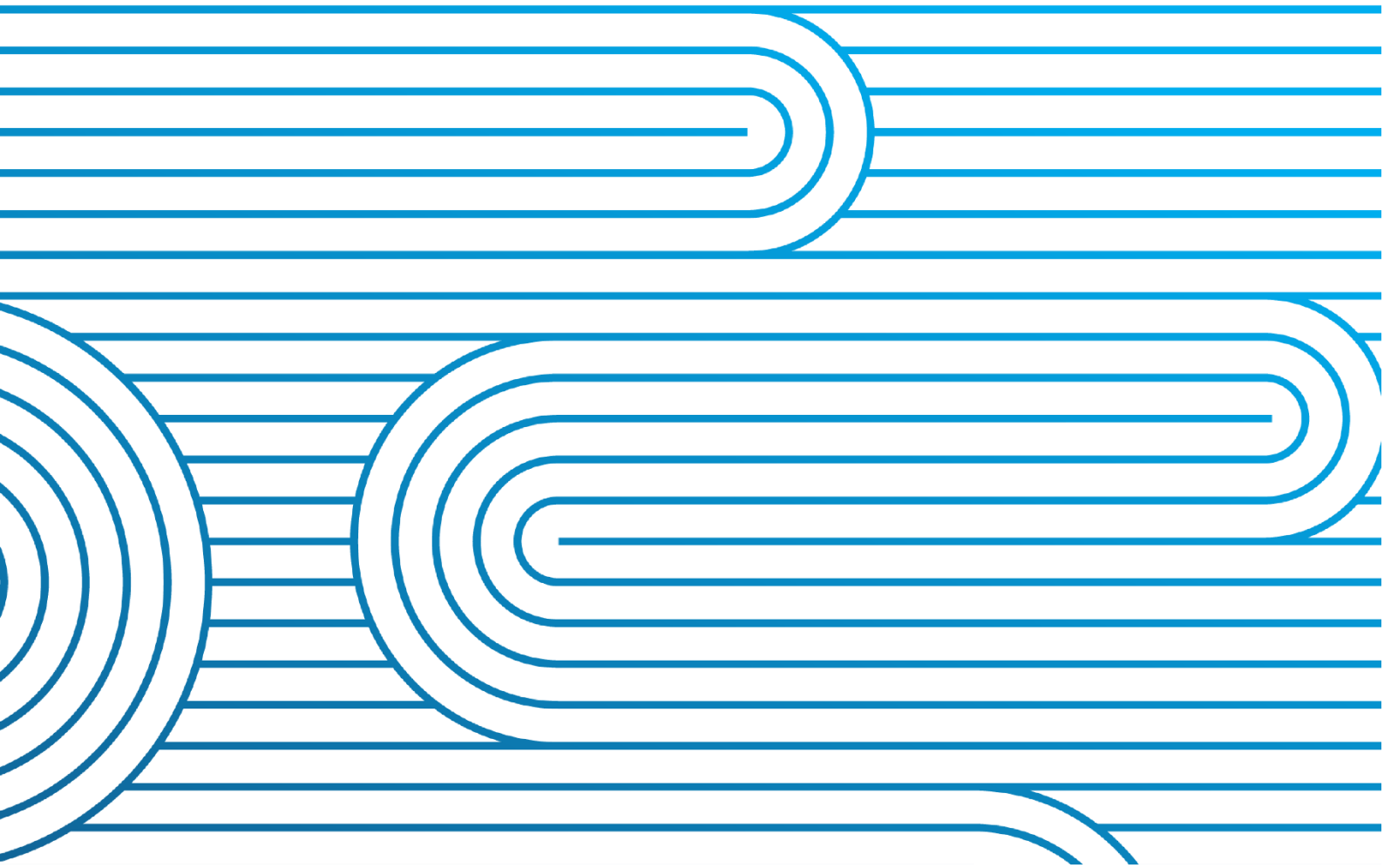
TRANSPOWER

Monthly System Operator performance report

For the Electricity Authority

April 2025



Report Purpose

This report is Transpower's review of its performance as System Operator in accordance with clauses 3.13 and 3.14 of the Electricity Industry Participation Code 2010 (the Code):

3.13 Self-review must be carried out by market operation service providers

*(1) Each **market operation service provider** must conduct, on a monthly basis, a self-review of its performance.*

*(2) The review must concentrate on the **market operation service provider's** compliance with—*

*(a) its obligations under this Code and Part 2 and Subpart 1 of Part 4 of the **Act**; and*

*(b) the operation of this Code and Part 2 and Subpart 1 of Part 4 of the **Act**; and*

*(c) any performance standards agreed between the **market operation service provider** and the **Authority**; and*

*(d) the provisions of the **market operation service provider agreement**.*

3.14 Market operation service providers must report to Authority

*(1) Each **market operation service provider** must prepare a written report for the **Authority** on the results of the review carried out under clause 3.13.*

*(1A) A **market operation service provider** must provide the report prepared under subclause (1) to the **Authority**—*

*(a) within 10 **business days** after the end of each calendar month except after the month of December:*

*(b) within 20 **business days** after the end of the month of December.*

(2) The report must contain details of—

*(a) any circumstances identified by the **market operation service provider** in which it has failed, or may have failed, to comply with its obligations under this Code and Part 2 and Subpart 1 of Part 4 of the **Act**; and*

*(b) any event or series of events that, in the **market operation service provider's** view, highlight an area where a change to this Code may need to be considered; and*

*(c) any other matters that the **Authority**, in its reasonable discretion, considers appropriate and asks the **market operation service provider**, in writing within a reasonable time before the report is provided, to report on.*

By agreement with the Authority, this report also provides monthly (rather than quarterly) reporting in accordance with clause 12.3 of the System Operator Service Provider Agreement (SOSPA):

*12.3 **Quarterly reports**: The **Provider** must provide to the **Authority**, with each third self-review report under clause 3.14 of the **Code** during a **financial year**, a report on:*

*(a) the **Provider's** performance against the performance metrics for the financial year during the previous quarter;*

*(b) the actions taken by the **Provider** during the previous quarter:*

*(i) to give effect to the **system operator business plan**;*
*(ii) to comply with the **statutory objective work plan**;*

(iii) *in response to **participant** responses to any **participant survey**; and (iv) to comply with any remedial plan agreed by the parties under clause 14.1(i);*

(c) the progress during the previous quarter of:

*(i) the feasibility study into **cost-of-services reporting** referred to in clause Error! Reference source not found.; and*

(ii) if agreed in accordance with clause Error! Reference source not found., the implementation of cost-of-services reporting; and

*(d) the **technical advisory hours** for the previous quarter and a summary of **technical advisory services** to which those **technical advisory hours** related.*

System Operator performance reports are published on the Electricity Authority website in accordance with clause 7.12 of the Electricity Industry Participation Code 2010 (the Code):

7.12 Authority must publish system operator reports

*(1) The **Authority** must publish all self-review reports that are received from the **system operator** and that are required to be provided by the system operator to the **Authority** under this Code.*

*(2) The **Authority** must **publish** each report within 5 **business days** after receiving the report.*

Following the end of each Quarter, a system performance report is published on the Transpower website

Contents

Commentary

Key points this month

Operating the power system

- On 9 April 2025 Studholme T5 and T6 tripped, resulting in the loss of 5 MW of supply to Alpine Energy. The suspected cause was a rodent shorting out insulation.
- On 16 April 2025 there was a loss of protection signalling on multiple 220 kV circuits within Southland due to telecommunication issues into the region. Due to the increased risk of tripping on the 220 kV circuits both Clyde-Roxburgh 1 and 2 circuits were to be managed as a single risk. As the Livingston-Naseby 1 circuit was on outage at the time generation in the region was managed to increase the likelihood an electrical island would form and maintain local supply should there be an issue with both Clyde-Roxburgh circuits.
- On 17 April 2025 the System Operator declared a verbal grid emergency in the South Island due to insufficient sustained instantaneous reserves available to cover the South Island contingent event risk. The shortfall was the result of an unplanned outage of HVDC pole 3.
- On 17 April 2025 HVDC Pole 3 tripped due to an issue with a voltage measurement device at Haywards. The outage was extended until 19 April for the device to be replaced.
- On 18 April 2025 a lightning strike resulted in the successful auto reclose of both Henderson-Maungatapere 1 and 2 circuits. However, the transformers at Maungaturoto remained out of service after the strike, resulting in a 6.3 MW loss of supply to Northpower.
- On 18 April 2025 the System Operator informed industry that it was treating the loss of either Huapai-Marsden 1 and Bream Bay-Huapai 1, and Bream Bay-Marsden 1 and Bream Bay-Huapai 1 as single event risks due to an electrical storm in the area. This was extended through to 19 April due to ongoing lightning activity. This single event risk classification was also communicated on 20 April due to another electrical storm in the area.
- On 20 April 2025 Pole 3 was removed from service to fix a fault at the Benmore converter station.
- On 21 April 2025 generation at Huntly tripped and frequency fell to 49.16 Hz in the North Island, and an excursion notice was issued. An under-frequency event was confirmed.
- On 26 April Oamaru-Studholme-Bells Pond-Waitaki 2 and Oamaru-Blackpoint-Waitaki 1 tripped resulting in a 20.9 MW loss of supply to Oamaru, 4.2 MW to Bells Pond, and 0.4 MW to Black Point. The cause is still under investigation.
- On 29 April 2025 the industry was notified of an unplanned outage of HVDC Pole 3 to replace secondary equipment associated with voltage measurement at Haywards.

Security of supply

- *Security of Supply Forecasting and Information Policy (SOSFIP):* We published our Summary and Decision document in response to the feedback we received from 15 organisations to the SOSFIP Review issues paper consultation.
- *2025 Annual Security of Supply Assessment (SOSA):* The draft SOSA report is in the final stages of review and on track to be published for consultation in early May.
- *Quarterly Security of Supply Outlook:* Our latest quarterly outlook published on 2 April highlighted the need for the market to co-ordinate early to ensure an increased energy buffer heading into Winter 2025.
- *Energy Security Outlook:* The April update shows two SSTs crossing the Watch curve in 2025 and highlighted a closing gap between firm contracted coal supplies and the physical capability to import coal, while hydro storage improved due to moderate inflows.
- *Industry Exercise 2025:* The annual Industry Exercise was held on 9 April. About 250 people from 60 organisations participated to test rolling outage processes and communications.

- *Official Conservation Campaign (OCC):* Digital assets are ready to be deployed, and we will prepare other assets if we get close to an OCC being needed.
- *System Operator coordination of Low Residual situations:* We published our summary and response to submissions on 4 April. The Policy Statement review, planned for next financial year, will consider any potential amendments related to Low Residual Situations.
- *New Zealand Generation Balance (NZGB) potential shortfalls:* The April NZGB report highlights 10 days of negative margins, mainly coinciding with thermal outages.

Investigations

- *20 June 2024 Northland Loss of Supply:* all actions identified in the Ray Hardy and Authority reports that were due by March 2025 have been completed.
- *21 December 2024 Hawke's Bay Loss of Supply:* We completed our investigation into the UFE ready to provide the causation report to the Authority on 1 May.

Supporting Asset-owner Activity

- *Outage Co-ordination:* Significant rainfall in the Fiordland area during April meant the impact of low hydro storage at Manapōuri on outages has ended and the System Operator no longer expects to request a grid reconfiguration on the Southland 110 kV network. The System Operator reviewed the Grid Owner's draft Annual Outage Plan and provided advice on the security risks and mitigation options.
- *Generator commissioning and testing:* Lodestone's Te Herenga o Te Rā (38 MW at Waiotahe) completed commissioning in April. Work continues with the sites in the process of commissioning over the next three months including Meridian's Ruakākā BESS (100 MW at Bream Bay). Sites expected to begin commissioning in the next three months include Far North Solar Farms/Aquila's Pukenui Solar Farm (20 MW in Northland) and Rānui's Twin Rivers Solar Farm (25 MW in Northland).
- *Ancillary services activity:* The draft ancillary services procurement plan has been published for consultation with the period for submissions, followed by cross submissions open though into May. Work continues with Lastmyle to establish interruptible load services. Planning continues for Black Start testing at Clyde on 10 May and Tokaanu later in 2025.

Commitment to evolving industry needs

- *Outage Optimisation:* The System Operator continues to support the Grid Owner in its six week outage optimisation project that aims to reduce the number of outages on the grid and the risks and costs they pose to system operations.
- *System Operator Industry Forums:* Forums were held on 1, 15, and 29 April with a focus on current operational and market issues. Topics of note included the new scarcity pricing settings, and a winter peak management refresher.
- *Update to Scarcity Pricing Settings:* System updates were implemented to enable the Authority's revised scarcity pricing settings that took effect at midnight on 17 April 2025.

Risk & Assurance

- *Risk management*: We are continuing the latest six-monthly controlled self-assessment review. Each review covers five controls in our risk bowtie with the process to be completed by the end of June 2025. We have also started preparing for a risk register workshop with the Authority, which is to be held later in the quarter.
- *Business assurance audits*: Reports for Audit 50 (Generation commissioning process requirements) and Audit 51 (Manage a national SCADA_EMS) are both expected to be finalised by May. Audit 52 (ERC Modelling) started in mid-April.

1 Operating the power system

System Events

9 April 2025 – Loss of supply at Studholme: At approximately 04:18, Studholme T5 and T6 tripped, resulting in a loss of supply to Alpine Energy of approximately 5 MW. The 110 kV Bus was livened at 06:22 via T5, with Alpine Energy restoring supply at approximately 06:49. The suspected cause was a rodent shorting out insulation.

16 April 2025 – Managing a potential electrical island: At approximately 14:24, a CAN advised industry that due to the loss of two telecommunication fibre optic cables into Southland, there had been a loss of protection signalling on multiple 220 kV circuits within the region. This increased the risk of indiscriminate trippings on 220 kV circuits feeding into Southland should a fault occur in the area. Hence both Clyde-Roxburgh 1 and 2 circuits were to be managed as a single risk from 14:00. This coincided with an outage of Livingston-Naseby 1 circuit, so generation in the region was managed to increase the likelihood of an electrical island forming should a contingency of both Clyde- Roxburgh 1 and 2 occur. A fibre was repaired by approximately 16:47 and from 17:00 Clyde-Roxburgh 1 and 2 circuits were no longer managed as a single risk.

17 April 2025 – Insufficient reserve offers in South Island: At approximately 10:30 a verbal grid emergency was declared in the South Island through to 18:00. This was due to there being insufficient sustained instantaneous reserve available (shortfall ranging from 0.3 – 13 MW over the period) to cover the South Island contingent event risk. The shortfall was a result of an unplanned outage of HVDC pole 3, which removed the ability for reserve sharing between the Islands. Declaring a grid emergency enabled the System Operator to work with generators to reoffer South Island reserves inside gate closure and alleviate the shortfall.

17 – 19 April 2025 – HVDC Pole 3 unplanned outage: At approximately 08:34, Pole 3 tripped due to an issue with a voltage measurement device at Haywards. A CAN was issued at 09:02 informing industry of the unplanned outage and an expected restoration time later that day. On further investigation by the Grid Owner, it was determined that a spare voltage device would need to be installed, and the outage was extended until 18:00 19 April via a CAN update. Pole 3 was restored to service at 17:30 19 April, slightly ahead of schedule (again industry was informed via a CAN update).

18 April 2025 – Loss of supply at Maungaturoto: At approximately 21:50, a lightning strike resulted in the successful auto reclose of both Henderson-Maungatapere 1 and 2 circuits. However, the transformers at Maungaturoto remained out of service in-line with their protection design resulting in a loss of supply of approximately 6.3 MW to Northpower. Supply was restored at 22:15 via Maungaturoto T2.

18 – 19 April 2025 – Transmission circuit risk reclassification: At approximately 22:10 on 18 April, the System Operator informed industry via a CAN that from 22:05 – 00:00 it was treating the loss of either Huapai-Marsden 1 and Bream Bay-Huapai 1, and Bream Bay-Marsden 1 and Bream Bay-Huapai 1, as single event risks due to an electrical storm in the area. This risk classification was extended via a CAN through to 03:30 19 April due to ongoing lightning activity.

20 April 2025 – Transmission circuit risk reclassification: At approximately 17:04, the System Operator informed industry via a CAN that from 17:00 – 20:00 it was treating the loss of either Huapai-Marsden 1 and Bream Bay-Huapai 1, and Bream Bay-Marsden 1 and Bream Bay-Huapai 1 as single event risks due to an electrical storm in the area.

20 April 2025 – HVDC Pole 3 unplanned outage: At approximately 10:22, industry was informed via a CAN that Pole 3 would be removed from service between 11:00 – 11:30 to fix a fault at the Benmore converter station. The outage was extended via a CAN, with Pole 3 returned to service at 13:00.

21 April 2025 – Under-frequency event: At approximately 16:43, generation at Huntly tripped and frequency fell to 49.16 Hz in the North Island, with an excursion notice being issued. An under-frequency event was confirmed via a CAN to industry on 28 April.

26 April 2025 – Loss of supply at Oamaru, Blackpoint and Bells Pond: At approximately 08:35, Oamaru-Studholme-Bells Pond-Waitaki 2 and Oamaru-Blackpoint-Waitaki 1 tripped, resulting in a loss of supply to Oamaru (20.9 MW to Network Waitaki), Bells Pond (4.2MW to Alpine Energy) and Black Point (0.4MW to Network Waitaki). Supply was restored at approximately 10:01. The cause is still under investigation.

29 April 2025 – HVDC Pole 3 unplanned outage: At approximately 13:39, a CAN was issued notifying industry of an unplanned outage of HVDC Pole 3 from 19:00 – 20:00. This outage was for the Grid Owner to replace secondary equipment associated with the replacement voltage measurement equipment installed earlier in the month at Haywards. The outage was extended to 21:30 via a CAN. After completing the work, a small voltage discrepancy is still being measured. The Grid Owner continues to investigate potential cause and resolution. This does not pose a security risk to the system.

Market Operations

Forecast v real-time residual variability: We monitor the variations[1] between forecast and real-time dispatch conditions to determine if the 200 MW residual continues to provide sufficient coverage to cater for this variability. A graph in Appendix B presents, for the last 24 months, the proportion of time within each month that a 200 MW residual was sufficient to cover the variation in load and intermittent generation between forecast (30 minutes ahead of real-time) and real-time.

In April more than 98% of the variability is covered by the 200 MW residual. This indicates that entering a trading period with 200 MW of residual provided a high chance of having sufficient market resources to meet the variability within the period.

2 Security of supply

Our Security of supply webpage collates material we produce under our statutory role to provide information and near to medium term forecasting on all aspects of security or supply, and manage supply emergencies.[2] It also provides links to the regulatory framework under which we do so as set by the Authority.

Security of supply forecasting and information policy (SOSFIP) review: On 23 April, we published our Summary and Decision document in response to the feedback we received from 15 organisations to the Issues paper consultation.[3] The document communicated our decision to broaden the scope of the review, to consider potential amendments to section 6 (Determining the electricity risk curves), section 12 (Simulated storage trajectories), and section 13 (Thermal fuel supply disruptions).

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1 The variability measure is the same as outlined in Page 11 of our Low Residual Situation Review Consultation paper.

2 Electricity Industry Act 2010, s8

3 Invitation to Comment: Security of Supply Forecasting and Information Policy (SOSFIP) Review Issues Paper 2025 (Closed) | Transpower

We received substantive feedback regarding Meridian's proposal to permanently lift the CSRB buffers ahead of Winter 2025. There are competing views about whether Meridian's proposal would improve or be harmful to security of supply. Feedback, and our initial analysis of modelling information provided by Meridian, highlights the SOSFIP review will need to consider potential flow-on effects of easier access to contingent hydro storage on security of supply. The review must also evaluate the likely costs and benefits of any change to arrangements for accessing contingent storage.

None of the feedback we received supported removing the CSRB buffer discretion or provided feedback on the criteria the System Operator uses to exercise this discretion. There was support for clarifying and/or making more transparent how that discretion would be used. Given the feedback we received, and the potential impacts on dry year risk management in both the short-term and longer-term, we decided not to change the CSRB buffers now as requested by Meridian for Winter 2025. We will consider Meridian's proposal in the SOSFIP review, as a potential permanent change. This will provide the time necessary to complete robust analysis including of the costs and benefits of the proposal, allow for further consultation with stakeholders, and support the Authority's consideration of any final SOSFIP amendment proposal.

At this stage we expect to commence consultation on a draft SOSFIP amendment proposal in September 2025 and submit a final amendment proposal to the Authority later in 2025.

2025 annual Security of Supply Assessment (SOSA): The SOSA provides a ten-year view (2025 to 2034) of the balance between supply and demand in the New Zealand electricity system. During April, we reviewed the draft SOSA report internally and sent it to the Authority for review. Consultation on the draft SOSA will commence in early May.

Quarterly Security of Supply Outlook: Our latest quarterly Security of Supply Outlook, published on 2 April, highlights that there is still time to mitigate Winter risk by managing hydro storage more conservatively through contracting for thermal generation and the fuel needed to supply it and demand response where available. We continue to emphasise the need for the market to co-ordinate early for an increased energy buffer heading into Winter 2025.

Energy Security Outlook: The April update, published on 30 April, providing the latest ERCs and SSTs is available here. The report showed two SSTs just touching the Watch curve in 2025 and highlighted a closing gap between firm contracted coal supplies and the physical capability to import coal from April to the end of October 2025. Changes from the last monthly ERCs included a reduction in forecast gas production and storage, but an increase in physical coal import capability. This resulted in an increase to the Watch, Alert and Emergency curves in 2025. National hydro storage levels picked up over April thanks to moderate inflows and reduced hydro generation over the month, the difference being made up primarily by thermal generation.

Prices remained consistently high throughout April, with the average price across reference nodes being $338/MWh. Demand has been less than in recent years, largely due to reduced industrial load with the closure of the Winstone mills and Oji's paper recycling plant, along with the Tiwai demand reduction agreement with Meridian Energy. Capacity margins in April have been healthy in line with high thermal unit commitment.

Industry exercise 2025: The annual Industry Exercise was held on 9 April. Around 250 people from 60 organisations from across the sector came together online to test rolling outage processes and communications. The exercise was the culmination of six months' planning with the Authority. It included two webinars in March that took participants through changes to the System Operator Rolling Outage Plan and set the scene for an extended dry sequence in the lead up to a simulated test of rolling outage process and communications. Initial feedback on the exercise from participants has been positive, and we are now working with the Authority and RiskLogic to gather lessons learned, agree improvement opportunities, and report back to industry.

Official Conservation Campaign (OCC): The OCC concepts and approach have been presented to the industry through various recent workshops. Digital assets are ready to be deployed, and we will prepare other assets if we get close to an OCC being needed.

System Operator coordination of low residual situations: We have published our summary and response to the six submissions and two cross submissions to our System Operator coordination of Low Residual Situations review consultation. We will develop and consult on potential Policy Statement amendments related to Low Residual Situations as part of the next Policy Statement review, planned for next financial year.

New Zealand Generation Balance (NZGB) potential shortfalls: The April NZGB update is available through our Customer Portal. The NZGB shows that we are resilient to the loss of the largest generator or HVDC pole tripping under a 90th percentile load, provided all available assets not on planned outage are available to the market, with wind generating at 20% of its capacity. This is the primary measure we use to inform the market and coordinate outages in a way that maintains capacity margins. Except for variation in wind generation, this scenario matches what we are observing being offered in the market. This is due to the low levels of hydro storage and Contact securing Gas from Methanex that have led to high levels of thermal unit commitment.

When we consider firm generation, or a low wind scenario and low thermal unit commitment, we see 10 days of negative margins reaching up to –100MW. This is mainly driven by Contact's Stratford Peaker going on outage in early May until late June and a Rankine Unit being on outage through May only.

3 Investigations

Under-frequency event investigations

Under Frequency Events (UFE) causer investigations: We completed our investigation into the 21 December 2024 Hawke's Bay UFE and provided the causation report to the Authority on 1 May 2025.

Significant incident investigations

20 June 2024 - Northland loss of supply: We continue to work on completing actions in response to both the Ray Hardy report and the Authority's report. All actions which were due by end of March are completed, including updates to the relevant Northland contingency plan. Remaining actions involve potential updates to other contingency plans.

4 Supporting Asset-owner activity

Outage Coordination:

Following the typical outage profile, prior to Easter, April had two weeks of high outage volumes, tracking between 60 and 80 per week. An important piece of upgrade work was completed on the Whakamaru – Wairakei 1 circuit which, when combined with further work, will reduce the market and security impact of outages in the central North Island. While outages dropped off for the short week between Easter and Anzac Day, they are now back at moderate levels and we expect them to slowly decline through winter as work becomes harder to do and assets are made available for high winter demand.

Significant rainfall in the Fiordland area during April meant the impact of low hydro storage at Manapōuri on outages has ended, and lake levels at Manapōuri and Te Anau are in their typical range. As a result, the System Operator no longer expects to request a grid reconfiguration from the Grid Owner in the Southland 110 kV network. By working closely with Meridian, we have mitigated the need to shift a material amount of outages. We have also worked with Contact to reduce the impact of outages in the Taranaki region on thermal generation.

Annual Outage Plan: The Grid Owner has published its Annual Outage Plan for 2025/26. This consisted of over 3000 outages; this is 500 more than last year. The System Operator has reviewed the plan and provided advice on the security risks and mitigation options.

Generator commissioning and testing

The Power Systems and Markets teams are working with the following generators who are commissioning or expecting to connect in the next 3 months:

- Meridian's Ruakākā BESS (100 MW at Bream Bay) began commissioning in January 2025, and is due to complete in May 2025.
- Far North Solar Farm (FNSF) and Aquila's Pukenui Solar Farm (20 MW in Northland) is due to begin commissioning in May 2025.
- Ranui's Twin Rivers Solar Farm (25 MW connected to Top Energy) is due to begin commissioning in June 2025.
- Solar Bay and Maungaturoto Solar Farm Project's 'Golden Stairs' Solar Farm (17.6 MW in Northland) is due to begin commissioning in July 2025.

We are also working with existing generators to commission governor and AVR upgrades.

Demand commissioning and testing

Edendale load forecast: In February we re-issued our request for GXP EDN0331 to be assessed as non-conforming. We await the Authority's decision on this request.

Ancillary Services activity

Lastmyle: We have reviewed a proposal from LastMyle for offering interruptible load and have provided initial feedback. The next step is to model LastMyle in our test environment. We will also work with LastMyle as they get connected to our systems.

Ancillary Services Procurement Plan Review: We obtained approval from the Authority to consult on the draft Ancillary Services Procurement Plan after incorporating minor amendments from their review. On 17 April we opened our consultation with the period for submissions running until 8 May, followed by a one-week period for cross submissions.

Interruptible Load: The following table provides an overview of interruptible load testing activity by the number of sites tested and associated additional quantities for those sites.

	Number of sites	Additional quantities in MW	
Annual testing	3 sites	N/A	
Additional resource	4 sites	2.352 MW FIR	3.302 MW SIR

Over-Frequency Reserve (OFR): One unit remains unavailable to provide OFR. We are working with the service provider to resolve this. The following table provides an overview of OFR testing activity.

	Number of sites overdue
Four yearly end-to-end relay testing	2
Two yearly control and indication testing	42
Circuit breaker testing	13

Frequency Keeping: One station in the South Island remains unavailable to provide frequency keeping as a result of failed testing.

Black Start: A Black Start test is scheduled to be carried out on 10 May at Clyde Power Station. The System Operator will assess the test data once it is attained. Planning is underway for testing at Tokaanu Power Station later in 2025.

5 Commitment to evolving industry needs

Electrical Industry Space Weather Working Group (EISWWG): Each EISWWG organisation is considering how transformer study risk assessment results impact on their operational response during an extreme storm i.e. which transformers are likely to have to be removed from service. This information is being used by the System Operator to model its ability to meet demand and manage voltage. Outcomes of these studies will result in further updates to the industry response plan, as well as provide the basis for engagement with distributors on likely impact on supply during an extreme event.

Electricity Networks Aotearoa (ENA) Future Networks Forum (FNF): In April, the Baringa report commissioned by ENA to evaluate the industry architecture and models for distribution system operation (DSO) in New Zealand to fulfil the roles and functions identified in Stage 1 was completed. This report was heavily supported by the ENA FNF project team including our System Operator representative.

The final report reflected much of the feedback given previously by our System Operator representative. The report was shared with the Authority, under embargo, to inform the Authority's next Future System Operations (FSO) issues and options paper which is targeting a May/June publication date. The Baringa report was shared with EDBs by ENA in late April and made public in early May.

Two points contained within the report which we intend to follow up directly with the Authority prior to the finalisation of their FSO paper are:

1. The cost estimates for Total TSO being 'red' while the cost estimate for Total DSO is 'orange' when these two options are likely to be very similar in cost to deliver, and
2. Concerns around the Total DSO model dispatch of large-scale generation connected to distribution networks.

Outage Optimisation: The Operational Planning team at Transpower, which includes both grid and system operations outage planning teams, is working on a new initiative to improve outage management. This aims to create a new process that will enable greater levels of outage optimisation, and higher throughput of work. The project has defined its target state, and now work is focussed on defining how to reach the target state.

Connecting with the industry

System Operator Industry Forums:

Our fortnightly discussions on current operational and market issues were held on 1, 15 and 29 April. For our April 29 forum, we provided the industry with a refresher on our approach to managing winter power system challenges, including the information available to industry to manage winter peak demand. This covered off the NZGB tool, key information available on WITS in the 7 day forecast, and the notices the control room send when peak demand is tight. Recent slide packs and recordings for forums within the last month are available on our System Operator industry forum webpage.

Market Operations Weekly Reports:

Our Market Operations Weekly Reports provide information to assist interested parties' understanding of the current security of supply situation[4] and other market events. These reports also include a Market Insight each week covering a topic of interest to the industry. The reports we published this month, and the Market Insight in each are as follows:

- 6 April: solar winter peak contributions.
- 13 April: the evolution of Cogeneration in NZ's Electricity Market.
- 20 April: Ancillary Services Procurement Plan Review 2025 and the proposed amendments.
- 27 April: Potential Future Pipeline of Battery Energy Storage Systems (BESS).

Supporting the Authority

Intermittent Generation (IG) Forecasting project: The System Operator is providing technical advice and support to the Authority as it works to procure a provider of a centralised intermittent generation forecast service. We will attend the workshops and provide limited input into the guidance. The Authority has not progressed this work as Technical Advisory Services which constrains the potential involvement of the System Operator in the initiative.

Update to Scarcity Pricing Settings: The new scarcity price settings as outlined in the Authority's March decision paper took effect at midnight on 17 April. Communications were delivered through the System Operator Forum on 15 April, with further details provided in a Customer Advisory Notice (CAN). We successfully completed the necessary updates and testing through TAS117 to enable the changes in the market system. Additionally, we are progressing a change request from the Authority to update the scarcity pricing animation on the System Operator website.

Media interactions

Our 22 April media release about our response to feedback on the SOSFIP Review Issues paper and our clarification of contingent storage access for Winter 2025 generated significant media coverage. This was largely positive and framed our decision as reserving this additional hydro storage for use as a last resort for mitigating emerging security of supply risk. Key articles included:

- Energy News - No 'unfettered access' to hydro contingency this year
- NZ Herald - Transpower opts against freeing up hydro storage amid dry start to 2025
- Business Desk - Transpower cautious over hydro lake level rule changes
- RNZ - Review to probe 'complex issues' stemming from emergency hydro storage

We also provided comment to Energy News about the widespread power outage in Spain and Portugal and its lessons for system security in New Zealand. We received a number of enquiries about the 17 April unplanned HVDC outage, and the situation was managed with no stories being published as there was no impact on consumers.

[4] As required by the Security of Supply Forecasting and Information Policy section 11, incorporated by reference into the Electricity Industry Participation Code 2010

6 Project updates

Progress against high value, in-flight market design, service enhancement and service maintenance projects are included below along with details of any variances from the current CAPEX plan.

6.1 Market design and service enhancement project updates

There are no market design or service enhancement projects in-flight.

6.2 Other projects and initiatives

Ancillary Services Cost Allocation System (ASCAS): This project is delivering a new AST and GSS software (ASCAS) replacing previous end-of-life tech vital to accurate information sharing with the Authority and NZX. We continue to work with NZX to ensure we will continue to meet their data requirements once the new systems are stood up. The project is currently delivering to plan, within approved budget and progressing towards commissioning in June 2026.

D&A Modernisation – Market System Data: This project is migrating Market Systems data to the newly established Cloud Data Platform to meet interim requirements for Ancillary Service Reports (ahead of completion of the ASCAS project) and increase consistency and efficiency. UAT and Data ingestion milestones have completed and, as planned, the data migration is in progress. Transition To Operations (TTO) tasks are progressing and the project is forecasting to come in slightly over budget (3%) and commissioning is delayed by 10 days.

SCADA Habitat and EMP Refresh: This project is to upgrade critical components of SCADA system and Market Solvers, to ensure operational integrity of the system operator's market system tools into the future. Delays in GE customisation delivery are impacting subsequent project activities, potentially delaying the project commissioning date. The overall schedule impact is under assessment. Project cost is forecast within budget and commissioning is planned for 2 December 2025.

Control room of the future (CROF): The draft report outlining the challenge New Zealand's energy transition presents to real-time operations and what actions are proposed to ensure our control rooms have the capability to continue to deliver effective services is being reviewed. Engagement with the Authority on this project will begin shortly.

7 Technical advisory hours and services

The following table provides the technical advisory hours for the month and a summary of technical advisory services to which those hours related (SOSPA 12.3 (d) refers).

TAS Statement of Work (SOW)	Status	Hours worked during Month
TAS 108 – AUFLS Transition	In progress	54.5
TAS 112 – Future Security and Resilience	In progress	162.5

TAS Statement of Work (SOW)	Status	Hours worked during Month
TAS 113 - BESS Wholesale Market Enhancements	In progress	34.0
TAS 114 – Dispatchable Demand	In progress	69.5
TAS 115 - Settlement of the market following publication of final prices for 9 Aug 2021	In progress	0.0
TAS 116 – Implementing a hybrid forecasting arrangement – procuring a centralised forecast provider	In progress	0.0
TAS 117 – Scarcity Pricing	In progress	73.0

Progress:

TAS 108 Extended Reserve Implementation 23/24 – Extended Implementation: By the end of April, 1,247 feeders (82%) had transitioned to the 4-block AUFLS scheme. The System Operator approved change requests from four North Island Connected Asset Owners (NI CAOs) for May and future months, with no security issues identified. No non-adherence was found during the February transition period. However, there remains a high risk that several NI CAOs may not complete their transitions by the 30 June 2025 deadline, and this has been communicated to the Authority.

TAS 112 FSR Workstream - Part 8 of the Code - Common Quality Requirements: In April, the System Operator FSR team continued its support to the Authority team, providing technical input and review of several draft options decision and Code amendment proposal papers in preparation for the CQTG meeting in April and ahead of the May/June Authority Board meetings. The System Operator continued with significant effort progressing the development of the CQ Document Incorporated by Reference (DIBR) document and legal reviews. The Authority requested the System Operator to draft a cover note that will accompany the CQ DIBR during the Authority consultation in July 2025. In addition, the System Operator received Authority feedback on the System Strength Study Approach and updated the document. Work has commenced with initial investigations.

TAS 113 - BESS wholesale market enhancements: In April, the final BESS wholesale market enhancements report was submitted to the Authority after final Authority feedback was addressed. A close out report was completed and submitted to the Authority, The project is closed, and we are awaiting confirmation from the Authority to proceed to the investigation stage, which will be completed under the TAS arrangement.

TAS 114 – Dispatchable demand enhancement assessment pre-implementation: The DD enhancements report was delivered to the Authority on 29 April in line with project milestones. A Change request was agreed with the Authority to extend the project end date by 14 days to allow for Authority feedback on the report, and for Transpower to make any changes to the report that may be required as a result of this feedback. The project is now set to complete by 26 May 2025.

TAS 115 - 9th August 2021 UTS decision: The project has been completed and Project Closeout Report was submitted to the Authority on 2 April 2025.

TAS 117 – Scarcity Pricing: Testing and production implementation both complete, in line with the new scarcity pricing settings which took effect at midnight on 17th April. A change request is now in draft to add animation updates to scope.

8 Risk & Assurance

Risk Management

Control Self Assessments: The interviews are completed for the latest six-monthly review of the controls. The management review sessions are scheduled for the end of May, and the process is expected to be completed by the end of June 2025.

Risk Register workshop with the Authority: A 'blank sheet' workshop to identify new and emerging risks has been scheduled with the Authority on 5 June. We will use this exercise to validate the existing register to ensure it is capturing the breadth of risks that we will be managing via our risk bowtie.

Business assurance audits

Audit 50: Generation Commissioning Process Requirements (Power Systems): We have received the draft report from the auditors and will provide them with our in mid-May.

Audit 51: Manage a national SCADA EMS (Grid & System Operations): All interviews have been completed. The audit will be finalised in mid-May.

Audit 52: ERC modelling (Market Services): The interviews for this audit are underway. It is forecast to be completed by the end of May.

Business Assurance Audits for 2025/26: We are compiling a list of possible business auditable services that could to be audited during the next three financial years. Once we have internally reviewed the options, we will arrange a meeting with the Authority to agree the final list.

9 Compliance

Other Participant Breaches: We have notified the Authority of potential breaches associated with connected asset owners providing 2024 AUFLS data submissions.

System Operator Compliance: On 11 April 2025 we received from the Authority two "No Action" letters. Both relate to self-reported breaches of Part 13 clause 13.62(3)(a) of the Code where the System Operator failed to complete non-response schedules long (NRSL) by the end of the trading period after the trading period in which it commenced preparing each schedule. We understand that the Authority believes there is an omission in the Code which it will refer to the Code review programme. We look forward to engaging on this and more broadly discussing Part 13 clause 13.62(3)(a) further with the Authority.

On 28 April 2025 we received a Warning Letter in relation to alleged breaches of Part 13 clause 13.69B and Part 13 clause 13.69B(1)(g)(i) of the Code. This relates to an event that the System Operator self-reported on 5 December 2023 in relation to a modelling error. The Warning Letter acknowledges that the System Operator has now completed a number of corrective actions to prevent reoccurrence of a similar scenario in the modelling system. While the Authority has

confirmed that it will not be taking any further action, we were asked to respond by 12 May 2025 with any information that we may wish to provide about how we intend to improve compliance with Part 13 clause 13.69B and Part 13 clause 13.69B(1)(g)(i) of the Code.

10 Impartiality of Transpower roles

We have two open items in the Conflict of Interest Register (below). These are being actively managed in accordance with our Conflict of Interest procedure.

System Operator Open Conflict of Interest Issues		
ID	**Title**	**Managed by**
40	General System Operator/Grid Owner dual roles: This is a general item that will remain permanently open to cover all employees with a dual System Operator/Grid Owner role. The item documents the actions necessary to ensure impartiality in these circumstances; these items will be monitored to ensure their continue effectiveness.	Corporate Counsel, Compliance and Impartiality
41	General relationship situation: This is a general item that will remain permanently open to cover all potential conflicts of interest arising under a relationship situation. This item documents the actions necessary to prevent an actual conflict arising and will be monitored by the System Operator Compliance & Impartiality Manager to ensure their continued effectiveness.	Corporate Counsel, Compliance and Impartiality

Ara Ake Trial: The System Operator and Grid Owner are collaborating on the FlexPoint platform. As outlined in previous reports there are currently no actual or potential conflicts of interest identified. We will continue to monitor the trial from an impartiality perspective.

11 Performance metric and monitoring

Our System Operator performance against the performance metrics for the financial year as required by SOSPA 12.3 (a) will be provided in the final monthly report each quarter.

12 Cost of services reporting

The cost of services reporting for 2024/25 will be delivered to the Authority by the end of the financial year.

13 Actions taken

The following table contains a full list of actions taken this month regarding the System Operator business plan, statutory objective work plan, participant survey responses and any remedial plan, as required by SOSPA 12.3 (b).

We note that re-prioritisation of our resources to support the System Operator and Authority Northland loss of supply investigations, the 2024 security of supply situation, and the SOSPA3 process has constrained our capacity to progress our work on these activities to planned timelines.

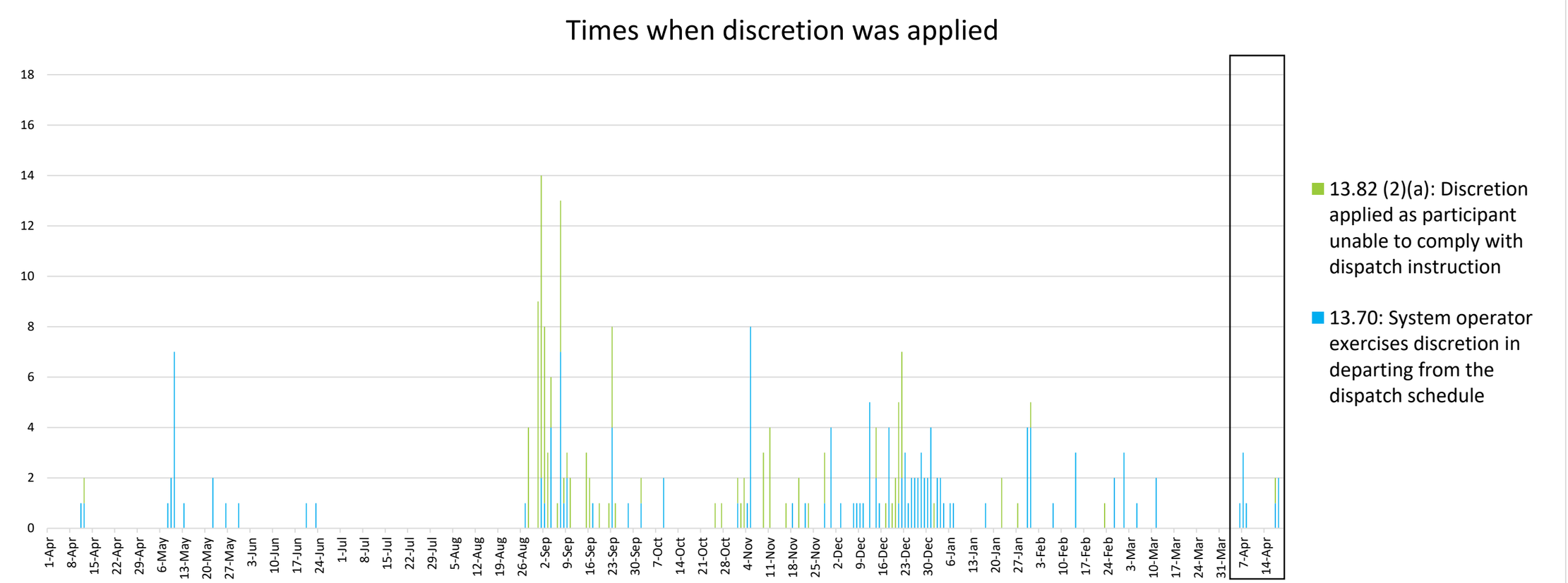
Item of interest	Actions taken
(i) To give effect to the **System Operator business plan** strategic initiatives:	***Support future-focused market developments through white papers, consultation processes and cross-industry forums*** • Continued to participate in the Electricity Networks Aotearoa Future Network Forum's *Roles and Functions to enable distributed flexibility* project team weekly meetings. This project is actively engaging with the Authority. • Our 2025 Security of Supply Assessment: We have worked through April apply updates to our SOSA model, results from which have been used inform our draft report which is nearing completion. We expect to publish the draft report for consultation in early May. ***Develop a view of the information, market and standards required to operate the future electricity system to support the FSR work program*** • Work continued to support the Authority's FSR programme, and we have continued predominantly focussing on the completion the draft System Operator Document Incorporated by Reference (DIBR) covering common quality related information requirements in support of the Authority's Information Sharing Options and Code Amendment Proposal Consultation Paper. We updated the document after further feedback from the Authority and internal reviews and have completed a legal review of the document prior to submitting the documents to the Authority to progress their internal and external legal reviews. • We completed a draft DIBR cover note and questions and answers document to accompany the DIBR, which will be appended to the Authority's Information Sharing consultation document. • We continued providing support to the Authority drafting the options decision and Code Amendment consultation papers covering options addressing frequency and voltage management issues, and options regarding information sharing requirements.

Item of interest	Actions taken
	• We commenced phase 1 of the system strength investigation initiative with the focus on identifying system strength-related operational issues that the New Zealand power system will likely face with a continued uptake of IBR and discuss various mitigations that can be applied to resolve the issues. Phase 2 is planned for FY25/26 and will focus on completing further studies following the recommendations from Phase 1. • We commenced planning and prioritisation of work for FY25/26 with the Authority. ***Enhance quality assurance through delivery of the Modelling Quality Assurance Framework*** • Progress continues on the development of process and QA checklists. Tool testing is scheduled to commence within the next two weeks. The initial draft of the Framework document has been prepared. ***Implement stage 1 of new enterprise business process management (BPM) capability for system operations*** • Levels 4 and 5 modelling is complete for the Generation Commissioning value stream. Modelling of other PSG-related processes is underway. ***Leverage data and analytics developments to improve our data modelling and reporting*** • Data ingestion of market system data into the new data warehouse is ongoing. Solve constraints and hydrology data ingestion and migration have recently been completed and are currently undergoing testing. ***Deliver improvements to our generator commissioning management and assessment process*** • Completed new and updated generation commissioning documentation and webpages were published in late January 2025 with the changes communicated to the Industry throughout February, including at the System Operator Industry Forum. This process has now bedded in, and regular Generator commissioning updates are provided at the fortnightly SO Forum.
(ii) To comply with the **statutory objective work plan**:	***Policy statement review*** *(review due 1 November 2024)* • The review has been completed with the Authority approving the submitted draft which took effect on 14 March. ***AS procurement plan review*** *(review due 8 June 2025)* • Consent to consult has been received from the Authority. • The consultation period opened on 17 April and will close on 8 May.

Item of interest	Actions taken
	• Cross-submissions will be accepted from 9 May to 15 May. ***Identify low residual / informational CANs*** *(due 28 March 2025)* • Completed September 2024, ongoing in each Quarterly System Performance Information report. ***Low residual notices, threshold and process review*** *(due April 2025)* • Complete. On 4 April we published our summary and response to the 6 submissions and 2 cross-submissions to our Low Residual Situation review consultation paper. We will develop and consult on potential Policy Statement amendments related to Low Residual Situations as part of the next Policy Statement review
(iii) In response to participant responses to any **participant survey**:	**In response to feedback from the 2024-25 survey "*Website could be easier to navigate*."** We have been implementing updates to various aspects of our system operation website, including: • In October establishing a security of supply landing page on our System Operator website, which provides easy-to-find links to the security of supply information • In January new and updated generation commissioning documentation were published, and will continue to be discussed at out fortnightly forum for visibility. • Documents are all now categorised, so the search results are more specific to each topic and area.
(iv) To comply with any **remedial plan** agreed by the parties under SOSPA 14.1	*N/A – No remedial plan in place.*

Appendix

Appendix A: Discretion



System Operator applied discretion under cl 13.70 in 10 instances:

- 6 April: 1 instance applied at Tauhara B (TAB) by traders in response to a 13.82(2)(a) due to site tripping
- 7 April: 2 instances at Huntly (HLY) due to tripping of unit 4
- 2 instances in response to managing Tiwai plotline restoration at Manapouri (MAN)
    - 7 April 1 instance
    - 8 April 1 instance
- 17 April: 1 instance applied at TAB by traders in response to a 13.82(2)(a), dispatched for a minimum of 170MW as dispatching off would create resourcing issues
- 17 April 1 instance as HVDC Pole 3 tripped and was modelled off, frequency keeping control and roundpower was disabled for TP 19 & 20. No Changes to Offer received from GO yet.
- 3 instances applied at Stratford (SFD) as was unable to meet the dispatch as they needed a minimum of 40MW or to be dispatched off. They were not required for security or reserves.
    - 18 April 2 instances
    - 19 April 1 instance applied under clause 13.82(2)(a)

Appendix B: Forecast v real-time residual variability

The graph below presents, for the last 24 months, the proportion of time within each month ('MW Percentile') that a 200 MW residual was sufficient to cover the variation in load and intermittent generation between forecast (30 minutes ahead of real-time) and real-time.

Date	Forecast	Island	MW Value	MW Percentile
1/05/2023	30 minutes	New Zealand	200	98.00
1/06/2023	30 minutes	New Zealand	200	97.50
1/07/2023	30 minutes	New Zealand	200	97.60
1/08/2023	30 minutes	New Zealand	200	97.60
1/09/2023	30 minutes	New Zealand	200	98.50
1/10/2023	30 minutes	New Zealand	200	99.20
1/11/2023	30 minutes	New Zealand	200	99.70
1/12/2023	30 minutes	New Zealand	200	99.80
1/01/2024	30 minutes	New Zealand	200	99.90
1/02/2024	30 minutes	New Zealand	200	99.40
1/03/2024	30 minutes	New Zealand	200	99.00
1/04/2024	30 minutes	New Zealand	200	98.60
1/05/2024	30 minutes	New Zealand	200	97.30
1/06/2024	30 minutes	New Zealand	200	97.90
1/07/2024	30 minutes	New Zealand	200	96.90
1/08/2024	30 minutes	New Zealand	200	97.30
1/09/2024	30 minutes	New Zealand	200	94.50
1/10/2024	30 minutes	New Zealand	200	98.60
1/11/2024	30 minutes	New Zealand	200	98.90
1/12/2024	30 minutes	New Zealand	200	99.20
1/01/2025	30 minutes	New Zealand	200	99.22
1/02/2025	30 minutes	New Zealand	200	99.24
1/03/2025	30 minutes	New Zealand	200	99.37
1/04/2025	30 minutes	New Zealand	200	98.73