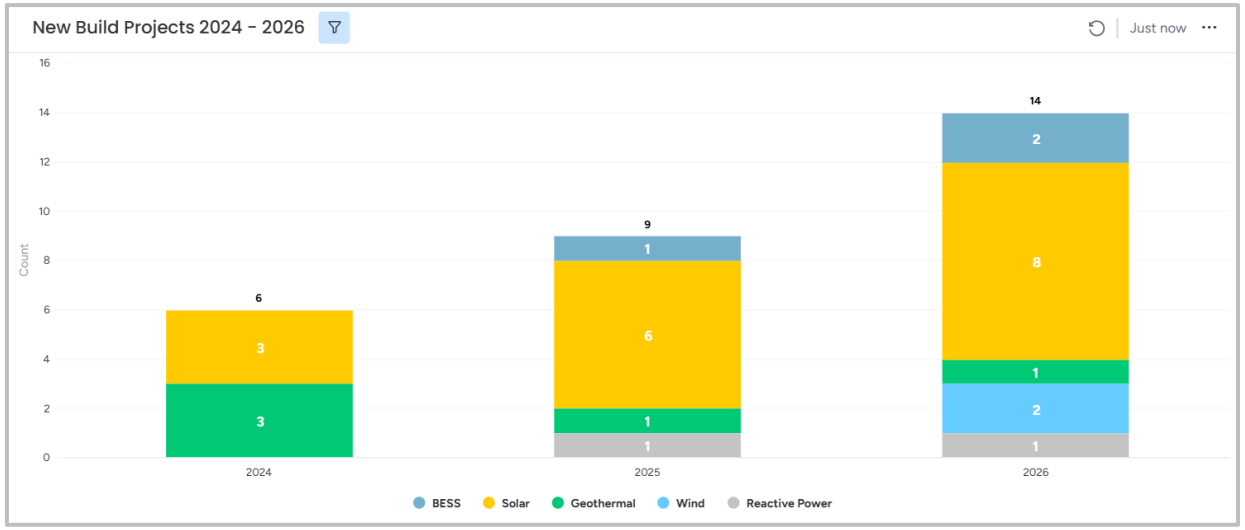
Key changes:

- Notices will still look and feel the same
- Some industry participants able to self-manage
- Industry control rooms will be able to ‘Acknowledge’ some Notices

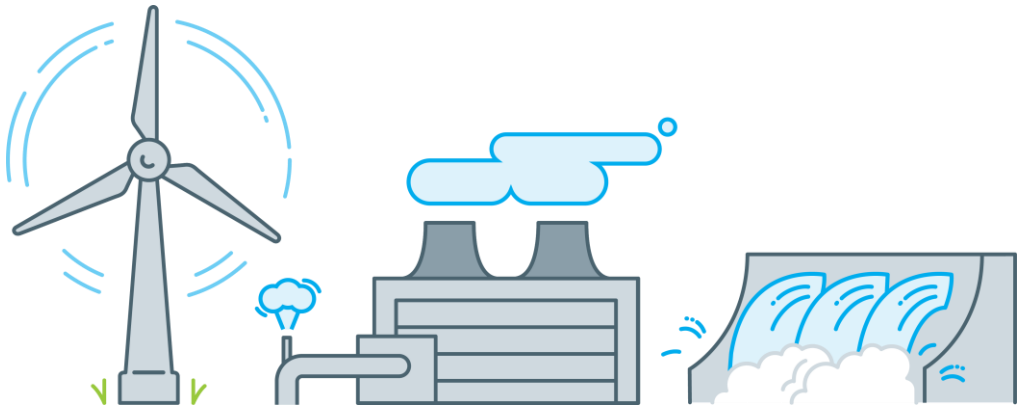
SO Generation Commissioning & Testing update

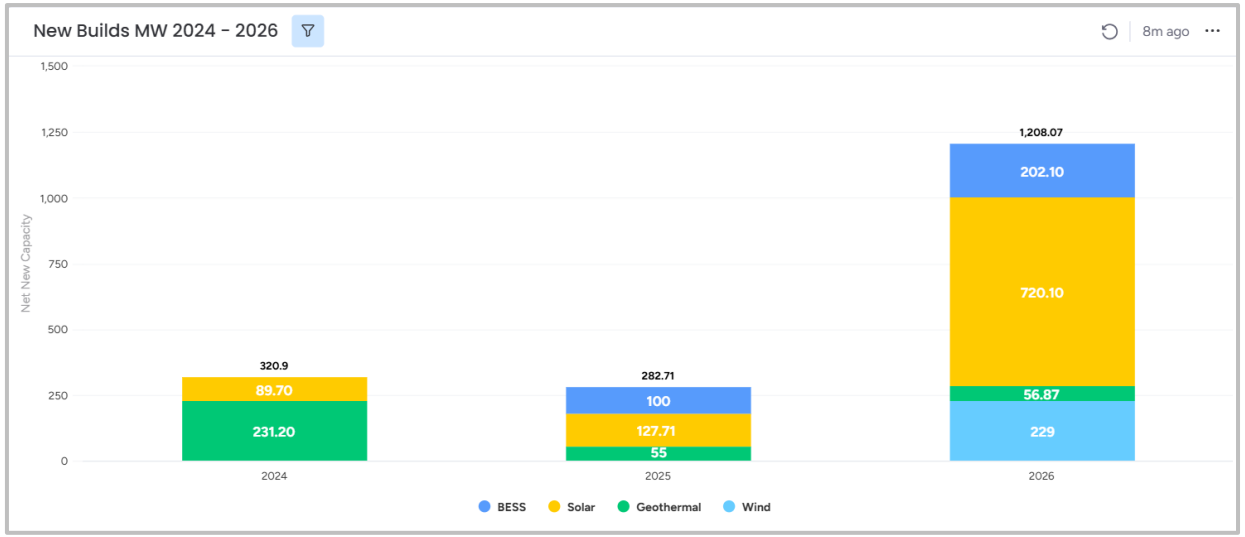
New Build Generation Projects + MW by Calendar Year

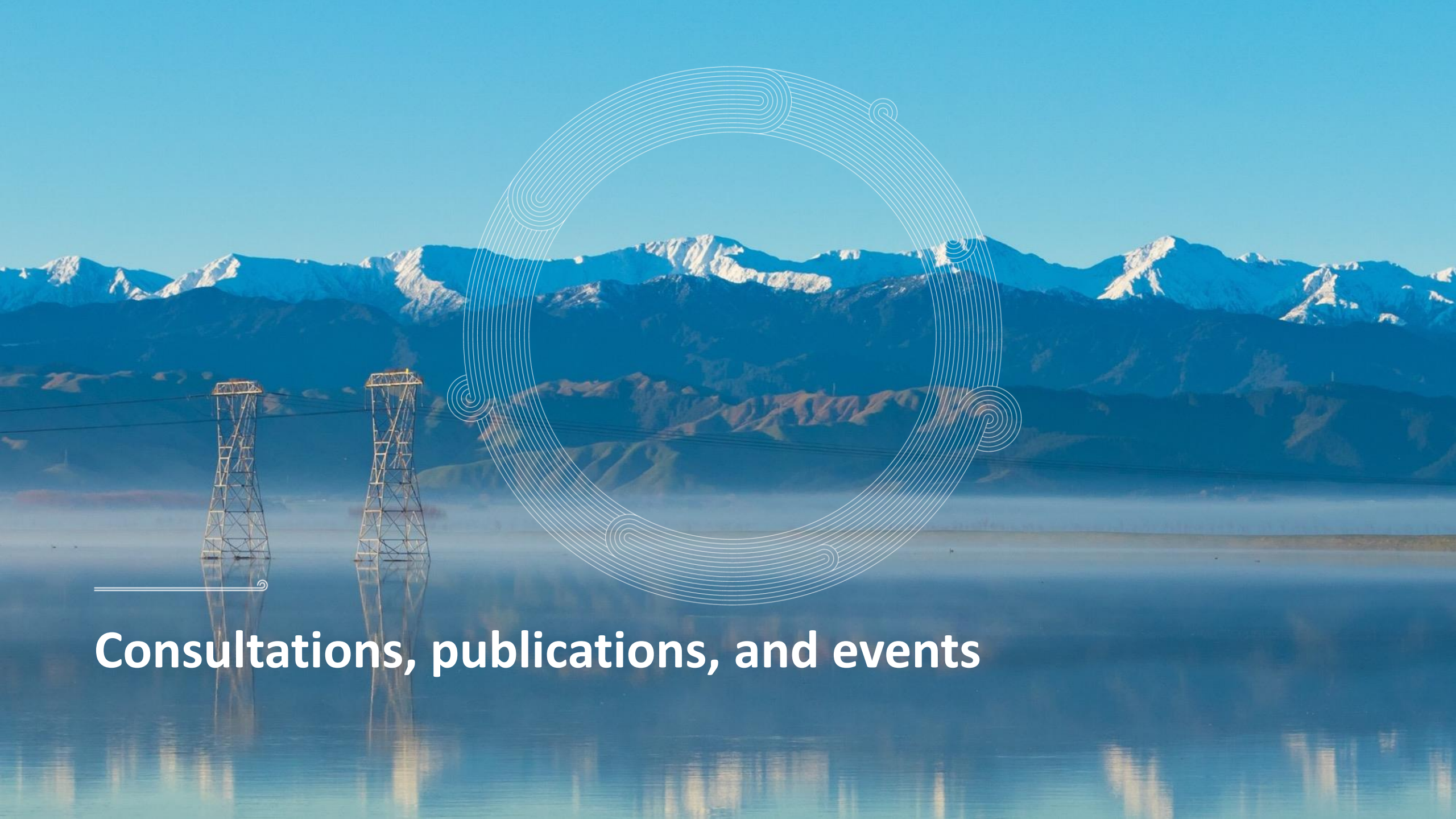
2025 New Build Projects: 9



2025 New Build MW: 283







Consultations, publications, and events

Consultations, publications, and events

Last week we published a **Resource Adequacy** thought piece which is available on our website.

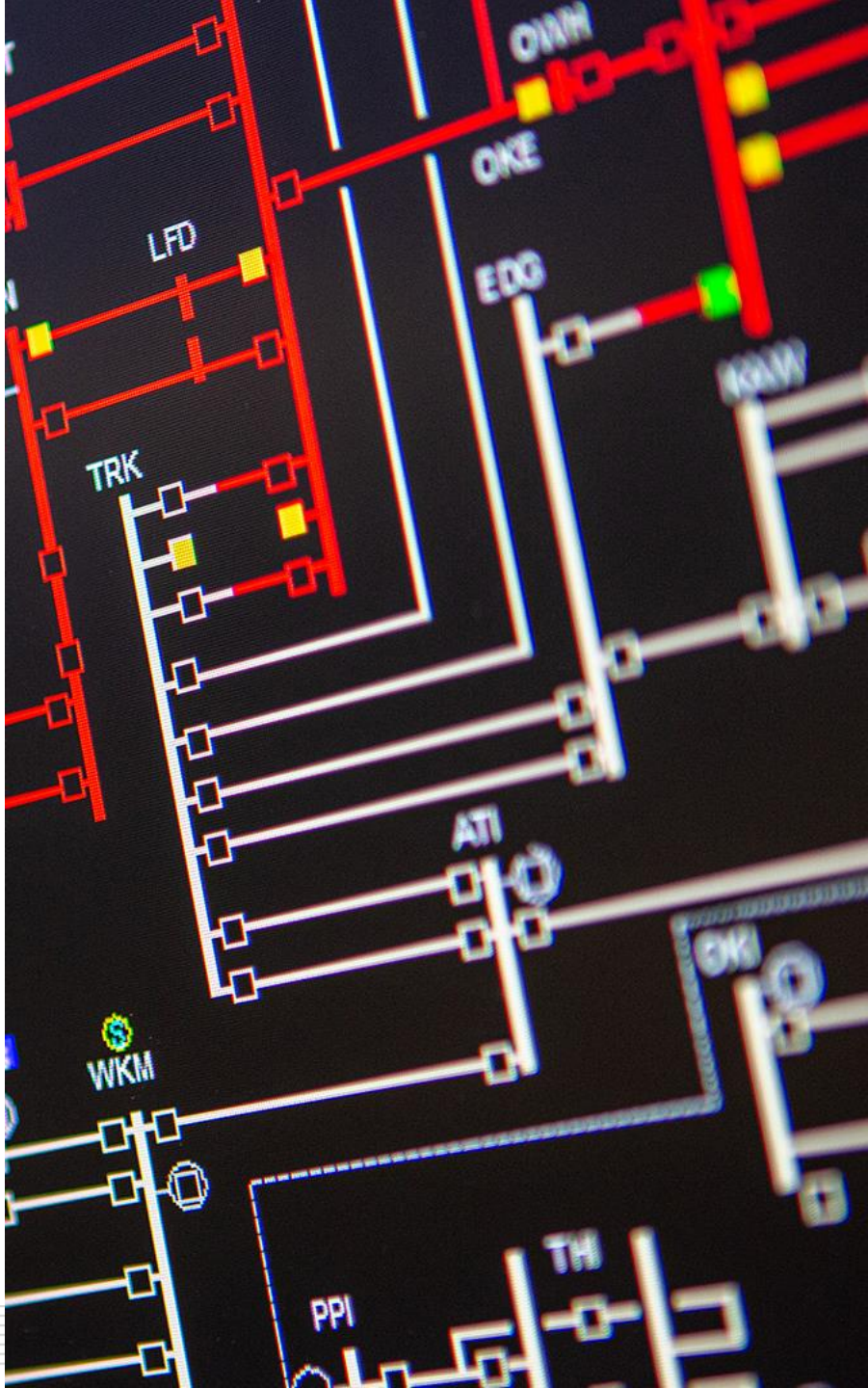
We have published a minor update to our System Security Forecast **N-1 Thermal and Voltage Study** which is available on our website

On Friday we submitted our **recommended CACTIS proposal** to the Authority following consideration of consultation feedback.

Shortly we will publish a paper on **Key Trends and Issues** in the industry and will invite feed back to help inform the refresh of our **System Operator Strategy**

We are working on our summary and response to the **2026 SOSA reference case assumptions and sensitivities** consultation which we will publish.

The November **Energy Security Outlook** is available on our website.



Questions / Patai

Please raise your hand

If you have feedback let us know via our **Feedback Form**

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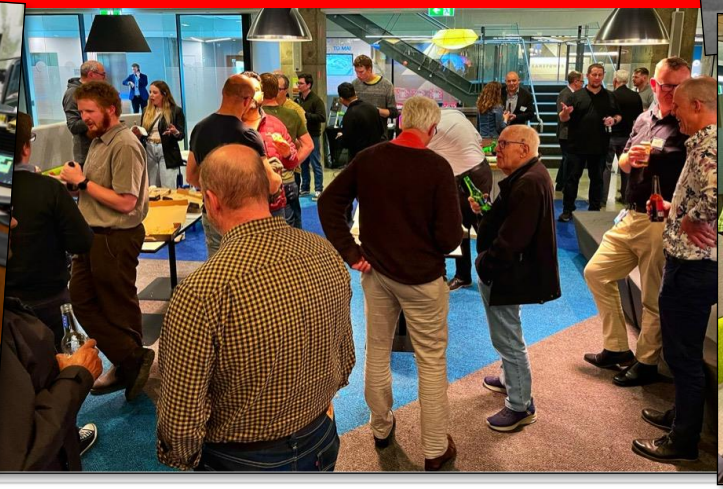

Merry Christmas from the SO