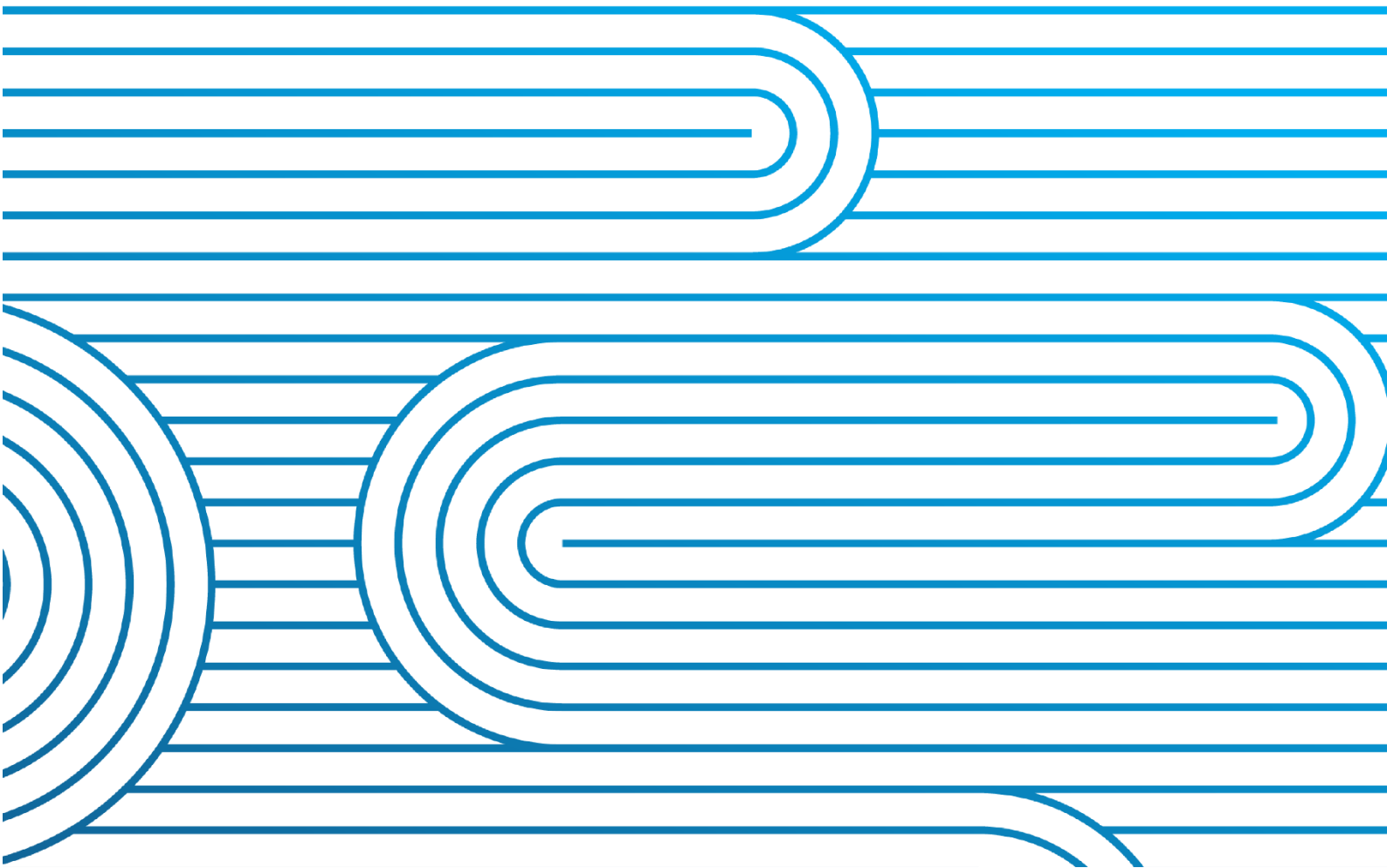


Quarterly System Operator performance report

For the Electricity Authority

October to December 2023



Report Purpose

This report is Transpower's review of its performance as system operator for Q2 2023/24 (October to December 2023), in accordance with clause 3.14 of the Electricity Industry Participation Code 2010 (the Code).

As this is the final self-review report of the quarter, additional information is included as per SOSPA clause 12.3. This includes performance against the performance metrics year to date, and actions taken in regard to the system operator business plan, statutory objective work plan, participant survey responses, and any remedial plan agreed under clause 14.1(i). A summary of technical advisory services for the quarter is also provided.

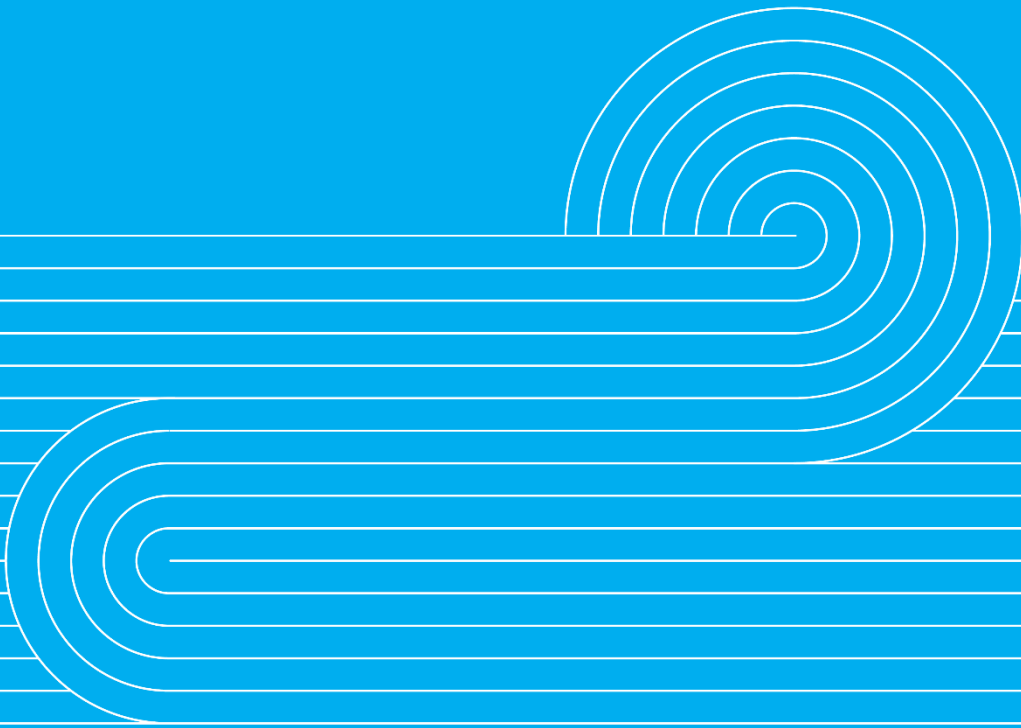
A detailed system performance report (Code obligated) is provided for the information of the Electricity Authority (Authority).

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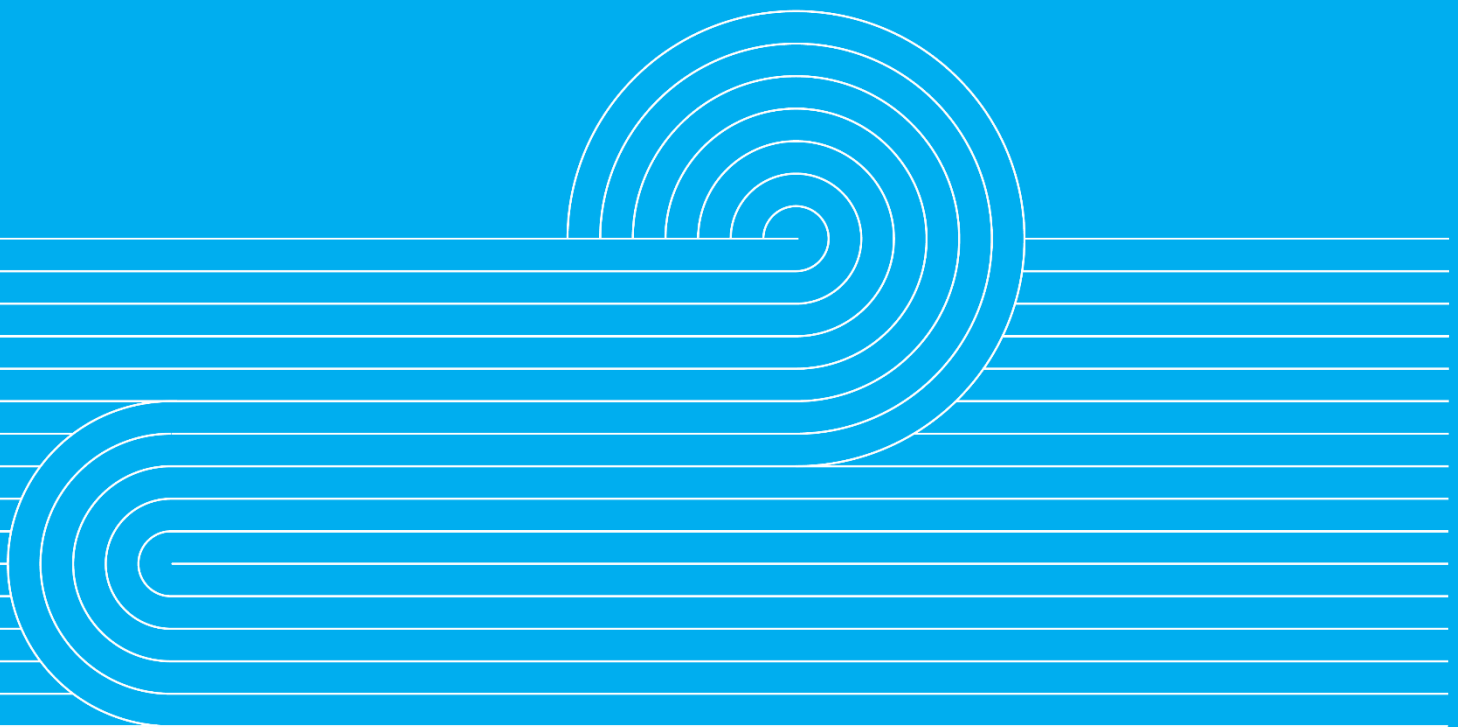
Commentary



High-level update (October to December 2023)

- We published our Winter 2023 Review on our website on 20 October. This winter the challenge related to an increasing tightness in meeting the demand peaks (Winter 2023 included five of the top ten daily peaks on record). The report also comments on the successful implementation of the range of initiatives prior to the start of this winter to increase information to market participants.
- Our market insight looking at Winter 2024, covering both peak capacity and energy issues, is scheduled to be published in late January.
- We continue to work with participants to enable them to bring new products into the market, this includes incorporating the Rotohiko battery into the Instantaneous Reserves market.
- The security of supply Electricity Risk Curves have been sensitive to recent changes in generation assumptions and information. In November, Contact's announced delay of Tauhara commissioning (from Q1-2024 to Q3-2024) resulted in a higher modelled risk of shortage in Winter 2024. Then in December, a change to assume three Genesis Rankine units are available (rather than two) reduced that risk, with fewer simulated storage trajectories entering the watch status which is based on the 1% risk curve.
- We prepared a consultation package on a proposed update to the System Operator Rolling Outage Plan (SOROP). Prior to the Christmas break we provided our draft consultation package to the Authority seeking consent to consult with stakeholders.
- The NZGB look-ahead indicated low N-1-G margins from November through to early December. As is typical in summer, the NZGB margins are currently above 200 MW and are forecast to continue to be above 200 MW through January for N-1-G.
- There was a significant spike of concurrent grid and generation outages from late October to early November. Their start times were proactively spread to avoid high workload in the control room and risk of errors in releasing and returning equipment to service or security assessment errors.
- The pan-industry exercise will be on 1 May 2024, and we have agreed with the Authority on a high-level scenario which focuses on a shortfall with an element of surprise. As at 25 January, we have already received 84 expressions of interest from industry.
- Our approach to the System Operator Strategic Plan 2024 went to the Authority Board in November. We are working to address their feedback, including to ensure it has a strong future focus.
- We took part in GridEx on 14, 15 November. This contained a number of severe events, both weather and IT related. One key output from the exercise was that it pushed us to consider our approach for operating Stand-Alone Dispatch (SAD) for extended periods.
- The AUFLS transition plan was provided to the Authority in November and the first of the North Island distributors have begun transitioning to 4-block AUFLS.
- We have a number of wind and solar commissioning activities underway and are supporting three pre-commissioning activities (one wind and one geothermal, and a proposed battery currently planned for Autumn 2024).
- We reported a system operator self-breach on 5 December, related to a modelling error in the 16:55 RTD solve on 4 May 2023. As a result, we implemented several corrective and remedial actions and are confident the error will not recur.

System Operator performance



1 Commitment to the evolving industry needs

We participated in and ran industry events and forums this quarter:

- in November, one of our principal market advisors facilitated an Institute of Electrical and Electronics Engineers (IEEE) panel on electricity markets and regulation.
- we held six industry forums (fortnightly) to offer regular, accessible insights into our operational functions to industry participants and stakeholders.

We continue to work with stakeholders to support their participation in the market, including through providing educational materials, bilateral support and progressing new generation connections through the commissioning process. We continue to see a material increase in the number of new connections and expect this trend to continue. This quarter NewPower's Rotohiko BESS and Lodestone's Kaitaia solar farm were commissioned and deployed into the market system.

We are encouraged to see the emergence of new products, business models and participants, and to learn with them as they come into the market. This quarter we worked with:

- NewPower, to incorporate the Rotohiko BESS into the Instantaneous Reserve market.
- Simply Energy on how they can offer their product as Dispatch Notification Light (DNL), a low-cost path to allow small scale generation and aggregated resources to directly participate in the spot market.

We also assisted with Contact's request to change their whole-of-station dispatch for the Whirinaki power station to three individual per-unit dispatch, and deployed the changes to enable the Tauhara geothermal station to offer into our market system (ahead of commissioning).

Winter 2023 review

Our [Winter 2023 Review](#) was published on 20 October and discussed with the CEO Forum on 31 October. It highlights increasing tightness of supply capacity to meet demand peaks, with Winter 2023 containing five of the top ten daily peaks¹ on record. The report also comments on the successful implementation, prior to the start of winter, of a range of initiatives to increase information available to better inform a market response by participants.

In addition, we supported the Authority with its own Winter 2023 review paper, "Driving efficient solutions to promote consumer interests through winter 2023", which sought feedback on the trial options used to promote consumer interests during periods of peak electricity demand. Following the consultation, in early December, the Authority decided to retain the winter information initiatives options A (information on supply headroom), B (demand sensitivity cases) and D (wind offer review against external forecast) and we have started the process to implement these on an ongoing basis.

¹ For daily peaks, we only count the highest peak on any given day (not multiple high peaks in one day).

We will be responding to the Authority's "Code Amendment Omnibus Consultation Paper" released in mid-December, which includes a proposal to amend the Code to permanently implement Option E (Clarify availability and use of 'discretionary demand' control) from their Winter 2023 work programme.

Winter 2024 readiness

Information paper: Our market insight looking at Winter 2024, covering both peak capacity and energy issues, is scheduled to be published in late January.

Wind forecast: As part of our readiness, the wind forecast contract with Meteologica has been renewed and will continue to inform participants during Winter 2024.

Pan-industry exercise: The next exercise is scheduled for 1 May 2024, with either a preliminary workshop or use of our fortnightly industry forums in March 2024 to refresh stakeholders on the system operator's process for managing shortfall situations. The exercise will be a high-level scenario focussing on a shortfall event with an element of surprise. Emails been sent out to industry prior to Christmas to 'save the date' and seek expressions of interest for involvement in the exercise. As of 25 January 2024, we had received 84 expressions of interest from industry.

Security of Supply

Electricity Risk Curves (ERCs): The security of supply ERCs have been sensitive to recent changes in generation assumptions and information. In November, Contact's announced delay of Tauhara commissioning (from Q1-2024 to Q3-2024) resulted in a higher modelled risk of shortage in Winter 2024. Then in December a change to assume three Genesis Rankine units are available (rather than two) reduced that risk, with fewer simulated storage trajectories entering the watch status which is based on the 1% risk curve.

System Operator Rolling Outage Plan (SOROP): We prepared a consultation package on a proposed update to the System Operator Rolling Outage Plan (SOROP). Prior to the Christmas break we provided our draft consultation package to the Authority and sought consent to consult with stakeholders, which we plan to do from early February.

GridEx VII

In November, we participated in the Transpower-facilitated third GridEx in New Zealand (our version of North America's largest grid security exercise). For this we customised the US scenarios to better reflect the local environment. This year's scenario reflected real-world cyber and physical threats and was designed to stress-test crisis response and recovery plans. Over two days, there was wide participation from the industry with an additional group of 30+ external observers alongside the relevant agencies, including the National Cyber Security Centre (NCSC), Department of Prime Minister and Cabinet (DPMC) and police.

A key output from the exercise was that it pushed us to consider our approach for operating Stand-Alone Dispatch (SAD) for extended periods of time (greater than 36 hours). As a result, we are considering how we progress the conceptual approach developed during the exercise to further strengthen this control.

2 Risk & Assurance

Risk Management

We completed our six-monthly control self-assessments in November and are now planning for the next six-monthly review of half our critical controls.

We are currently preparing a paper on risk management for the Authority's Market Operator Committee (MOC) in February which is focused on an overview of our risk management framework and our work on identifying future risks to system operations.

We have developed a draft risk register to provide visibility of the wider system operation risks with the industry (including the Authority). The register includes both risks that we can mitigate in our role as system operator and those where we are able to respond. This register serves as an input to our Operations risk bowtie and will help identify threats/risk controls which have not yet been captured.

Business assurance audits

The 2023/2024 audit plan is on schedule.

The first audit regarding our System Operator Gatekeeper process audit was provided to the Authority on 10 November. The audit outcome was effective, with two low risk (priority 3) findings relating to:

- Exploring and adopting solutions to reduce manual handling of data.
- Improving the effectiveness of communication channels for information sent by the Gatekeeper to various teams.

The second audit regarding Use of Discretion for Generation and Load was sent to the Authority on 15 January. The audit outcome was effective, with four low risk (priority 3) findings for action. These relate to:

- The processes related to peer reviews of discretion decisions.
- Logging and reporting of discretionary actions.
- The use of discretion during black start procedures.
- The future challenges from increased workloads and increased variability in generation (a wider finding than just related to this audit subject area).

The third audit regarding Inputs to the Reserve Management Tool is close to completion.

The remaining audit scopes relating to Synchronising/Reconnect an Island and Shortage of Supply Management have both been drafted and will be progressed as planned.

3 Compliance

We reported a system operator self-breach on 5 December, which related to a modelling error in the 16:55 RTD solve on 4 May 2023. The event was caused by an error in the automatic internal processing within the Market System, which had not occurred previously and could not have been detected. The error persisted for the 5-minute RTD solve. IST implemented several corrective and remedial actions and we are confident the error will not recur.

We received a Warning Letter from the Authority on 11 October. The Warning letter related to a modelling error on 11 January 2023. Arapuni generating unit G8 (ARI_G8) was physically switched from the Arapuni North Bus to the South Bus, but it was still mapped to the North Bus price node. Because of this, SPD incorrectly scheduled more generation than was physically possible. The affected period was 2 hours on 11 January. We responded to the Warning Letter on 25 October.

We received a Warning Letter from the Authority on 3 November. The Warning Letter was in respect of a modelling error relating to the seasonal rating change of Redclyffe Transformers. We responded to the Warning Letter and highlighted that the breach was an explicit example of a more complex Grid Owner offer, specifically on Redclyffe Transformers 3 and 4, that offers significant security of supply benefits to Hawkes Bay residents.

4 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.	SO Compliance & Impartiality Manager
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 SO Compliance & Impartiality Manager to ensure their continued effectiveness.	SO Compliance & Impartiality Manager

5 Project updates

5.1 Market design and service enhancement 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.

Future Security and Resilience (FSR) Programme

We completed frequency studies to recommend at what Megawatt threshold to categorise excluded generating station in part 8 of the Code. The study identified that lowering the threshold will allow more certainty to manage generator tripping risk during an under-frequency event, hence increasing system security and reducing future frequency reserve requirements.

We are completing our first two voltage draft studies to determine how to assign voltage obligations to generating units. The draft studies show a need for generating units installed in distribution networks to have voltage obligations to manage distribution network voltage. We are currently working on a framework to assign these voltage obligations.

The next Common Quality Technical Group (CQTG) meeting is scheduled for March.

Extended Reserves – Automatic Under-Frequency Load Shedding (AUFLS) project

The AUFLS transition plan was provided to the Authority in November and the first of the North Island distributors have begun transitioning to 4-block AUFLS. We are supporting this transition for the Authority which involves reviewing changes to monthly plans, assessing potential security impacts, approving any changes and notifying non-adherence to plans to the Authority.

Operations Customer Portal – System Operator Register

The new System Operator Register (SO Register) went live in the Operations Customer Portal in October, replacing the Dispensations and Equivalences database. Asset Owners can use the register to apply for an equivalence arrangement or a dispensation if they cannot comply with their performance obligations or a technical code obligation. We will use the register to manage and consult on application draft decisions and to maintain a public registry of the final decisions.

5.2 Other projects and initiatives

System Operator Service Provider Agreement (SOSPA) contract reset

Formal engagement with the Authority at the governance and working group levels started in December 2023. This has enabled us to start working on some of the detailed elements in early 2024.

Operational Excellence

The programme continues to hand over improvements and tooling for ongoing improved management of our internal processes. This month will see the completion of the deliverables in scope for assessing and managing the operational resourcing needed to deliver our role, including forecasting tooling and assurance guidelines.

Market System data migration

In December, we began the Market System data migration to our new data warehouse. This is designed to modernise our existing platform and better prepare us for the data and analytics work necessary into the future.

6 Technical advisory hours and services

The following table provides the technical advisory hours for Q2 2023/24 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 Q2
TAS SOW 106 – FSR Workstream – supersedes TAS 102	In progress	618.8
TAS SOW 107 – Extended Reserve Implementation	Completed	243.0
Total hours		861.80

7 Outage planning and coordination

Outage planning – near real time

Planned outages requested by Transpower as grid owner and other market participants have increased as we come out of the winter period. High outage volumes continued over much of this quarter (up until 10 December), with numbers consistently over 150; the week starting 19 November had 240.

Post-Christmas, the outage windows will likely be between 100 and 150 per week until April and we are expected outage windows to peak in the two weeks before Easter. While numbers are high, they are not reaching over 200 as observed during November - December.

To reduce the operational risks in managing the release and return of an increasing number of coincident maintenance related grid and generation outages our system operator teams have worked with the grid owner to trial staggering start times of multiple grid outages during busy periods. This trial was successful at reducing congestion in the control rooms, helps reduce errors and possible safety risks, it has now become standard practice.

New Zealand Generation Balance (NZGB) analysis

On 20 October, we issued a CAN that highlighted a revised NZGB assessment for a potential generation shortfall on 1 November. This highlighted a shortfall for an N-1-G scenario in the event of high peak demand.

Industry responded to a CAN on 21 November highlighting a potential N-1-G shortfall on 5 December; the response alleviated the situation.

Margins remained at 200 MW or below for N-1-G until 9 December. From 9 December they lifted to between 500 MW and 1,500 MW until May 2024, after which they currently show negative margins due to multiple generation outages. This will be monitored as we get closer to the time.

NZGB margins during the HVDC outage scheduled for 21 February 2024 to 13 March 2024 are currently above 200 MW.

8 Operating the power system

There were several system events which we successfully managed over the quarter including:

October

- 10 October, a low residual situation CAN was sent for the following morning, and an industry briefing held. No shortfall eventuated.
- 11 October, a Tiwai reduction line tripped due to suspected high winds causing a flashover on their bus. There were numerous offloads over the next 48 hours while work was undertaken to rectify the situation.
- 12 October, a loss of supply of 6 MW to Pauatahanui substation following a double circuit tripping of Pauatahanui – Takapu Road 1 & 2.

- 14 October 2023, there was an unplanned outage of HVDC Pole 2 due to high winds resulting in pole flashovers.
- 16 October 2023, Meridian lost visibility and remote control of their generation assets. Personnel were sent to generation sites and mitigations planned should the situation have extended over the morning peak.
- 22 October 2023, there was a loss of supply of 2 MW at Brydon substation following a fire in a protection panel.

November

- 2 November 2023, a national low residual CAN was sent for the morning peak.
- 3 November 2023, a national low residual CAN was sent for the morning peak.
- 29 November 2023, there was a loss of supply at the Penrose substation. A bus (the A and D 33 kV bus) tripped, disconnecting approximately 20 MW of load. Our control room teams worked with Vector to have the 33 kV available 28 minutes later, then progressively restored all the feeders within 69 minutes. The suspected cause is a human error incident associated with arc flash testing being undertaken on site at the time.

December

- Multiple instances of implementing circuit risk reclassifications due to lightning activity in Northland (25 December, 29 December, 30 December).
- Several generation, transmission circuit, bus, transformer and feeder trippings.

9 Power systems investigations and reporting

Significant incident investigations

No new significant events were identified this quarter.

Commissioning

During the quarter we have been working on commissioning with:

- Kaitaia Solar Farm (ultimately 24MW), connected 25 November
- Two Arapuni governor upgrades (units 1 and 4) scheduled late January

We are trialling using additional coordination support for the commissioning process whilst we implement the first setup of commissioning improvements identified through a process improvement initiative.

Meridian is reapplying for a dispensation associated with an increased rating to 131.5 MW for the Manapouri units. We are working with Meridian and their consultants to finalise the voltage fault ride through assumptions and reactive power margin control system requirements.

FirstLight approached us to see if we can assist them with managing voltage and voltage stability in their network. We have reviewed the analysis provided by specialist high voltage engineering consultants and have assisted them in discussing voltage settings with our control room coordinators.

System Security Forecast (SSF)

The latest SSF minor update was delivered in December. Changes to parts B and D GZ04 can be accessed via our [website](#).

We are continuing to work on the SSF refresh for the next major update to ensure it is fit for purpose and is being delivered efficiently.

10 Performance metrics and monitoring

We have updated our performance metrics for the 2023-24 year to focus on outcomes desired by both the Authority and Transpower. This concentrates our focus on the big picture, a necessary requirement to support industry evolution as a whole.

The outcomes identify what Transpower needs to do to successfully perform the role of the system operator service provider. The outcome scores are based on a number of performance metrics. Although each outcome addresses a specific purpose required of the role, there is also a degree of interaction and inter-relationship between them. As a result a performance metrics can contribute to more than one outcome. The details of these relationships and commentary on current progress is contained in Appendix B.

Our performance against the outcomes is reviewed quarterly and annually. The quarterly review sessions provide an agreed interim / indicative score. The annual review will be a joint determination of our performance, which is used to determine our performance incentive at the end of the financial year. The first quarter review meeting was held at the end of October and the meeting for quarter two will be scheduled for February. At this stage the Q2 scores are interim.

Q2 interim outcome scores		Year end forecast		Score	Level of performance
New security and reliability risks are identified and appropriately managed	O1 Score 2.33	O1 Score 3.30		1	Poor/unacceptable performance, requires focused improvement
Significant events are appropriately scoped, understood, prepared for and managed	O2 Score 2.50	O2 Score 3.55		2	Partially meets requirements, some improvement needed
The Authority is supported to evolve and develop the electricity market and power systems	O3 Score 3.09	O3 Score 4.23		3	Performance of all requirements in line with requirements of the Code and SOSPA
Relevant market information is made accessible to stakeholders	O4 Score 3.64	O4 Score 4.44		4	Exceeds some aspects of what is required by the Code and SOSPA
Stakeholders are effectively informed on and included in decisions where relevant	O5 Score 3.67	O5 Score 4.36		5	Consistent delivery of exceptional performance of (or beyond) what is required by the Code and SOSPA
Stakeholders are satisfied with our service	O6 Score 5.00	O6 Score 4.44			
SOSPA delivery provides value	O7 Score 3.11	O6 Score 4.20			
	Overall Outcome Score 3.10	Overall Outcome Score 3.93			
	Performance % Score 71%	Performance % Score 79%			

10.1 SOSPA and Code deliverables

SO Strategic Plan 2024: We presented a paper to the Authority Board in November on the proposed high-level changes to the strategic plan. In response to their feedback, we have reframed the messaging to show how we are responding to a rapidly changing electricity industry with consolidation and investment in our tools and processes. This investment is being made with a view to continuous improvement to meet increasing growth and rapid pace of change in the sector and market rules. A workshop with the Authority is scheduled for 26 January and will inform the draft to be provided on 14 February. This year, our engagement with the Authority on the SO strategic plan will usefully inform our SOSPA3 proposal in June.

Security Supply Forecast (SSF) minor update: The latest SSF minor update was delivered in December. Details are in section 9 of this report.

10.2 Optimal dispatch dashboard

The dashboard in Appendix C focuses on the results of the optimum dispatch tool, which compares what happened in real time to what would have happened if there had been perfect foresight of wind generation and load.

The optimal dispatch measure has remained above 90% this quarter with the lowest score recorded in October. A large impact on the October optimal dispatch measure was due to the multiple Tiwai reduction line trippings on 11 October due to issues at the smelter, resulting in deviations between the actual and forecast load. This impact is also seen in the in the lower load accuracy error for October.

11 Cost of services reporting

The cost of services reporting for 2022/23 will be delivered to the Authority by the end of the financial year.

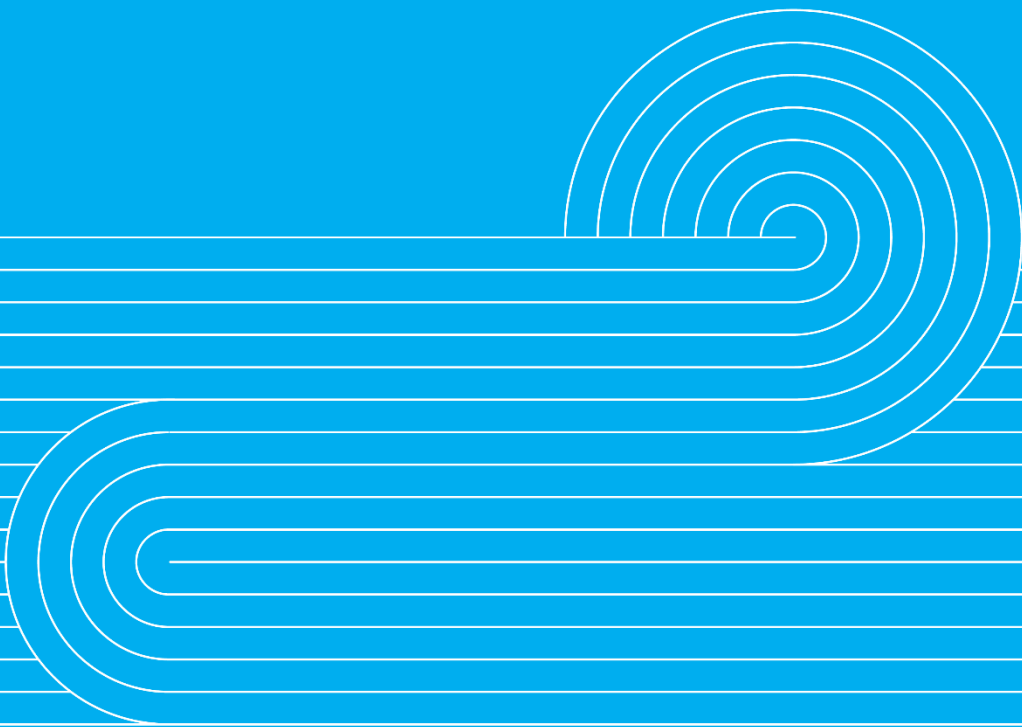
12 Actions taken

The following table contains a full list of actions taken during Q2 2023/24 regarding the system operator business plan, statutory objective work plan, participant survey responses and any remedial plan, as required by SOSPA 12.3 (b).

Item of interest	Actions taken
(i) To give effect to the system operator business plan:	<ul style="list-style-type: none"> • Support the Authority in developing the market – AUFLS <i>We have provided the AUFLS transition plan to the Authority. All processes are in place to begin the transition early in 2024.</i> • Support stakeholders in the development of emerging technology and market evolution <i>We are working with NewPower to incorporate the Rotohiko battery into Instantaneous Reserve market</i> • Customer portal – adding functionality for dispensations

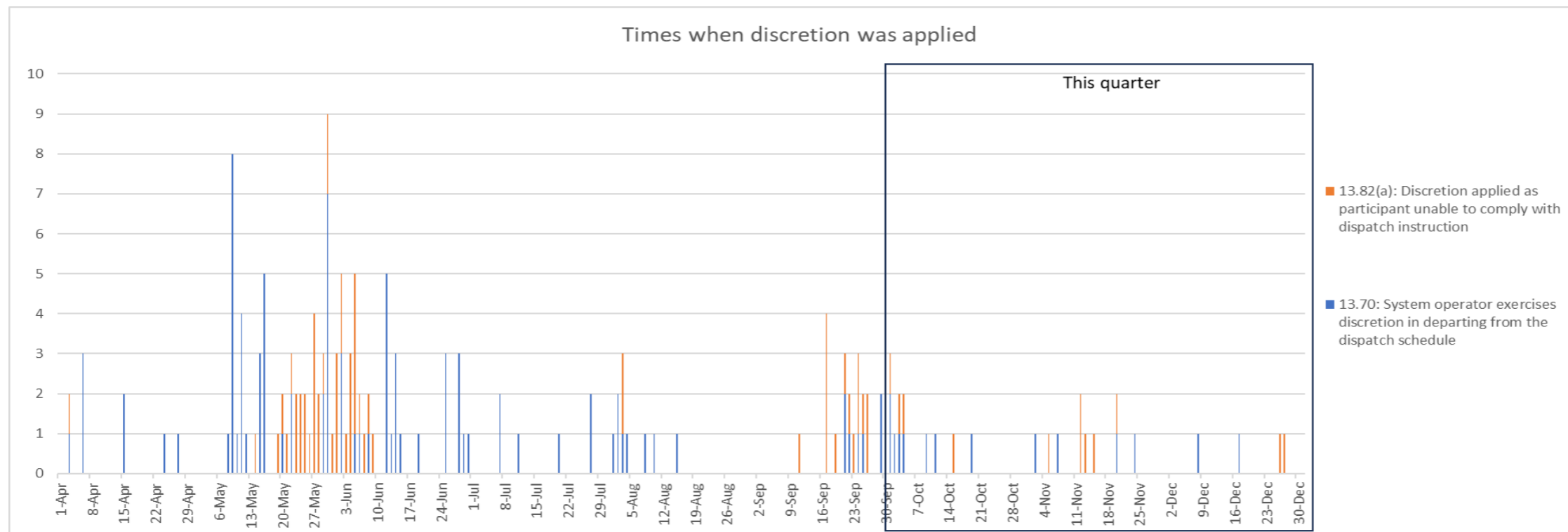
Item of interest	Actions taken
	<p><i>The new System Operator (SO) Register went live in the operations Customer Portal in October, replacing the Dispensations and Equivalences database.</i></p>
<p>(ii) To comply with the statutory objective work plan:</p>	<ul style="list-style-type: none"> • Review the current scope and timing of SOSPA deliverables <i>As part of preparing for SOSPA3 negotiations, we have begun a review of the current reporting. This applies principles such as - is the report? ... useful, efficient, timely, have an appropriate transaction cost, not duplicate other reporting. We will hold a workshop in early February between the Authority and system operator staff to share perspectives.</i>
<p>(iii) In response to participant responses to any participant survey:</p>	<p>Feedback from the 2022-23 survey</p> <ul style="list-style-type: none"> • We found Transpower to be interested in enabling new technologies into the power system • Transpower can be slow to react to a change in industry practice which slows innovation in the industry <p><i>Whether we are seen as good already, or needing to improve, we recognise our role as an enabler, providing education to the industry and accommodating change. We continue to meet with parties to help them incorporate their products into the market. For example, we are working with:</i></p> <ul style="list-style-type: none"> ○ <i>NewPower to incorporate the Rotohiko battery into Instantaneous Reserve market</i> ○ <i>Simply Energy on how they can offer their product as Dispatch Notification Light (DNL), a low-cost path to allow small scale generation and aggregated resources to directly participate in the spot market.</i>
<p>(iv) To comply with any remedial plan agreed by the parties under SOSPA 14.1</p>	<p>N/A – No remedial plan in place.</p>

Appendices



Appendix A: Discretion

The graph below shows all instances of discretion application with a summary beneath of the individual instances of application.



October – 12 instances

8 applied in response to discretion clause 13.70

- 1 Oct (2 instances) - COL0661 COL0 to maintain west coast voltage stability due to IGH MCH KIK outage causing Zone 3 VSAT to 100%
- 2 Oct, 4 Oct - ARG1101 BRR0 discretion to 0MW to allow for switching of ARG_KIK_1 & ARG_BLN_1, and ARG_BLN_1 circuit respectively.
- 3 Oct, 11 Oct - BEN2202 BEN0 for TWI reduction line restoration and managing TWI extended Line 2 offload.
- 9 Oct - WHI2201 WHI0, 10MW discretion to minimum run due to low residual for AM peak.
- 19 Oct - to increase manual risk from 180 MW to 190 MW from 20:00 on 18/10 until 06:00 19/10 due to due to the KAW OHK 1 outage and multiple generators setting the risk on EDG KAW 3 circuit.

4 applied in response to traders claiming discretion clause 13.82(a)

- 1 Oct, 3 Oct, 15 Oct - NAP to be dispatched up to their minimum running range of 147MW to ensure they were available for voltage support and morning peak energy requirements .
- 4 Oct - WAA dispatched up to 17 MW due to environmental issues that would be caused by stream reduction.

November – 10 instances

4 were applied in response to discretion clause 13.70

- 2 Nov - to enable the return of a Manapouri extended potline.
- 7 Nov - when Manapouri was discretioned down 184 MW to allow space to manage the return of the extended TWI reduction line offload.
- 20 Nov, 24 Nov - when ARG1101 BRR0 was discretioned to 0 MW for the outage of ARG_BLN_1 during switching for outage of ARG_KIK_1, and to restore the ARG_KIK_1 section of the BLN_KIK_1 to service., respectively

6 were applied in response to traders claiming discretion clause 13.82(a)

- 5 Nov - Optional NI Manual Risk of 147 MW modelled until 07:00 to cover the loss of NAP. MRG claimed Rule 13.82a and they are required to be generating for voltage support and security of supply for the Monday morning load peak.
- 12 Nov (2 instances), 13 Nov, 15 Nov and 20 Nov - NAP trader claims Rule Exemption 13.82a as dispatched below 147MW as safe running range.

December – 4 instances

2 applied in response to discretion clause 13.70

- 8 Dec - ARG1101 BRR0 discretion to 0MW for the restoration of ARG_BLN_1 circuit
- 17 Dec - RPO2201 RPO0 for switching of RPO_WRK_1 & RPO_TNG_1

2 applied in response to traders claiming discretion clause 13.82(a)

- 26 Dec, 27 Dec - NAP trader claims Rule Exemption 13.82a as dispatched below 147MW as safe running range.

Appendix B: Performance Metrics

Scoring

Q2 scores are shown as shaded cells in the figure below, the year-end forecasts are shown by blue text in a bright blue outline.

A number of the metrics cannot be reported on as they are dependent on actions that will happen later in the year. Of those that have reported, we anticipate the scores to improve as we increase the number of items to be delivered during the year.

Metric	Definition	Q2 interim score	Year end forecast	1	2	3	4	5	N/A	Comment
PM1	Risk register has been updated and tested externally with the Authority and widely among industry participants	N/A	3	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		Risk register under development
PM2	% of SMART actions from the control self-assessment with maturity ratings of 1 or 2 will be addressed by the planned due date	2	2	< 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		This score is impacted by two actions allocated prior to staff change. Although progress has been made on this actions they are not at "completion" state
PM3	At least one pan-industry event exercise held to test existing controls	3	4	-	-	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		The pan-industry exercise is currently being planned for 1 May
PM4	% of actions from industry exercises which were completed on time	N/A	3	< 50 %	≥ 50 % and < 65 %	≥ 65 % and < 75 %	≥ 75 % and < 100 %	100%		There are currently no actions
PM5	Average score of internal process assessments arising from significant events	N/A	N/A	Poor	Below Expectations	Acceptable	Good	Excellent		There are no internal process assessments
PM6	Percentage of actions from significant events which are closed on time	2	4	< 50 %	≥ 50 % and < 65 %	≥ 65 % and < 75 %	≥ 75 % and < 100 %	100%		2 of the 4 actions due at the end of 2023 were not completed to schedule. The 4 scheduled for completion at the end of June are on target.
PM7	On time delivery of significant event reports	N/A	N/A	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		There are no significant event reports
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	3	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
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		2 consultation have been produced. We have acknowledged submissions from both and responded to the earlier submission on evolvinf SoS, the responses to the SOSA reference cases is currently being drafted and once done will increase the score to a 5
PM11	Stakeholder engagement in project delivery	5	5	The stakeholder engagement planning process is not undertaken during the year – ie no list of suitable projects and target list of stakeholder engagement is created	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		The list of projects has been provided to the Authority and of the 6 identified only two have reached the stage for stakeholder input, which has been provided in each of these.
PM12	Average satisfaction score from stakeholders from Annual Survey	N/A	4	< 73 %	≥ 73 % and < 76 %	≥ 76 % and < 80 %	≥ 80 % and < 83 %	≥ 83 %		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 < 65 %	≥ 65 % and < 75 %	≥ 75 % and < 80 %	≥ 80 %		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 and/or are of interest to the industry	3	5	Score not available	No thought leadership publications in the financial year	1-2 thought leadership publications in the financial year	3-4 thought leadership publications in the financial year	>4 thought leadership publications in the financial year		Two further thought pieces are planned for Q3
PM15	Active contribution by the SO to Authority led-forums and consultations; and industry-led consultations	4	4	SO does not respond to any consultations and forums advised by the Authority as requiring system operator response	SO does not respond to all consultations and forums advised by the Authority as requiring system response	All Authority consultations and forums advised as requiring SO response are responded to	And some industry-led consultations responded to	And some industry-led forums contributed to		We have responded to 5 Authority consultations (inc all 3 on the list of required responses) and 5 industry consultations
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	3	< 70%	≥ 70 % and < 100%	100%	Score not available	Score not available		All documents delivered as agreed, with any changes to the current SOSPA targets agreed by the parties ahead of time
PM18	Quarterly update/challenge/brainstorm sessions	2	4	0 sessions	1-2 quarterly sessions	3 quarterly sessions	4 quarterly sessions	Score not available		2 have been held so far, the next one will be scheduled in March

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	0%	0%	0%	0%	0%	0%	0%	0%
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	33%	17%	0%	0%	0%	0%	0%	11%
PM 3	At least one pan-industry event exercise held to test existing controls	17%	33%	9%	9%	0%	0%	11%	15%
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	0%	0%	0%	0%	0%	0%	0%	0%
PM 6	Percentage of actions from significant events which are closed on time	17%	33%	9%	0%	0%	0%	0%	13%
PM 7	On time delivery of significant event reports	0%	0%	0%	0%	0%	0%	0%	0%
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%	18%	11%	100%	11%	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%	9%	18%	22%	0%	23%	7%
PM 11	Stakeholder engagement in project delivery	0%	0%	9%	9%	22%	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	17%	0%	18%	18%	11%	0%	0%	10%
PM 15	Active contribution by the SO to Authority led-forums and consultations; and industry-led consultations	0%	0%	18%	9%	0%	0%	0%	4%
PM 16	# of SO Industry Forums held	0%	17%	9%	18%	22%	0%	23%	11%
PM 17	% of key SOSPA documents delivered on time to the Authority	0%	0%	0%	0%	11%	0%	23%	2%
PM 18	Quarterly update/challenge/brainstorm sessions	17%	0%	18%	0%	0%	0%	11%	7%
TOTAL		100%	100%	100%	100%	100%	100%	100%	100%
Outcome weighting to overall outcome score		20%	25%	20%	10%	10%	10%	5%	

Appendix C: Optimal dispatch dashboard

The optimum dispatch tool compares what happened in real time to what would have happened if there had been perfect foresight of wind generation and load.

The main reasons for the variation this quarter are contained in section 10.2 of this report.

		2022	November	December	2023	February	March	April	May	June	July	August	September	October	November	December
		October			January											
Optimal Dispatch (%)	Compares the average impact of a perfect foresight case against dispatch solutions. Indicates impact of wind offer, load forecast and PSD accuracy.	91.590%	93.470%	80.920%	91.640%	90.130%	91.220%	89.680%	87.560%	88.870%	92.600%	94.440%	93.450%	90.380%	91.020%	94.000%
Dispatch load accuracy error (%)	Average absolute difference between forecast generation (load plus losses, including PSD) and actual generation relative to the average actual generation	99.610%	99.590%	99.600%	99.590%	99.600%	99.580%	99.580%	99.590%	99.590%	99.600%	99.590%	99.590%	99.540%	99.590%	99.590%
Wind offer accuracy (%)	Average absolute difference between persistence wind offer (based on 5mins prior) and the actual wind output relative to the average wind output	97.820%	97.500%	96.960%	97.380%	97.590%	97.320%	97.400%	96.860%	97.240%	97.860%	97.000%	97.820%	98.060%	97.710%	97.770%