TRANSPOWER

System Operator Industry Forum

24 March 2026

Today's agenda

- Key messages
- Market update
- NZGB update
- Outage update – next four weeks
- Low Southland hydrology
- Operational update
- Consultations, publications and events
- Questions / Pātai

Key Messages

- National hydro storage is trending back towards average.
- Thermal fuel storage (coal and gas) remain high.
- Note NZGB potential capacity risks from July. Plant availability remains a focus for industry during these times.
- Webinar invitation for Demand Allocation Tool changes has been sent.
- Reminder that annual AUFLS profile information submissions are due by 1 April.

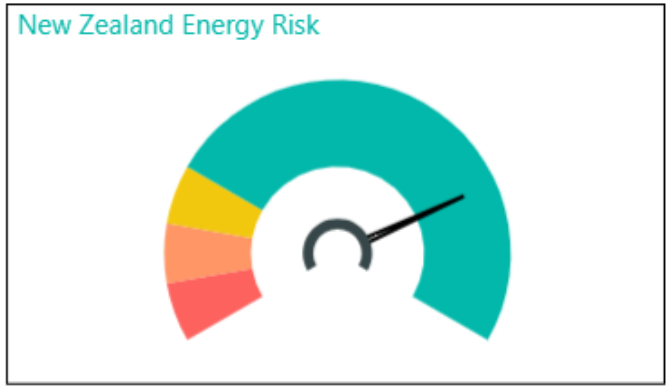
Market update

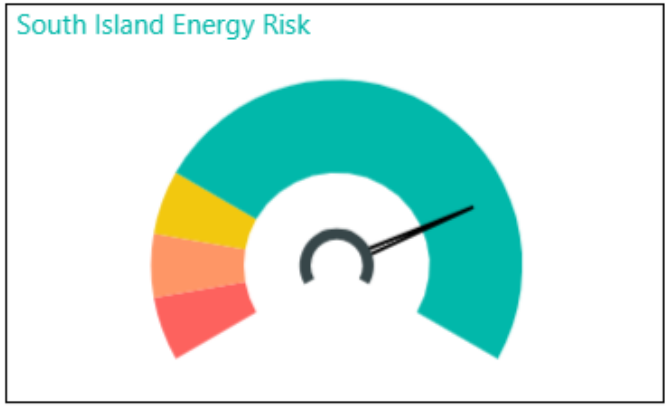
Energy: National hydro storage

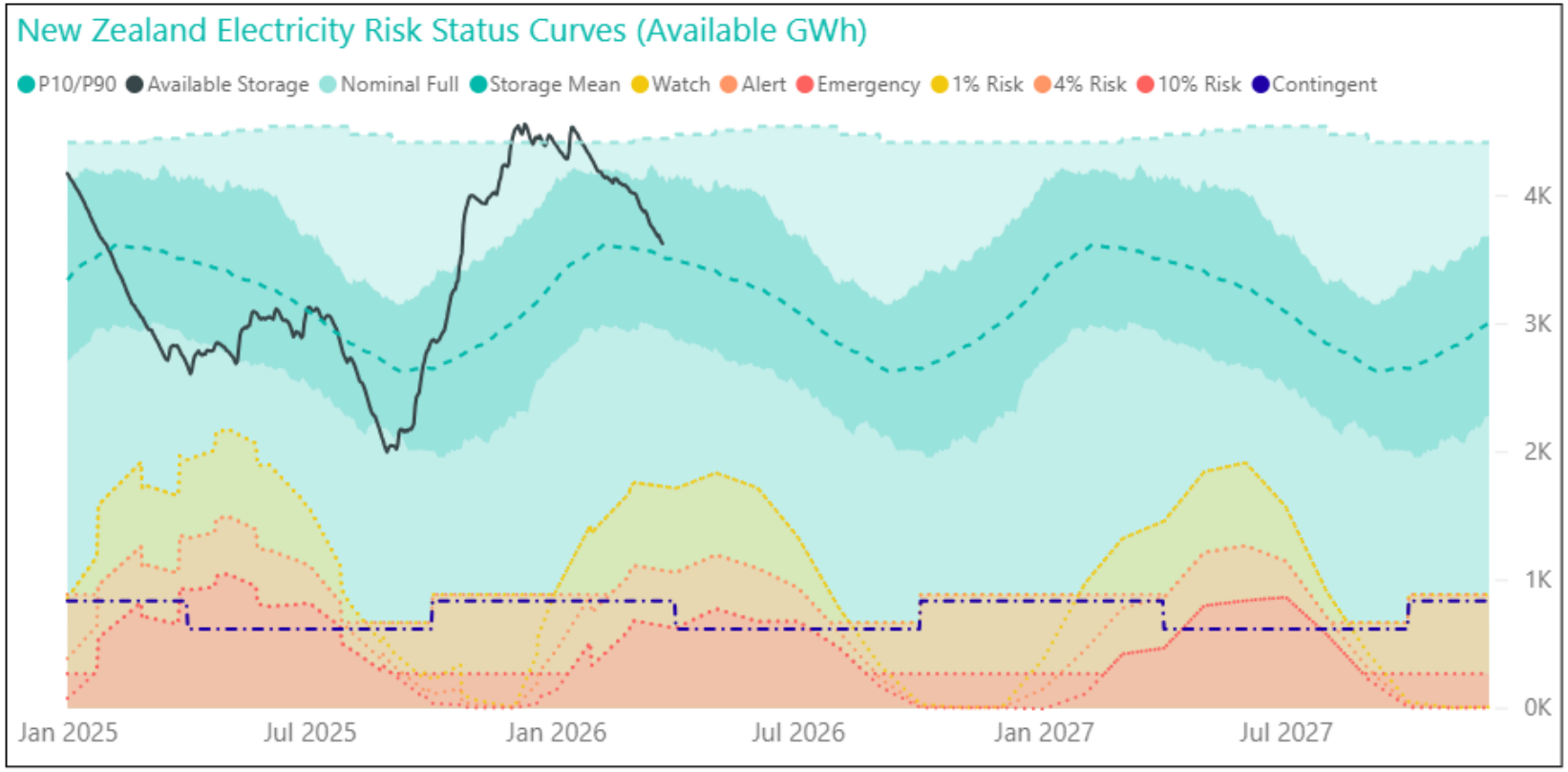
National storage has decreased slightly and is currently just above historic average for this time of year

	Hydro storage level (% of mean ▲/▼)		
	New Zealand	South Island	North Island
Last forum	109%	103%	180%
Now	102% ▼	97% ▼	173% ▼

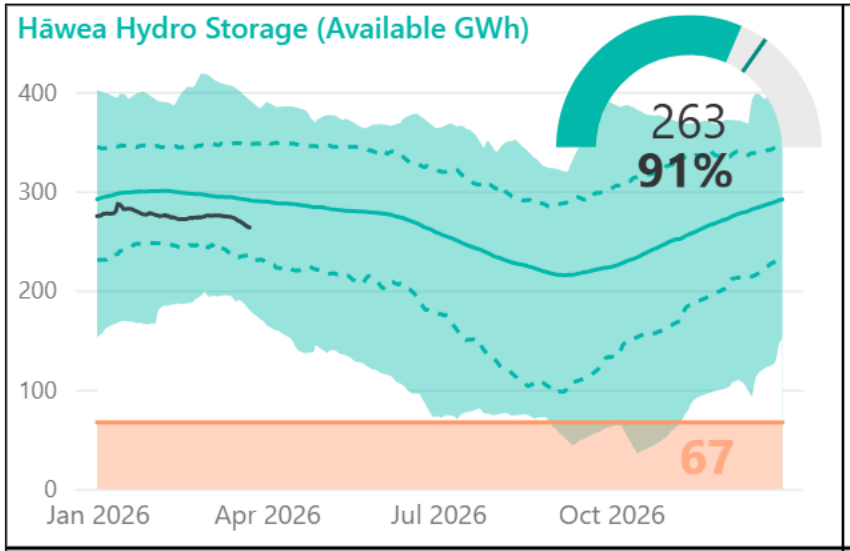
Note: these numbers include contingent storage, so they differ from those reported by NZX

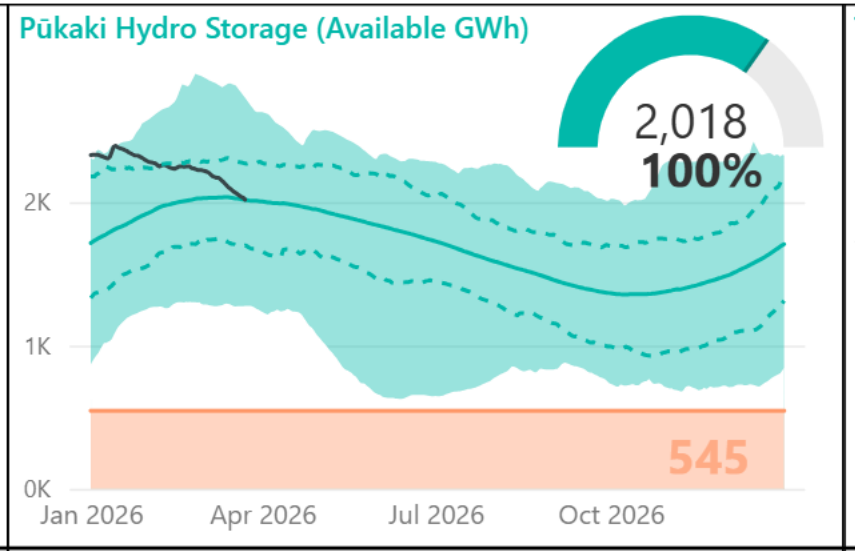


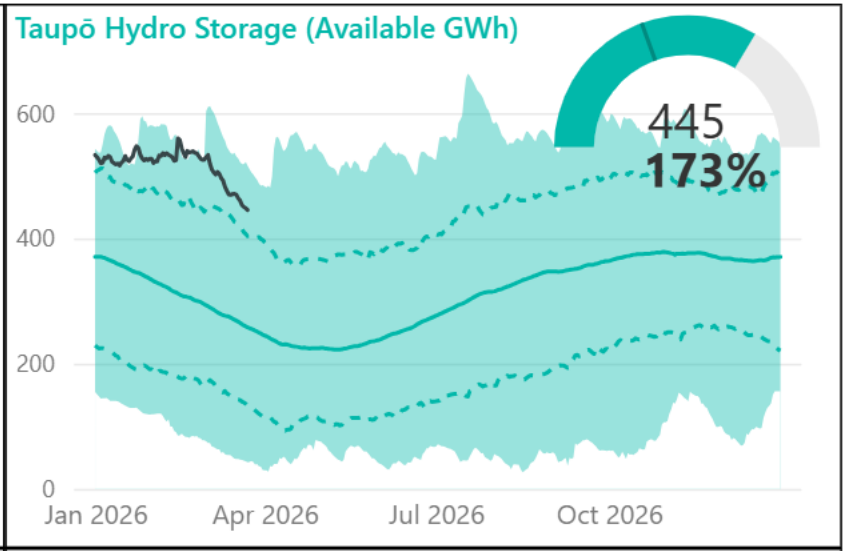


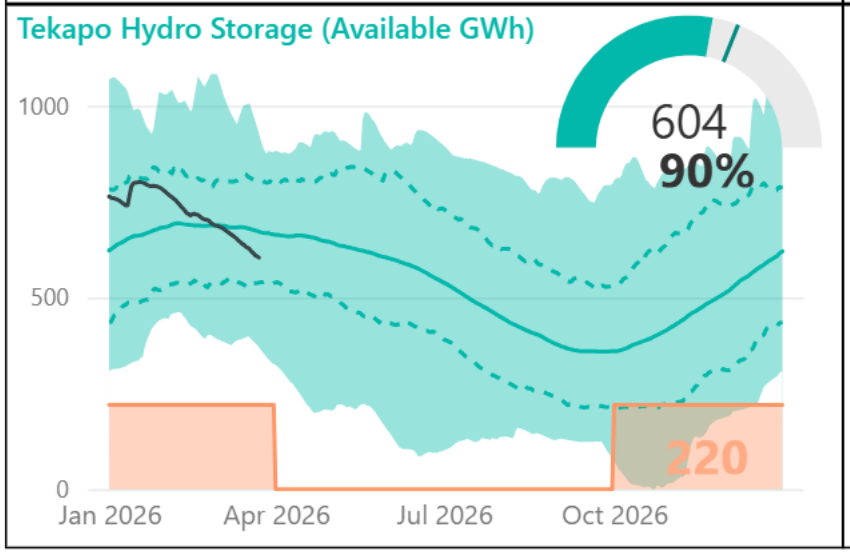


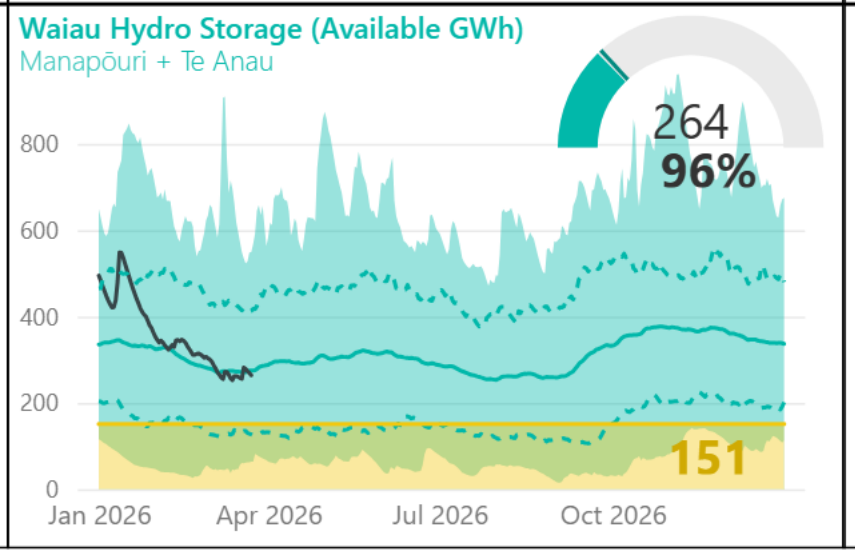
Hydro storage by catchment





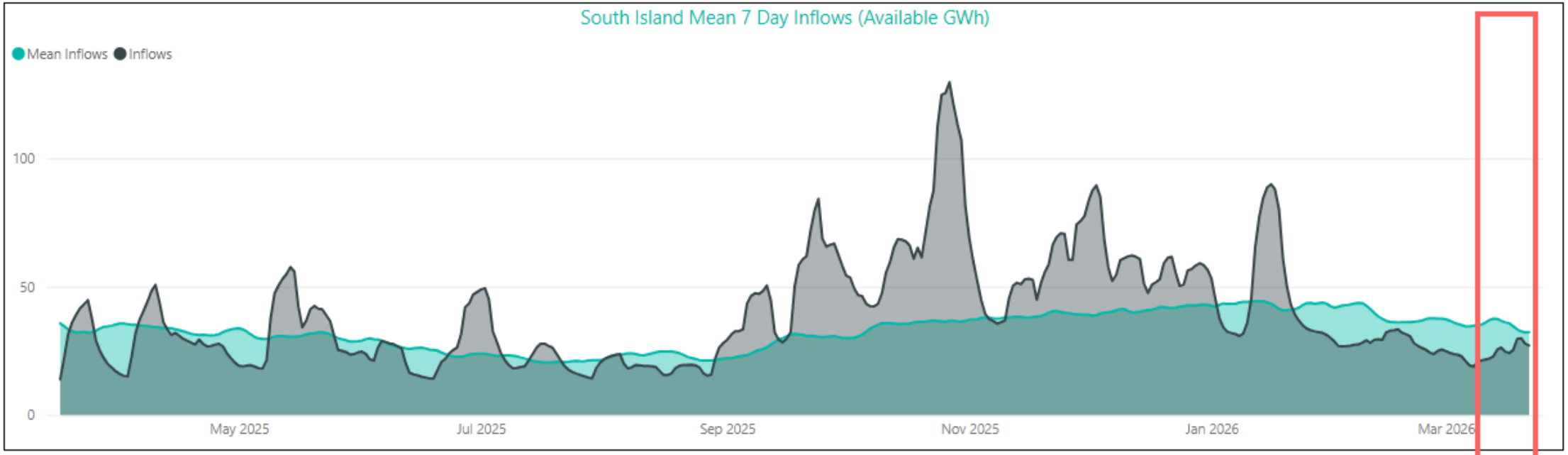


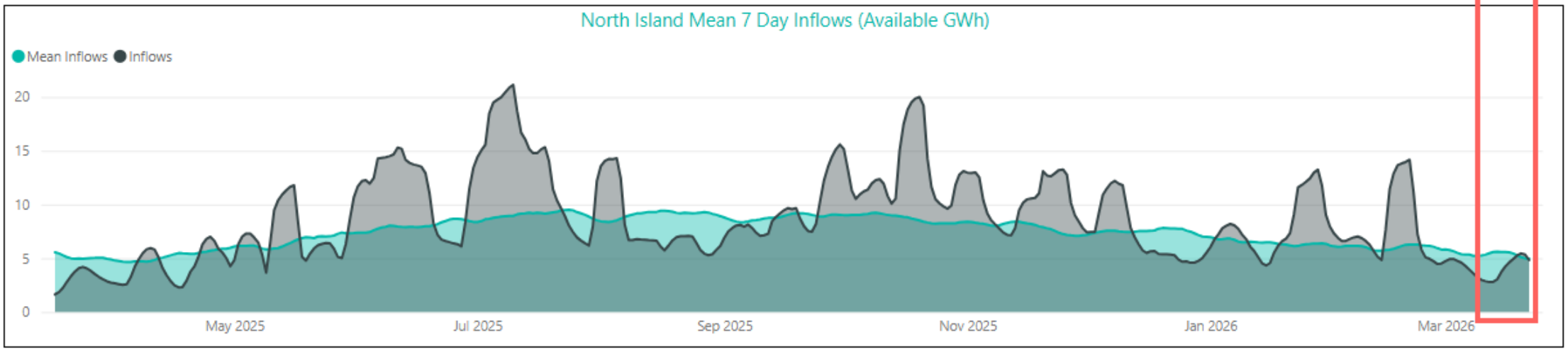




Lake	Storage (%)	Storage (GWh)	Historic Mean
Hāwea	91%	263.31	290.75
Manapōuri	149%	140.85	94.60
NZ	102%	3,594.21	3,511.28
Pūkaki	100%	2,018.08	2,016.07
SI	97%	3,149.03	3,253.37
Taupō	173%	445.18	257.91
Te Anau	68%	123.18	180.39
Tekapo	90%	603.61	671.56

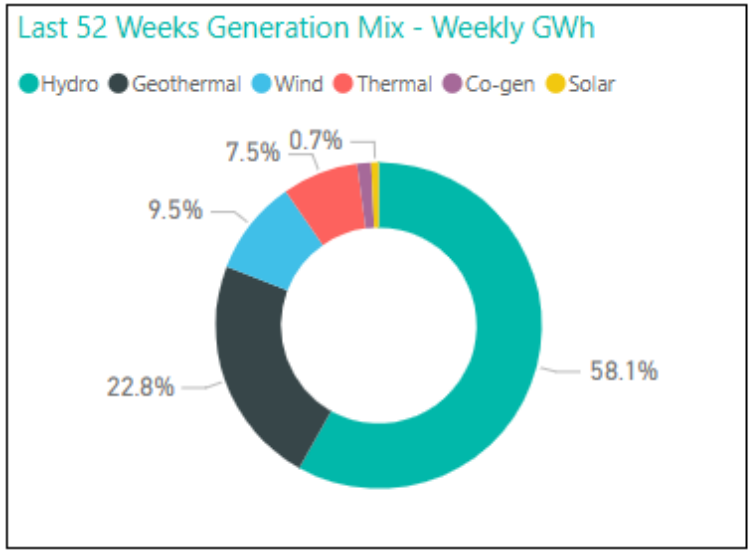
Hydro inflows

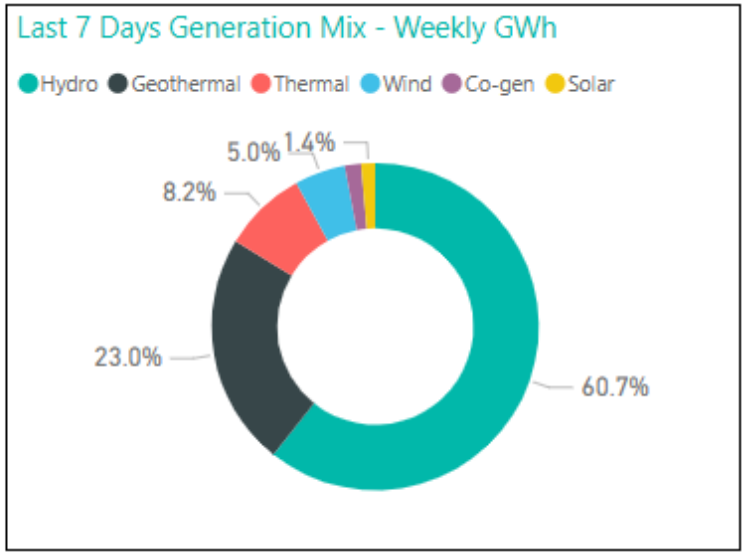


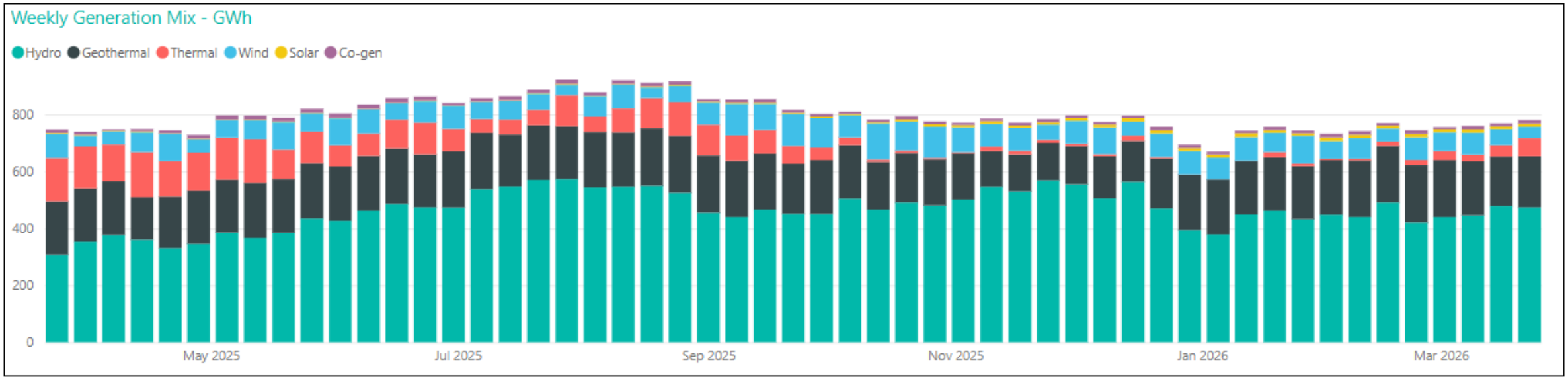


Generation mix

- Hydro generation above average at 61% over the last fortnight
- Renewable share dropped to 93% with increasing thermal generation
- Thermal generation was above average at 8% of the mix
- Geothermal close to average and wind generation below average

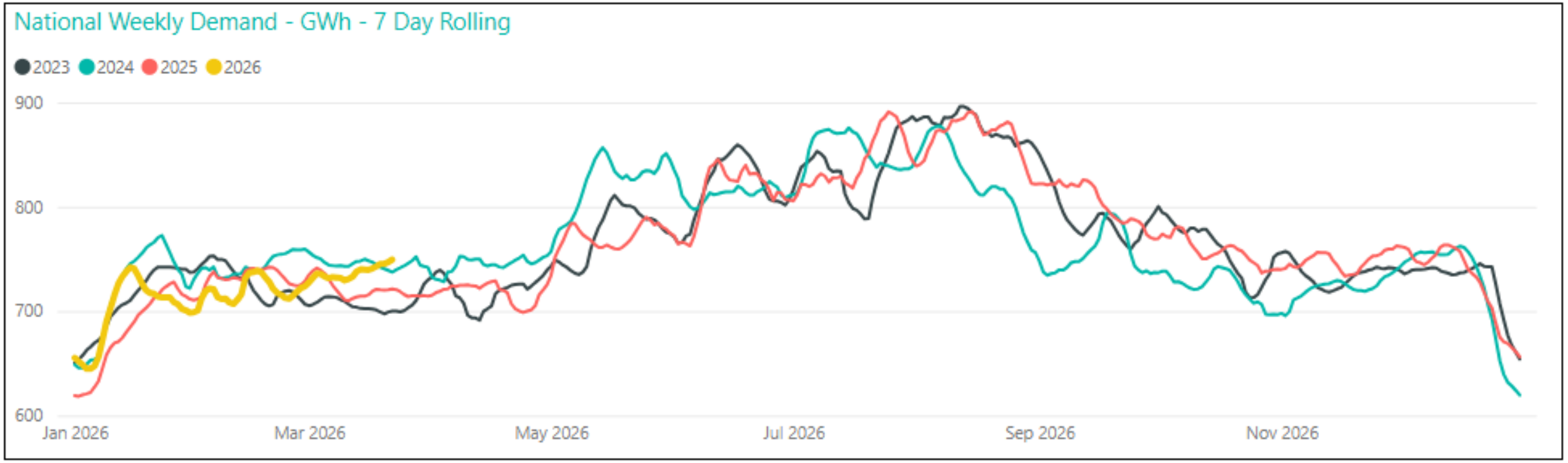






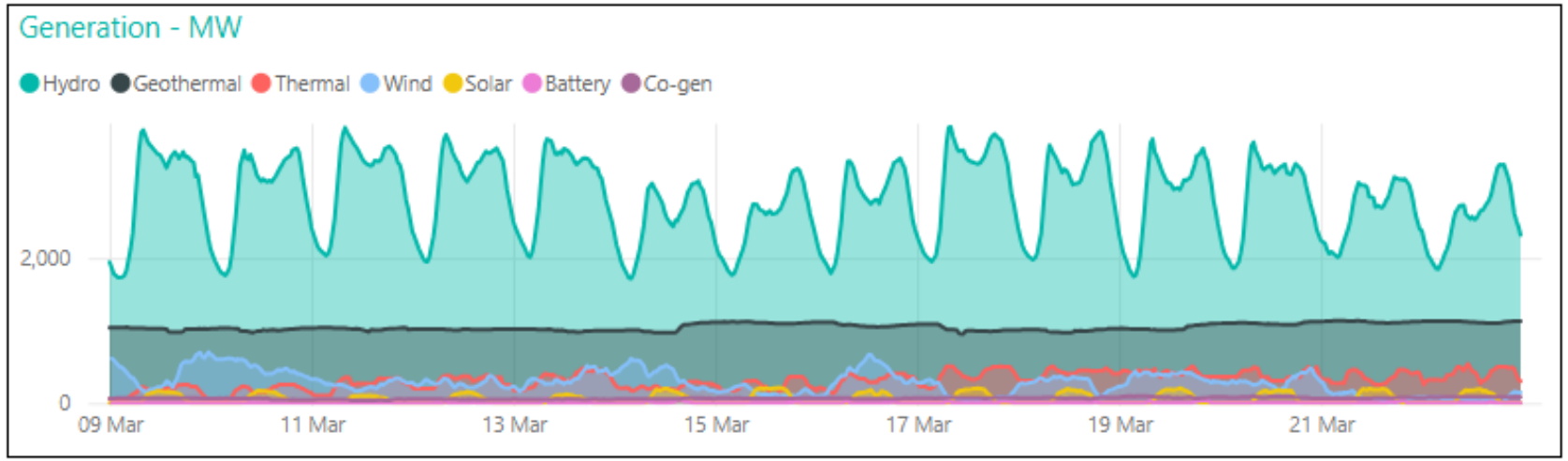
Demand

- Demand higher than previous years in the last due to lower temperatures as we head into colder months



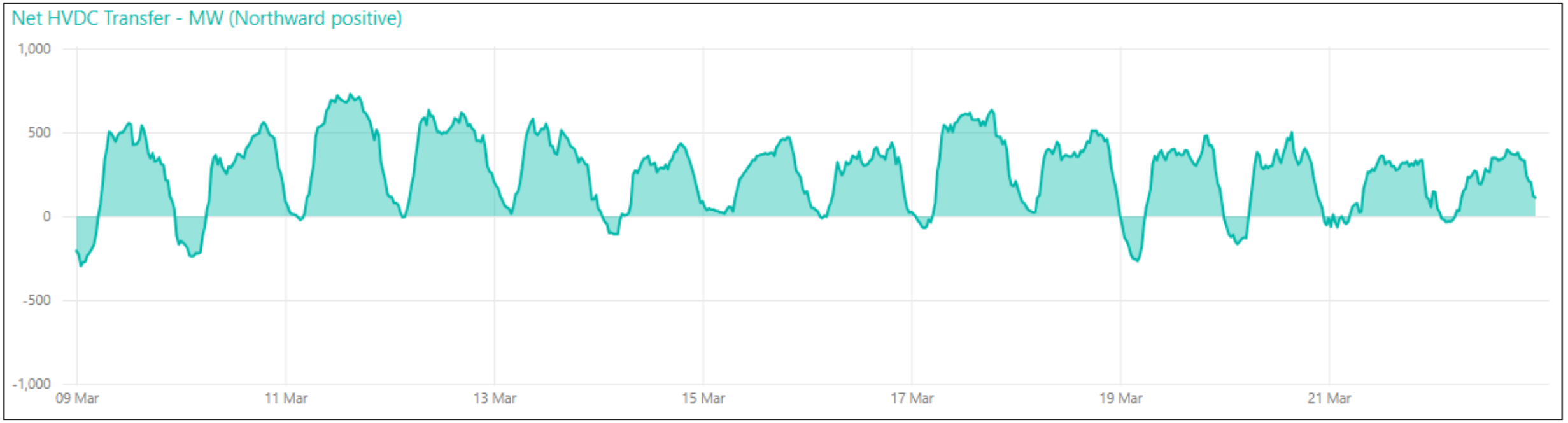
Pricing

- Average price at Ōtāhuhu last week increased to $198/MWh
- Increased demand, declining hydro storage and increased thermal generation
- Peak of $328/MWh at Ōtāhuhu, 7:30 pm on 18 March during a period of low wind generation



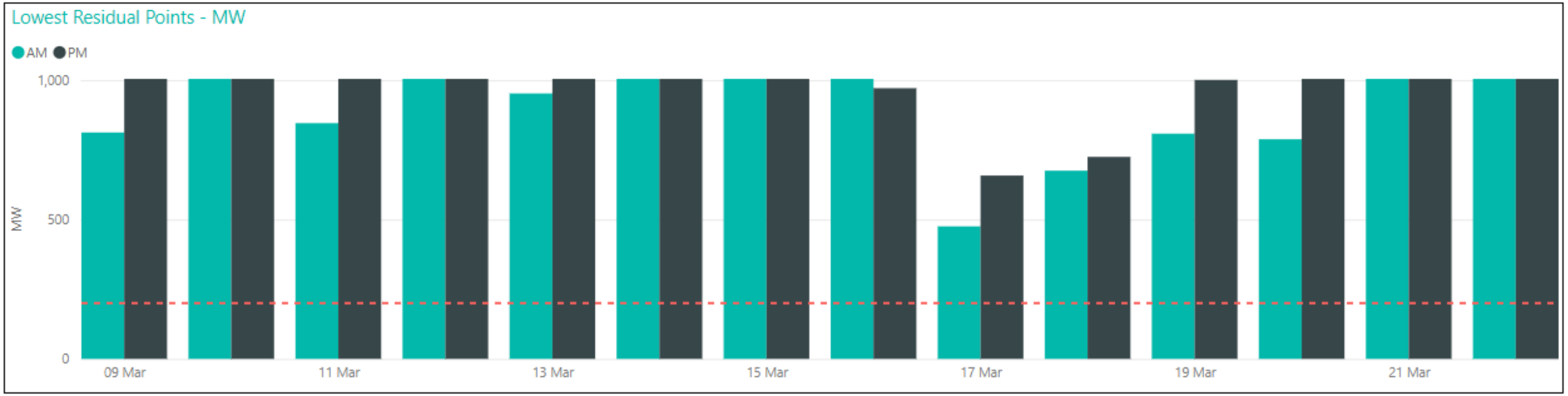
HVDC transfer

- HVDC transfer has been majority northward.
- Periods of southward transfer during periods of low wind generation and increased thermal generation
- Past fortnight 88 GWh sent north, 6 GWh sent south



Capacity residual margins

- Residuals continue to be healthy, above 470 MW
- Lowest point on morning of Tuesday 17 March at 475 MW with higher demand

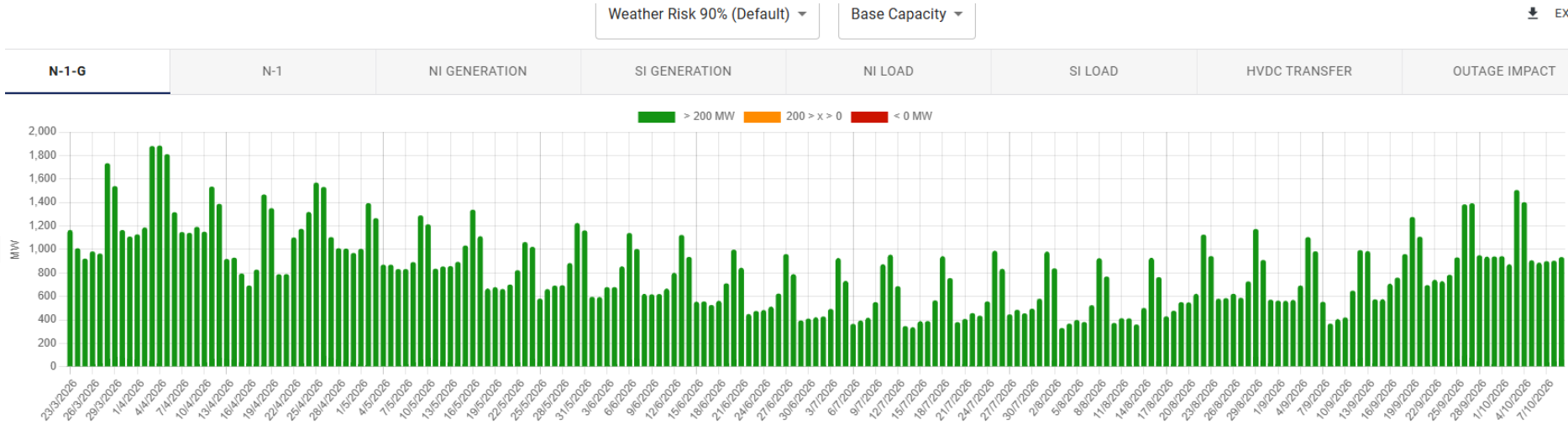


NZGB update

NZGB update: base capacity N-1-G

- N-1-G margins for 90th percentile load are currently showing healthy values
- Under the 99th percentile load, which we would expect under a cold snap, the margins drop substantially through the winter months and shows some shortfalls in mid July

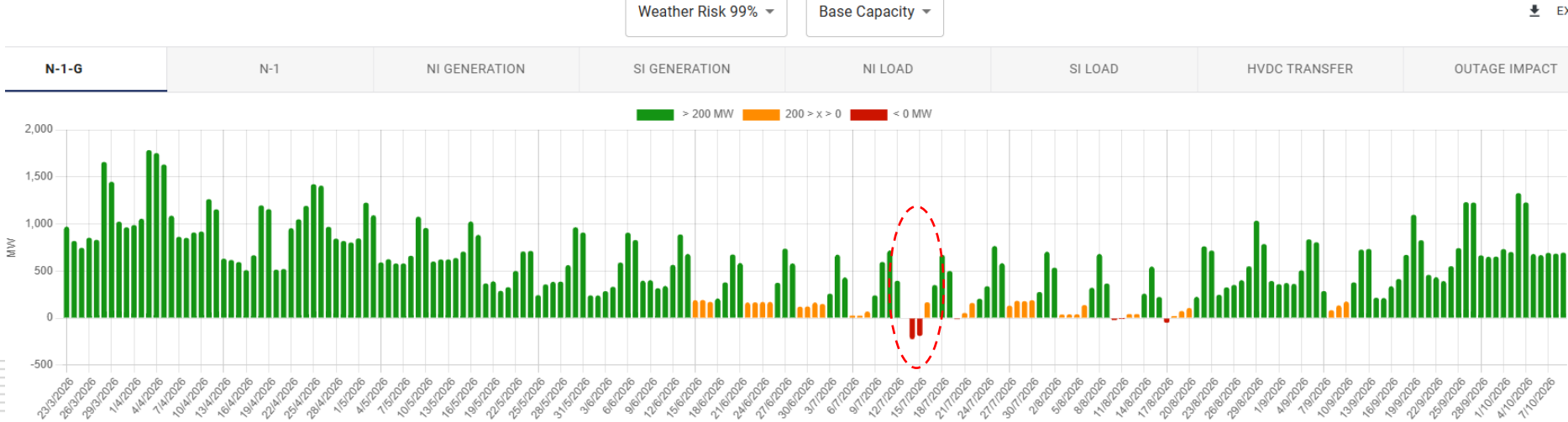
90th percentile load



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

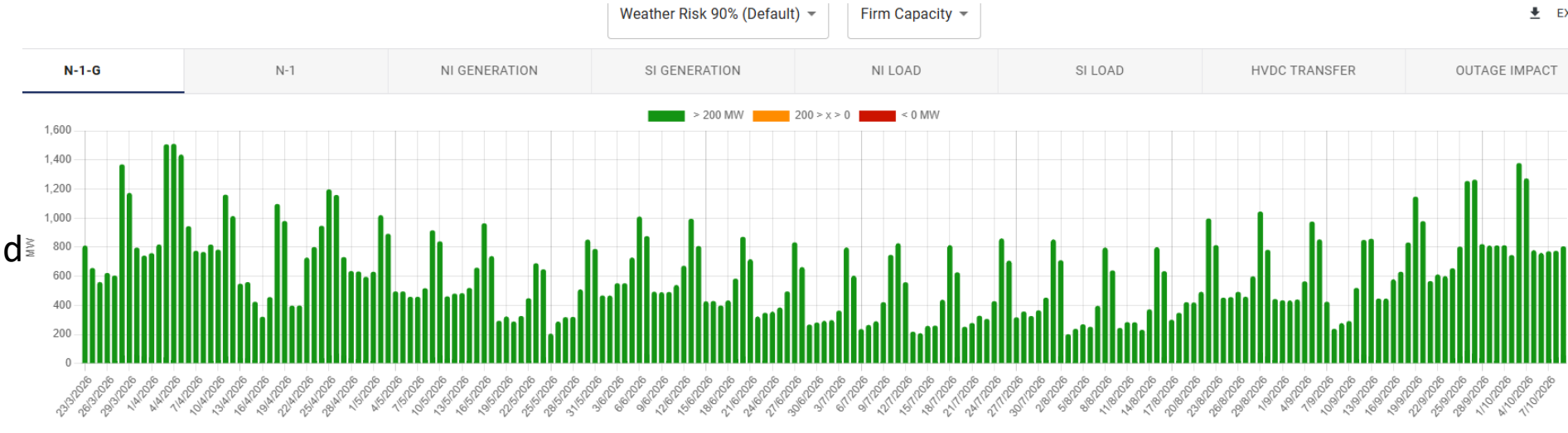
99th percentile load



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

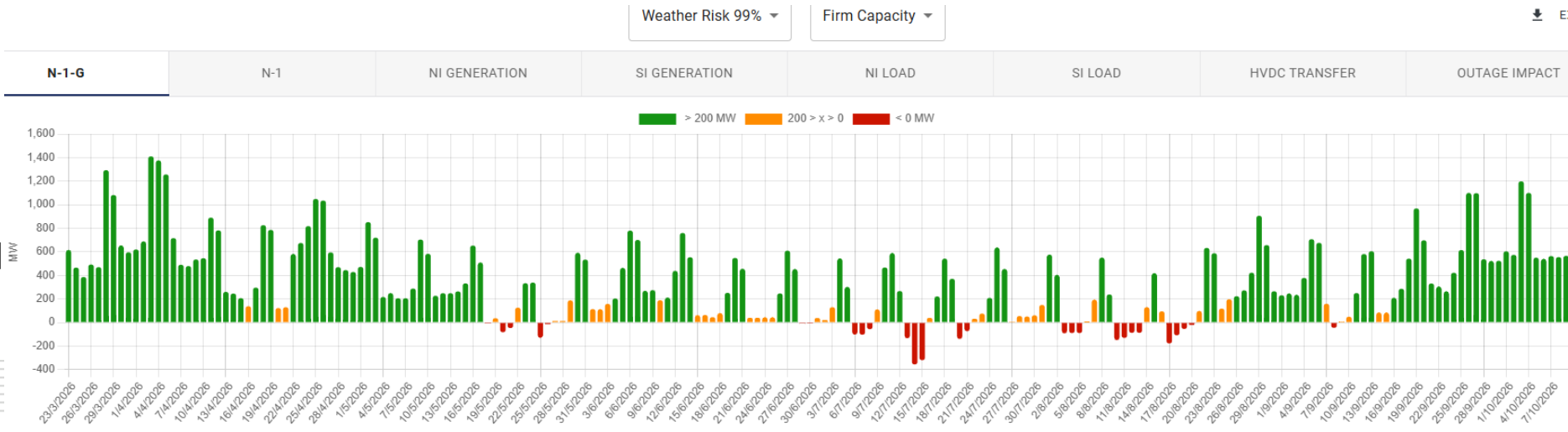
90th percentile load



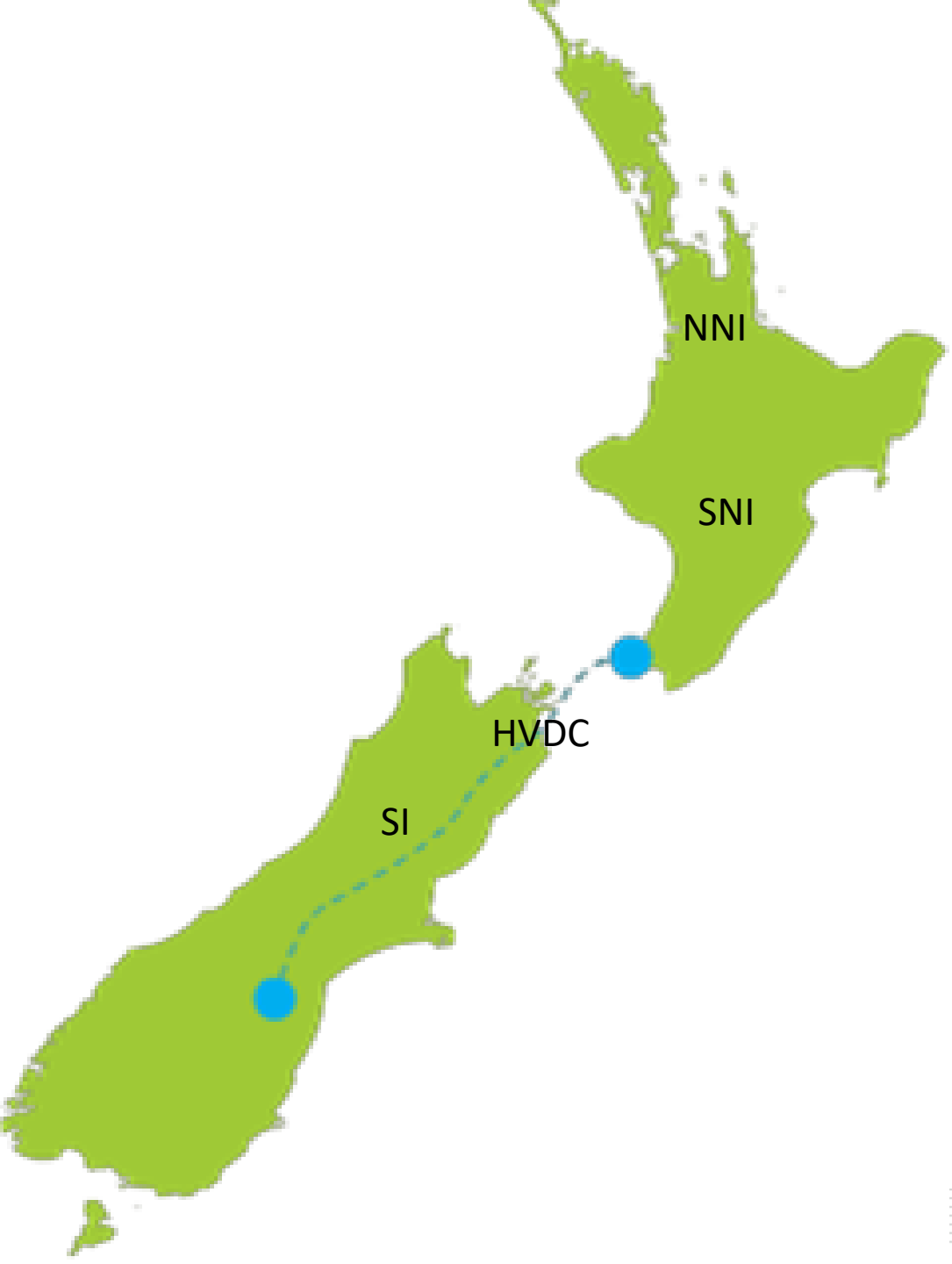
Firm capacity removes

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

99th percentile load



Outages next 4 weeks



Outages

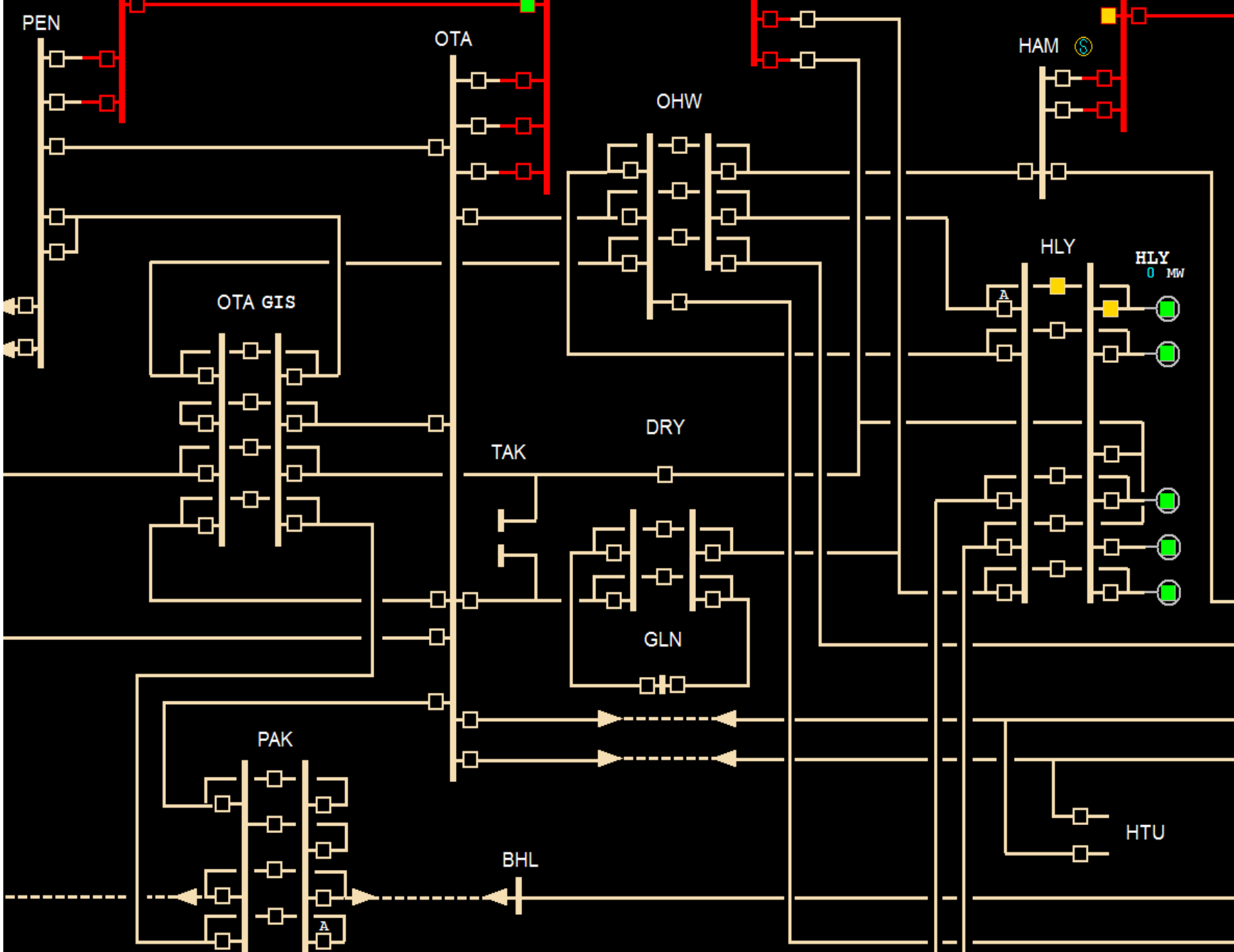
- NNI outages
- SNI outages
- SI outages

Asset owners

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

NNI Outages

- Week of 30 Mar
  - HLY_OHW_2
  - PAK_PEN_3
  - OHW_OTA_1
- Week of 6 Apr
  - HLY_OHW_1
  - DRY_TAK_OTA_1
- Week of 13 Apr
  - DRY_TAK_OTA_1
  - HAM_WKM_1
  - OTA_PAK_3
  - OTA_T5
  - EDG_TRK1 & 2
- Week of 20 Apr
  - DRY_TAK_OTA_1
  - HAM_WKM_1
  - EDG_TRK 1 & 2



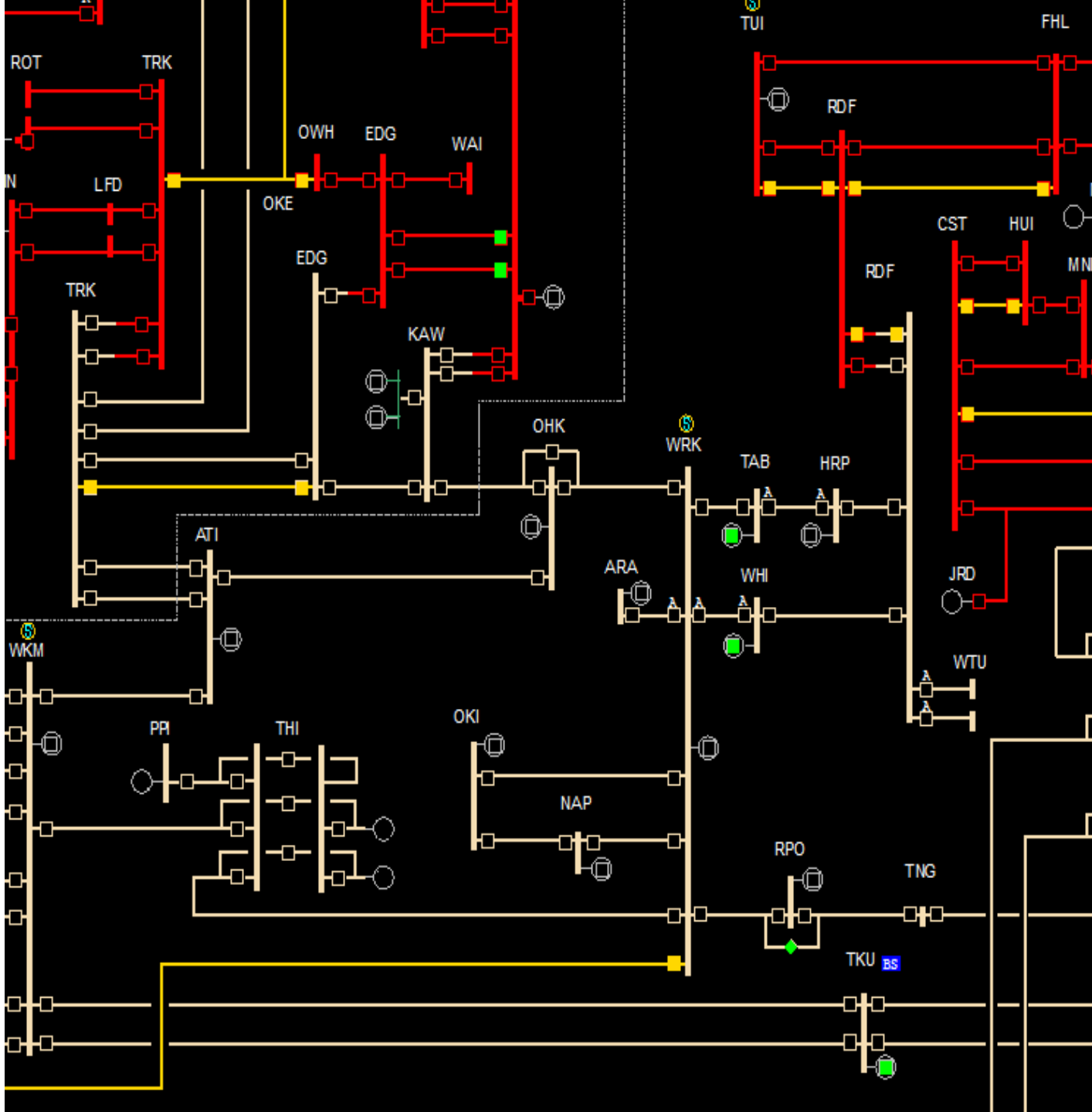
SNI Outages

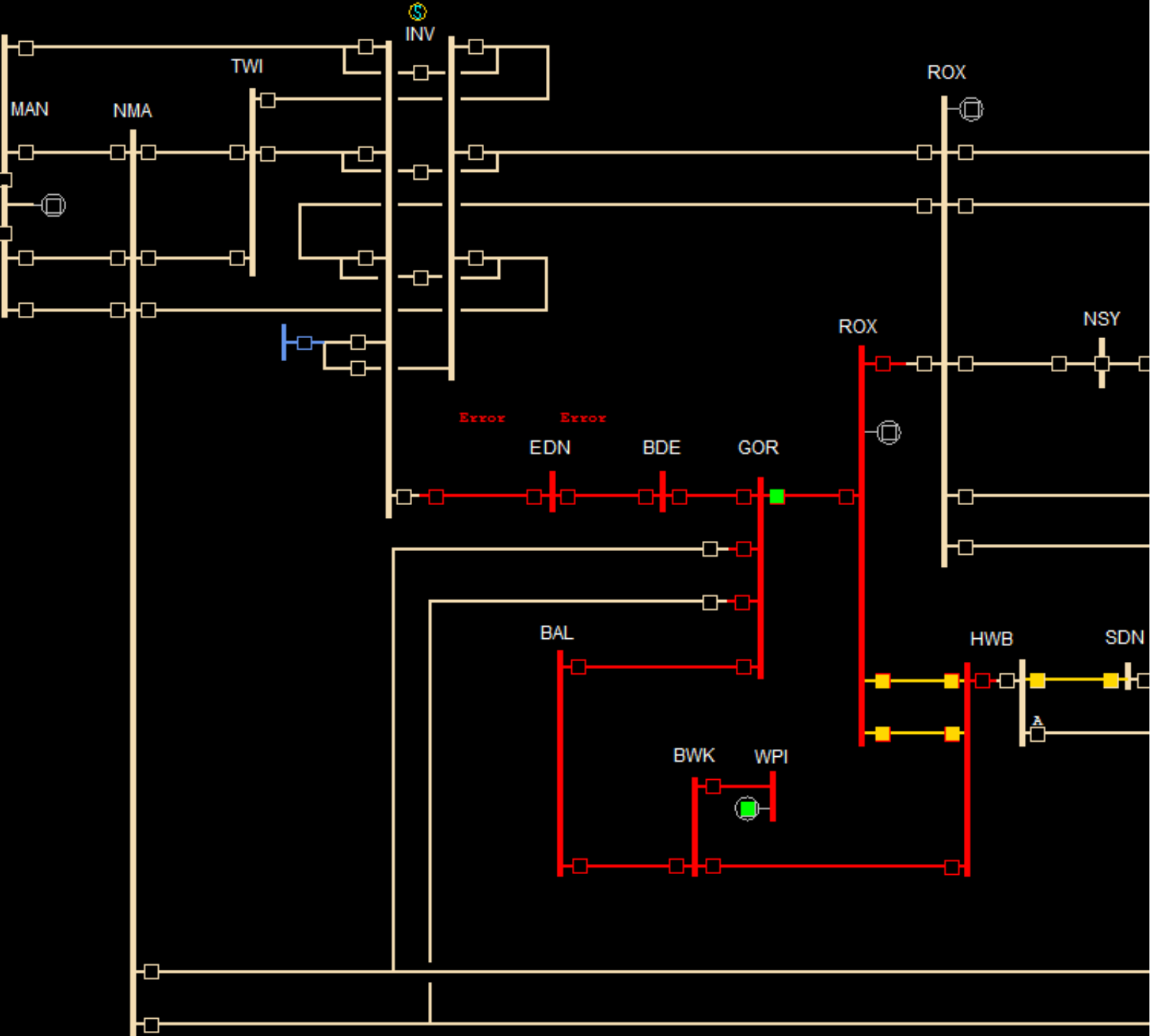
- Week of 30 Mar
  - TKU_WKM_2
  - BRK_SFD_2
  - HAY_WIL_LTN_2

- Week of 6 Apr
  - TKU_WKM_2
  - BPE_TKU_2
  - ATI_TRK_1
  - HAY_WIL_LTN_2
  - BPE_PRM_HAY_2 (Weekend)

- Week of 13 Apr
  - TKU_WKM_2
  - BPE_TKU_2
  - BPE_PRM_HAY_2 (Monday)

- Week of 20 Apr
  - TKU_WKM_2
  - BPE_TKU_2
  - HRP_RDF_1

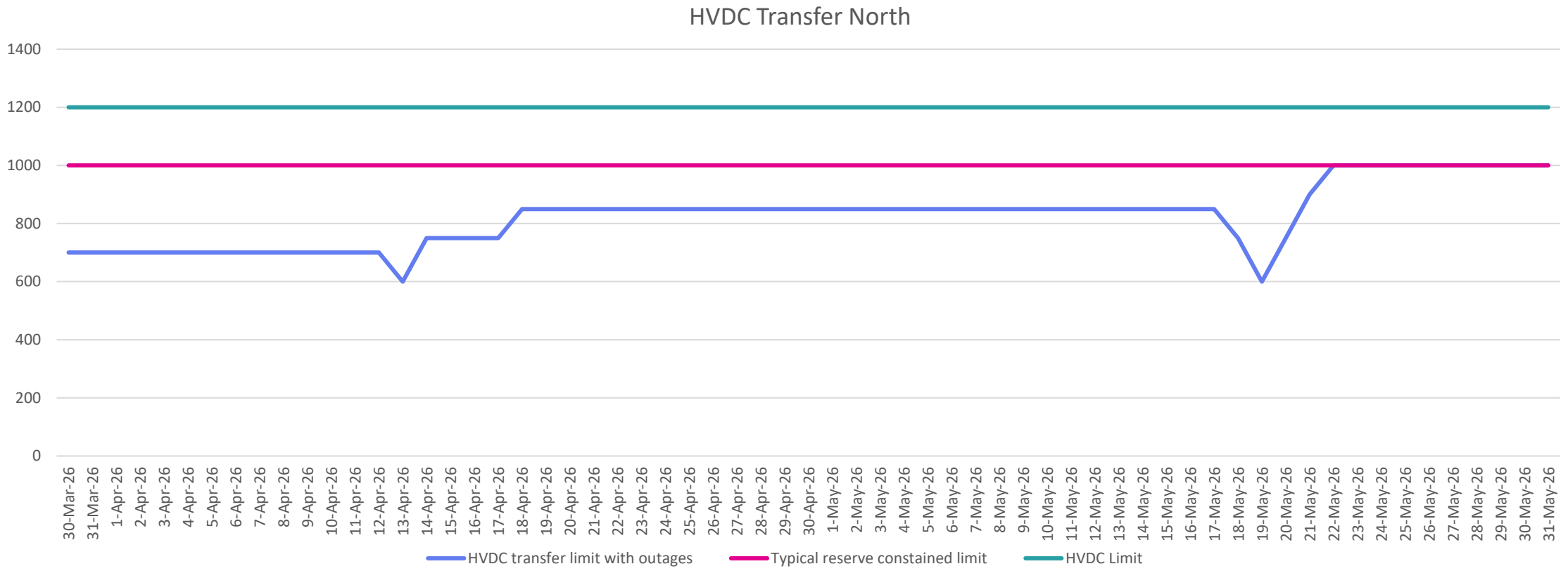




SI Outages

- Week of 30 Mar
  - ISL_KIK_1
  - BEN_TWZ_1
  - MAN_NMA_1
  - INV_NMA_1
- Week of 6 Apr
  - ASB_BRY_1
  - ASB_TIM_TWZ_1
- Week of 13 Apr
  - ASB_TIM_TWZ_1 until Tuesday
  - ASB_TIM_TWZ_2 from Friday
  - ASB_ISL_1
  - AVI_BEN_1
  - NMA_GOR_TMH_1
- Week of 20 Apr
  - ISL_WPR_CUL_KIK_3
  - ASB_TIM_TWZ_1
  - AVI_BEN_1
  - MAN220BUS A & B
  - MAN_NMA_3
  - INV_MAN_2

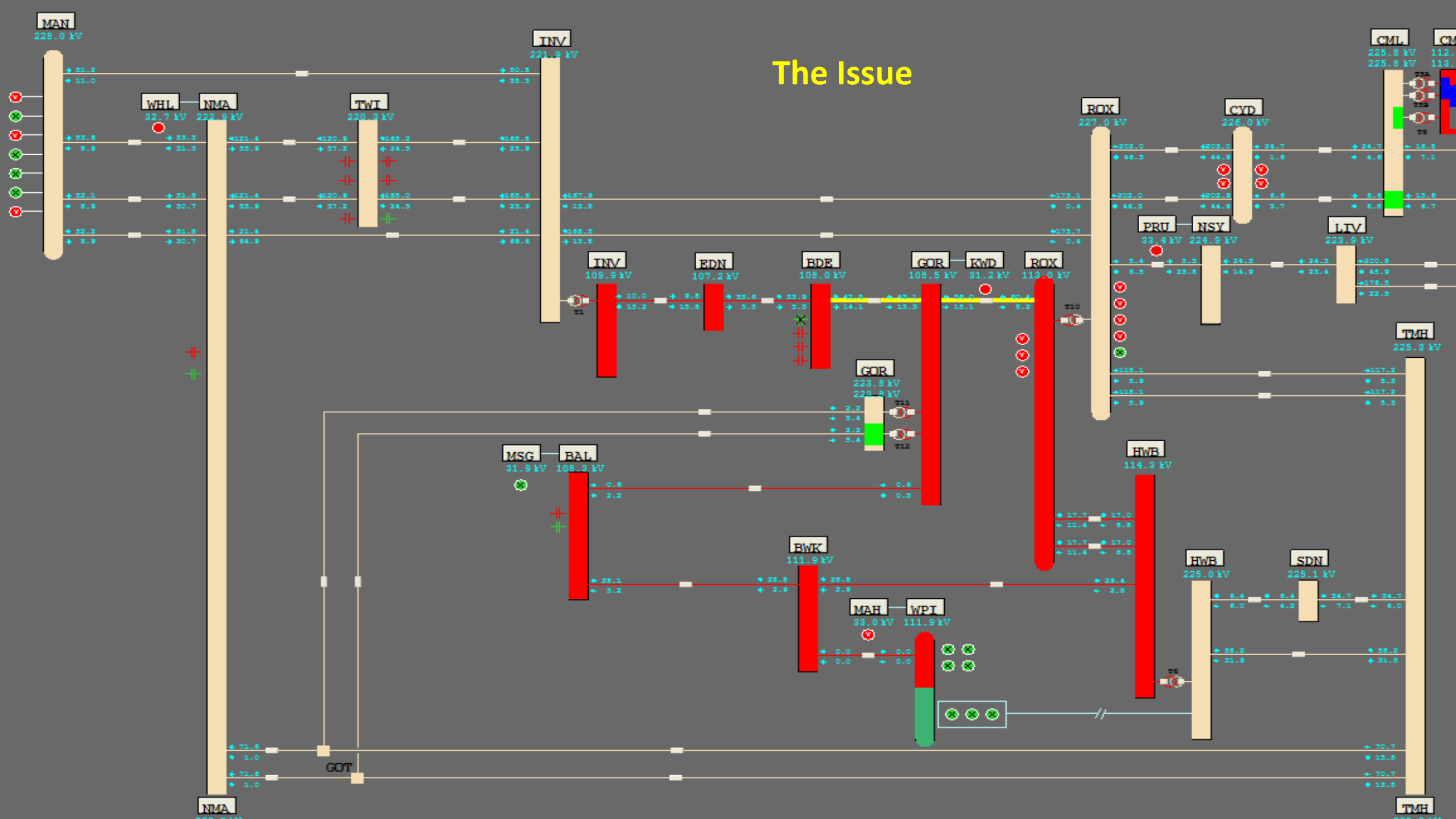
HVDC North transfer limit



Low Southland Hydrology

Background

- In 2022 the System Operator went through the process of requesting a temporary grid reconfiguration under the code to improve Security of Supply from the Grid Owner. The grid reconfiguration to split the Gore 110kV bus was approved and implemented.
- In 2024/25 the System Operator repeated the process and the Gore bus split was again approved. The Gore bus split was not required in the end.
- The process of requesting the grid reconfiguration is very time consuming, for example the studies to produce the Reconfiguration Options document took 40 hours.
- Hydro storage in the Waiau scheme is very low
- The MW flow is south towards the Tiwai (575MW) load
- There are thermal or voltage stability issues in GZ14

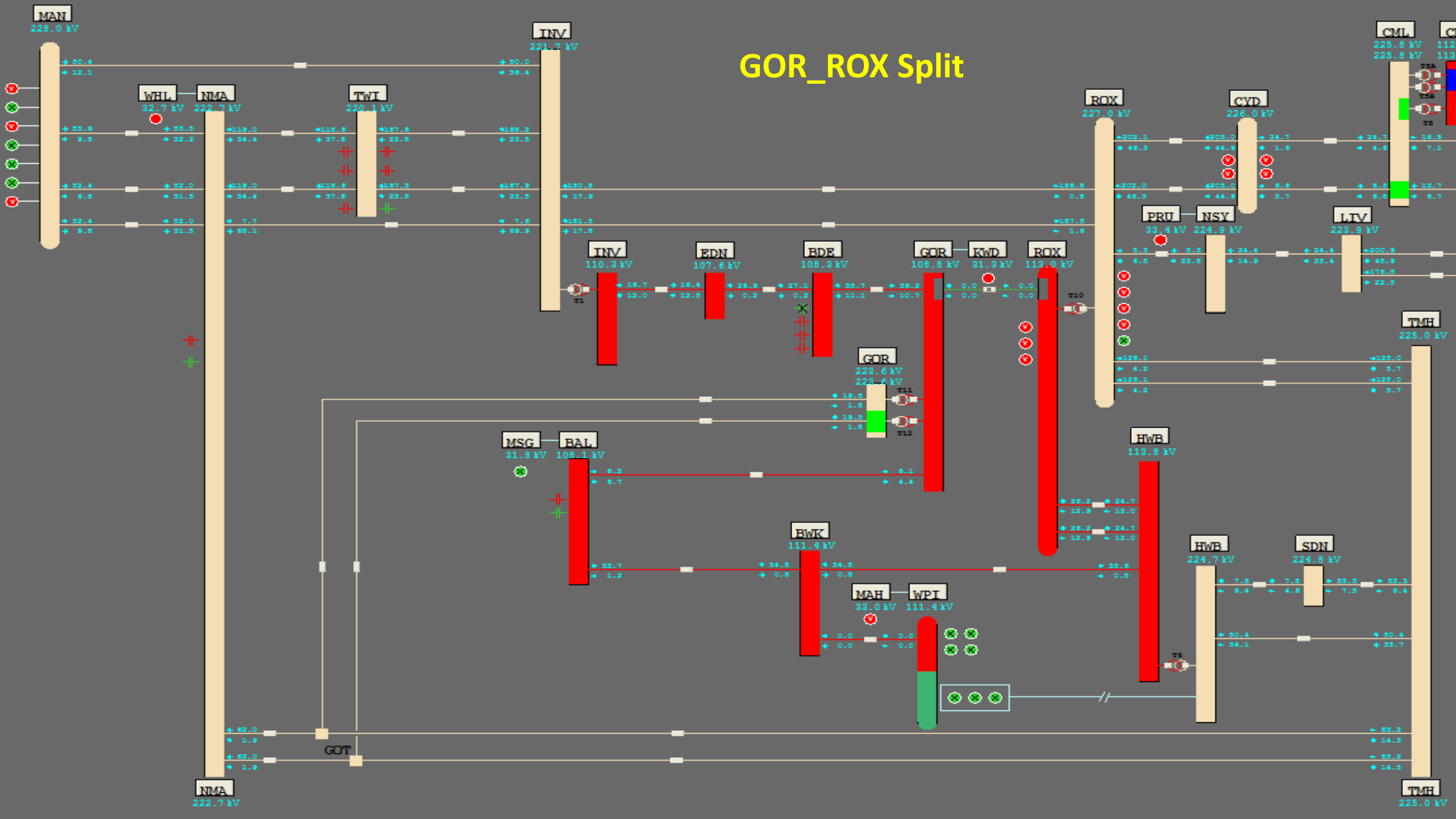

The Issue
MAN
228.0 kV
INV
221.8 kV
WHL
32.7 kV
NMA
222.9 kV
TWI
220.2 kV
ROX
227.0 kV
CYD
226.0 kV
CML
225.8 kV
225.8 kV
PRU
33.4 kV
NSY
224.9 kV
LTV
223.9 kV
INV
109.9 kV
EDN
107.2 kV
BDE
108.0 kV
GOR
108.5 kV
KWD
31.2 kV
ROX
113.0 kV
GOR
223.8 kV
TMH
225.3 kV
MSG
31.9 kV
BAL
108.2 kV
HWB
114.3 kV
BWK
111.9 kV
HWB
225.0 kV
SDN
225.1 kV
MAH
33.0 kV
WPT
111.9 kV
GOT
NMA
TMH

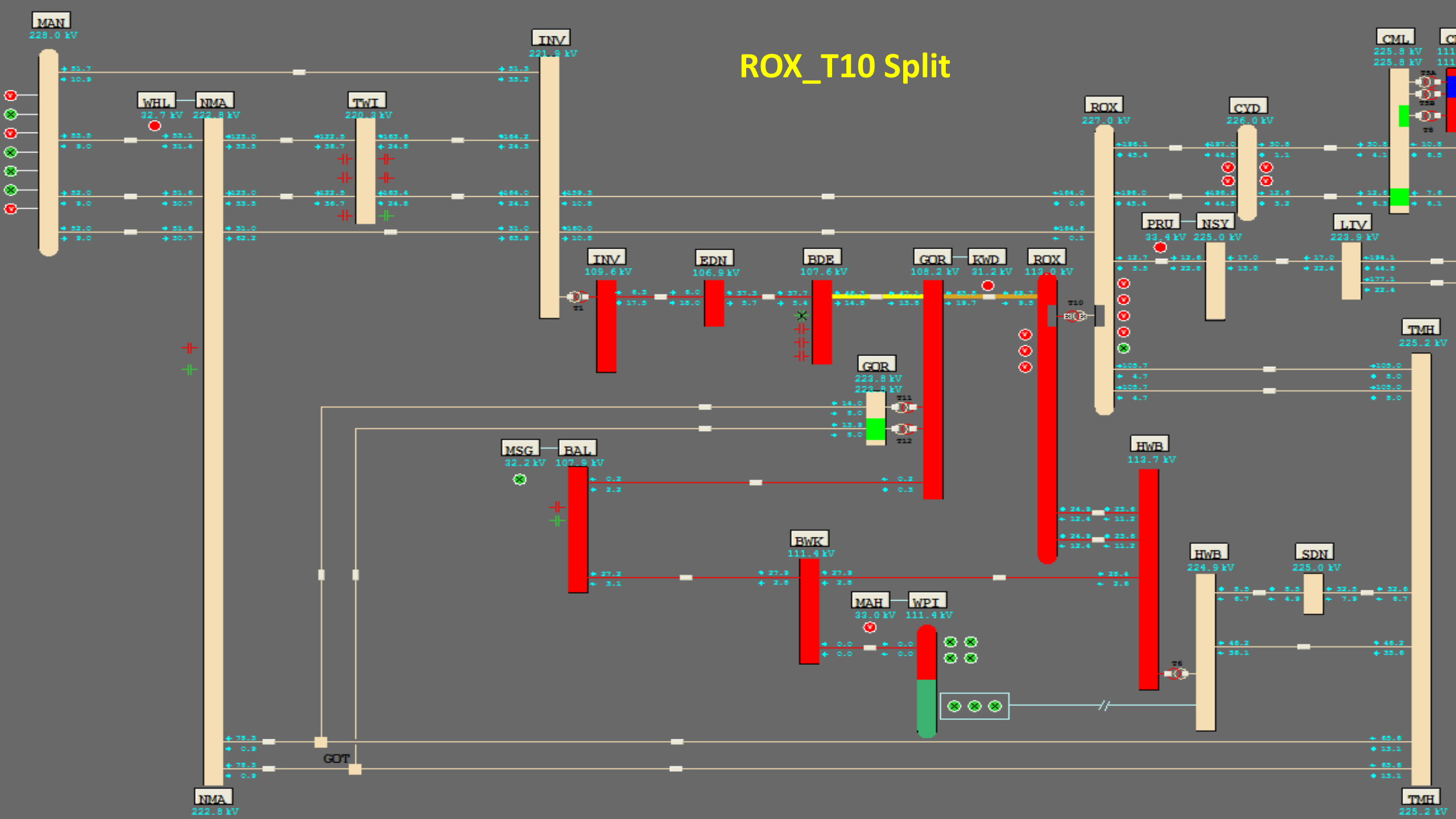
New Grid Owner Offer

Standing Offer:

The standing offer to be used at the SO's discretion applies subject to the following conditions:

- The split is implemented only under dry year or low Waiau scheme inflow conditions
- The GO is notified and retains visibility when the split is put in place
- The operating restrictions that applied during the 2022 GOR bus split configuration continue to apply (as confirmed with OE Protection)
- Both ROX T10 and HWB T6 interconnectors must be in service while the GOR 110 kV bus is split
- The arrangement is temporary and will be reviewed once the SPS solution currently in design (GOR-ROX COPS and BAL-BWK COPS) becomes operational (expected within ~18 months)


GOR_ROX Split
MAN
228.0 kV
INV
221.7 kV
WHL
32.7 kV
NMA
222.7 kV
TWI
220.1 kV
ROX
227.0 kV
CYD
226.0 kV
CML
225.8 kV
225.8 kV
PRU
33.4 kV
NSY
224.9 kV
LTV
223.9 kV
INV
110.3 kV
EDN
107.6 kV
BDE
108.3 kV
GOR
108.8 kV
KWD
31.3 kV
ROX
113.0 kV
GOR
223.6 kV
223.6 kV
TMH
225.0 kV
MSG
31.8 kV
BAL
108.1 kV
HWB
113.8 kV
BWK
111.4 kV
HWB
224.7 kV
SDN
224.8 kV
MAH
33.0 kV
WPI
111.4 kV
GOT
NMA
222.7 kV
TMH
225.0 kV


ROX_T10 Split
MAN
228.0 kV
INV
221.9 kV
WHL
32.7 kV
NMA
222.8 kV
TWL
220.3 kV
ROX
227.0 kV
CYD
226.0 kV
CML
225.8 kV
PRU
33.4 kV
NSX
225.0 kV
LTV
223.9 kV
INV
109.6 kV
EDN
106.9 kV
BDE
107.6 kV
GOR
108.2 kV
KWD
31.2 kV
ROX
113.0 kV
GOR
223.8 kV
TMH
225.2 kV
MSG
32.2 kV
BAL
107.8 kV
HWB
113.7 kV
BWK
111.4 kV
MAH
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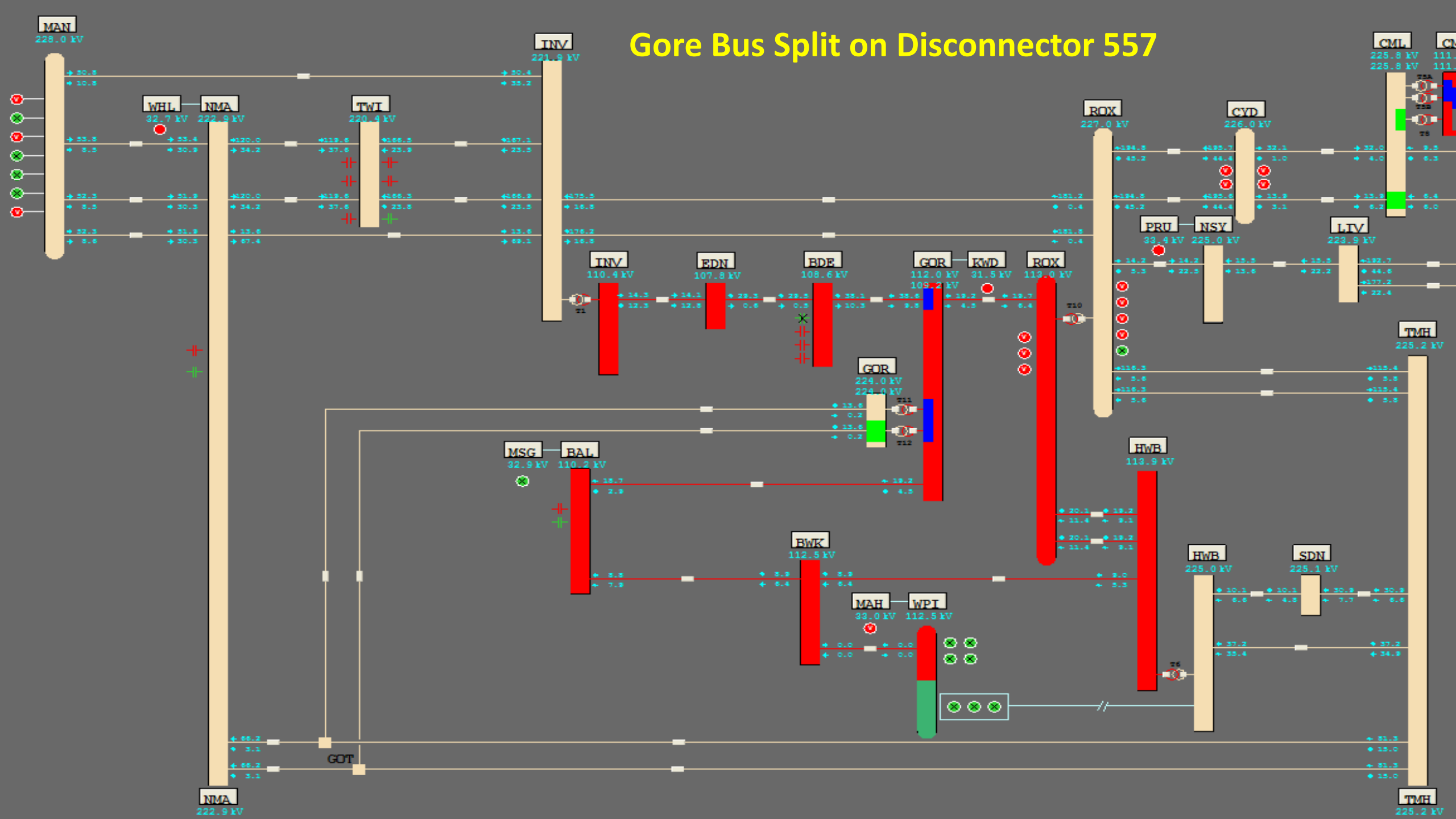
TMH
225.2 kV


Gore Bus Split on Disconnector 557
MAN
228.0 kV
INV
WHL
32.7 kV
NMA
222.9 kV
TWI
220.4 kV
ROX
227.0 kV
CYD
226.0 kV
CML
225.8 kV
225.8 kV
PRU
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NSY
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108.6 kV
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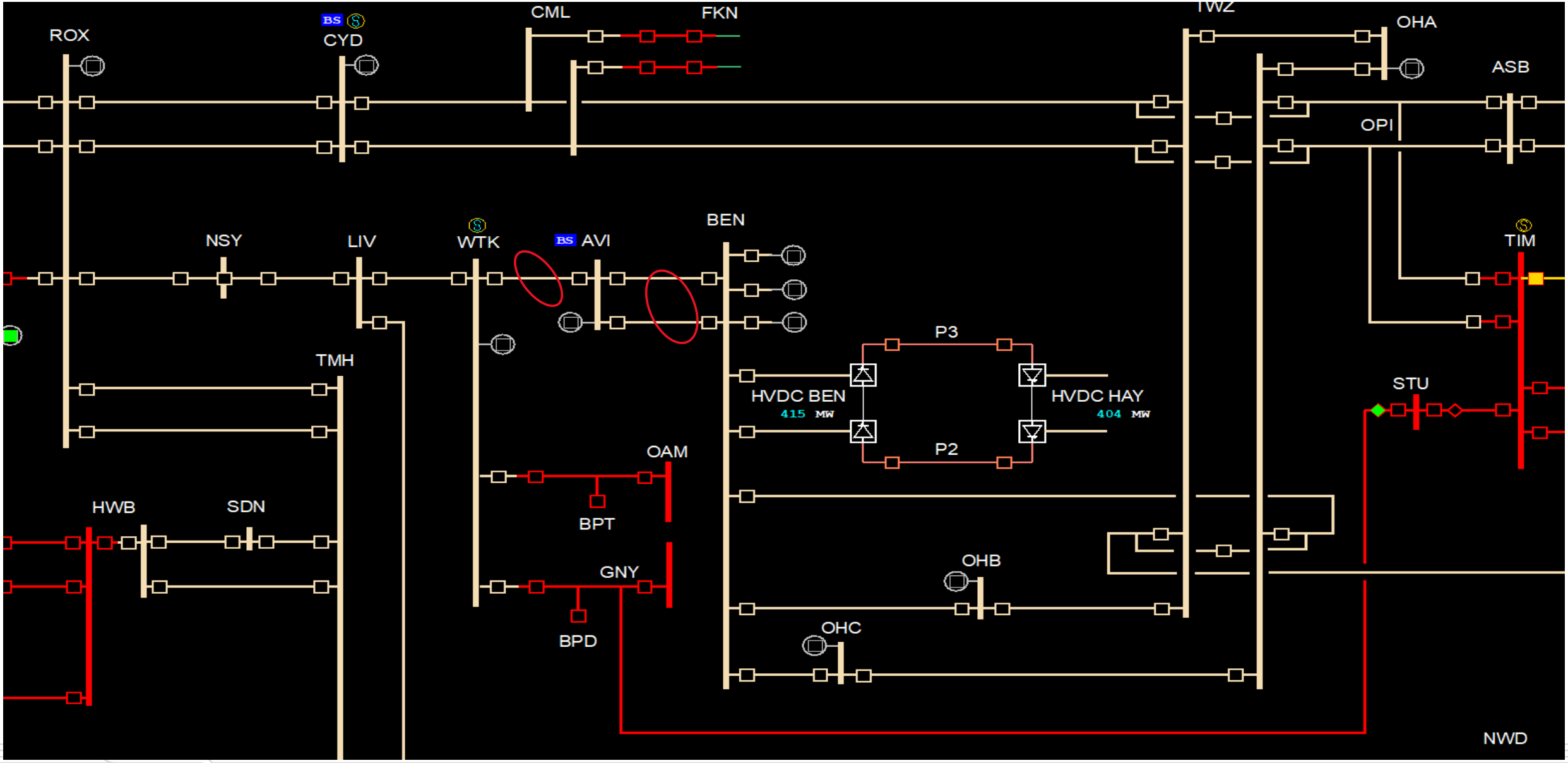
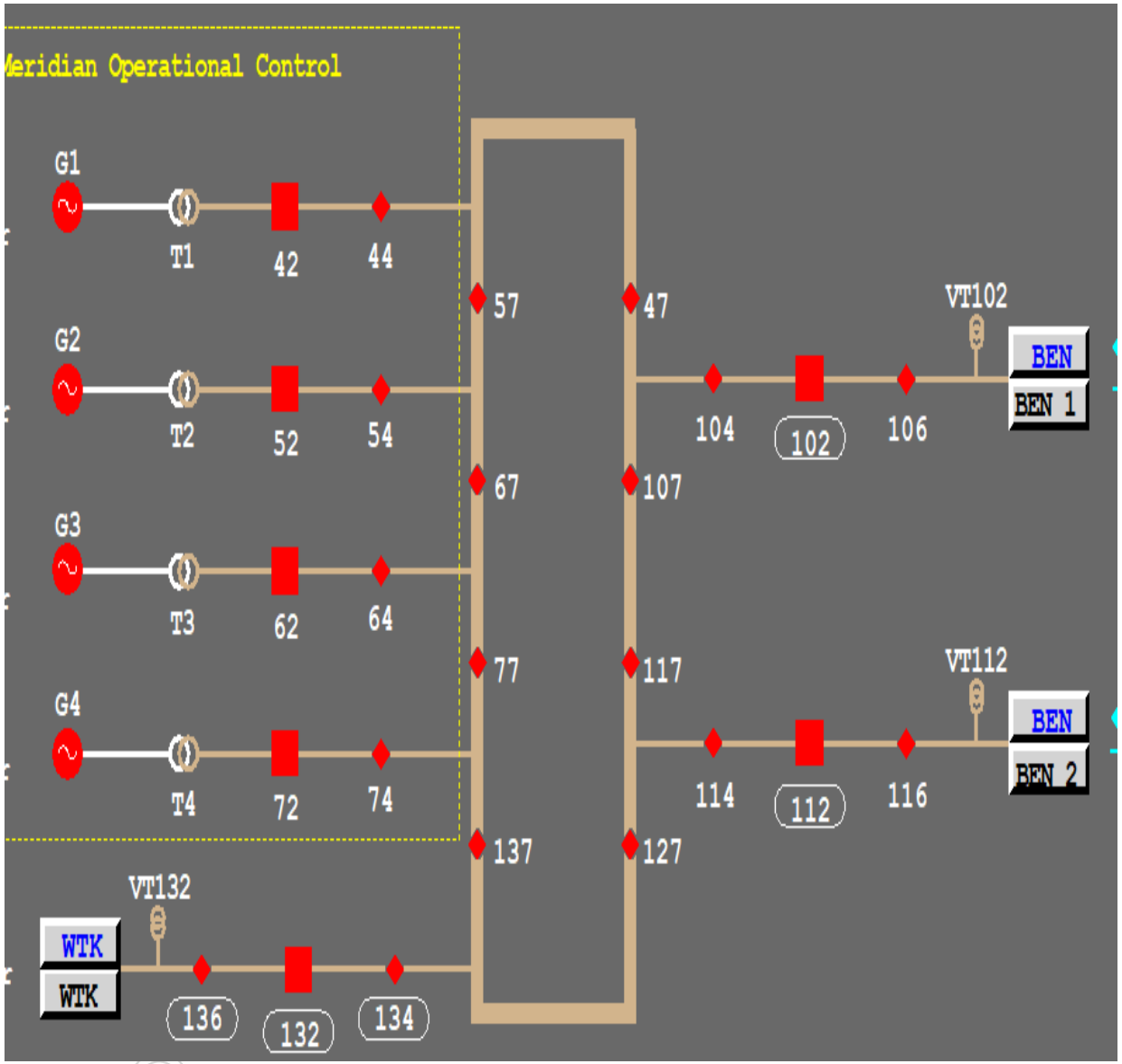
112.0 kV
109.2 kV
KWD
31.5 kV
ROX
113.0 kV
GOR
224.0 kV
224.0 kV
TMH
225.2 kV
MSG
32.9 kV
BAL
110.2 kV
HWB
113.9 kV
BWK
112.5 kV
HWB
225.0 kV
SDN
225.1 kV
MAH
33.0 kV
WPI
112.5 kV
GOT
NMA
222.9 kV
TMH
225.2 kV

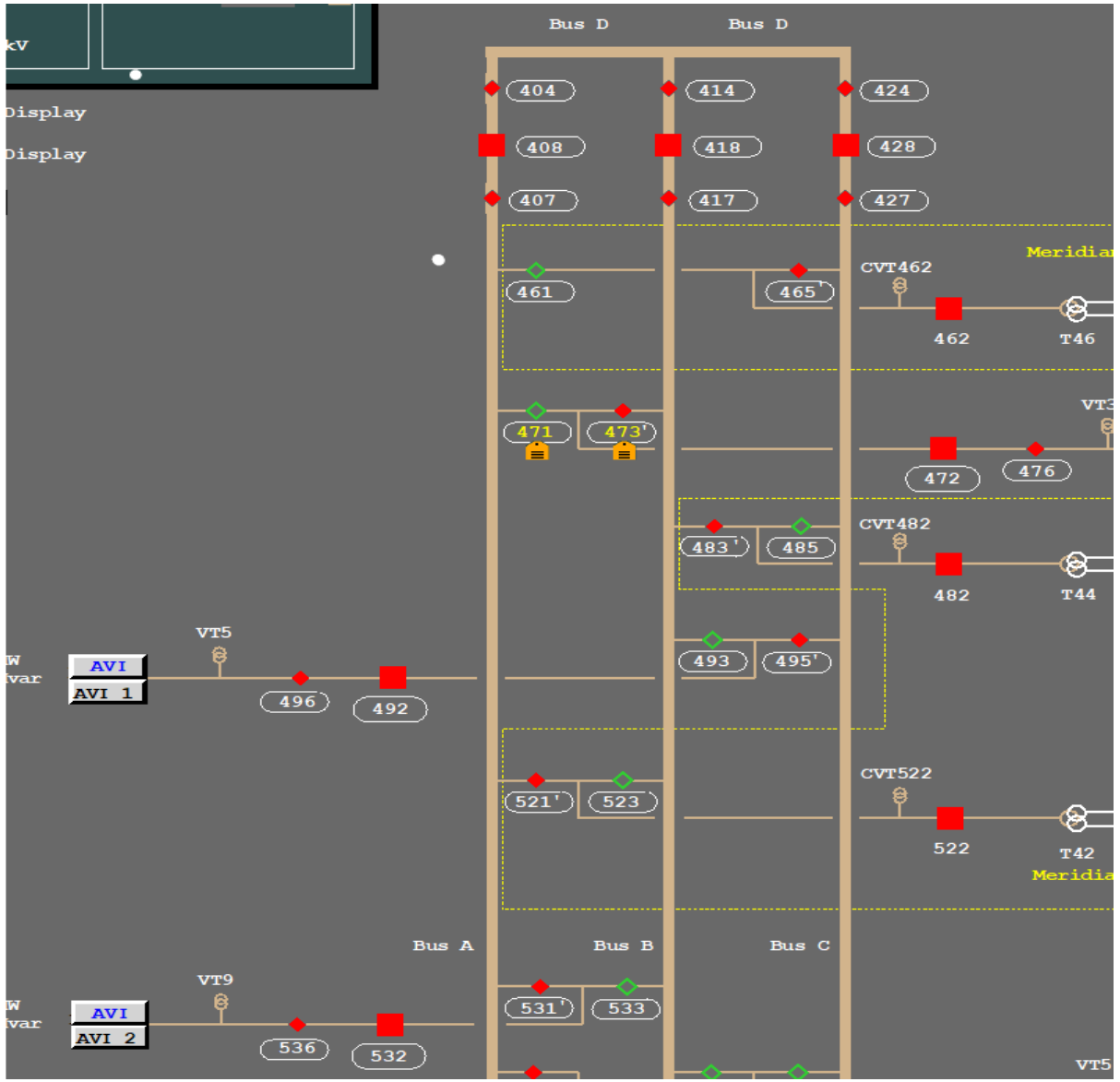
Operational update

Aviemore (AVI) Black Start Test

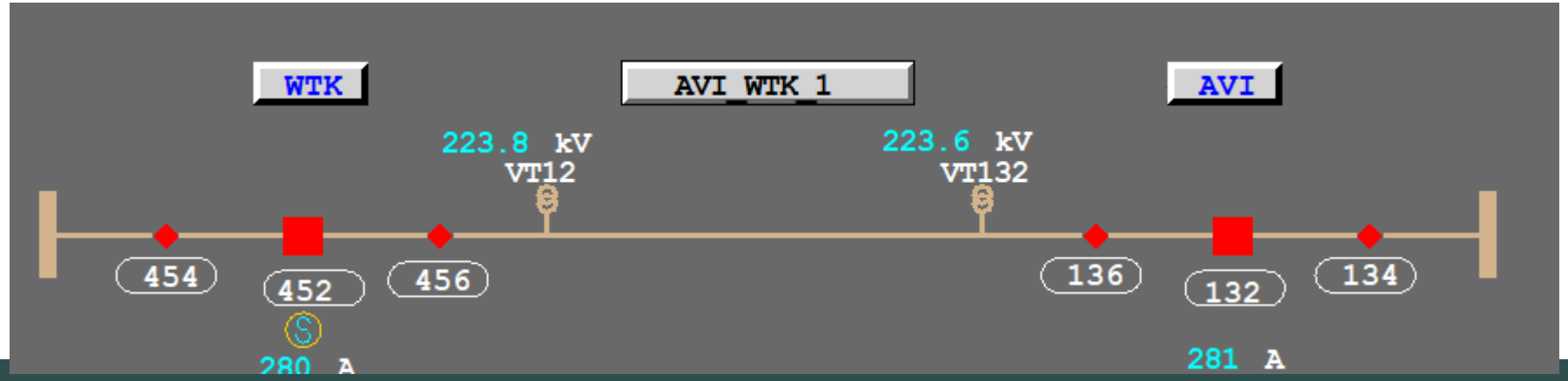


Aviemore (AVI)and Benmore (BEN) Buses





Aviemore (AVI) Black Start Testing



WTK 452 REMOTE SYNC CONTROL

CB Control not available until Remote Sync Enabled

P1 Group Set — Normal Group

REMOTE SYNC CTRL — Disabled

Note 1 : To get frequency values in Remote Sync groups, both bus and line voltages must be >209.0 and <231.1

Note 2: Always manually select the correct VT before progressing with Remote Sync, even when it is already the preferred selection.

	BUS	LINE	STATE
VOLTAGE (kV) >209.0 and <231.1	223.8	223.6	OK
FREQ (Hz)			
SLIP (Hz) >-0.05and<0.05 but not=0			
ANGLE (Deg) >-1.8 and <1.8			

VT Selection | BUS VT Override

VT SELECTION OVERRIDE	
VT21 (A) Preferred Selection	Selected
VT22 (B) Alternate Selection	Not Selected
OVERRIDE	Disabled

DONE

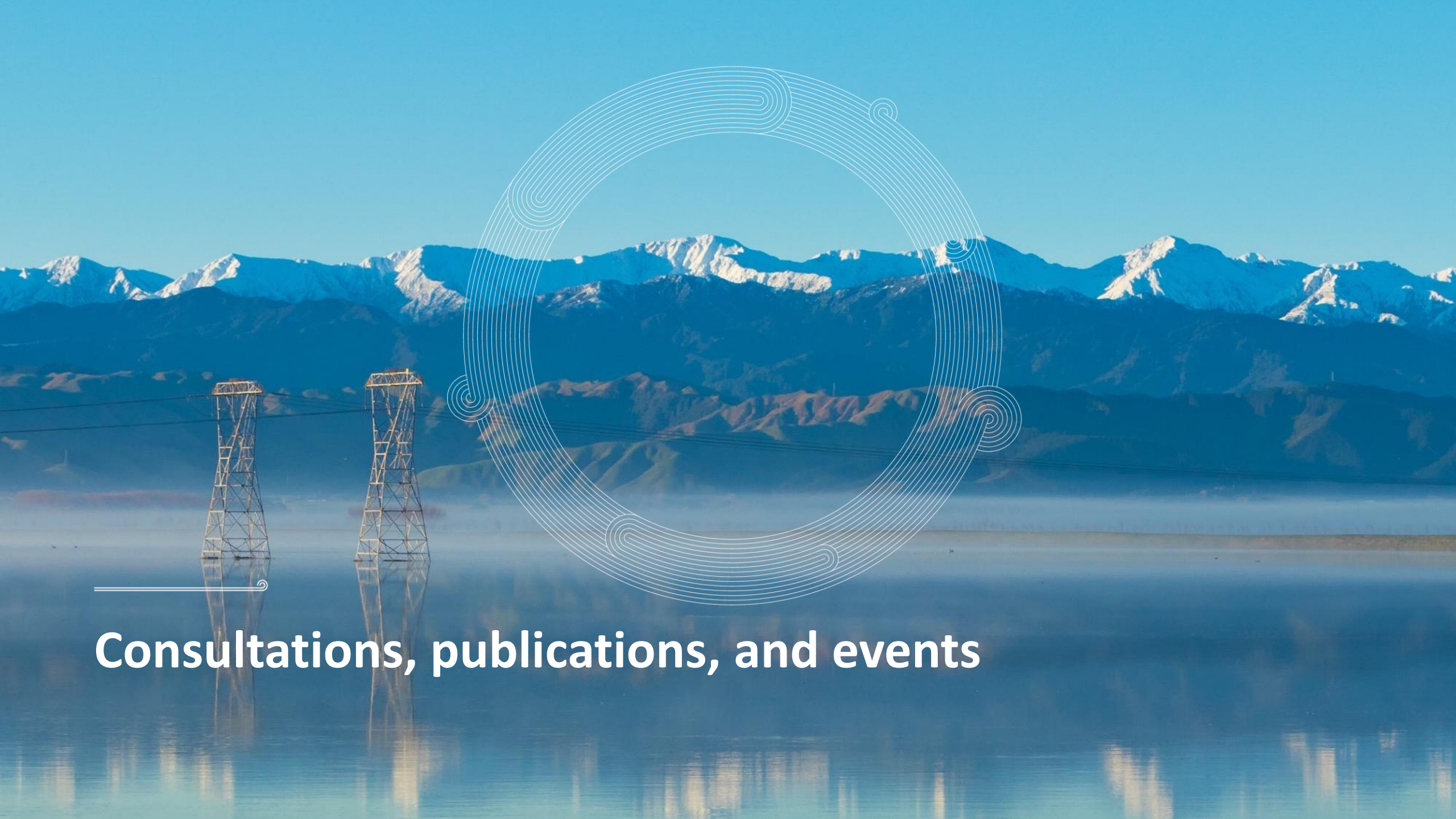
Demand Allocation Tool (DAT) Training webinar

DAT is scheduled for release on 14 May.

Training Webinar for EDBs and Direct Connects

- Transpower and NZX will be hosting a training webinar on 23 April at 2pm.
- Invitations were sent yesterday to EDBs & Direct Connect customers.
- It is important that Operational staff from your organisation attend the webinar. Please pass the invitation on to anyone we might have missed.
- A recording and slide pack will be available after the webinar on the Transpower website.
- For those who haven't received the invitation and wish to attend*:
    - Email Julianne.Leggott01@transpower.co.nz to request an invitation

*Note: Webinar is for Electricity Distribution Businesses (EDBs) and Direct Connect Customers.



Consultations, publications, and events

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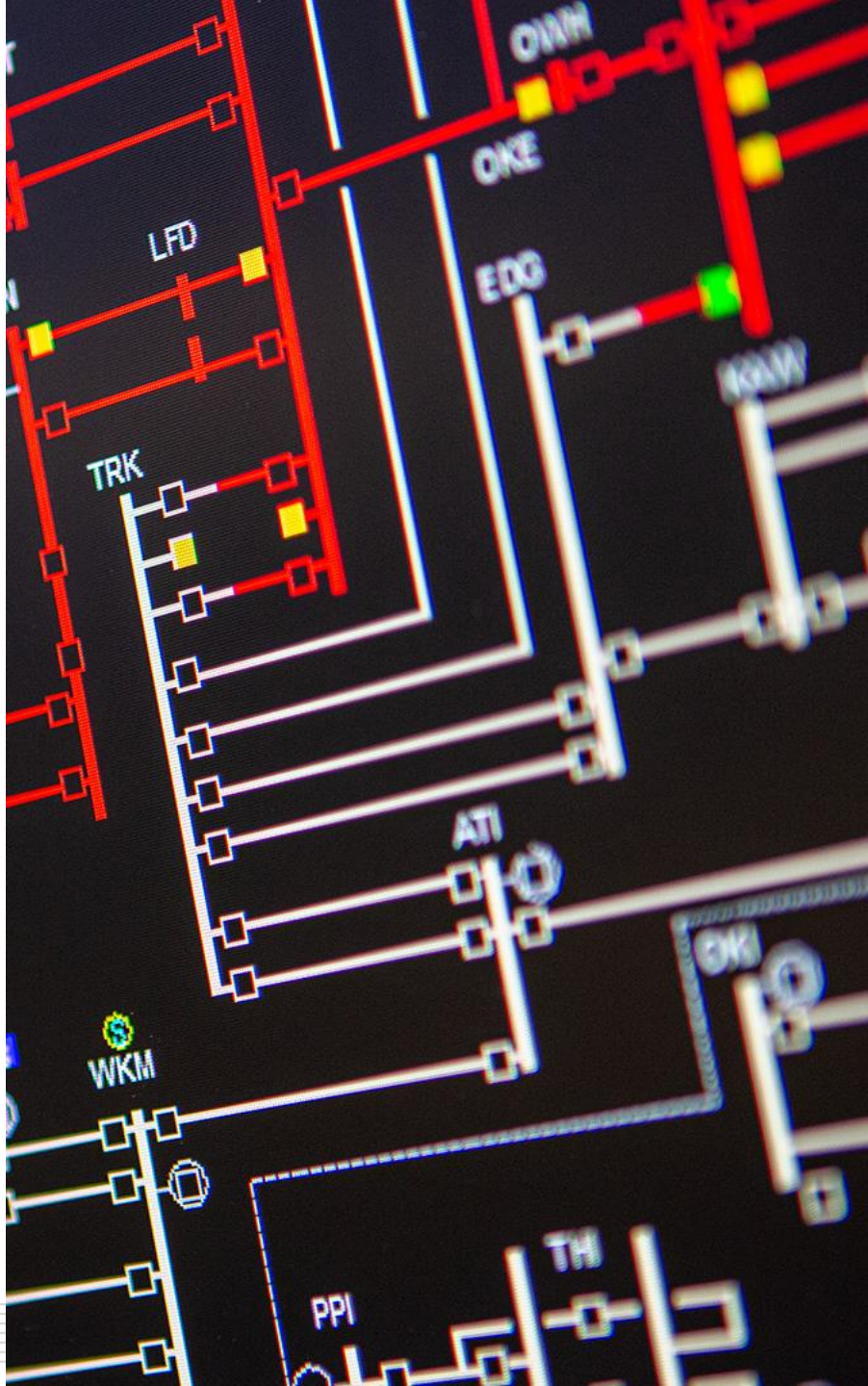
We need your feedback! Our **2026 Annual System Operator Participant Survey** is open now and we would greatly appreciate participants and stakeholders of the System Operator to take a moment to complete it. The survey is open until Thursday 17 April.

On 10 March the Authority updated the **Frequency and voltage common quality requirements**, details of which can be found on their website

The March **Energy Security Outlook** will be published on our website by the end of the month.

We will be holding a special forum in **preparation for Winter 2026** on Tuesday 28 April. More details to come.

Annual AUFLS profile information submissions are due 1 April 2026 via the the Operations Customer Portal. Guidance is available on our webpage.



Questions / Pātai

Please raise your hand

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

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