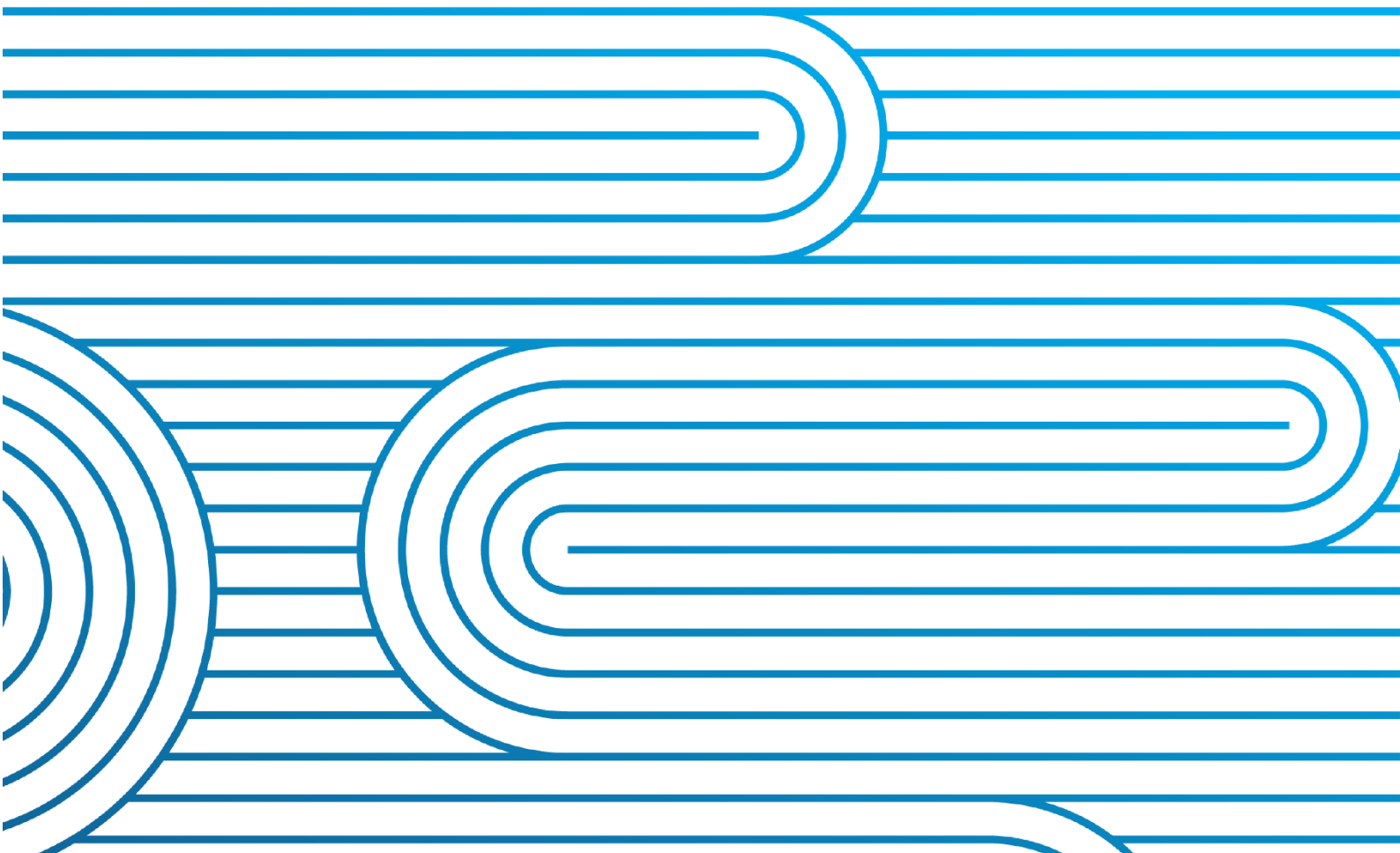


Monthly System Operator and system performance report

for the Electricity Authority

April 2023



Report Purpose

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

Changes to the monthly report content

From April 2023 the monthly report will focus on the activity and performance of the system operator, as agreed with the Authority. System performance data which was previously included in this report will be presented through other channels where relevant, such as the system operator industry forum.

Contents

Report Purpose	2
1 Key points this month	4
2 Customers and other relationships	4
4 Compliance.....	5
5 Impartiality of Transpower roles.....	5
6 Project updates and other initiatives	6
7 Technical advisory hours and services	7
8 Outage planning and coordination	7
9 Power systems investigations and reporting	8
10 Performance metrics and monitoring	8
11 Cost-of-services reporting.....	8
12 Actions taken	8
Appendix A: Discretion	9

1 Key points this month

- We published analysis of winter peaks for winters 2024 and 2025 on 4 April on the Transpower website. It demonstrates the reliance on thermal generation commitment to market offers to ensure there is adequacy for winter peaks over the next 3 years.
- We established a system operator working group to prepare for the management of winter peak loads, with specific focus on Hawkes Bay.
- We presented a risk paper to the Authority's System Operator Committee (SOC) regarding the threat and controls of not having power system assets through a winter 2023 lens.
- The final phase of the real-time pricing project (RTP) went live on 27 April, integrating dispatchable demand and lower-compliance dispatch notification products with the real-time wholesale market pricing system. The project is now in close-out with final activities expected to be completed in May.
- As part of the Future Security and Resilience (FSR) Programme, the issues paper relating to common quality (Part 8 of the Code) has been published for consultation.
- On 17 April, we presented two draft SOSPA deliverables at the Authority SOC for their comment: the draft Performance Metrics and Incentives Agreement and the draft System Operator Strategic Plan for 2023-28. We are currently working through their feedback prior to integrating the changes into the final drafts of the documents. The final documents will be delivered on 30 June.

2 Customers and other relationships

Winter 2023 preparation

We are continuing to inform stakeholders on the risks and possible mitigations to securely operate the grid. This month we have been speaking to multiple organisations and initiatives about how they can help support the winter peak issue.

3 Risk & Assurance

Risk Management Framework

Risk paper to Authority system operator committee (SOC): On 17 April, we presented a deep dive risk paper covering the threat of "not having power system assets available to manage the system" with a winter 2023 lens. The paper outlined the likelihood of the threat, controls in place to manage the threat and the effectiveness of those controls. The SOC noted that communication around the risk this winter needed to be carefully considered given the healthy state of fuel availability and generation capacity.

Control self-assessment: We have begun our next round of risk control self-assessment.

Notified relay firmware problem: We have been informed by an asset owner of a firmware fault associated with a protection relay commonly used on generators which can result in the unnecessary tripping. The relay manufacturer has advised there has been only one instance of this fault over the last 20 years, however this was in New Zealand during an islanding situation. We have assessed the risk of a common mode

of failure and see no justification to adjust reserves provision for this risk given the conditions required for mal-operation.

Business assurance audits

The three remaining audits are on schedule to complete by the end of the financial year. Their progress as of the end of April is:

- Voltage Stability Assessment Tool (VSAT) change management audit fieldwork has been completed with a draft report being prepared.
- Ancillary Service contract management audit has started with fieldwork scheduled for completion during April.
- Audit on Simultaneous Feasibility Test (SFT) constraints is being planned.

Preparations for Winter 2023

To prepare for management of winter peak loads, we have established a system operator working group to maintain an overview across all the impacting factors anticipated this winter. While the primary focus is on national supply, a specific lens is being applied to Hawkes Bay. Preparations include:

- Supporting the Authority to introduce new services and solutions related to management of peak load (TAS 105).
- Industry education including reminders regarding our operational processes and hosting an industry exercise.
- Securing expertise to assist with close monitoring of weather risks - particularly as it relates to wind generation.
- Assessing risks for Hawkes Bay supply.

4 Compliance

Self-breachWebreach: submitted one system operator self-breach in this reporting period. Due to a series of outages on the Arapuni Bus and associated circuits on 11 January, the Arapuni G8 generation unit was physically switched from the north bus to the south bus. However, due to a modelling error it remained mapped to the north bus price node. Because of this, the Scheduling, Pricing and Dispatch tool (SPD) incorrectly scheduled more cheaper generation out of the north bus price node into the market than was physically capable from the existing grid configuration. Remedial actions have been implemented to prevent recurrence.

5 Impartiality of Transpower roles

We have three 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
29	Preparing the Net Benefit test – system operator involvement: The system operator is reviewing how it can provide information for use by the grid owner undertaking a Net Benefit Test.	Operations Planning Manager
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	SO Compliance & Impartiality Manager

System Operator Open Conflict of Interest Issues		
ID	Title	Managed by
	owner role. The item documents the actions necessary to ensure impartiality in these circumstances; these items will be monitored to ensure their continue effectiveness.	
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

6 Project updates and other initiatives

6.1 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.

Real Time Pricing (RTP)

Phase 4 of RTP was successfully released to production on 27 April 2023. This provides enhanced functionality for Dispatchable Demand (DD) and the new Dispatch Notified products. RTP is now in its close out phase with final activities expected to be completed in May.

Industry Exercise

Preparations are underway with the Authority for an industry exercise on 24 May. This follows a similar event hosted last year but focusses on system and procedural changes implemented subsequently, or due to be implemented, before winter. This will not be a full Coordination Incident Management System (CIMS) exercise but will target interaction with distributors to ensure we have alignment around the updated information being delivered by TAS 105. It will also focus on the procedures which provide us with visibility of, and access to, controllable load when required.

This exercise will be followed by a complementary exercise led by the Authority focussing on the communications from distributors to retailers and end consumers. We are supporting with communications, expertise and scenario advice.

Future Security and Resilience (FSR) Programme

The issues paper relating to common quality (Part 8 of the Code) has been published for consultation. Work continues on scoping and planning the power system studies required to explore options to address the issues raised in the paper.

Extended Reserves – AUFLS Project

We received the majority of the individual transition plans from North Island connected asset owners at the start of April. For the two parties we have not received a plan from, we have created a plan and provided that to them. With the submission of the individual plans we are progressing the security studies and assessing the results to formulate an effective transition plan.

6.2 Other projects and initiatives

KPI Refresh Programme

A draft Performance Metrics and Incentives Agreement was presented to the Authority's System Operator Committee (SOC) in April. This included the proposed metrics and outcomes we have jointly identified with Authority staff as representing good system operator performance. The current effort is concentrated on working with the Authority staff to develop the scoring scales and weightings used to calculate the incentive payment. This is on track to enable the refreshed metrics and incentive mechanism for FY23-24 to go live on 1st July.

Market Insight – distributed flexibility for whole system operation

We are reviewing seven responses to our paper on distribution-connected flexibility published in December. Feedback is generally supportive of the positions taken in our paper.

Operational Excellence

The Operational Excellence programme is well underway with delivery of the first tranche of high priority initiatives including around procedures, workforce planning, priority processes, and assurance practices. This work will continue through the coming year, both utilising and upskilling existing business resources to increase business maturity and set the business up for future change.

Market insight – winter peaks

As part of the fortnightly SO Industry Forum, we presented [analysis of winter peaks for winters 2024 and 2025 on 4 April](#). The slide pack is now published on the Transpower website (in the 2023 section of the [Market insights page](#)). The analysis highlights the need for committed thermal generation to meet winter peak demands.

6.3 SOSPA deliverables

Draft System Operator Strategic Plan

We presented the draft System Operator Strategic Plan for 2023-28 to the Authority SOC on 17 April. In addition to the conversation at the meeting, we received written feedback which we are currently working through prior to integrating the changes into the final draft of the document. The final document will be delivered on 30 June.

7 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.

8 Outage planning and coordination

Outage planning – near real time

We continued to see very high outage volumes during April and May, although numbers are forecast to drop as we move into winter. We are seeing low levels of generation outages in the coldest months – July and August.

We continue to coordinate with the grid owner on changes to outages as a result of Cyclone Gabrielle and have assessed risks to system security with low levels of grid transmission in the Hawkes Bay region. We have completed our assessment of the grid owner's 2023-24 annual outage plan and expect that they will publish the plan in advance of the 19 May regulatory requirement.

New Zealand Generation Balance (NZGB) analysis

The NZGB tool is forecasting no shortfalls for the next 200 days for the base scenario. There is one low margin day in early June due to some generation plant outages. Using a worst-case peak demand scenario based on the highest peaks seen previously, the tool is forecasting one shortfall for N-1-G. We continue to monitor the margins and are working on some new load and generation sensitivity scenarios for potential use this winter.

9 Power systems investigations and reporting

Automatic under-frequency load shedding (AUFLS) compliance

The 2022 AUFLS data submission from North Island connected asset owners was due as of the end of March. The system operator has issued a letter to four providers who missed the deadline with a reminder of their obligations and suggesting they self-breach. One provider has subsequently submitted their data, with all parties contacting the system operator to explain their situation. Again, parties were encouraged to discuss their situations directly with the Authority.

We have commenced discussions with the grid owner around their 2022 AUFLS data submission and improvements to the Tiwai equivalence performance.

10 Performance metrics and monitoring

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

11 Cost-of-services reporting

The cost of services reporting for 2021/22 was delivered to the Authority in early May.

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

9 instances

Event Date and Time	Description
3/04/2023 11:52	During the power switching operation (PSO) (13:00-14:00) for ABY_TIM_1, Genesis has requested that they be dispatched 59 MW to manage recreational requirement flows from Tekapo. Therefore the energy coordinator will bona fide TKB to 59 MW at 13:00 and contact Genesis when the PSO is completed to arrange a return to normal generation levels.
3/04/2023 13:13	TKA0111 TKA1 Discretion Clause 13.70, Part 13 ENR Max : 5 Start: 03-Apr-2023 13:13 End: 03-Apr-2023 13:30 Notes: Planned Islanding Last Dispatched MW: 8
6/04/2023 6:33	TUI1101 KTW0 Discretion Clause 13.70, Part 13 ENR Min : 16.8 Start: 06-Apr-2023 06:33 End: 06-Apr-2023 08:30 Notes: minimum run Last Dispatched MW: 16.8
6/04/2023 6:33	TUI1101 TUI0 Discretion Clause 13.70, Part 13 ENR Min : 30.7 Start: 06-Apr-2023 06:33 End: 06-Apr-2023 07:00 Notes: minimum run Last Dispatched MW: 30.7
6/04/2023 6:33	TUI1101 PRI0 Discretion Clause 13.70, Part 13 ENR Min : 22.5 Start: 06-Apr-2023 06:33 End: 06-Apr-2023 08:30 Notes: minimum run Last Dispatched MW: 22.5
15/04/2023 0:20	Entered 181 MW into NI Optional Island Risk from 02:30-05:00 to keep HLY_U5 generating at their minimum of 182 MW. HLY_U5 providing important assistance in keeping upper North Island voltage down. Note: While HLY_U5 was scheduled to generate below 182 MW in various NRSS and NRSL schedules, this limit did not bind at all in Real Time.
15/04/2023 16:11	MAN2201 MAN0 Discretion Clause 13.70, Part 13 EN Max : 260 Start: 15-Apr-2023 16:11 End: 15-Apr-2023 16:30 Notes: Line 1 restoration (MCC GC happy to be dispatched down to match the post-tripping load and restore from there). Last Dispatched MW: 440
24/04/2023 6:36	HLY2201 HLY5 Discretion Clause 13.70, Part 13 ENR Min : 182 Start: 24-Apr-2023 06:36 End: 24-Apr-2023 07:00 Notes: Genesis claimed 13.82. Last Dispatched MW: 147.93
27/04/2023 23:50	MAN2201 MAN0 Discretion Clause 13.70, Part 13 ENR Min : 160 Start: 27-Apr-2023 23:50 End: 28-Apr-2023 00:30 Notes: Part A Clause 13.82. Last Dispatched: MW: 163.94 Operator advised that if MAN dispatched below 160MW would need to stop MAN U7 and there was concern that they would be unable to reconnect to a dead bus. Security coordinator power flows showed that if the unit was to come off, the voltage security assessment (VSAT) would go to 100% for the INV ROX contingency and partial solves would occur for MAN U2 , ROX_TMH and INV ROX 1 & 2 contingencies.