



TRANSPower

System Operator Industry Forum Winter Special

28 April 2026



Today's agenda

- Winter Preparedness
 - Context
 - Information for Industry
 - Changes since last Winter
- Winter Response
 - Notices
 - Difference Bids
 - Event Management
 - Communications
- Questions / Patai





Winter Preparedness

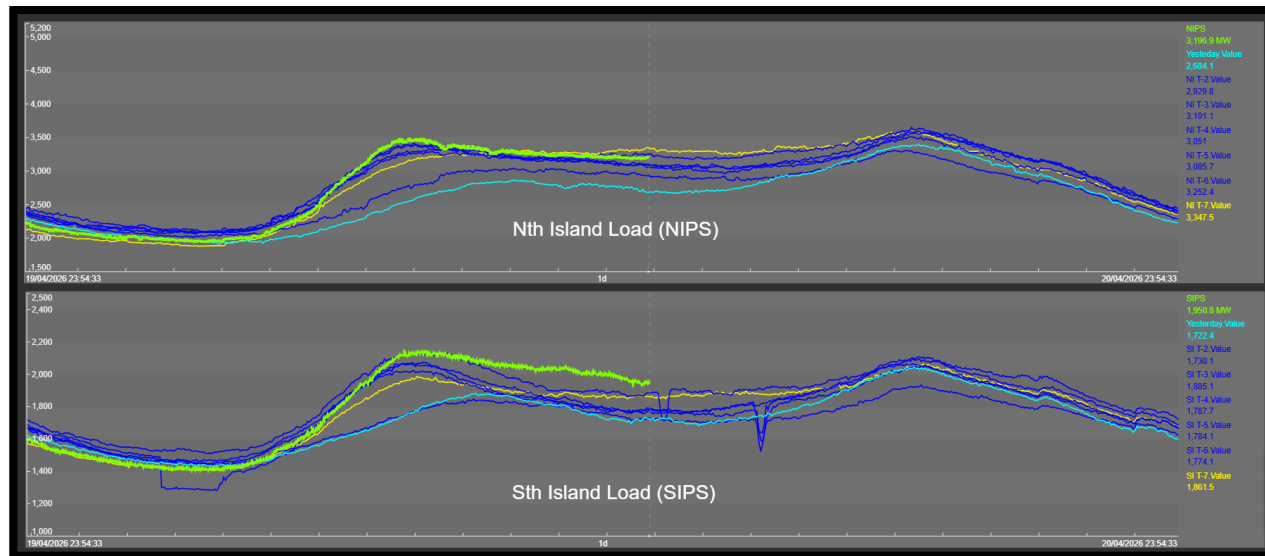
Aotearoa New Zealand Winter Peaking

- Our electricity system in Aotearoa NZ is Winter Peaking
- As temperatures drop, peak loads rise
- NZ's peak demand is on cold frosty mornings / nights (no wind / solar)
- Peak winter load approx. 7,100MW
- Installed generation capacity 10,300+MW

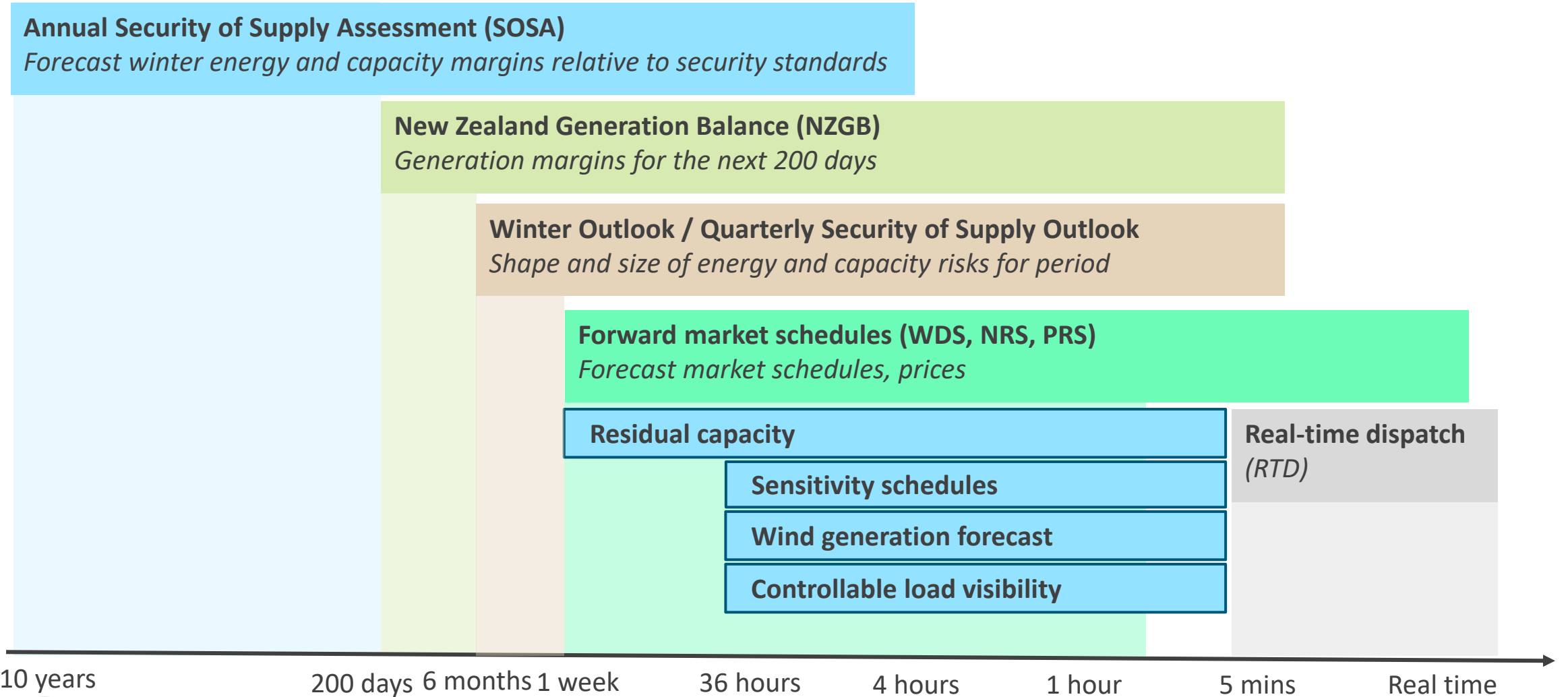


Winter Peaks – Capacity Focus, Everyone’s Focus

- The System Operator balances supply and demand = 50 Hz
- Our capacity to supply these peak winter loads becomes high focus
- During these large winter peaks, we need **everyone’s** support to **Keep the Lights On**

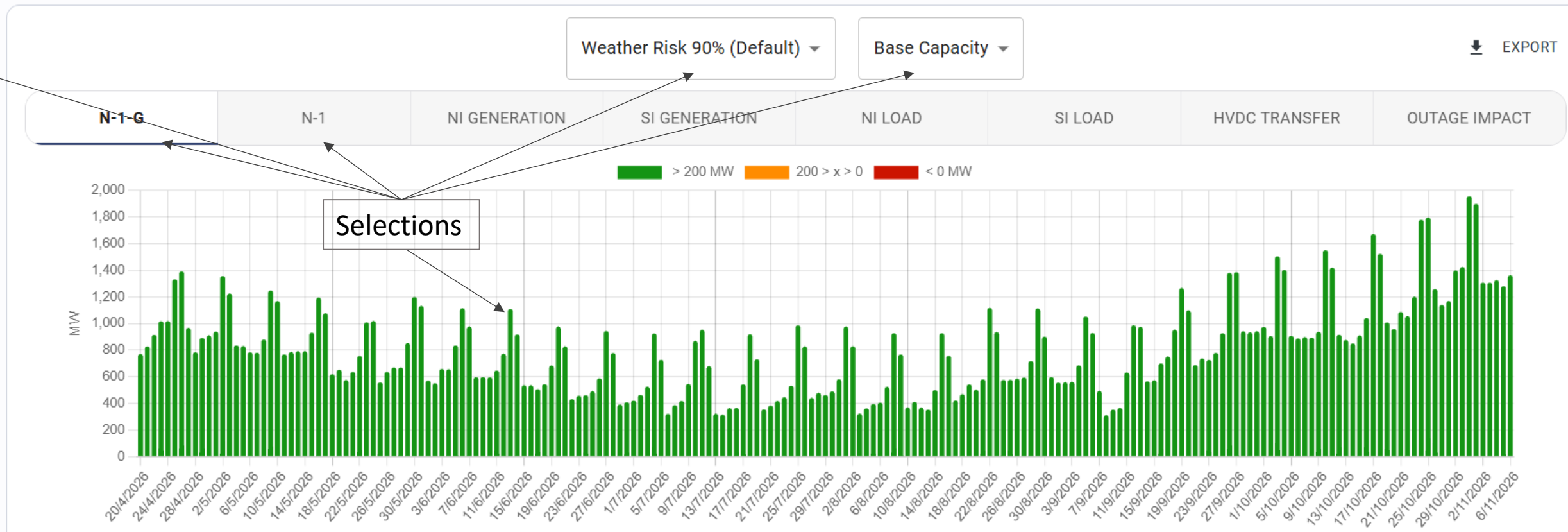


Information published regarding meeting peak demand

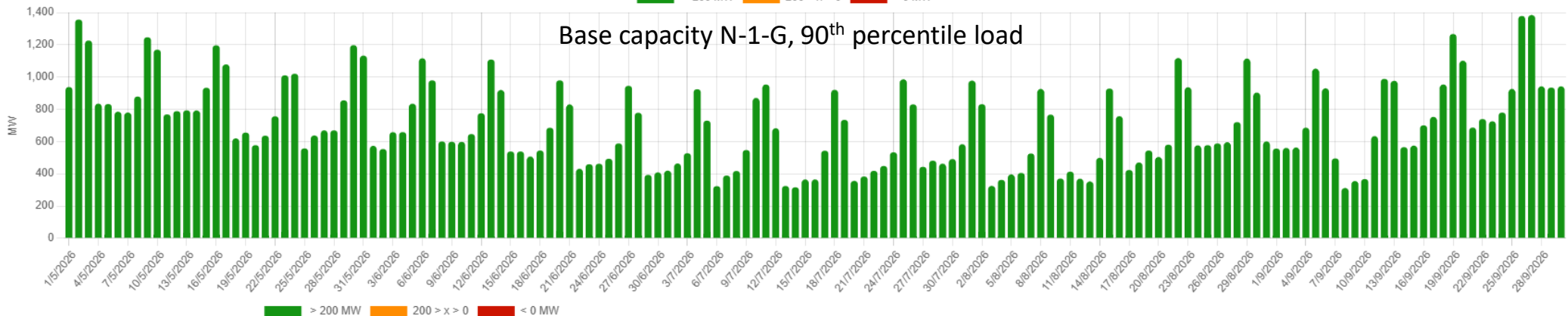
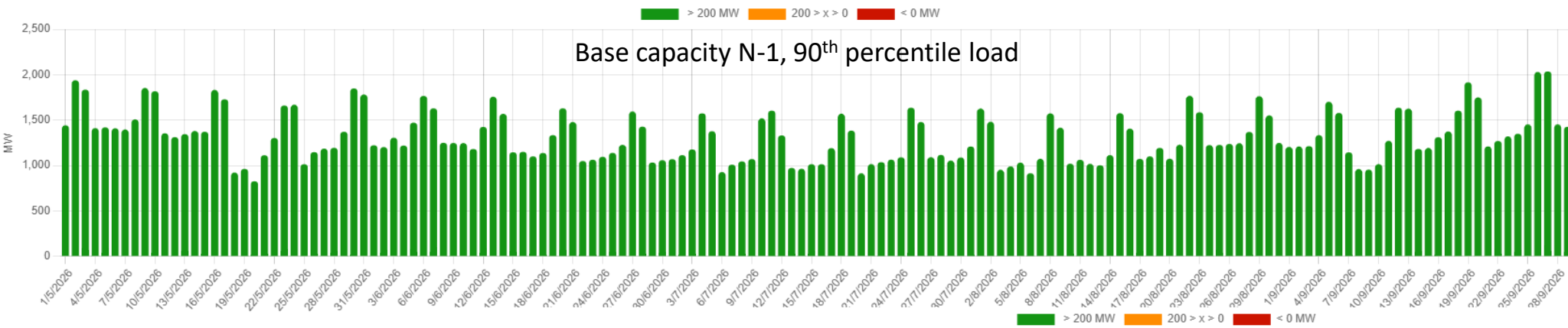


NZGB assumptions and scenario combinations

- It illustrates in a simplified model the market's ability to meet peak load
- It does not try and predict what will happen on any given day
- It provides boundaries under a range of plausible scenarios
- Assumptions are on the website and scenario combinations can be created on the NZGB website

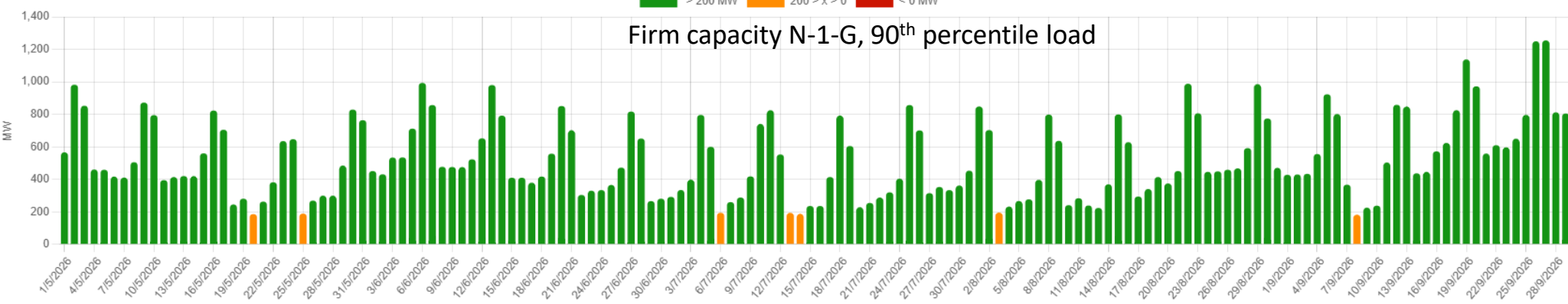


NZGB update: 90th percentile load



Base capacity

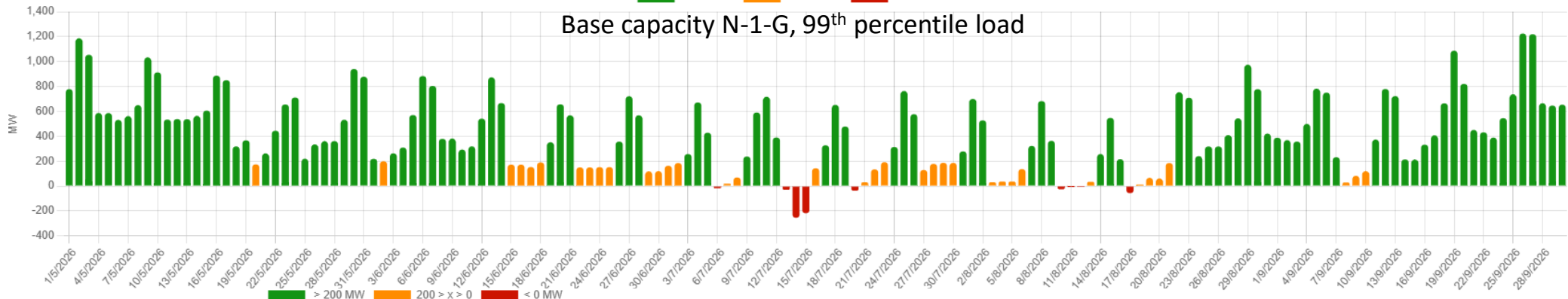
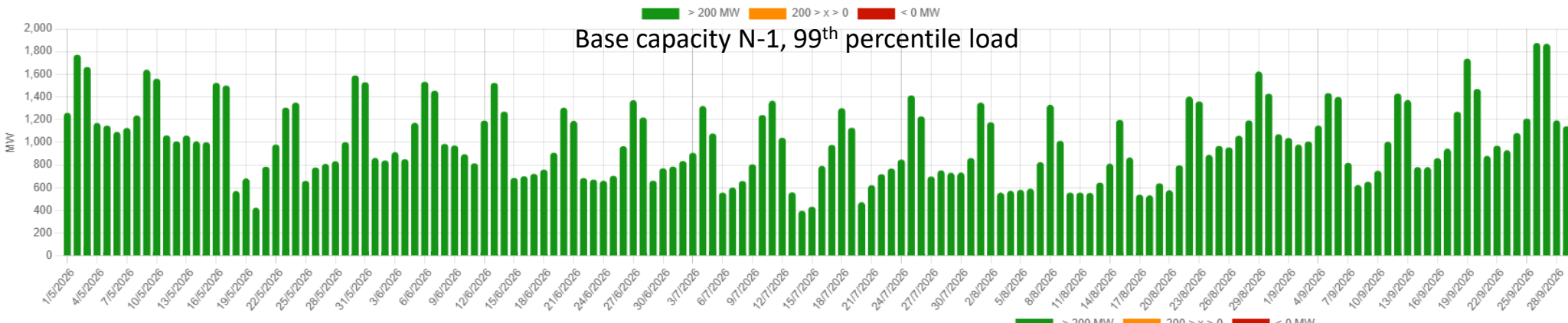
- *This triggers the CAN process*
- Assumes all generation available in POCP is offered
- It uses 20% of total wind capacity



Firm capacity removes

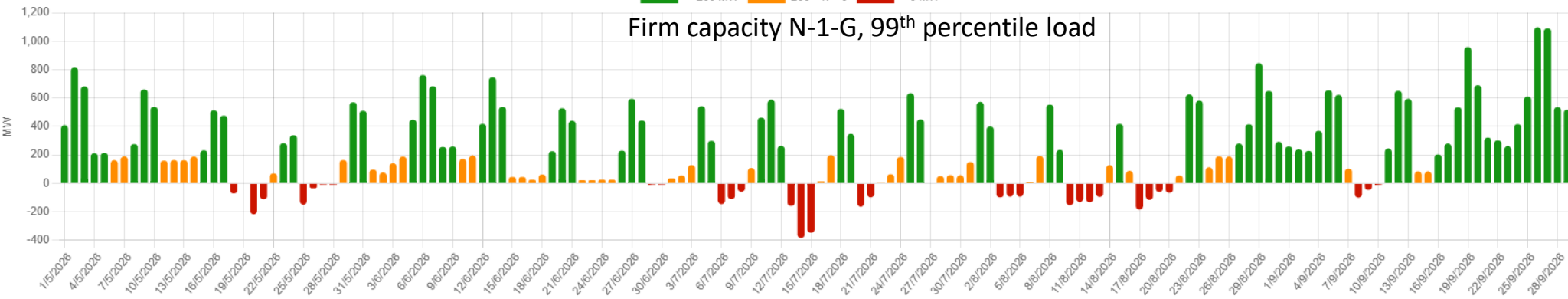
- 1 x HLY Rankine over winter months June to November
- 2 x HLY Rankines and HLY unit 5 over the remaining summer months
- It uses the lowest 10th percentile generation for wind (8% of total capacity)

NZGB update: 99th percentile load



Base capacity

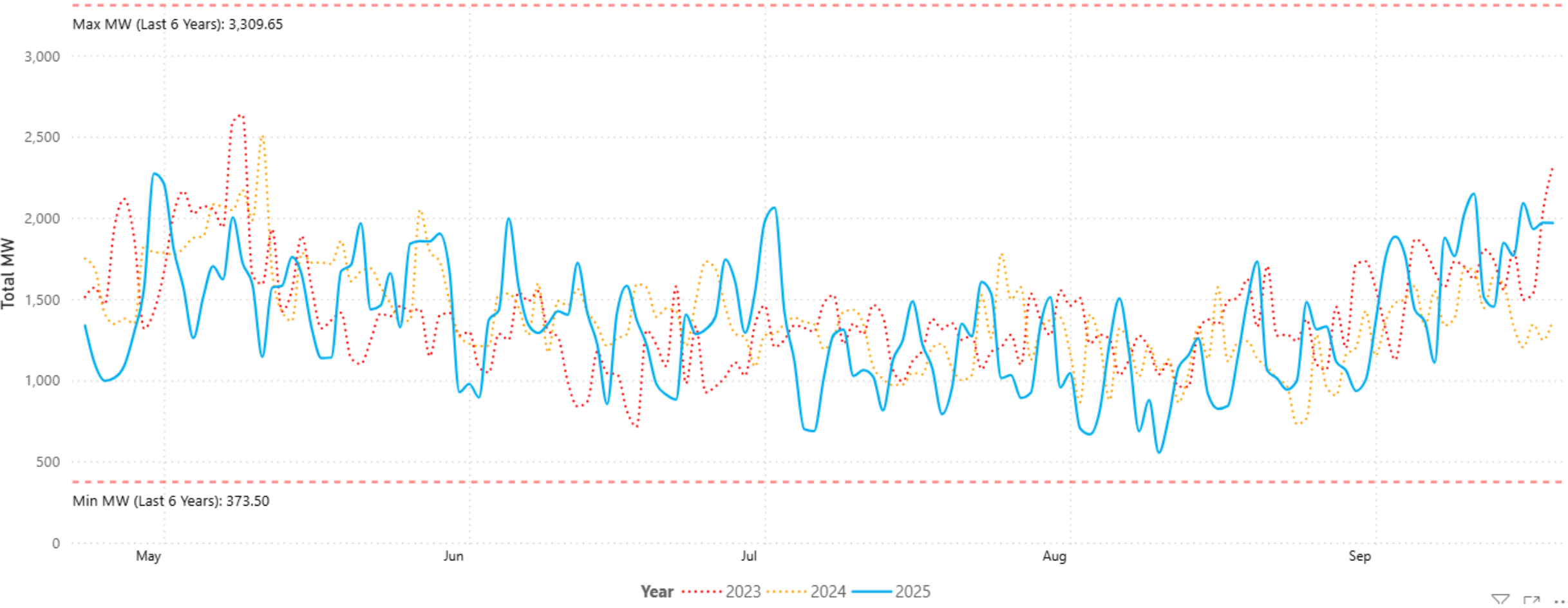
- *This triggers the CAN process*
- Assumes all generation available in POCP is offered
- It uses 20% of total wind capacity



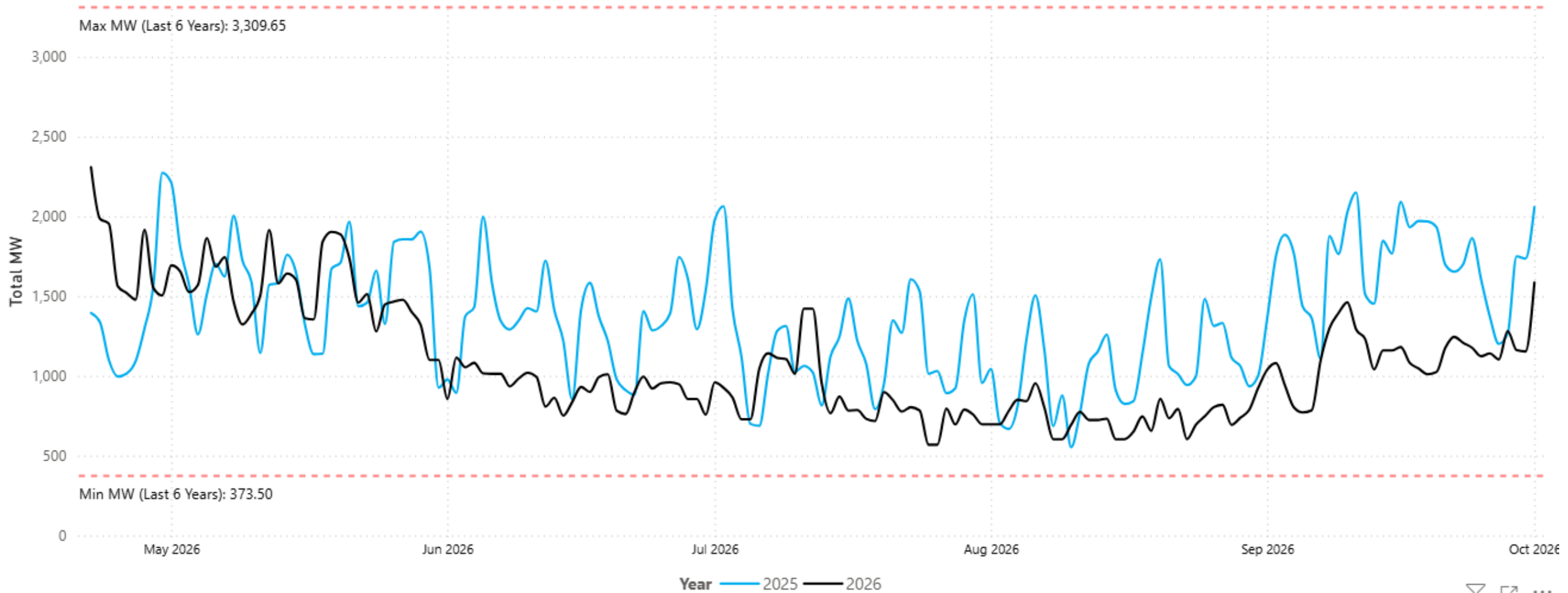
Firm capacity removes

- 1 x HLY Rankine over winter months June to November
- 2 x HLY Rankines and HLY unit 5 over the remaining summer months
- It uses the lowest 10th percentile generation for wind (8% of total capacity)

POCP: Generation on Outage (2023 vs 2024 vs 2025)



POCP: Generation on Outage (2025 vs 2026)



Mean Difference
(2025/2026)

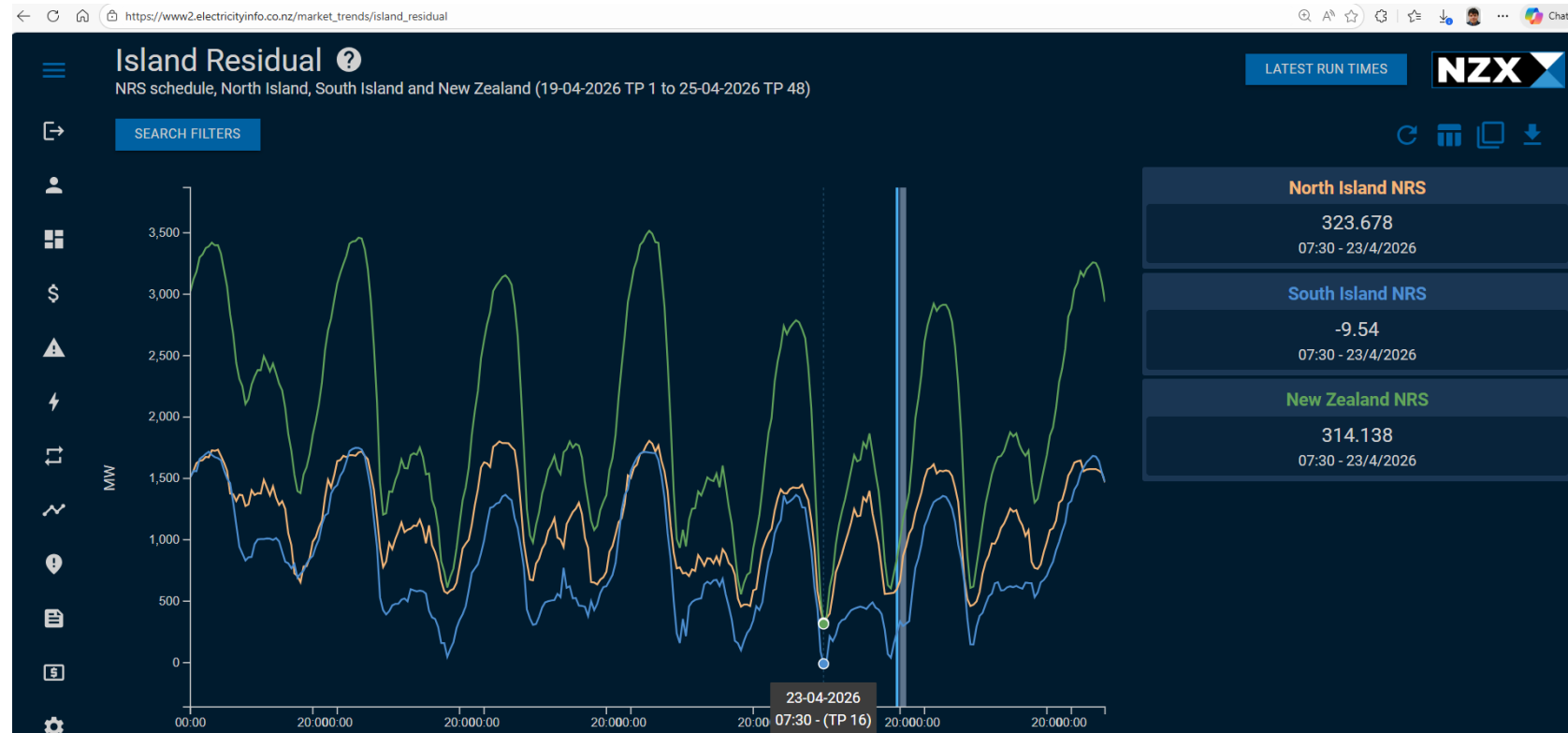
-291.85 MW

Mean % Difference
(2025/2026)

-18.22%

Residual capacity

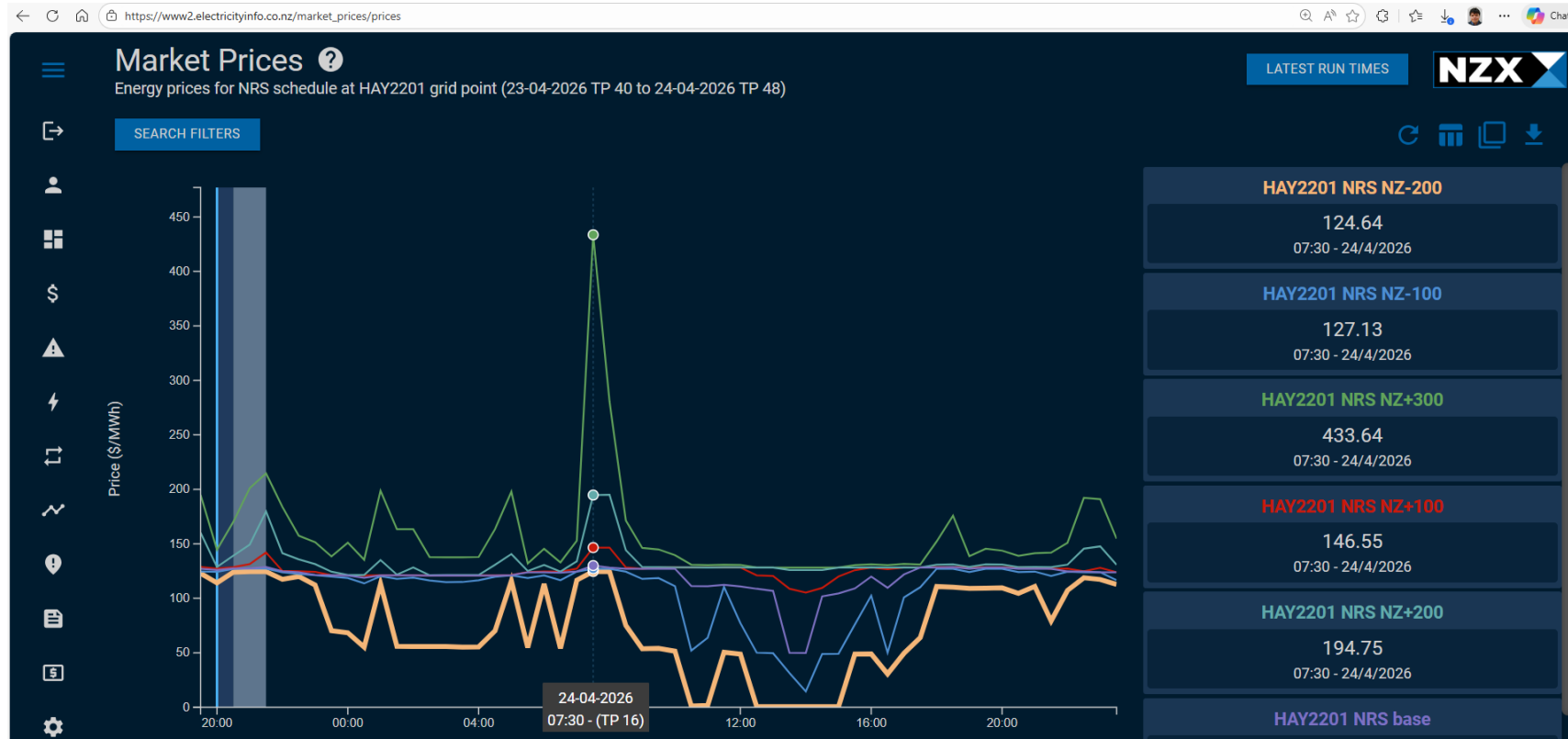
- “Residual” reflects the resources remaining in the market after meeting demand + losses + reserves + frequency keeping
- Transparency and a forward view of a key input to the SO publishing market notices (Low Residual CAN, WRN, GEN)



https://www2.electricityinfo.co.nz/market_trends/island_residual

Sensitivity schedules

- Price impact of step changes in demand
 - -200MW
 - -100MW
 - +100MW
 - +200MW
 - +300MW
- Changes in demand intended as a proxy for changes in other variables



https://www2.electricityinfo.co.nz/market_prices/prices

What's different to last Winter 2025? Market Dynamics

- Changes in generation:
 - 330 MW TCC
 - + 200 MW batteries (Glenbrook online, Huntly coming very soon)
 - + 100 MW geothermal (Ngā Tamariki, TOPP2)
 - + Kaiwera Downs stage 2 (152 MW when fully operational)
 - 152 MW Whirinaki diesel generation – fuel security risk
 - Plus distributed diesel generation (EDBs etc)
- Increasingly intermittent power system. +90 MW solar, much more coming soon. Forecasting and unit commitment more difficult as a result.
- Much more stored energy: ~2.5 TWh more than in April 2025 across gas, coal, hydro



What's different to last Winter 2025? **New Initiatives**

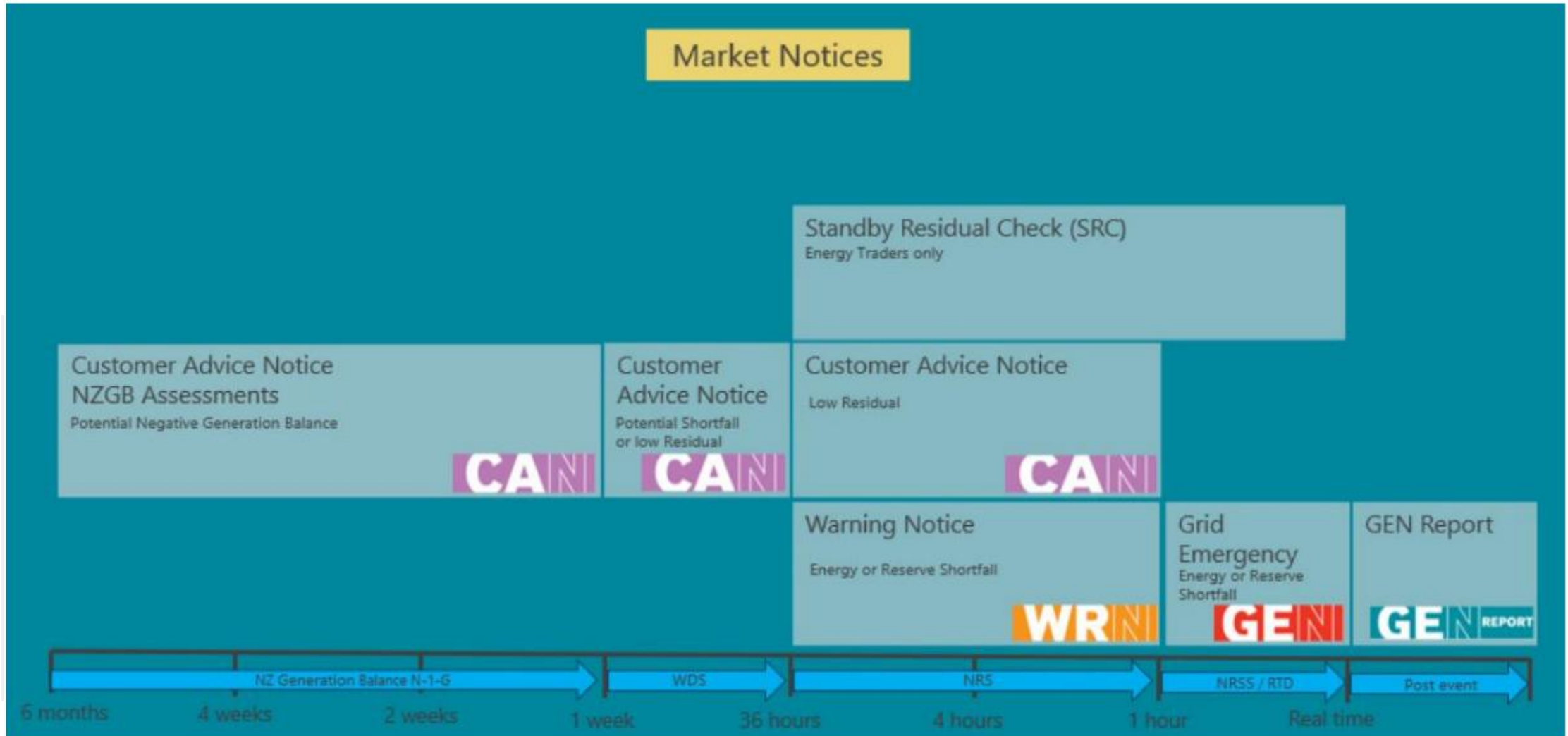
- DNV forecasting
- Controllable load data into SCADA
- New SOSFIP
- Demand Allocation Tool (DAT)
- Operational Notices (Acknowledgment of GEN)






Winter Response

Operational Notices: Shortfall Timeline



Potential Shortfall or Low Residual CAN – 7 days to 36 hours (WDS)



Customer Advice Notice

To: CAN NZ Participants **From:** The System Operator
Sent: **Telephone:** 0800 488 500
Ref: 4819861624 **Email:** NMData@transpower.co.nz

Revision of:

Potential Short Fall or Low Residual Situation

Affected dates and times:

DD Mmm YYYY, HH:MM - HH:MM

The System Operator advises that a [Reigon (National ; North Island ; South Island)] energy shortfall or low residual generation has been identified in the week ahead schedule (WDS) for the above times.

For affected times, participants are requested to:

- Ensure energy, wind generation, reserve offers, and load bids are accurate.
- Increase energy and reserve offers.
- Increase transmission offers where generation may be constrained.

Process and further requests, if the situation is not resolved or worsens:

This CAN gives you early notice of a pending situation. If insufficient generation and reserve offers appear in the NRS schedules (36 hours ahead of real-time) we will send:

- A Low Residual Customer Advice Notice (CAN) if **national** residual generation is less than 200 MW. The CAN will make further requests to participants to help resolve the situation. This could happen up to gate closure (36 hours to 1 hour ahead of real-time).
- A Warning notice (WRN) if an energy or reserve shortfall is identified or likely. The WRN will make further requests to participants to help resolve the situation. This could happen up to gate closure (36 hours to 1 hour ahead of real-time).
- A Grid Emergency Notice (GEN) if an energy or reserve shortfall is identified or likely within one hour of real-time. This will make further requests to grid-connected consumers and distributors to take action to alleviate the situation.

For more information, or if you are aware of information that could impact system security, please advise the Security Coordinator on 0800 488 500.

Trigger:

- week ahead schedule (WDS) shows an energy or reserve shortfall or less than 200 MW of residual remaining for given times.

Purpose:

- to warn that a tight point is coming up in the next 3-5 days to 36-hour timeframe
- request action from participants.

Requests made to:

- Market participants to ensure their offers are accurate and to make additional capacity available.
- Grid Owner to increase transmission offers where generation may be constrained.

WRN – 36 hours to 1 hour (NRS)



Warning Notice

To: WRN NZ Participants
From: The System Operator
Sent:
Telephone: 0800 488 500
Ref: 4159340903
Email: NMData@transpower.co.nz

Revision of:

Cause: Insufficient Generation offers to meet demand North Island
Region or GXP affected: National
Starting:
Ending:
The System Operator advises there is a risk of insufficient generation and reserve offers to meet demand and provide N-1 security for a contingent event.

Consequences on the power system:
Reduced reserves for the CE risk may be dispatched, and/or the system operator may need to manage demand.

For the period above you are requested to:	At:
Increase energy offers	National
Increase instantaneous reserve offers	National
Update non-conforming load bids	National
Decrease demand by: using controllable load (that is not offered as instantaneous reserve) and increasing distributed generation	National
Increase transmission offers where generation may be constrained	National
Submit difference bids for controllable load (For the identified time plus 1 hour either side)	National

Consequences if insufficient responses by participants:
If participant response across the country is insufficient, the system operator will manage demand to alleviate the Grid Emergency. The system operator may instruct the grid owner to disconnect feeders without further notice to connected parties.
System Operator will issue a GEN which may require participants to shed load to avoid disconnection or further system consequences.

Trigger:

- a forecast deficit at given times.

Purpose:

- request participants to take action at the times given, and
- to warn participants of potential consequences if the issue is not alleviated

Requests made to:

- Market participants to reoffer to provide more generation.
- Grid Owner to increase transmission offers where generation may be constrained.
- Distributors to submit difference bids for the identified time and prepare to manage load during those times.
- Direct connects to prepare to reduce load at the times given.
- Retailers to take notice of potential consequences as consumers may be affected by a requirement to shed load.

GEN – 1 hour to real time (NRSS / RTD)



Grid Emergency Notice

To: GEN NZ Participants
From: The System Operator
Sent:
Telephone: 0800 488 500
Ref: 4160215423
Email: NMData@transpower.co.nz

Revision of:

Cause: Insufficient Generation offers National
Region or GXP affected: North Island, South Island
Starting:
Ending:
This is a New Zealand-wide emergency. The System Operator advises there is a risk of insufficient generation and reserve offers to meet demand and provide N-1 security for a contingent event.

Consequences on the power system:
Reduced reserves for the CE risk may be dispatched, and/or the system operator may need to manage demand.

For the period above you are requested to:
Increase energy offers
Increase instantaneous reserve offers
Decrease demand by: using controllable load (that is not offered as instantaneous reserve) and increasing distributed generation
At: National
National
National
OR
Decrease demand by: X% across all connections.
The system operator requires an immediate XX MW's load reduction across the country to avoid further consequences.

Consequences if insufficient responses by participants:
If participant response across the country is insufficient, the system operator will manage demand to alleviate the Grid Emergency. The system operator may instruct the grid owner to disconnect feeders without further notice to connected parties.

Trigger:

- either a forecast deficit or a real-time deficit is seen after gate closure

Purpose:

- to allow market participants to reoffer, and
- to request participants respond to actions in the GEN, and
- to warn of the consequences if the requirements are not met.

Requests made to:

- Market participants to reoffer to provide more generation.
- Grid Owner instructed to return assets to service that may increase available generation, or to reconfigure the grid.
- Distributors and direct connects requested to reduce load at the times given, and to take notice that customers may face disconnection if the requirements are not met.
- Retailers to take notice of potential consequences as consumers may be affected by a requirement to shed load.

Difference bids

- Estimation of controllable load normally connected at an identified time
- Include Non-market Diesel Generation or Batteries
- Excludes controllable load offered as DD or IL
- Excludes Industrial load (already submitting nominated load bids)
- What you can do **differently** to **normal**
- Results visible in the PRS residual displays in WITS or EM6
- Improve equitably if demand allocation required
- Difference Bid live system test Tuesday 5th May

Customer Advice Notice

To: CAN NZ Participants
Sent: 06-may-2025 13:00
Ref: #####

From: The System Operator
Telephone: 0800 488 500
Email: NMData@transpower.co.nz

Revision of:

Low Residual Situation

5th May 2026, 17:00 – 19:00

Exercise for submitting difference bids only.

The System Operator advises of a test for EDB's to submit "difference bids" for the above times.

For affected times, EDB's are requested to:

- Submit difference bids for Controllable load (for the identified time plus 1 hour either side)

The purpose of this test is to prove the industry's readiness to respond to low residual or energy shortfall situations during Winter 2025. This is an end-to-end test for submitting difference bids into the live production environment. Please ensure that your difference bids submitted under this test are a reasonable estimate of the controllable load available at the above specified time.

Smaller EDB's that have an agreement for verbal offering of difference bid are requested to verbally advise the Security Coordinator the estimated quantity of controllable load available during the above specified time.

The system operator **does not** require any controllable load to be shed for this test. If an EDB plans to test its demand management at this time, please advise the Security Coordinator on 0800 488 500.

For more information about this test please contact the Duty Operations Manager on 07 5907327

...

Event Management

- SO Incident Management Team (IMT)
- A special SO Briefing may be called
- Teams closely managing supply / demand balance
- Communication layers/levels



Three levels to Transpower major event communications

Operations channel

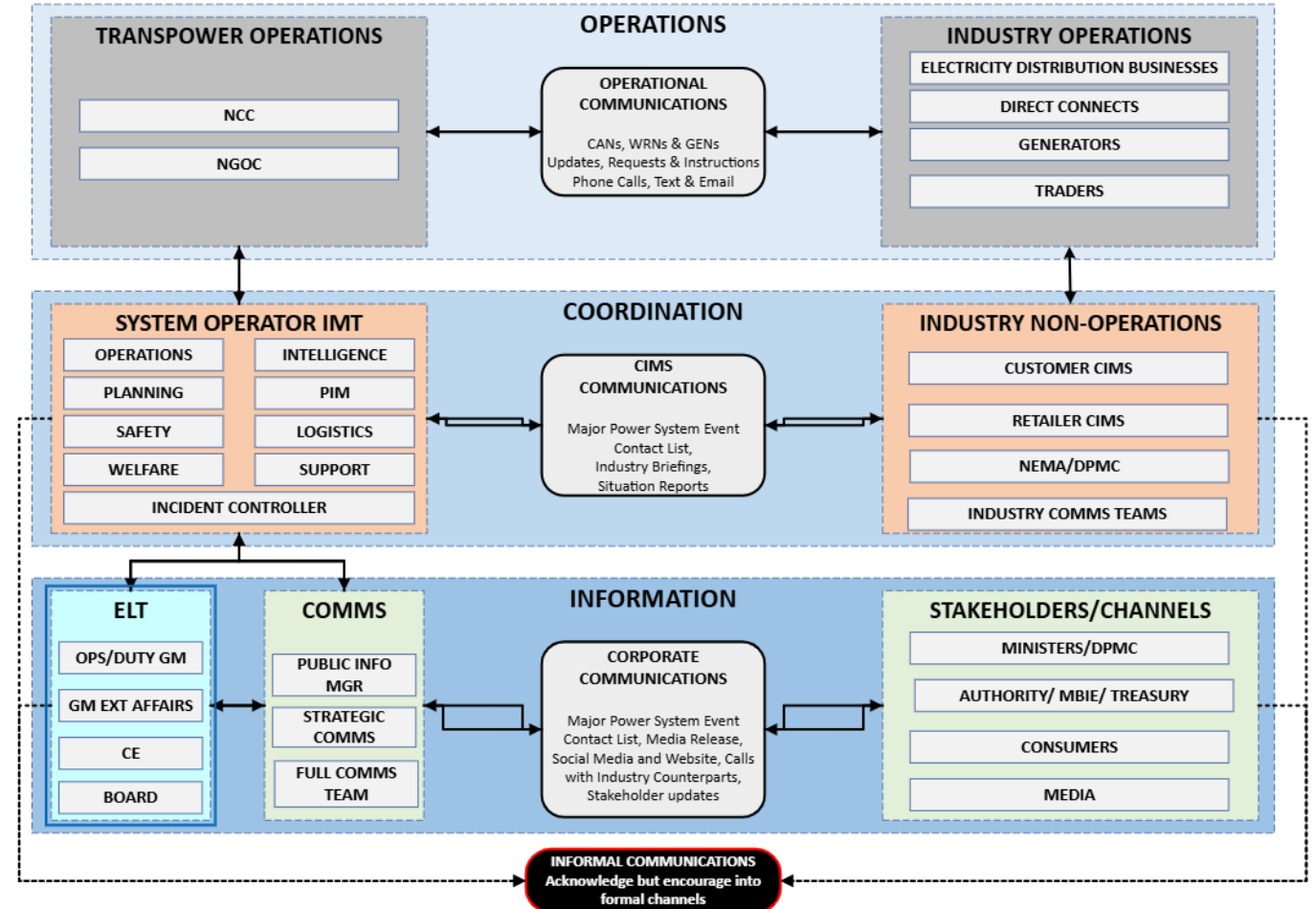
- Nothing from other channels overrides instructions from Security Coordinator

Coordination/CIMS channel

- Major Power System Event Contact List
- NEMA alerts as relevant
- PIM-PIM communications
- Transpower-NEMA communications
- EDB-Local CDEM communications

Information channel

- Facebook and website outage banner
- Media release
- Media interviews
- Sector partners amplify messaging



Transpower's 24/7 media phone – **021 195 8613** or communications@transpower.co.nz

Public call for electricity conservation remains our last resort



Risk of power cuts should be over: Transpower thanks public



Piers Fuller and Tom Pullar-Strecker | The Post

May 10, 2024

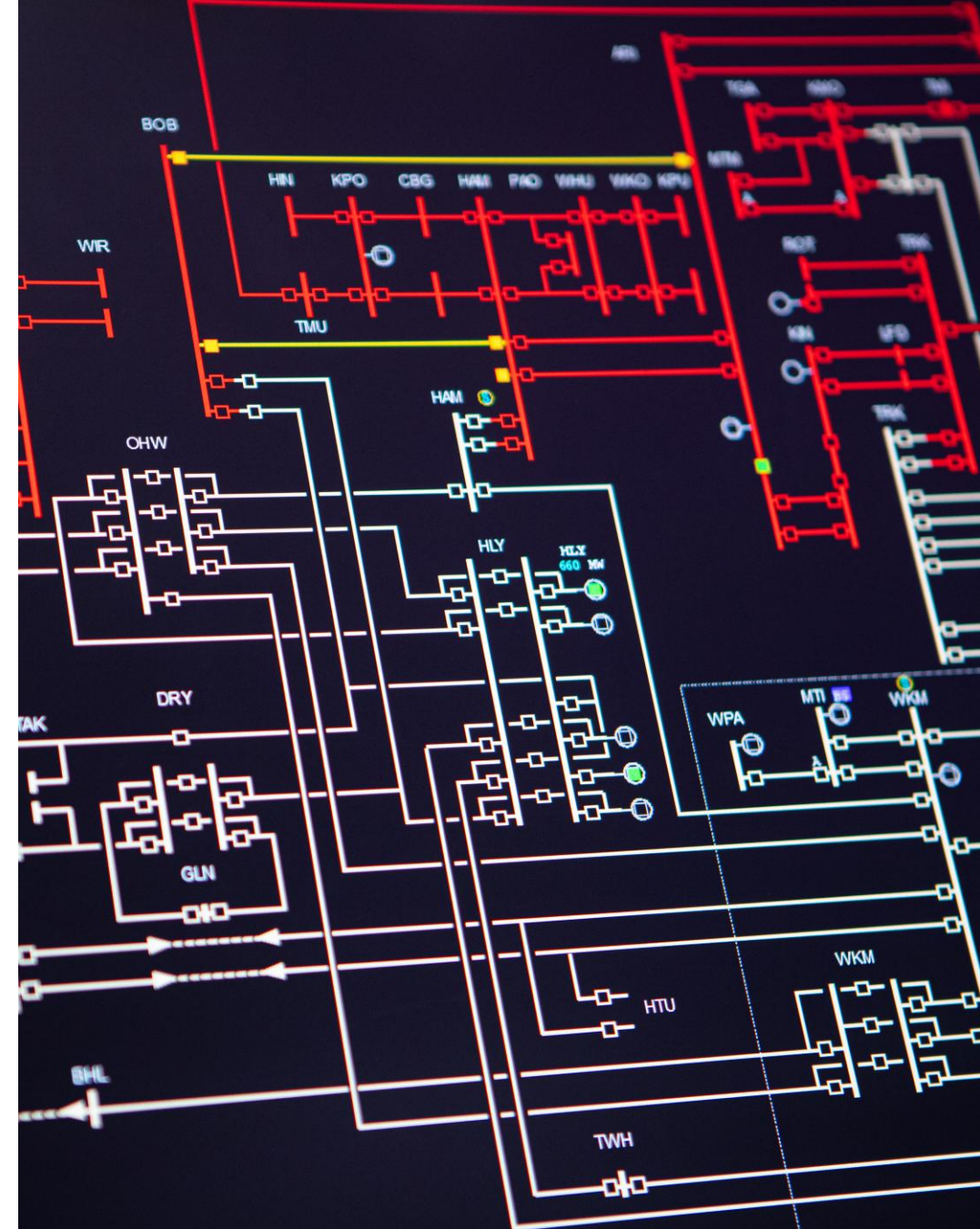
Share

Consultation on System Operator co-ordination of Low Residual Situations: Summary and response to submissions

April 2025

Summary

- Winter becomes high focus
- We need everyone's support
- Multiple information channels
- Changes since last winter
- Formal Notices
- Difference Bids – test on May 5th
- Winter Outlook Published – early May
- SO Industry Forums





Questions / Patai?



Any questions
Please raise your hand

TRANSPower.CO.NZ

