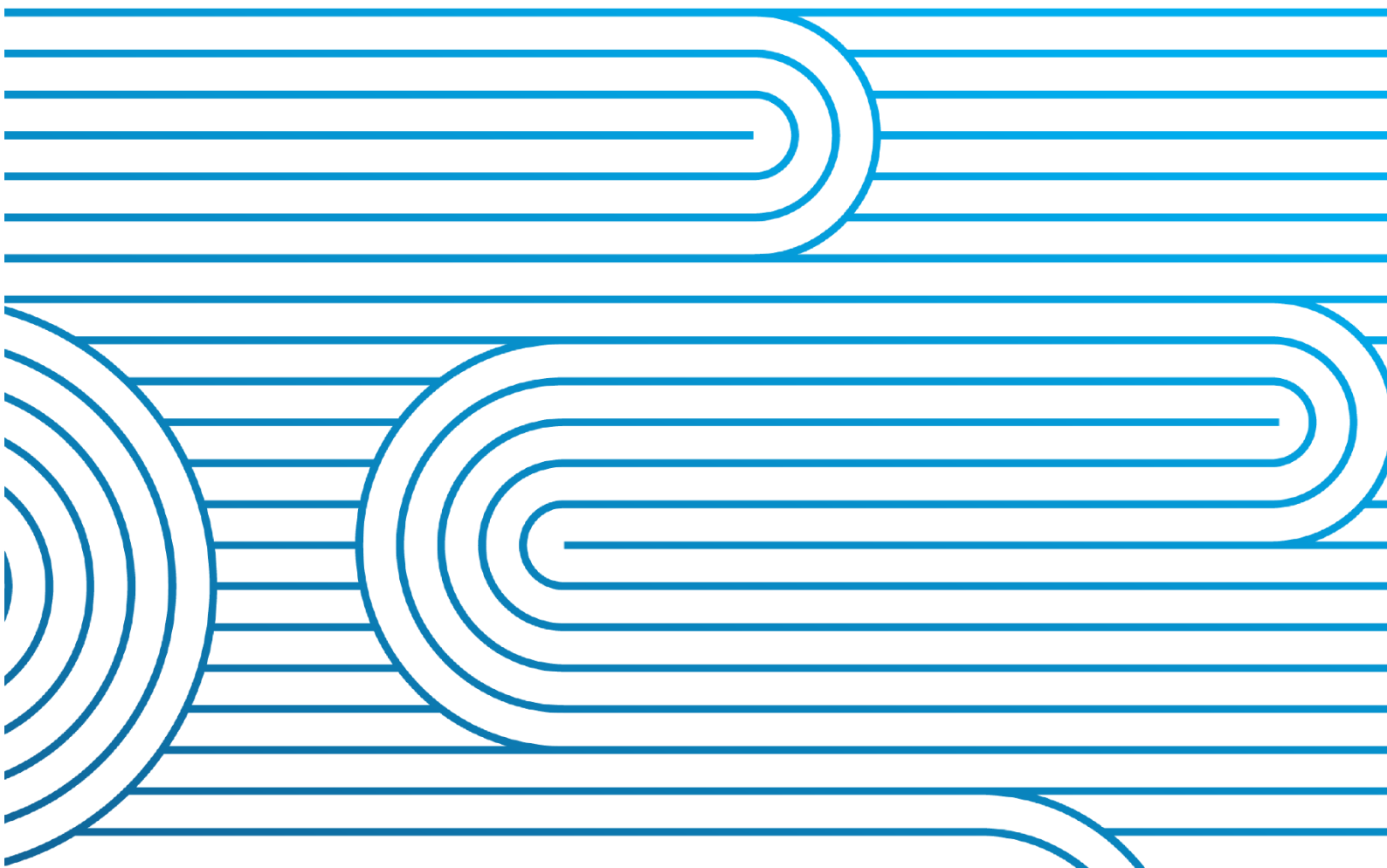


Monthly System Operator report

for the Electricity Authority

November 2023



Report Purpose

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

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Key points this month

- We worked with the Authority to frame its own winter review paper for the permanent retention of the information initiatives and an enhancement to the controllable load initiative.
- The Electricity Risk Curves have risen with likelihood of shortage due to the delay of Tauhara commissioning.
- We have started to update the System Operator Rolling Outage Plan (SOROP) for a dry winter.
- The NZGB look-ahead is still showing low N-1-G margins for early December. We are continuing to watch NZGB margins in December as outages are lodged by industry participants.
- We have begun conversations with the Authority on the timing and scope of this year's pan-industry exercise.
- Our approach to the SO Strategic Plan 2024 went to the Authority Board in November; this is a critical input towards our SOSPA3 proposal. Feedback just received indicates we need to reframe it to meet the evolving expectations of the Authority Board with a stronger future focus.
- We took part in GridEx on 14 and 15 November that contained a number of severe events, 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 of time.
- We have provided the Automatic Under-Frequency Load Shedding (AUFLS) transition plan to the Authority.

1 Commitment to the evolving industry needs

Winter 2023 review

We worked with the Authority to frame its own winter review paper for the permanent retention of the information initiatives and an enhancement to the controllable load initiative. The Authority has decided to retain the winter information initiatives and we have started the process to implement these on an ongoing basis.

Winter 2024 preparation

Information paper: We are finalising the content of our Winter 2024 outlook information paper which will cover both peak capacity and energy issues. This will be published to the industry as a Market Insight early in 2024.

Pan-industry exercise: We have started discussions with the Authority on the 2024 pan-industry exercise timing and scope. At this stage we expect the exercise will again focus on a capacity shortfall scenario, testing industry response including retailers. The exercise is likely to be run in early May 2024, with either a preliminary workshop or use of the fortnightly System Operator Forums in March 2024 to refresh industry on the system operator's process for managing shortfall situations.

Security of Supply

Electricity Risk Curves (ERCs): We published our November update to the ERCs. As a result of the Contact announcement to delay the commissioning of their Tauhara B

geothermal plant, from Q1 to Q3 2024, this has caused an increase in the ERCs, meaning that the amount of hydro storage required to avoid a risk of energy shortage has increased. Tauhara B running at full capacity for the length of the modelled commissioning delay equates to roughly 800 GWh.

System Operator Rolling Outage Plan (SOROP): We have drafted amendments to the SOROP for a dry winter and are preparing a consultation package. Before Christmas, we will be requesting the Authority's own review of our draft and approval to consult. We expect to commence consultation in February, following the review of our draft.

GridEx VII

We participated in the Transpower-facilitated third GridEx in New Zealand (our version of North America's largest grid security exercise). For this we customise 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.

Connecting with the industry

In our role as an enabler, providing education to the industry we continue to meet with parties to help them incorporate their products into the market. For example, we are working with WEL Networks to incorporate the Rotohiko battery into Instantaneous Reserve market and with 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. It is encouraging to see the emergence of new products and be working with smaller and embedded participants to help bring these products into the market, in addition to our work with other new generators going through the commissioning process.

We also continue to offer insights into our operational functions at the fortnightly industry forums.

This month, one of our principal market advisors also facilitated an Institute of Electrical and Electronics Engineers (IEEE) panel on electricity markets and regulation.

2 Risk & Assurance

Risk management

We are progressing the development of a 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 we can

respond to. We will be presenting the register to the Authority for review and challenge in the new year. This register serves as an input to our Operations risk bowtie and will help identify threats/risk controls which have not yet been captured.

We have completed our six-monthly control self-assessments, these will now be reviewed by our Operations senior leadership team.

Business assurance audits

The 2023/2024 audit plan is on schedule. The first audit regarding our System Operator Gatekeeper process audit is complete, with two priority 3 findings. This has been provided to the Authority. The second audit regarding Use of Discretion for Generation and Load has been drafted and is currently under internal review. The third audit regarding Inputs to the Reserve Management Tool is underway with a draft expected in December for internal review.

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 did not report any system operator self-breaches in November.

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, as well as enabling hydro generation at Genesis Tuai power scheme when storage is low. We have arranged an informal meeting with the Authority to discuss our plans to better inform on and address the number of recent market modelling errors.

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	SO Compliance & Impartiality Manager

System Operator Open Conflict of Interest Issues		
ID	Title	Managed by
	Compliance & Impartiality Manager to ensure their continued effectiveness.	

5 Project updates and other initiatives

5.1 Market design and service enhancement project updates

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

Future Security and Resilience (FSR) programme

We have drafted our first frequency study to determine the MW threshold to categorise an Excluded Generating Station. The draft study identified that lowering the MW threshold would allow more certainty to manage generator tripping risk during an under-frequency, even increasing system security and reducing frequency reserve.

We are now 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 CQTG meeting will be in the first quarter of the 2024. We continue the monitoring and discussions of the other changes we would like to implement in Part 8 with the Authority's FSR team.

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

We have provided the AUFLS transition plan to the Authority. All processes will be in place to begin the transition early next year. We have also signed a new TAS to cover our activities for the first six months of the transition.

5.2 Other projects and initiatives

System Operator Service Provider Agreement (SOSPA) contract reset

Transpower's SOSPA reset planning has been completed and we have started work on our planning cycle. An initial conversation has been held with the Authority's Commercial Manager, and we have arranged a governance meeting and a wider workshop prior to Christmas to enable us to start working on some of the detailed elements from the new year.

Operational Excellence

A review of the System Coordinator new start learning journey, role skills and competency progression begins this month supported by expertise from Transpower's Learning Design team.

6 Technical advisory hours and services

Technical advisory hours and a summary of all technical advisory services (TAS) to which those hours related (SOSPA 12.3 (d) refers) will be provided in the next quarterly report.

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. Outage volumes continue to be high this month, with numbers consistently over 150; the week starting 19 November had 240. The number of outages per week will continue to be over 150 until 10 December. Post-Christmas, the outage windows will likely be between 100 and 150 per week until April, when it is expected that they will drop off over the winter months.

New Zealand Generation Balance (NZGB) analysis

The NZGB look-ahead is still showing low N-1-G margins for early December with the tightest forecast period being 5 December. We are continuing to watch NZGB margins in December as outages are lodged by industry participants. The NZGB no longer shows a potential N-1-G shortfall after industry responded to the CAN issued on 21 November. Margins for mid-December and January are healthy.

Margins remained at 200 MW or below for N-1-G until 9 December. From 9 December they have lifted to between 500 MW and 1500 MW until May 2024, where 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 month including:

- 2 November 2023: National Low Residual Situation CAN sent for morning peak.
- 3 November 2023: National Low Residual Situation CAN sent for morning peak.
- 29 November 2023: Loss of supply at Penrose substation. A bus (the A and D 33 kV bus) tripped disconnecting approximately 20 MW of load. Our control room teams worked well together and 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.

9 Power systems investigations and reporting

Significant incident investigations

No new significant events were identified in November.

Commissioning

We have three ongoing commissioning activities (one wind and two solar) and three pre-commissioning activities underway (one wind and one geothermal, and a proposed battery currently planned for Autumn 2024).

FirstLight have approached us to see if we can assist them with managing voltage and voltage stability in their network. We are currently reviewing the analysis provided by PBA consultants and will assist them in applying for a Local Quality Agreement.

System Security Forecast (SSF)

The latest SSF minor update is on track for delivery by 20 December. 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. An update on the latest approach has been presented to the Operations SLT. We are also planning on holding one-on-one consultation sessions with industry participants before making a final recommendation on the content of next year's SSF major update.

10 Performance metrics and monitoring

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

10.1 SOSPA deliverables

SO Strategic Plan 2024: A paper on the proposed high-level changes was provided to the Authority Board in November. Feedback just received indicates we need to reframe it to meet the evolving expectations of the Authority Board with a stronger future focus. This feedback is a critical input towards our SOSPA3 proposal.

11 Cost-of-services reporting

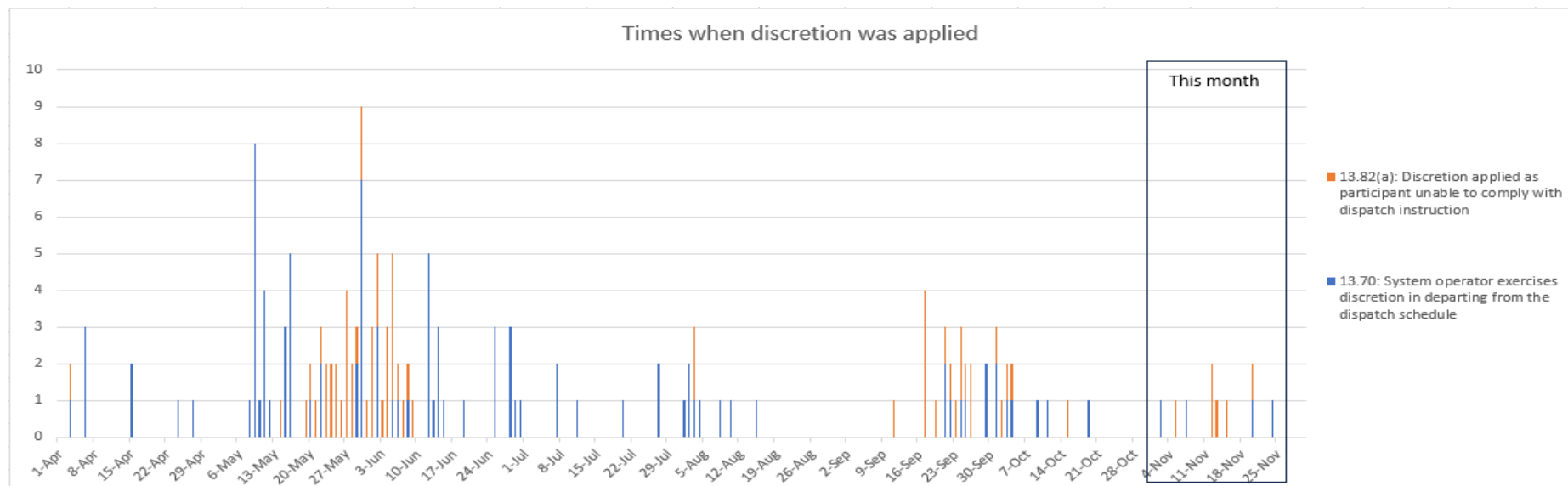
The cost of services reporting for 2022/23 will be delivered to the Authority by the end of the financial year.

12 Actions taken

A full list of actions taken regarding the system operator business plan, statutory objective work plan, participant survey responses and any remedial plan, as required by SOSPA 12.3 (b) will be provided in the next quarterly report.

Appendix A: Discretion

The graph below shows a recent trend of all instances of discretion application with a summary beneath of some of the individual instances of application this month.



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 - when ARG1101 BRR0 was discretioned to 0 MW for the outage of ARG_BLN_1 during switching for outage of ARG_KIK_1
- 24 Nov - ARG1101 BRR0 generation was removed to restore the ARG_KIK_1 section of the BLN_KIK_1 to service.

6 were applied in response to 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.