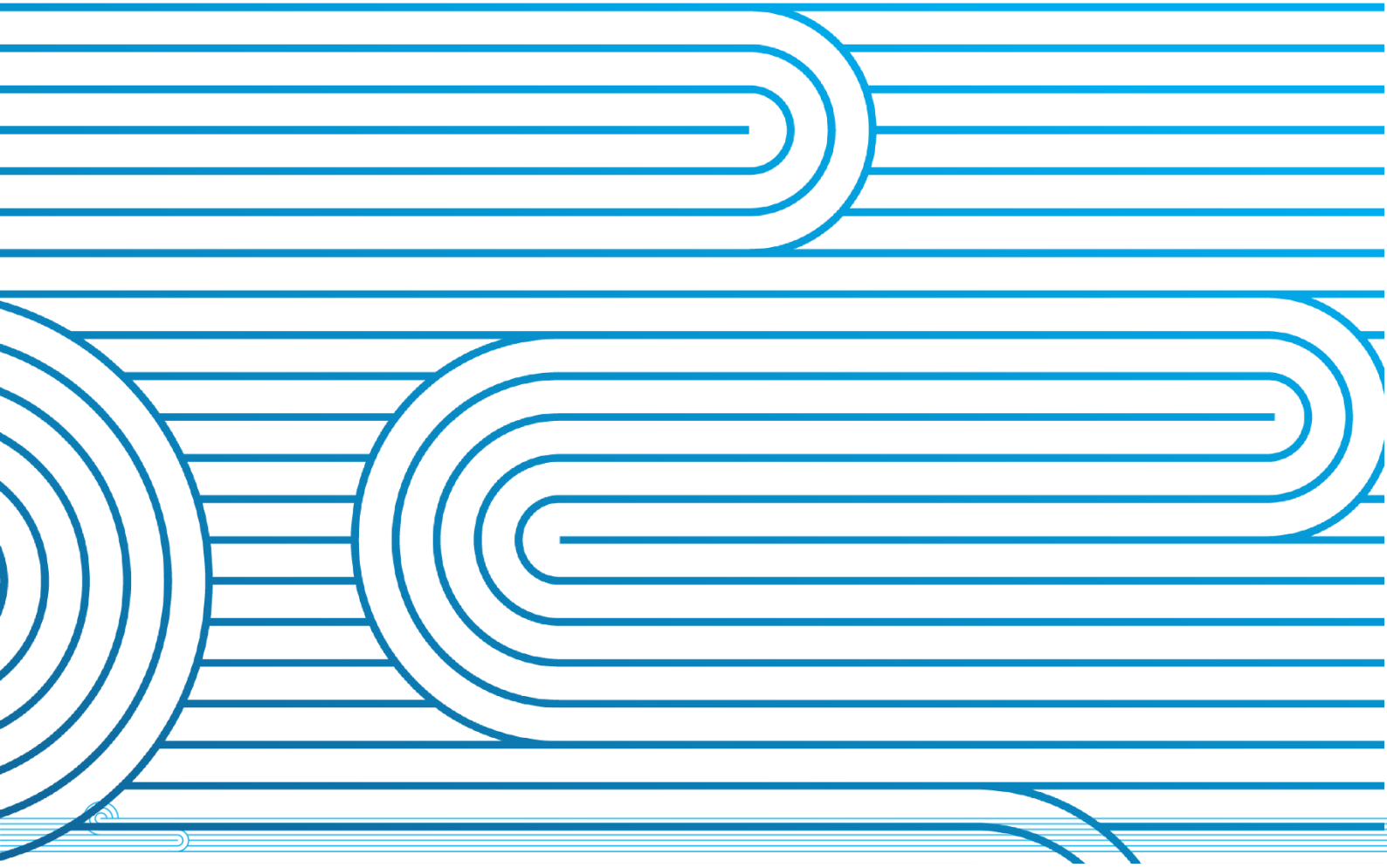


Monthly System Operator performance report

For the Electricity Authority

December 2024



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

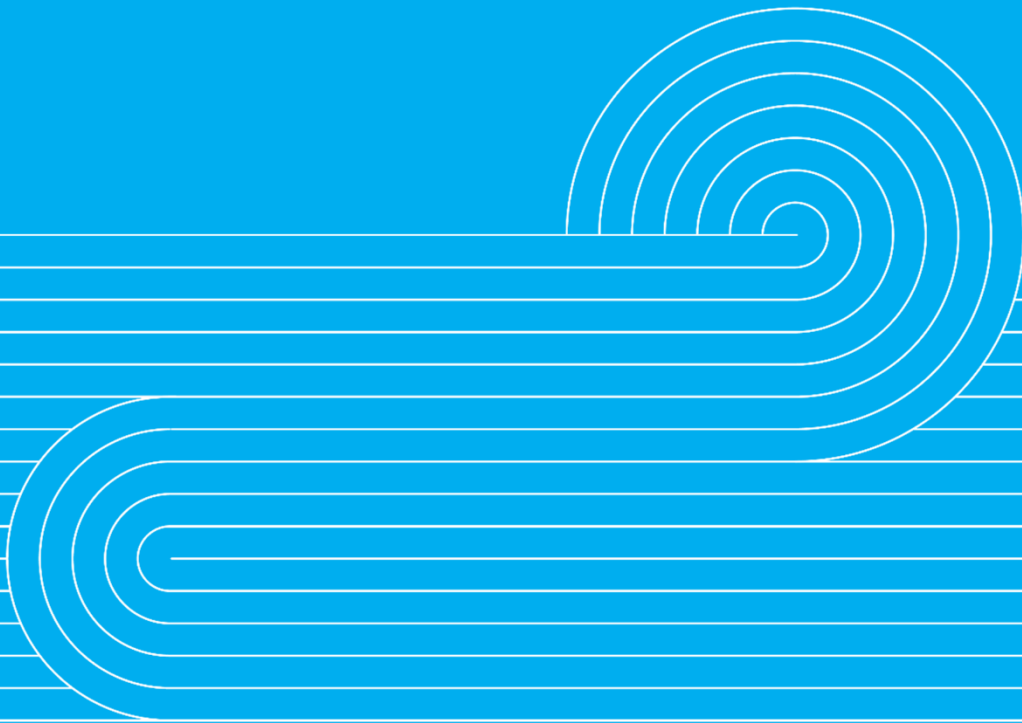
- (1) The **Authority** must publish all self-review reports that are received from the **system operator** and that are required to be provided by the system operator to the **Authority** under this Code.
- (2) The **Authority** must **publish** each report within 5 **business days** after receiving the report.

Following the end of each Quarter, a system performance report is published on the [Transpower website](#)

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Key points this month

Operating the power system

- On 12 December there was an unplanned outage on the HVDC when Pole 2 tripped affecting HVDC transfer. Effective communication supported participants until its return.
- On 21 December the Tauhara Wairakei and Wairakei Whirinaki circuits tripped due to a lightning strike which caused loss of supply to Hawke's Bay and loss of connection of associated generation. A grid emergency was declared to enable restoration of the region. The System Operator is undertaking an investigation of this 'moderate' power system event.
- During December 2024 there were numerous thunderstorms across the country, with multiple circuits and feeders tripping and/or successfully auto reclosing.
- Workload in the NCC remained high throughout December due to the number of outages, generator testing and IST change requests.

Security of supply

- *Energy Security Outlook:* We have renamed the monthly 'ERC update' to recognise its wider scope. The December outlook showed a reduction to the ERCs mainly due to an increase in the modelled thermal fuels. No SST's cross into NZ Watch or Alert status in 2025.
- *New Zealand Generation Balance (NZGB) potential shortfalls:* There has been little change to the margin since the November update, with average N-1-G change in margin of -8 MW.
- *Industry Exercise 2025:* The exercise aims to build the sector's capability to implement rolling outages to manage an extended electricity supply shortage. With the Authority we have planned two industry webinars in March ahead of industry exercise on 9 April.
- *System Operator Rolling Outage Plan (SOROP) review:* Information will be provided on the new SOROP as part of the first industry exercise webinar in March, and the full-day simulation exercise will test the communications and operational aspects of rolling outages.
- *Official Conservation Campaign (OCC) development:* work continues to fine-tune OCC concepts and rollout plans which include planning for a February workshop with communications and consumer leads throughout industry.
- *2025 annual Security of Supply Assessment (SOSA):* We received four submissions on our SOSA consultation that closed in December and will publish a response in the new year.
- *Low Residual Situations review consultation:* We received 6 submissions and 2 cross-submissions to our consultation. We will collate feedback and respond in the new year.
- *Meridian Energy's contingent storage request:* We published our response to Meridian's letter and will consider the requested amendments as part of the next review of the SOSFIP.

Investigations

- *Event Number 4523:* 21 December 2024 – UFE Tauhara Wairakei and Wairakei Whirinaki circuits tripped and loss of Hawke's Bay: We are investigating the causer of this event.
- *Event Number 4446:* 11 April 2024 – UFE Huntly generation unit tripped: The Authority has advised of their final determination of the event causer.
- *Event Number 4500:* 17 September 2024 – UFE Huntly generation tripped: Our event causation report has been sent to the Authority.
- We await the Authority's determination of causer of *Event Number 4470* 27 June 2024 – UFE Huntly generation tripped: and *Event Number 4477* 26 July 2024– UFE Clyde generation tripped
- *Significant incident investigation 20 June 2024 - Northland Loss of Supply:* We completed two more actions in our response to both the Ray Hardy report and the Authority's report.

- *Significant incident investigation 21 December 2024 – Hawke’s Bay Loss of Supply:* We initiated a moderate event investigation under the System Operator significant event reporting framework. Supporting asset owner activity
- *Outage coordination:* In December, transmission outage volumes were high, reaching up to 120 outages per week. This was mainly due to asset faults requiring repairs. During this period, several critical outages were planned by the Grid Owner on circuits supplying the upper North Island. Due to generator availability uncertainty, the System Operator and Grid Owner agreed to heightened outage coordination to minimise operational risks.
- *Generator commissioning and testing:* We completed commissioning of Contact’s Te Huka Unit 3 (59 MW geothermal at Tauhara) and Northpower’s Ruawai (14 MW solar). Commissioning activities continue for Genesis’ Lauriston solar farm (52 MW at Ashburton) and Lodestone’s Te Herenga o Te Rā (38 MW), with Meridian’s Ruakākā BESS (100 MW) to begin in January. We also have five existing generation units with upgrades scheduled between now including AVR upgrades for Atiamuri, Whakamaru and Manapouri.
- *Ancillary Services activity:* We are progressing the Ancillary Services Procurement Plan Review. PowerNet interruptible load dispatch model was deployed to the market system, and we continue working with Simply Energy on the dispatch of Contact Energy’s IL service.

Commitment to evolving industry needs

- *Very low pricing operational challenges:* We continue work on updates planned for 2025 to improve the real-time coordination of Intermittent Generation dispatch.
- *Tie break situations:* We have successfully developed a tie-breaking energy constraint in SPD and have engaged with the Authority to share the solution and demonstrated the prototype.
- *Electrical Industry Space Weather Working Group (EISWWG):* The System Operator met with MBIE and the Authority to discuss the regulatory environment in which an industry agreed space weather policy would operate. *United Kingdom offshore wind trip:* System Operator representation was part of an Australian and New Zealand delegation that visited the UK in early December to learn about offshore wind. Our SO delegate also met with EirGrid, EPRI and NESO to discuss system operations. We will share our key learnings in the new year.
- *ENA and Future Networks Forum (FNF):* Our System Operator representative participated in the FNF team’s engagement with potential consultancies to evaluate industry architecture and models for distribution system operation (DSO).
- *System Security Forecast (SSF):* We published our Transient rotor angle stability report and the SSF summary report. We presented results to the Authority and affected asset owners.
- *System Operator Industry Forums:* Our fortnightly discussion on current operational and market issues were held on the 3 and 17 December.

Risk & Assurance

- *Risk management:* We have identified three new actions from the control self-assessment and finalised our update to the System Operator Business Continuity Plan process.
- *Business assurance audits:* The terms of reference have been drafted for the three audits to be completed this year.

1 Operating the power system

System Events

12 December 2024 – Unplanned outage of HVDC Pole 2: At approximately 08:18 HVDC Pole 2 tripped. An Excursion Notice was issued at 8:23, followed by a Customer Advice Notice (CAN) at 08:40 to inform participants of the impact on HVDC transfer and expected return time of 10:00. A revision to the CAN was made at 09:18 updating the return time to 09:30.

21 December 2024 – Unplanned outage Hawke’s Bay: At approximately 14:49 the Tauhara Wairakei and Wairakei - Whirinaki circuits tripped due to a lightning strike. This caused a loss of supply to Hawke’s Bay and loss of connection of associated generation in the region. Frequency dropped to 49.20 Hz. A grid emergency was declared to enable load management and grid reconfiguration for restoration of the region. Supply was restored at approximately 17:20 (2 hours 31 minutes later). This event has been classified as ‘moderate’ under the System Operator significant event reporting framework. We are also progressing an under-frequency event investigation.

December 2024 – Lightning activity: Multiple circuits and feeders tripped and/or successfully auto reclosed throughout the month of December due to numerous thunderstorms across the country.

Control Room workload

Workload in the National Coordination Centre remained high throughout December due to the number of outages, generator testing and IST change requests.

Market Operations

Forecast v real-time residual variability: We monitor the variations¹ between forecast and real-time dispatch conditions to determine if the 200 MW residual continues to provide sufficient coverage to cater for this variability. Ongoing monitoring enables us to track whether a 200 MW residual is sufficient to cater for this variability or needs a review. In December more than 99% of the variability seen 30 minutes ahead of real-time is covered by 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 trading period.

2 Security of supply

Our [Security of supply webpage](#) collates material we produce under our statutory role² to provide information and near to medium term forecasting on all aspects of security or supply, and manage supply emergencies. It also provides links to the regulatory framework under which we do so as set by the Authority.

Energy Security Outlook: The December update providing the Electricity Risk Curves (ERCs) and Simulated Storage Trajectories (SSTs) is available [here](#). It showed a reduction to the ERCs over the high-risk period of 2025 including an approximately 200 GWh decrease for the peak risk month of May 2025. This reduction in risk was mainly due to an increase in the modelled coal stockpile and

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

increased gas storage levels, as well as the expected availability of the TOPP2 geothermal plant from September 2025. To realise this reduced risk situation, the appropriate modelled thermal fuel capability would need to be procured by the industry if a dry year scenario occurred in 2025. If less gas goes to thermal generators, or the coal stockpile level is not maintained going into Autumn and Winter, then the actual risk will be higher than what the ERCs show. As of the December update, no Simulated Storage Trajectories (SSTs) are crossing into NZ Watch or Alert status in 2025.

New Zealand Generation Balance (NZGB) potential shortfalls: The December NZGB update is available [here](#). There has been little change to the margin since the November update. The largest N-1-G change in margin for a single day was -150 MW, and on average, -8 MW throughout the study timeframe. Under the firm scenario, several low margins can be seen between January and June 2025.

Industry exercise 2025: Our recent review of the performance of the electricity system and market over winter 2024 made it clear that the tight supply conditions experienced this year could well persist into 2025. With that in mind, we are working alongside the Authority to use the exercise to build the sector's capability to implement rolling outages if necessary to manage an extended electricity supply shortage. Jointly we have planned two industry webinars in March ahead of this year's industry exercise on 9 April. Planning is progressing for all three events and further information can be found on our [Industry workshops/webinars](#) webpage.

System Operator Rolling Outage Plan (SOROP) review: Information will be provided on the new SOROP as part of the first industry exercise webinar in March, and the steps and information requirements leading to a supply shortage and rolling exercises. The full-day simulation exercise will test the communications and operational aspects of rolling outages.

Official Conservation Campaign (OCC) development: More work is required to fine-tune OCC concepts and finalise rollout plans for when it is needed. However, these have advanced enough that we are in position to launch quite quickly if an OCC is required. Planning progressed for the 27 February workshop with communications and consumer leads throughout industry to ensure we are prepared for a joined-up response around an OCC and rolling outages, including how we communicate with medically dependent consumers. Invitations were sent out and most lines companies and larger retailers accepted before Christmas, those who had not responded will be followed up to ensure we can finalise attendees by early February.

2025 annual Security of Supply Assessment (SOSA): Submissions on our 2025 SOSA reference case assumptions and sensitivities [consultation](#) closed on 9 December. The SOSA will provide a ten-year view (2025 to 2034) of the balance between supply and demand in the New Zealand electricity system. We published the four submissions we received from:

- Energy Resources Aotearoa
- Mercury Energy
- Meridian Energy
- Major Electricity Users' Group

We will publish a response to these submissions shortly.

Low Residual Situations review consultation: Our [consultation](#) on the management of Low Residual Situations closed for submissions on 11 December 2024 and cross-submissions were due on 18 December. We sought feedback on the threshold, process, notices, and communications used to coordinate Low Residual Situations and will help ensure the approach to managing them remains fit-for-purpose and is well understood by industry partners and stakeholders. We also asked for views on whether we should progress, potentially in 2025, a proposal to include some elements of the Low

Residual Situation process in the Policy Statement. The 6 submissions and 2 cross-submissions we received were published.

Meridian contingent storage request: In late November 2024, Meridian Energy requested that Transpower in its System Operator role permanently amend the Security of Supply Forecasting and Information Policy (SOSFIP) to lift the hydro storage level at which contingent storage would be accessed, and any official conservation campaign could be triggered. We considered Meridian's request in accordance with clause 7.14 of the Electricity Industry Participation Code (the Code) and determined that we will consider Meridian's requested amendment as part of the next review of the SOSFIP. We published a redacted copy of [Meridian's letter](#) and [our response to it](#). We appreciated the Authority's engagement as we considered the request, and its support communicated to stakeholders through a LinkedIn post.

3 Investigations

Under-frequency event investigations

We are investigating the causer of the following event:

- Event Number 4523: 21 December 2024 – North Island – Tauhara_Wairakei Tripped, Wairakei_Whirinaki Tripped, Harapaki_Tauhara Tripped. Loss of Hawkes Bay, Tauhara Generation Tripped, Harapaki Generation Tripped.

We await the Authority's consideration of our causation report and determination of the causer for the following events:

- Event Number 4470: 27 June 2024 – North Island – UFE Huntly generation tripped
- Event Number 4477: 26 July 2024 – South Island – UFE Clyde generation tripped
- Event Number 4500: 17 September 2024 – North Island – UFE Huntly generation tripped

Event Number 4446: 11 April 2024 – North Island – UFE Huntly generation unit tripped: The Authority advised the System Operator of the Authority's final determination of the causer of the event. The System Operator has confirmed the calculation of MW lost and advised the clearing manager of the amount.

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. We completed two actions ahead of the break and we are on track to complete one this month with a verification report.

21 December 2024 –Hawke's Bay: We commenced work to investigate this event, which has been classified as 'moderate' under the System Operator significant event reporting framework. We are also progressing the related under-frequency event investigation.

4 Supporting Asset-owner activity

Outage coordination

Transmission outage volumes reached up to 120 outages per week in December, compared to the usual 70-90. In addition to the seasonal increase in outages from the annual outage plan this uplift was driven primarily by asset faults requiring repairs.

Several critical outages on circuits supplying the upper North Island were scheduled for December in the Grid Owner's annual outage plan. Mitigation of the N-1 risk impacts of these outages either relied on, or was improved by, Huntly Rankine unit generation. Genesis advised the System Operator Huntly Rankine unit generation would only operate if prices were sufficient in the upper North Island.

Combined with the slow start nature of Huntly Rankine units Genesis's advice introduced additional uncertainty to the outage assessment and planning process. It would only be known whether a Huntly Rankine unit will be committed 12- 24 hours ahead of the planned start of these outages. This results in a higher workload as assessing system security implications of the outage requires more scenarios to be studied ahead of the System Operator providing real-time permission for the asset owner to proceed as planned.

Risks identified with these outages were communicated to the Grid Owner in October and November. Following the short-notice cancellation of the Whakamaru-Wairakei outage on 25 November (based on the System Operator's recommendation in response to Huntly generation offers being withdrawn), the System Operator and Grid Owner agreed to a heightened level of outage coordination. This approach aimed to minimise operational risks associated with the uncertainty concerning Huntly generation profiles and the workload at the National Coordination Centre.

In response, the Grid Owner implemented several actions:

- Staggering outage start times
- Communicating and adjusting the order of planned work to reduce recall times
- Providing daily updates on risks and mitigations in the forecast schedules
- Highlighting outages at risk of delay, recall, or cancellation at the System Operator Forum.

After the New Year, outage numbers have returned to a more typical weekly total of 70-90, and Huntly generation has been operating more consistently.

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:

- Contact's Te Huka Unit 3 geothermal (54 MW at Taupo) completed commissioning in December 2024.
- Northpower's Ruawai solar farm (14 MW) completed commissioning in December 2024.
- Genesis' Lauriston solar farm (52 MW at Ashburton) is due to complete commissioning by middle of February 2025.
- Lodestone's Te Herenga o Te Rā (38 MW at Waiotaha) is due to complete commissioning by the end of February 2025.

- Meridian’s Ruakākā BESS (100 MW at Bream Bay) began commissioning in January 2025, due to complete end of April 2025.
- Far North Solar Farm (FNSF) and Aquila’s Pukenui Solar Farm (20 MW in Northland) is due to begin commissioning in March 2025.
- We also had five generation units with upgrades complete commissioning over December 2024 and January 2025, including AVR upgrades for Atiamuri, Whakamaru and Manapouri.

Demand commissioning and testing

Other Markets team modelling completed: We completed modelling and deployment of changes to allow PowerNet to provide interruptible load reserves in the South Island

Edendale load forecast: In November we submitted a request for a determination of EDN0331 as a non-conforming GXP due to the difficulty forecasting the significant industrial demand compounded by the addition of a new large electrode boiler at the Fonterra Edendale dairy factory. In early December the Authority asked for additional information to support our request which was provided. The Authority subsequently identified that the new electrode boiler was in a commissioning phase leading to significant variations in demand profile, this commissioning phase is now complete. The Authority has asked that we withdraw our request and monitor the performance of the forecast against the GXP for a period now that the dairy factory demand is expected to return to a more consistent profile. This approach will be considered in January.

Ancillary Services activity

PowerNet interruptible load (IL): The model was deployed to the market system. No offers have been made to date. Interruptible load capability tests remain ongoing in order to increase contracted values.

Simply Energy: Simply Energy will assume responsibility for dispatch of the interruptible load previously sent to Contact Energy. We continue to work with Simply Energy to set up their new dispatch system.

Procurement Plan Review: The procurement plan review is currently underway. We have engaged with the Authority previously on the scope of the proposed changes, which includes:

- further work on the incorporation of BESS
- updating testing requirements, data specifications and the associated timelines
- clarifying data requirements when multiple parties are behind the same GXP
- consideration of how:
 - the Code’s ‘good conduct trading provisions’ (cl. 13.5A) can be applied to frequency keeping, over-frequency reserves, black start, and voltage support ancillary services (and whether they need to be?)
 - POCP can be mandated for use by providers of over-frequency reserve providers

The procurement plan review is being worked through each ancillary service in turn. We expect to share the first of these with the Authority in early February ahead of requesting in early March the Authority’s consent to consult with industry on the proposed changes to the procurement plan.

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	6 sites	0 MW
Additional resource	0 sites	0 MW

Over-Frequency Reserve (OFR): Two units (one in the North Island and one in the South Island) are currently unavailable to provide OFR. We are working with the service provider(s) to resolve this. The following table provides an overview of OFR testing activity.

	Number of sites overdue
Four yearly end-to-end relay testing	1
Two yearly control and indication testing	1
Circuit breaker testing	14

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

Black Start: Planning is underway for Black Start testing at Tokaanu Power Station to occur later in 2025.

5 Commitment to evolving industry needs

Very low pricing operational challenges: We continue to monitor the impacts of the changes implemented in October, with no negative effects on frequency or system security observed as of December. To further enhance real-time operations, additional updates to the market system are scheduled for delivery in March 2025. These updates will improve the real-time management of IG dispatch when IG is setting the risk and actual output falls below dispatch levels.

Tie break situations: We have successfully developed a tie-breaking energy constraint in SPD to allocate impacted generator's output proportional to their offers. This constraint is based on the Singapore tie-breaking approach, refined to prioritise specific generators behind binding transmission constraints. We have engaged with the Authority on this topic, demonstrated the prototype of the model, and shared a workable SPD solution.

Electrical Industry Space Weather Working Group (EISWWG): No update for the EISWWG for December. Relatedly, we met with MBIE and the Authority to discuss the regulatory environment in which the policy operates to identify whether changes are required to align with the industry agreed policy.

United Kingdom offshore wind trip: Transpower (including System Operator representation) as part of an Australian and New Zealand delegation arranged by the British High Commission visited the UK in early December to learn about how offshore wind is being developed to improve their energy sovereignty and drive economic growth. This included engagements with UK Government, Crown

Estate, OFGEM, National Energy System Operator, developers, suppliers, ports and the National Renewable Energy Centre. Topics discussed included the crown leasing process, financing (including contract for difference arrangements, CfD), OFTO model for transmission, community engagement, supply chain development and challenges, training, and research and development. The trip highlighted:

- Without something like CfD it will be difficult for developers in New Zealand to be able to secure financing for an offshore project.
- The OFTO model isn't seen by the UK industry as having delivered the transmission competition benefits it was intended and should be avoided.
- The supply chain required for offshore wind development is significant and already under stress meeting the needs of the Northern hemisphere. A forward pipeline of projects within Australasia would be needed to secure sufficient capacity from existing suppliers.
- There would be ongoing economic benefits for local region associated with developing and providing the operation and maintenance services needed for offshore wind. Increased economic growth was seen to have occurred in several port towns visited.

The New Zealand delegation (Transpower, EECA, Ministry for the Environment, Venture Taranaki, NZ Trade & Enterprise, and Commerce Commission) has a workshop planned for February to review lessons learnt for New Zealand and consider any next steps.

EirGrid, EPRI, NESO visit: Following on from the UK offshore trip our System Operator delegate took the opportunity to meet with EirGrid, EPRI and NESO to discuss system operations. Topics included control rooms of the future, modelling information requirements, operator training, forecasting, operational challenges of wind and other renewables, and longer-term network development. We will share our key learnings next month.

Electricity Networks Aotearoa (ENA) Future Networks Forum (FNF): We are a member of the 'Roles and Functions' project which is entering Stage 2. During December the project team engaged with potential suppliers of consultancy services to evaluate the industry architecture and models for distribution system operation (DSO) to fulfil the roles and functions identified in Stage 1. ENA FNF project team meetings are weekly and there is high engagement with the Authority.

MBIE engagement: As System Operator, and as grid owner, Transpower engaged with MBIE to discuss the implications of a commercially sensitive proposition they have received. The Authority was also engaged by MBIE to assist MBIE to respond to the proposal. Subsequently, MBIE has created a joint working group to progress this activity.

System Security Forecast (SSF)

We published the transient rotor angle stability report for the SSF in December along with the SSF summary report. Ahead of publication we presented summary results to affected asset owners and to the Electricity Authority. The presentations were well received.

Connecting with the industry

System Operator Industry Forums:

Our fortnightly discussion on current operational and market issues were held on the 3 and 17 December. Recent slide packs and recordings for forums within the last month are available on our [System Operator industry forum](#) webpage.

Weekly Market Movements:

- [1 December](#): This insight summarised the System Operator industry consultations to help inform submissions.
- [8 December](#): This insight discussed how New Zealand's demand is "winter-peaking" which means it is highest in winter and lowest in summer looking into November vs. July load profiles.
- [15 December](#): This insight looked into price separation during the 12 December unplanned HVDC outage.
- [22 December](#): This insight examined how New Zealand can play its part in powering Santa's workshop.

Supporting the Authority

Intermittent Generation Forecasting project: At the request of the Authority's project team we met with the Authority in mid-December to discuss points raised in our consultation submission. The meeting was very constructive and allowed for an exchange of information at a quicker pace than via back-and-forth emails. This meeting will help the Authority to finalise its decision, associated decision paper, and progress this project.

Authority review of the System Operator's performance: We fact-checked the Authority's review of the System Operator's performance in the 2023-24 year. We provided feedback to the Authority for consideration in the final report (yet to be published).

First steps in improving outage coordination: During reporting period the EA released its decision on its first steps to improve outage co-ordination. This included a regulatory requirement for all outages to be submitted via the Planned Outage Co-ordination Process tool (POCP) by the 1 Jan 2025. To support the EA with this Code amendment we provided industry a short presentation on POCP in the SO forum, the code amendment, links to relevant POCP information, and offered industry 1:1 support. Meetings were had with Orion, The Lines Company, Wellington Electricity, and WEL networks.

Proposed Levy-funded appropriations 2025/26 consultation: We contributed to a [Transpower submission](#) to the Authority's consultation, expressing support for 'Option 3' (System Operator and inflation uplift), and noting that this represents the bare minimum requirement for meeting the challenges of operating the rapidly changing power system. We submitted that apparent duplication of System Operator and SRC statutory functions in relation to security and reliability of supply should be removed from the Authority's proposed work programme. We think it is timely for the Authority to consider whether the arrangements specifying security of supply obligations set out in the Code and other Authority documents remain fit for purpose. This should include considering amendments to the SRC charter recommended in the recently published report [Strengthening the Security and Reliability Council](#).

Media interactions

It was another quiet month for the System Operator on the media front. There was one enquiry from NBR about any contracts or agreements between SolarZero and the System Operator, which did not lead to a story. There were also questions from several media outlets during the Hawke's Bay outage on 21 December. Most stories were factual but there were also stories about the impact of power cuts on a Saturday afternoon before Christmas on retail stores. The NEMA space weather response plan was released in early December and triggered further media attention – our role was made clear in NEMA materials and we were not contacted for comment.

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): The demo of the initial workflow user interface for Product Owners has been completed. The market system integration build is finished and is currently being tested to enable data ingestion into ASCAS. Backend development is still ongoing, and the staging environment is also being set up. UAT planning is in progress, and discussions about stakeholder mapping with the Business Change Manager are ongoing.

D&A Modernisation – Market System Data: Data ingestion and migration activities continue. Frequency keeping, HVDC, Outages, Event, SCADA data validation and load forecast have been completed during the last month with actual load and solve constraints planned for the coming month. Implementation and testing of the security model in production has been completed.

SCADA Habitat and EMP Refresh: Packages 1 and 2 have been delivered by the vendor but delayed to the original project timeline. Factory acceptance testing of these releases has commenced. The impact of vendor delivery delays is being assessed by the project.

Credible Event Review: We have completed our final 2024 Credible Event Review as signalled in the [2024 Credible Event Review Scope](#). At the end of December, we published the finalised reports following consultation and are implementing minor changes to our event classification by end January.

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	67.5
TAS 112 – Future Security and Resilience	In progress	294.75

TAS Statement of Work (SOW)	Status	Hours worked during Month
TAS 113 - BESS Wholesale Market Enhancements	In progress	138
TAS 115 - Settlement of the market following publication of final prices for 9 Aug 2021	In progress	4
TAS 116 – Implementing a hybrid forecasting arrangement – procuring a centralised forecast provider	In progress	31.5

Progress:

TAS 108 AUFLS transition: Transition continued in December with a total of 1,014 feeders (67%) transitioned to the 4-block AUFLS scheme. The System Operator received change requests from two NI AUFLS providers for the January period and future months. The studies showed no security issues and the change requests for January 2024 were approved, and the System Operator did not identify any non-adherence during the December transition period. In addition, the System Operator hosted the December quarterly AUFLS transition industry meeting.

TAS 112 - Future Security and Resilience (FSR): In December, the System Operator FSR team continued its support to the Authority team with the review of consultation submissions, scoping and progressing additional work and data input to inform the Authority's development of the CBA and several draft decision and Code consultation documents. Work on the GXP power factor and BESS AOPOs literature review progressed well. In addition, the System Operator completed several workshops and meetings covering the assessment of options to address voltage management coordination in future, and commenced discussions on developing an incorporated document by reference covering common quality information sharing requirements under Part 8 of the Code.

TAS 113 - BESS wholesale market enhancements: During December, the team continued with progressing the qualitative assessment looking at identifying different options to enable more efficient participation of BESS within the current gate closure timeframe and looking at Bidirectional Offering for BESS into the market. The draft report has been progressed with further internal reviews. Initial engagement has commenced with the IT division discussing the findings and how this may impact the market system tools.

TAS 115 - 9th August 2021 UTS decision: Testing of the actions required of Transpower to complete our tasks to settle ancillary services (System Operator), the FTR market (FTR Manager), and LCE (Grid Owner) were completed in December. A 'go/no-go' meeting is scheduled with NZX in January to confirm both organisations are ready to proceed with settlement of the market in Production environments

TAS 116 - Implementing a hybrid forecasting arrangement – procuring a centralised forecast provider: In December the System Operator representative provided support for the evaluation and scoring of the RFP responses.

Scoped TAS initiatives closed after Authority reprioritisation of its work programme:

- TAS110 - Winter Initiatives Permanent Implementation – Interim and long-term implementation to be addressed as part of Market Design project in FT25/26.

8 Risk & Assurance

Risk Management

Control Self-Assessment (CSA)

The five critical controls reviewed in the November CSA round were all rated fully effective.

- 24-Hour Real-Time Operations
- Business Support
- Incident Preparedness and Response
- Power System Planning, Modelling & Coordination
- Support & Delivery of Critical Tools and Systems

Resulting from this CSA are three new actions with a rating of 1 or 2 which will be reported to the Authority via the KPIs.

- Complete SOROP implementation prior to industry exercise in April 2025 (due date 31/03/25)
- Take learning from System Operator Gatekeeper Function prototype to incorporate into current process) (due date 30/06/25)
- For tool support, in addition to hands-on training to issues as they arise, provide base level training to all PSE engineers (due date 30/06/25)

System Operator Business Continuity Plan

The System Operator Business Continuity Plan process was updated and issued on 28 November 2024. The update includes the following:

- A section on Impartiality
- A "Readiness" section
- Use of material from the Transpower Incident Response and Business Continuity Plan where common CIMS practices are used
- Addition of post-event survey
- Removing "point in time snapshots" of data in the plan as these will be kept up-to-date on line and more regularly refreshed as physical documentation within the BCP kits

Business assurance audits

The Terms of Reference for the remaining three audits to be completed this year have been drafted:

- Audit 50: Commissioning and decommissioning requirements (Power Systems)
- Audit 51: Manage a national SCADA_EMS (Grid & System Operations)
- Audit 52: Electricity Risk Curves (ERC) modelling (Market Services)

9 Compliance

Other Participant Self Breaches: Nothing to report.

System Operator compliance activity for this period is set out in the table below

Event number	Event date	Event Description	Update	Date sent to EA
4275	11/04/22	<p>VSAT node breaker modelling for TWI - Southland voltage stability constraint impact</p> <p>On 5 June 2024 the Authority filed a notice of formal complaint with the Rulings Panel in respect of Transpower in its role as System Operator.</p> <p>The complaint alleges Transpower, as a result of errors in the System Operator's voltage stability assessment tool (VSAT), failed to correctly apply security constraints between 28 January 2022 and 13 April 2022.</p>	<p>The Rulings Panel issued its decision just before Christmas.</p> <p>The outcome was agreed between Transpower and the Authority and approved by the Panel.</p>	Completed.
4502	12/09/24	<p>On 12 September 2024, the automatic 00:00 long non-response (NRSL) schedule failed to publish. Operators manually started new long non-response (NRSL) schedules at 01:42 which completed and published successfully at 02:09.</p>	<p>The System Operator self-reported a breach of clause 13.62(3)(a) of the Code as a schedule started in a trading period was not completed by the end of the following trading period.</p>	<p>16/12/24</p> <p>EA ref: BN4779</p>

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

AraAke Trial: The System Operator and Grid Owner are collaborating on the FlexPoint platform. As the only impact of this collaboration to date is increased visibility of information in System Operator control rooms and to external parties – there are currently no actual or potential conflicts of interest identified. There is nothing in or resulting from the trial that is of benefit to the Grid Owner over and above other participants. We will continue to monitor the trial from an impartiality perspective.

11 Performance metric and monitoring

Each quarter we report our year-to-date performance against the Performance Metrics and Incentives Agreement with the Authority. A quarterly review session is then held to discuss and agree an interim / indicative score. Following the end of the financial year we reach a joint determination of our full-year performance, that is used to determine our performance incentive outcome.

The Q2 scores shown below are interim ahead of the review meeting to be held at the end of February.

Q2 interim outcome scores

Year end forecast

New security and reliability risks are identified and appropriately managed	O1 Score 4.00	O1 Score 4.78	<table border="1"> <thead> <tr> <th>Score</th> <th>Level of performance</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Poor/unacceptable performance, requires focused improvement</td> </tr> <tr> <td>2</td> <td>Partially meets requirements, some improvement needed</td> </tr> <tr> <td>3</td> <td>Performance of all requirements in line with requirements of the Code and SOSPA</td> </tr> <tr> <td>4</td> <td>Exceeds some aspects of what is required by the Code and SOSPA</td> </tr> <tr> <td>5</td> <td>Consistent delivery of exceptional performance of (or beyond) what is required by the Code and SOSPA</td> </tr> </tbody> </table>	Score	Level of performance	1	Poor/unacceptable performance, requires focused improvement	2	Partially meets requirements, some improvement needed	3	Performance of all requirements in line with requirements of the Code and SOSPA	4	Exceeds some aspects of what is required by the Code and SOSPA	5	Consistent delivery of exceptional performance of (or beyond) what is required by the Code and SOSPA
Score	Level of performance														
1	Poor/unacceptable performance, requires focused improvement														
2	Partially meets requirements, some improvement needed														
3	Performance of all requirements in line with requirements of the Code and SOSPA														
4	Exceeds some aspects of what is required by the Code and SOSPA														
5	Consistent delivery of exceptional performance of (or beyond) what is required by the Code and SOSPA														
Significant events are appropriately scoped, understood, prepared for and managed	O2 Score 4.09	O2 Score 4.73													
The Authority is supported to evolve and develop the electricity market and power systems	O3 Score 3.30	O3 Score 4.73													
Relevant market information is made accessible to stakeholders	O4 Score 3.33	O4 Score 4.81													
Stakeholders are effectively informed on and included in decisions where relevant	O5 Score 3.00	O5 Score 4.86													
Stakeholders are satisfied with our service	O6 Score 5.00	O6 Score 4.71													
SOSPA delivery provides value	O7 Score 3.40	O7 Score 4.82													
	Overall Outcome Score 3.79	Overall Outcome Score 4.76													
	Performance % Score 78%	Performance % Score 80%													

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).

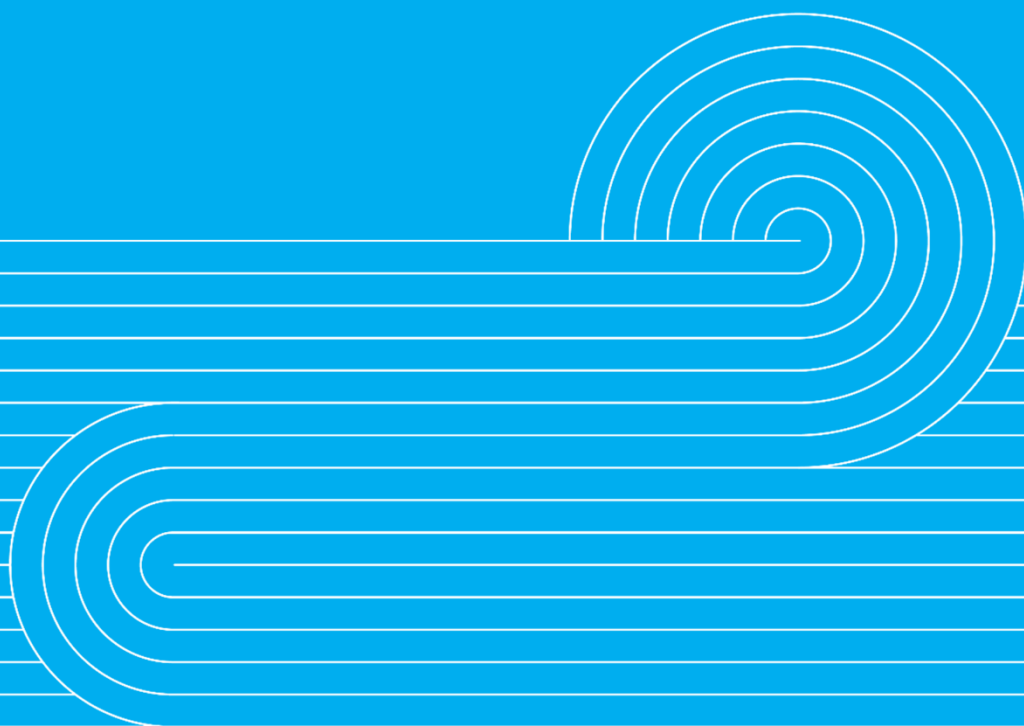
We note that re-prioritisation of our resources to support the System Operator and Authority Northland loss of supply investigations, the 2024 security of supply situation and the SOSPA3 process has constrained our capacity to progress our work on these activities to planned timelines.

Item of interest	Actions taken
<p>(i) To give effect to the System Operator business plan strategic initiatives:</p>	<p>Support future-focused market developments through white papers, consultation processes and cross-industry forums</p> <ul style="list-style-type: none"> Continued to participate in the Electricity Networks Aotearoa Future Network Forum's <i>Roles and Functions to enable distributed flexibility</i> project team weekly meetings. This project is actively engaging with the Authority. Our Low Residual Situation review consultation paper closed for submission on 11 December. We received 6 submissions (4 gentailers, 1 independent/new-technology, and 1 EDB). We received 2 cross-submissions from parties who had not originally submitted (1 industry association and 1 EDB). Our completed Credible Event Reviews (three topics covered) closed for industry feedback on 9 December. We received one submission on our proposed approach to fault-ride through non-compliance. We published a submission summary and our response document in December. Our 2025 Security of Supply Assessment: Reference Case Assumptions and Sensitivities closed for industry feedback on 9 December. We received four submissions – 1 from an industry association, 1 from an industry advocacy organisation, and 2 from gentailers. Met with MBIE to discuss the implications of a confidential proposal they've received (the Authority was engaged directly by MBIE), and with the Authority to discuss the regulatory environment concerning space weather mitigations. <p>Develop a view of the information, market and standards required to operate the future electricity system to support the FSR work program</p> <ul style="list-style-type: none"> Work continues to support the Authority's FSR programme, with the System Operator supporting the Common Quality Requirements workstream. The Authority has sought additional studies and input to determine the CBA to inform the frequency and voltage management options decision consultation paper, which the Authority is planning to consult on mid-2025. Under the FSR Programme, the System Operator participated in several preliminary discussions with the Authority to assess voltage management coordination options between the System Operator and EDBs/DSO. System Operator has progressed a literature review under the FSR Programme to assess BESS obligations in international jurisdictions. The review covers a discussion on issues with integrating hybrid plant in the New Zealand power system. T.

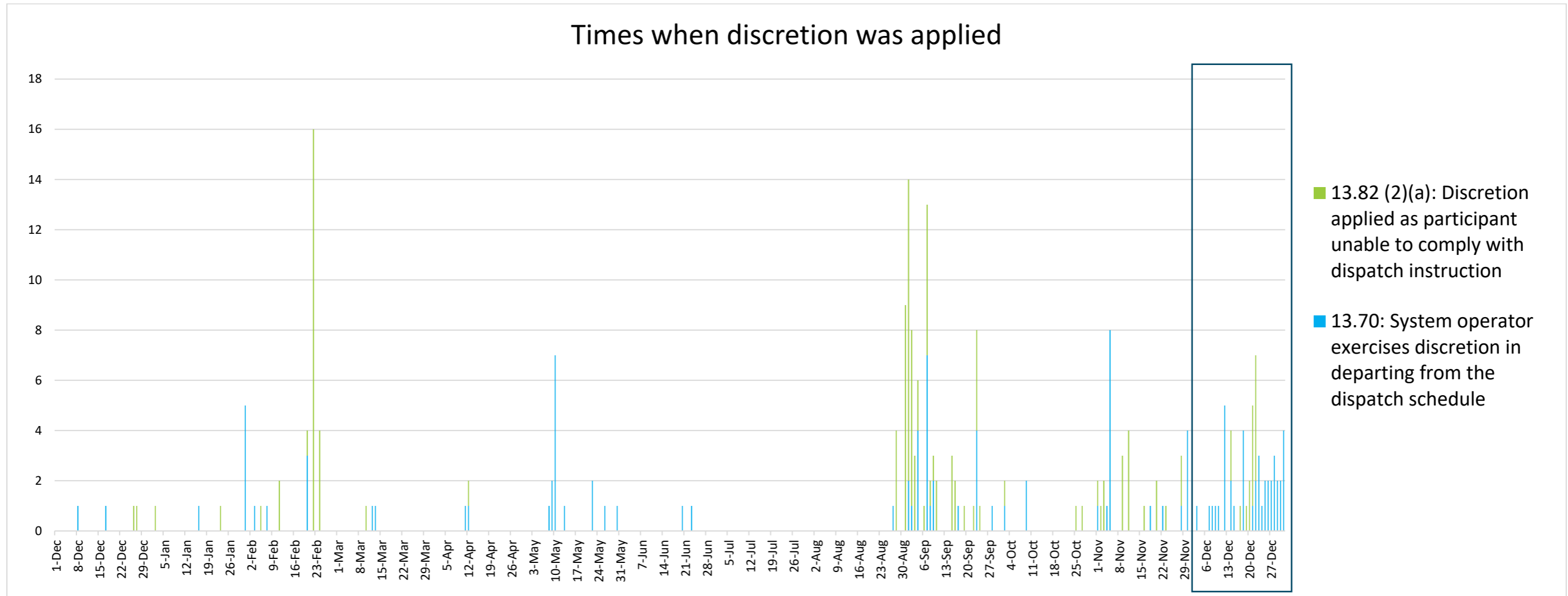
Item of interest	Actions taken
	<p>Enhance quality assurance through delivery of the Modelling Quality Assurance Framework</p> <ul style="list-style-type: none"> Progress update provided to the compliance committee in December. Discussion and agreement with key stakeholders for implementing a pre-failover QA process have been completed, and review of Market's pre-failover and modelling peer-review processes is underway. <p>Implement stage 1 of new enterprise business process management (BPM) capability for system operations</p> <ul style="list-style-type: none"> The process architecture review and development are still in progress. This is being conducted concurrently with identifying and developing the value streams for the business architecture model to ensure alignment. <p>Leverage data and analytics developments to improve our data modelling and reporting</p> <ul style="list-style-type: none"> Data ingestion of market system data into the new data warehouse is ongoing. User Acceptance Testing continues with outages, events, load forecast and SCADA Data Validation (SDV) recently completed. <p>Deliver improvements to our generator commissioning management and assessment process</p> <ul style="list-style-type: none"> New and updated generation commissioning documentation and webpages on the Transpower website to be published early February 2025. Communications and engagement activities planned to commence in January 2025.
<p>(ii) To comply with the statutory objective work plan:</p>	<p>Policy statement review (review due 1 November 2024)</p> <ul style="list-style-type: none"> We await the Authority's decision on our proposed amendments submitted for approval on 30 October. <p>AS procurement plan review (review due 8 June 2025)</p> <ul style="list-style-type: none"> Internal review process largely complete for 4 of the 5 ancillary services We have not received any Authority comment on the review scope shared in September and followed up on November. We intend to share the updated sections of the procurement plan once we have completed internal review, prior to submitting our pre-consultation documentation to the Authority. We are targeting consent to consult from the Authority in March. <p>Identify low residual / informational CANs (due 28 March 2025)</p> <ul style="list-style-type: none"> Completed September 2024, ongoing in each Quarterly System Performance Information report.

Item of interest	Actions taken
	<p><i>Low residual notices, threshold and process review (due April 2025)</i></p> <ul style="list-style-type: none"> We received and published 6 submissions and 2 cross-submissions in response to our Low Residual Situations consultation. Feedback was sought on the threshold, process, notices, and communications used to coordinate Low Residual Situations.
<p>(iii) In response to participant responses to any participant survey:</p>	<p><i>Feedback from the managing security of supply risks 2024 survey</i></p> <ul style="list-style-type: none"> In response to the feedback regarding the aspects of our communications that worked well, we received the following comment: "Direct emails, opportunity to ask questions." During our watch status activities, we established new System Operator distribution lists to ensure we were reaching targeted audience in a more coordinated manner. We have been continuously updating these processes to identify and implement areas for improvement across System Operator.
<p>(iv) To comply with any remedial plan agreed by the parties under SOSPA 14.1</p>	<p><i>N/A – No remedial plan in place.</i></p>

Appendix



Appendix A: Discretion



System Operator applied discretion under cl 13.70 in 56 instances:

- 1 instance applied on 3 December at Tauhara (TAB) as the electronic offer changed following unit tripping did not transfer to stand-alone dispatch (SAD) in time for SAD test discretion to 0 to prevent dispatching of Te Huka 3 (TAC)
- 1 instance applied on 9 December as Argyle (ARG) discretioned to zero for switching ARG to Kikiwa (KIK 1) and ARG to Blenheim (BLN 1)
- 4 instances applied on 12 December at Whirinaki (WHI) discretioned to minimum run following pole 2 trip
- 1 instance applied on 12 December at McKee (MKE) to hold on to minimum run, covering the return of Pole 2
- 2 instances applied on 14 December by traders in response to a 13.82(2)(a) as the site was dispatched below minimum due to system security at TAB
- 13 instances applied to model transmission risks, manual override was required to model North Island CE correctly
 - 7 December 1 instance at Edgecumbe (EDG) - Kawerau (KAW)
 - 8 December 1 instance at EDG - KAW
 - 10 December 1 instance at Nga Awa Purua (NAP) / Ngatamariki (NTM) / Ohaaki (OKI) (risk group)
 - 14 December 2 instances at TAB
 - 15 December 1 instance at NAP
 - 21 December 1 instance at NAP
 - 22 December 2 instances at NAP
 - 23 December 1 instance at NAP, 2 instances at TAB
 - 24 December 1 instance at NAP
- 3 instances applied by traders in response to a 13.82(2)(a) rule claim as the site scheduled below its minimum run and discretioning to 0 would raise the marginal price providing the least cost solution

- 17 December 1 instance at NAP
- 21 December 1 instance at NAP, 1 instance at TAB
- 4 Instances applied on 18 December at Lauriston Solar Farm (LAU) to test generator's response to discretionary dispatch
- 1 instance applied on 19 December by traders in response to a 13.82(2)(a) rule claim at Mangahao (MHO) as they were dispatched to into rough running range due to a binding Bunnythorpe (BPE) - Mataroa (MTR) constraint. Constraint eased in later solves, so discretion was not required
- 2 instances applied on 20 December by traders in response to a 13.82(2)(a) rule claim at TAB as they were dispatched below minimum after being assessed by security, held on to minimum run.
- 2 instances applied on 21 December in response to a 13.82(2)(a) rule claim by traders as the site was unable to comply with dispatch due to plant safety: 1 instance at NAP, 1 instance at TAB
- 2 instances applied on 22 December by traders in response to a 13.82(2)(a) rule claim at Roxburgh (ROX) due to a minimum run of 40 MW as an endurance run post commissioning
- 3 instances applied on 22 December by traders in response to a 13.82(2)(a) rule claim at Matahina (MAT) as they were dispatched below their minimum run of 20MW, were not required for system security so dispatched off
- 17 instances applied as optional manual risk for the North Island allowing the site to remain connected to provide system security (voltage support)
 - 25 December 2 instances at NAP
 - 26 December 1 instances at NAP, 1 instance at TAB
 - 27 December 2 instances at NAP
 - 28 December 2 instances at TAB, 1 instance at NAP
 - 29 December 2 instances at TAB
 - 30 December 2 instances at TAB
 - 31 December 3 instances at TAB, 1 instance at NAP

Appendix B: Performance Metrics

Scoring

Performance metric scores as at Q2				Score out of 5					N/A	Comment
Metric	Definition	Q2 score	Year end forecast	1	2	3	4	5		
PM1	Risk register has been updated and tested externally with the Authority and widely among industry participants	3	4	Internal Risk Register has not been updated in the last 12 months, no engagements have been held to identify new threats or assess current threats	Internal Risk Register has been reviewed and updated internally in the last 12 months	Internal Risk Register has been reviewed and updated internally in the last 6 months	An annual workshop is held with the Authority, OR representatives from a diverse range of stakeholders, to review threats and identify and assess new security and reliability threats	An annual workshop is held with each of the Authority, AND representatives from a diverse range of stakeholders, to review threats and identify and assess new security and reliability threats		Internal risk bowtie framework is active and has been reviewed and updated, the new risk register is in the design stage. The risk register is being designed to complement the risk bowtie framework.
PM2	% of SMART actions from the control self-assessment with maturity ratings of 1 or 2 will be addressed by the planned due date	5	5	< 50% of SMART actions with a maturity rating of 1 and 2 are completed by due date	≥ 50% of SMART actions with a maturity rating of 1 and 2 are completed by due date	≥ 75% of SMART actions with a maturity rating of 1 and 2 are completed by due date	100% of SMART actions with a maturity rating of 1 and ≥ 75% of SMART actions with a maturity rating of 2 are completed by due date	100% of SMART actions with a maturity rating of 1 and 2 are completed by due date		No actions overdue 8 actions have been completed on or before the due date 4 actions due in Q3 & Q4
PM3	At least one pan-industry event exercise held to test existing controls	3	5	-	-	0 pan-industry event exercises	1 pan-industry event exercise	2 event exercises (1 of which must be a pan-industry exercise) – includes smaller event exercises with industry involvement		South Island Black Start industry exercise 19 February The pan-industry exercise is currently being planned: Webinars 4 and March, Industry Exercise 2025 - 9 April
PM4	% of actions from industry exercises which were completed on time	N/A	N/A	< 50 %	≥ 50 % and < 65 %	≥ 65 % and < 75 %	≥ 75 % and < 100 %	100%		There are no actions for 24/25
PM5	Average score of internal process assessments arising from significant events	5	5	Poor	Below Expectations	Acceptable	Good	Excellent		A internal process assessment was completed from the Northland LOS event Hawke's Bay LOS event (21 Dec) investigation initiated
PM6	Percentage of actions from significant events which are closed on time	5	5	< 50 %	≥ 50 % and < 65 %	≥ 65 % and < 75 %	≥ 75 % and < 100 %	100%		No actions overdue 5 actions have been completed on or before the due date 2 actions due in Q3 & Q4
PM7	On time delivery of significant event reports	4	4	Less than 100% of major preliminary reports delivered on time	All major preliminary reports and 60% of other reports delivered on time	All major preliminary reports and 80% of other reports delivered on time	100% of all reports delivered on time	Score not available		Northland Loss of Supply report delivered on time Hawke's Bay LOS event (21 Dec) investigation initiated
PM8	Average satisfaction score from stakeholders, as per responses received to transactional surveys taken at forums and asked for in correspondence	5	5	< 35 %	≥ 35 % and < 50 %	≥ 50 % and < 70 %	≥ 70 % and < 85 %	≥ 85 %		The responses to the Market Matters weekly update have been very positive and provided good feedback
PM9	All categories of stakeholders are actively engaged by the system operator throughout the year	N/A	5	SO Annual Participant Survey is not sent to a diverse range of stakeholders	SO Annual Participant Survey sent to a diverse range of stakeholders to request their feedback on how well they believe market information has been made accessible to them	Responses are received from a diverse range of stakeholders and are considered by the SO for improvement of engagement activities	Specific action is taken to build engagement from a diverse range of stakeholders	More than one action is taken as a result of feedback received from the Annual Participant Survey or other industry mechanisms and forums, with the aims of improving engagement with stakeholders		The annual participant survey will be carried out in the March-May period We have been actively addressing the findings from the 2023/24 survey, as detailed in the "Actions Taken" section of our monthly reports. Our efforts to enhance industry engagement include: • Updating the security of supply, commissioning and consultations webpages • Adding accessible key points to Energy Security Outlook documents and webpage • Introducing quarterly seasonal outlooks to make our security of supply information more widely accessible
PM10	% of industry submissions, made in response to system operator consultations, which are responded to	3	5	Not all submissions acknowledged	All submissions acknowledged and < 50% responded to	All submissions acknowledged and ≥ 50 % responded to	All submissions acknowledged and ≥ 75 % responded to	All submissions acknowledged and ≥ 90 % responded to		7 consultations have been produced. We have responded and acknowledged submissions 4, responses to our 3 consultations which closed in December are being drafted and once done will increase the score to a 5
PM11	Stakeholder engagement in project delivery	2	5	The stakeholder engagement planning process is not undertaken during the year – ie no list of suitable projects and target list of stakeholder	A list of suitable projects and target list of stakeholder engagement is created	The consultation process for the projects is carried out	Stakeholder engagement is actively monitored and managed throughout the year	Stakeholder input is incorporated into the process		We have identified 3 suitable projects for stakeholder input and will provide any updates at our next joint Work Planning Team meeting
PM12	Average satisfaction score from stakeholders from Annual Survey	N/A	4	< 73 %	≥ 73 % and < 76 %	≥ 76 % and < 85 %	≥ 85 % and < 89 %	≥ 90 %		The annual participant survey will be carried out in the March-May period
PM13	Average score from stakeholders on their perception of SO impartiality	N/A	5	< 60 %	≥ 60 % and < 70 %	≥ 70 % and < 80 %	≥ 80 % and < 89 %	≥ 90 %		The annual participant survey will be carried out in the March-May period
PM14	Number of thought leadership publications on specific areas of system operator work that affect	3	5	Score not available	No thought leadership publications and 1 participant education piece in the financial year	1-2 thought leadership publications and 1 participant education piece in the financial year	3-4 thought leadership publications and 2 participant education piece in the financial year	>4 thought leadership publications and 3 participant education piece in the financial year		We have published 3 leadership publications and 1 participant education piece.
PM16	# of SO Industry Forums held	3	5	Score not available	1-10 forums	11-19 forums	20 or more forums	20 or more forums, plus 1 longer format forum		These are being held every fortnight and will reach the 20 or more forums target by the end of the year
PM17	% of key SOSPA documents delivered on time to the Authority	3	5	< 70%	≥ 70 % and < 100%	100%	SO works proactively with Authority staff to enhance the accessibility of existing content in >50% of key documents	SO works proactively with Authority staff to provide new, value-add content in >50% of key documents		All documents delivered as agreed, with any changes to the current SOSPA targets agreed by the parties ahead of time New value add content has been included incrementally to be discussed with the EA at the next operational meeting

Appendix B (cont): Performance Metrics

Relationship between performance metrics and outcomes

These relationships explain why some performance metrics have a greater influence on the outcomes than others.

Note: Where the score of the performance metric is currently N/A, that performance metric does not contribute to the outcome or overall score.

Performance metric ref	Metric	O 1: New security and reliability risks are identified and appropriately managed	O 2: Significant events are appropriately scoped, understood, prepared for and managed	O 3: The Authority is supported to evolve and develop the electricity market and power systems	O 4: Relevant market information is made accessible to stakeholders	O 5: Stakeholders are effectively informed on and included in decisions where relevant	O 6: Stakeholders are satisfied with our service	O 7: SOSPA delivery provides value	PM contribution to overall outcome score
PM 1	Risk register has been updated and tested externally with the Authority and widely among industry participants	25%	9%	10%	8%	10%	0%	0%	11%
PM 2	% of SMART actions from the control self-assessment with maturity ratings of 1 or 2 will be addressed by the planned due date	25%	9%	0%	0%	0%	0%	0%	7%
PM 3	At least one pan-industry event exercise held to test existing controls	13%	18%	10%	8%	0%	0%	10%	10%
PM 4	% of actions from industry exercises which were completed on time	0%	0%	0%	0%	0%	0%	0%	0%
PM 5	Average score of internal process assessments arising from significant events	13%	18%	0%	0%	0%	0%	0%	7%
PM 6	Percentage of actions from significant events which are closed on time	13%	18%	10%	0%	0%	0%	0%	9%
PM 7	On time delivery of significant event reports	0%	18%	20%	8%	0%	0%	20%	10%
PM 8	Average satisfaction score from stakeholders, as per responses received to transactional surveys taken at forums and asked for in correspondence	0%	0%	0%	17%	10%	100%	10%	13%
PM 9	All categories of stakeholders are actively engaged by the system operator throughout the year	0%	0%	0%	0%	0%	0%	0%	0%
PM 10	% of industry submissions, made in response to system operator consultations, which are responded to	0%	0%	10%	17%	20%	0%	20%	7%
PM 11	Stakeholder engagement in project delivery	0%	0%	10%	8%	20%	0%	0%	5%
PM 12	Average satisfaction score from stakeholders from Annual Survey	0%	0%	0%	0%	0%	0%	0%	0%
PM 13	Average score from stakeholders on their perception of SO impartiality	0%	0%	0%	0%	0%	0%	0%	0%
PM 14	Number of thought leadership publications on specific areas of system operator work that affect and/or are of interest to the industry	13%	0%	20%	17%	10%	0%	0%	9%
PM 16	# of SO Industry Forums held	0%	9%	10%	17%	20%	0%	20%	9%
PM 17	% of key SOSPA documents delivered on time to the Authority	0%	0%	0%	0%	10%	0%	20%	2%
TOTAL		100%	100%	100%	100%	100%	100%	100%	100%
Outcome weighting to overall outcome score		20%	25%	20%	10%	10%	10%	5%	