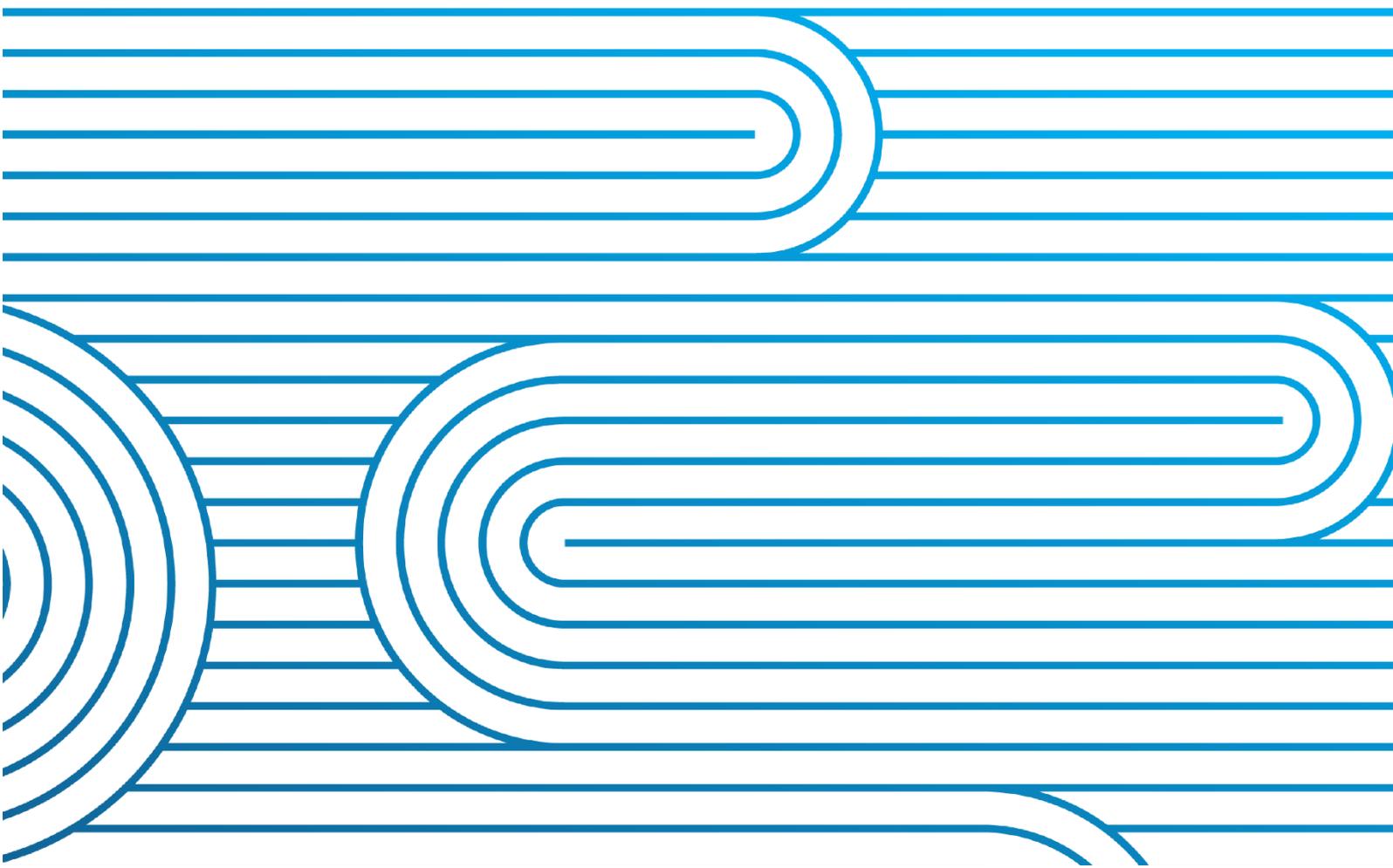


Monthly System Operator and system performance report

for the Electricity Authority

February 2023



Report Purpose

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

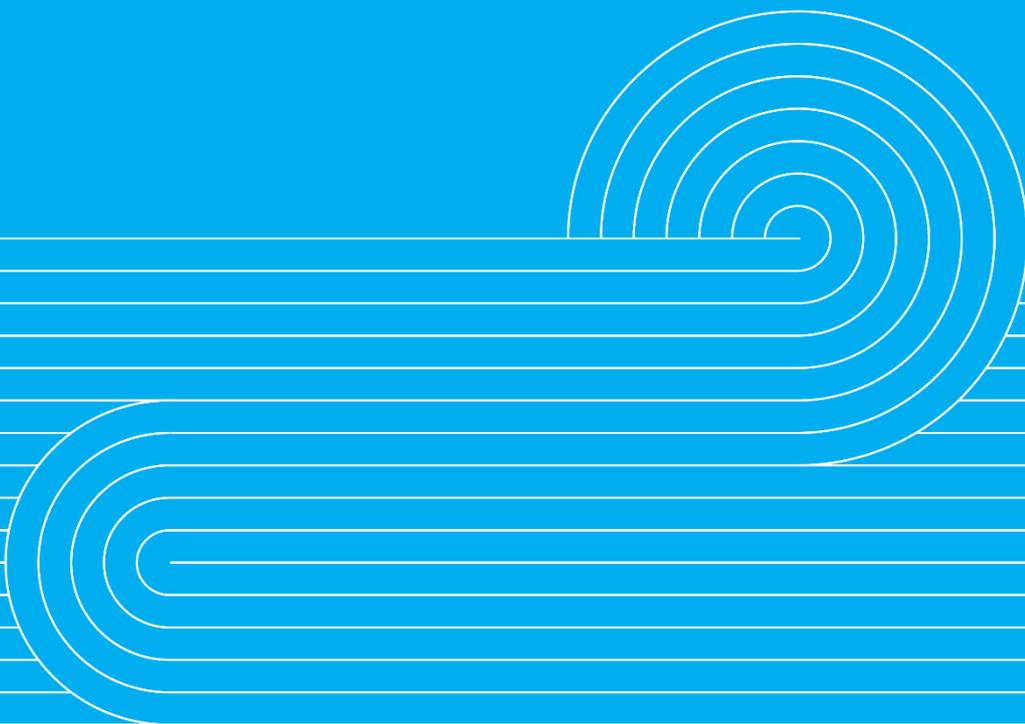
A detailed system performance report (Code obligated) is provided for the information of the Electricity Authority (Authority).

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System Operator performance



1 Key points this month

- Cyclone Gabrielle and its impact required a considerable amount of system operator knowledge and commitment to ensure the grid returned to operation securely in as quick a time as possible. Our team used their experience and training to deliver electricity to the end consumers, working closely with distributors, gentailers and the grid owner.
- We communicated with customers on this month's HVDC outages but also on the second outage now scheduled for the end of March. This second outage is needed as resources required for the February outage were redeployed to help restore supply following Cyclone Gabrielle.
- Upper North Island Voltage Management continues to be required. The Pakuranga-Whakamaru_1 circuit is now in service. With increased generation from Huntly and contributions from the newly commissioned Otahuhu reactor, we expect to be able to manage voltage with overhead switching over low demand periods through the rest of the summer. Arrangements are in place with the grid owner should switching of cables be required.
- Demand flexibility is a current focus for New Zealand and overseas. We have been working with the Flex Forum, a New Zealand collective of interested parties to create momentum in this area. We have also been discussing with National Grid ESO (the UK system operator) and Octopus Energy the innovative UK Demand Flexibility Service which was tested recently.
- As February is a summer month, we continue to have very high outage volumes. Looking ahead these are forecast to continue until April at least. Some weeks there are around 150 to 180 transmission outages a week, with additional generation outages.
- The NZGB tool is forecasting no shortfalls for the next 200 days. There are some lower margin periods in March coinciding with the second HVDC outage. There is also one lower margin day in May due to a grid outage impacting generation on the Wairakei Ring. We will monitor these periods closely.
- RTP Phase 4 development and testing is continuing and is on track to be delivered on 27 April 2023. The deliverables for this phase will now include publishing residual data via the wholesale information and trading system (WITS).
- We continue with preparations for winter 2023, which has included a number of discussions with Authority staff on the initiatives to manage an energy shortfall scenario.
- We finalised the system operator load forecast audit which received good feedback and four recommendations for management action relating to: establishing an end-to-end process; tidying up current process documentation; improving how we capture load forecast events; and updating the service provider contract to reflect current practice.
- We delivered four SOSPA deliverables: Draft System Operator Strategic Plan, Draft ICT Strategic Roadmap, Draft CAPEX Roadmap and Draft CAPEX Plan.
- We are assessing the performance of Automatic under-frequency load shedding (AUFLS), for both the South and North Island schemes, based on

data submitted for the 2021 year. This follows a request from the Authority and will be completed by 31 March 2023.

2 Customers and other relationships

Flex Forum

We attended the Flex Forum monthly meeting and have been reviewing and informing publications around flexibility contracting, risk management, communications, and connectivity.

We hosted a Flex Forum workshop on 22 February which discussed flexibility needs for winter 2023 and are supporting market participants who are keen to investigate potential small-scale pilots which may meet these needs during winter 2023.

Cyclone Gabrielle

We declared a Grid Emergency following the loss of electricity supply to Hawkes Bay and Gisborne. We led the initial response to the event, which included restoration of supply and coordination of with market participants, distribution companies and customers. Transpower as grid owner led the response for the restoration of grid assets once the initial restoration was completed. During and after the event, we updated customers and the general public through our website and social media channels as the situation became clearer.

National Grid ESO and Octopus Energy

We met with peers from National Grid ESO (the UK system operator) and Octopus Energy to discuss the innovative UK Demand Flexibility Service which was tested recently. This discussion highlighted the potential for a new ancillary service to meet winter peak demand. The recording was shared with Flex Forum and wider industry to share the learnings with those interested in solutions for New Zealand winter peak challenges.

Black Start simulation

On 22 February, we hosted NZAS, Meridian, and Contact Energy in a black start simulation for the lower South Island. This regular exercise was put on hold over COVID-19 and is an important part of ensuring the industry participants are aligned and well prepared around the contingency plan. All the participants were pleased with how the exercise went, there was lots of shared learning, and some improvements were identified which will be incorporated into processes.

3 Risk & Assurance

Risk Management Framework

We developed a paper on how the system operator models and responds to changes in demand for the Security and Reliability Council in March.

We are preparing a deep dive risk paper for the Authority's System Operations Committee (SOC) in April covering the threat of "not having power system assets available to manage the system" with a winter 2023 lens. This is the first of our papers covering the Transpower threats identified in the system operator risk bowtie.

Business assurance audits

We finalised the system operator load forecast audit and shared it with the Authority; the scope included the system operator’s management of the Tesla contract (monitoring and performance management), and our internal processes for managing the load forecast including event and issues management.

Overall, we achieved a good result (effective), with four recommendations for management action relating to: establishing an end-to-end process; tidying up current process documentation; improving how we capture load forecast events; and updating the service provider contract to reflect current practice.

Preparations for Winter 2023

Preparations for Winter 2023 have included a number of discussions with Authority staff on the initiatives to manage an energy shortfall scenario. We will expedite the priority initiatives once the Authority publish their consultation feedback. In addition to the priority initiatives, we are planning an industry simulation exercise, which will involve the industry practicing processes ahead of winter peaks.

4 Compliance

We reported one system operator self-breach in this reporting period. The breach related to mis-modelling the night ratings for two transformers at Redclyffe (RDF T3 and T4) from 10 May – 3 June 2022. The error occurred due to a non-standard grid owner offer for the two transformers (these offers are different to every other transformer). The error was corrected on 3 June 2022. There was no market or operational impact during the affected period.

9 August event

On 17 February, the Rulings Panel issued a Directions Notice recording that the Authority and system operator have agreed an “in principle” settlement. The parties now have until 31 March to file an agreed statement of facts and joint penalty submission.

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 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

System Operator Open Conflict of Interest Issues		
ID	Title	Managed by
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 development and testing is continuing and is on track to be delivered on 27 April 2023. The deliverables for this phase will now include publishing residual data via the wholesale information and trading system (WITS).

Future Security and Resilience (FSR) Programme

The draft Issues paper relating to common quality (Part 8 of the Code) has been completed. It is currently in the review cycle with the Authority prior to submission to their Board. We have begun work on scoping and planning the power system studies required to explore options to address the issues raised in the paper.

The FSR tracking indicators to help guide the speed/course of the roadmap delivery have been agreed. We are working with the Authority to identify the data sources, data communication methods and our role in providing the data.

Extended Reserves – AUFLS Project

We are working on the modelling and process set-up in preparation for completing security studies and formulating the transition plan. Individual distributor transition plans were due to be submitted by early March, however due to the disruption of Cyclone Gabrielle, a one-month extension has been communicated.

6.2 Other projects and initiatives

KPI Refresh Programme

Work is underway on the next stage of the KPI refresh programme, which will roll out performance metrics reporting with an external focus, based on the high-level outcomes discussed with the Authority. Teams from the Authority and the system operator have agreed a draft set of metrics which are now being refined as an input to the incentives calculation for FY23-24. The draft metrics and incentives agreement will be reviewed at the Transpower SOC in March and Authority SOC in April.

Operational Excellence

This programme has now moved to implementation and will run for 18 months, accelerating improvement across our real time operational processes. Initiatives underway include a review of procedure documentation, assurance processes to support the delivery of agreed KPI's, and enhancements in resource planning.

6.3 SOSPA deliverables

Draft System Operator Strategic Plan

The draft System Operator Strategic Plan was submitted to the Authority on 24 February. This plan will be discussed at TP SOC in March and Authority SOC in April. The final report will be delivered on 30 June.

Draft SO ICT Strategic Plan, Capex Plan and Roadmap

These documents were submitted to the Authority on 24 February. The final reports 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

As we are in the summer months, we continue to have very high outage volumes. Looking ahead these are forecast to continue until April at least. Some weeks there are around 150 to 180 transmission outages a week, with additional generation outages. We have been coordinating with the grid owner on changes to outages as a result of Cyclone Gabrielle and risks to outages as a result of low Southland generation and will continue to do so in the event Southland Lake levels drop into low operating ranges again.

The grid owner published its draft annual outage plan at the end of January, and we will be assessing security impacts from this plan in March after the grid owner has completed its customer consultations.

We communicated the security and generation margin impacts to participants ahead of this year's HVDC outage which completed in the second half of February. We also worked with the grid owner to assess implications of a second HVDC Pole 2 outage now scheduled for the end of March. This second outage is needed as resources from the February outage were redeployed to restoration work in Hawke's Bay.

New Zealand Generation Balance (NZGB) analysis

The NZGB tool is forecasting no shortfalls for the next 200 days. There are some lower margin periods in March coinciding with the second HVDC outage. There is also one lower margin day in May due to a grid outage impacting generation on the Wairakei Ring. We will monitor these periods closely.

9 Power systems investigations and reporting

Automatic under-frequency load shedding (AUFLS) transition / compliance

We have been asked by the Authority to assess the performance of AUFLS based on data submitted for the 2021 year. The assessment will include both the South and North Island schemes. We continued to work through and document our assessment and are on track to have the report completed and submitted to the Authority by 31 March 2023.

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.

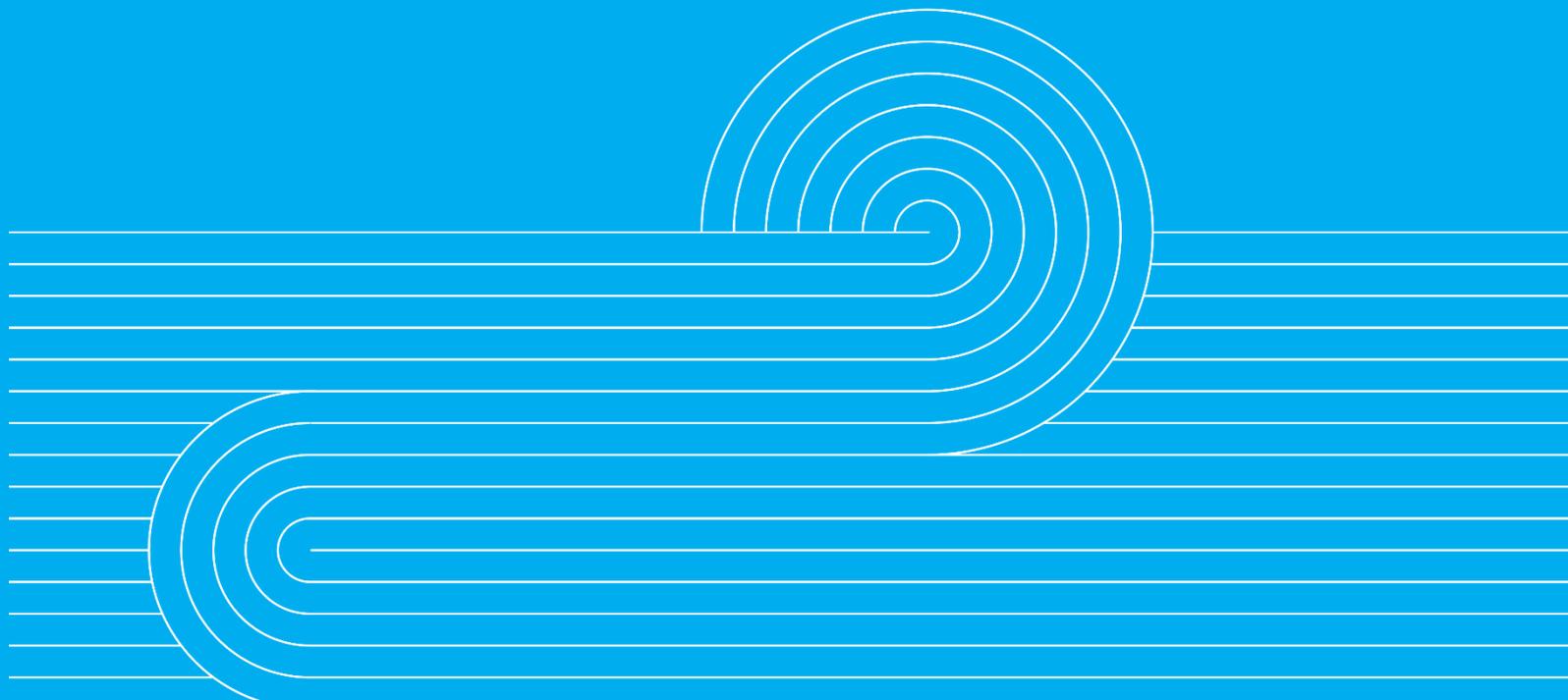
11 Cost-of-services reporting

The next cost of services reporting, for 2021/22 will be delivered to the Authority early in 2023.

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.

System performance



13 Security of supply

Security of supply outlook

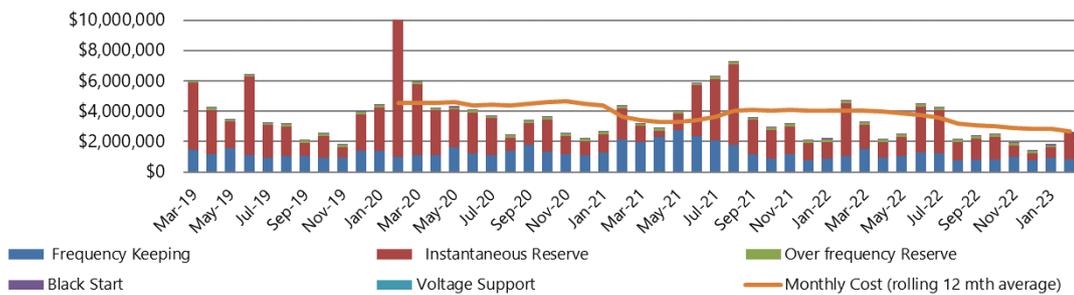
National hydro storage decreased through December and January, nearing average towards the end of January. This was driven by a prolonged dry sequence in the South Island; this dry sequence was broken in early February as a material inflow event to the Southern Lakes pushed national storage to 110% of average for the time of year. Meanwhile, the North Island which holds 13% of national storage has been well above average, with full hydro lakes.

Prices have reflected hydro storage levels, rising through December and January, falling again once inflows increased in early February.

Further details in the weekly market update report: [Weekly Summary and Security of Supply Reporting | Transpower](#)

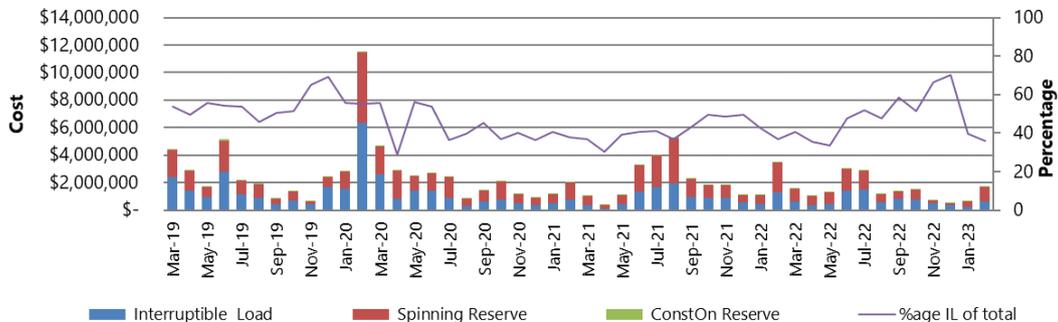
14 Ancillary services

Ancillary Services Costs (past 4 years)



This month's ancillary services costs were \$2.80 million, an increase of \$971k (53% increase) from the previous month. This was driven by increases in instantaneous reserve costs, both spinning reserves and interruptible load. Instantaneous reserve costs increased by \$1.06 million (161% increase).

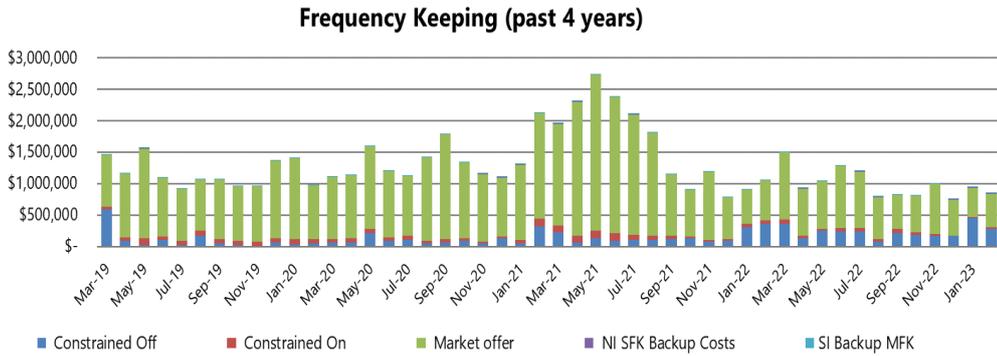
Instantaneous Reserve (past 4 years)



This month's instantaneous reserve costs were \$1.725 million, an increase of \$1.06 million (161% increase). This was influenced by an increase in spinning reserve costs

of \$701k (179% increase) and an increase in interruptible load costs of \$360k (137% increase). Constrained on payments also increased by \$2.3k (58% increase).

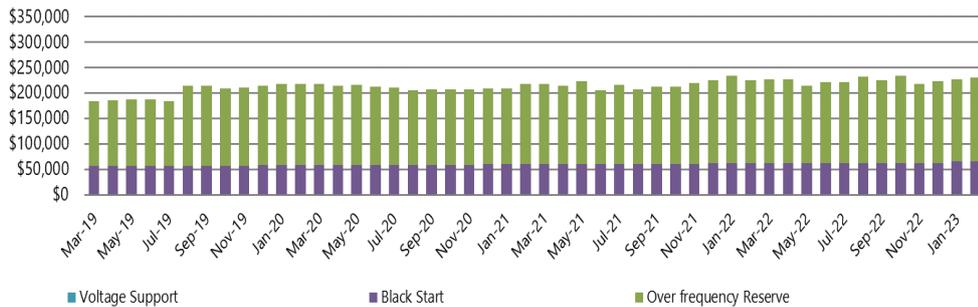
Overall quantities of fast and sustained reserves were higher than the previous month in both the North and South Islands partially attributed to by reduced reserve sharing during the HVDC single pole and bipole outages at the end of the month. The average prices per MW of fast and sustained reserves doubled, or nearly doubled, in both the North and South Islands.



This month's frequency keeping costs were \$847k, a decrease of \$97k on the previous month (10% decrease). Constrained off costs also decreased by \$180k (40% decrease), whereas constrained on costs increased by \$17k (154% increase). National market costs for frequency keeping increased by \$66k (14% increase) this month.

North Island frequency keeping costs increased this month by \$112k (25% increase), while South Island frequency keeping costs decreased by \$110k (22% decrease) respectively. Nationally, availability costs remained similar to last month (\$2k increase).

Voltage Support, Black Start and Over Frequency Reserve Costs (past 4 years)



Over frequency costs increased slightly this month by \$3.6k (2.2% increase) because of increased availability. Black start costs remained at \$66k this month. There are currently no voltage support costs.

15 Commissioning and Testing

No new items to report this period.

16 Operational and system events

Southland dry hydro

The Southland region experienced a prolonged dry period through December and January. This impacted inflows into Lakes Manapouri and Te Anau. As a result, hydro-storage levels at both lakes dropped into their low operating range. In early February a material inflow event lifted storage at both lakes back into their main operating range, removing security risks. Studies continue and will be shared with the market once completed.

Significant incident investigations

One 'major' significant incident was notified to the Authority this month:

- Event 4355 – On Tuesday 14 February 2023, supply was lost to the grid owner's Redclyffe (RDF) 220kV and 110kV buses, impacting Unison and Eastland lines companies and consumers in the Hawke's Bay region. Other grid exit points (GXPs) availability and SCADA indications were also impacted by extreme flooding associated with Cyclone Gabrielle. A grid emergency was declared at 08:17 on the day and remained in place while restoration was ongoing. It was closed on 10 March 2023.

Significant incident criteria

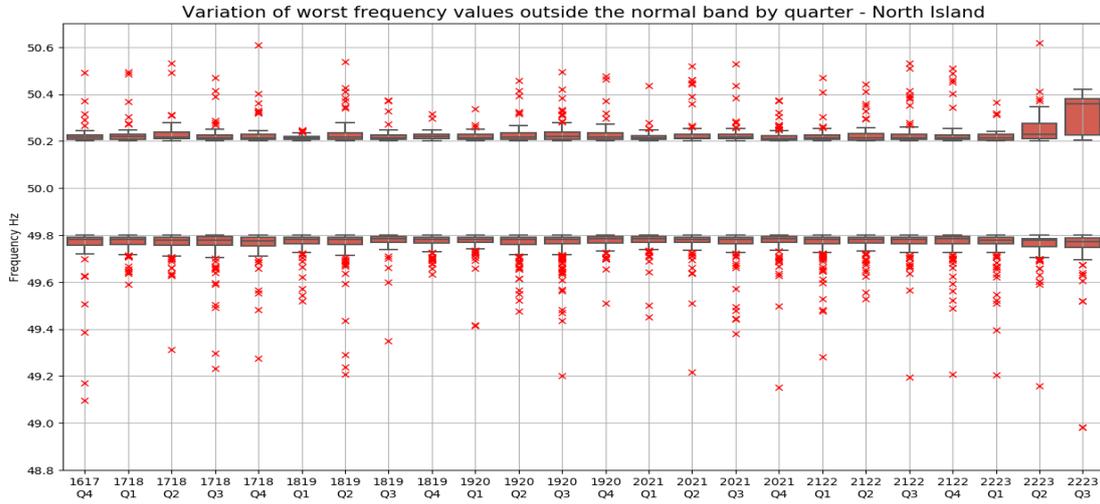
We are still awaiting feedback from the Authority on our proposal to change the significant incident criteria to ensure we are reporting on the right level of incidents considering associated consequences. We have sent a recent example of a loss of supply event at Tekapo which was just over one hour in length and impacted 2.4 MWh of load. Under existing criteria, it would be deemed 'moderate' and need reporting on (requirement is for an outage to be either over an hour or greater than 100 MWh). Our proposal is to combine the criteria i.e. outage over an hour and resulting in more than 100 MWh of impact. For the Tekapo example, the Authority has confirmed they are happy for this to be treated as a minor incident, with no reporting.

17 Frequency fluctuations

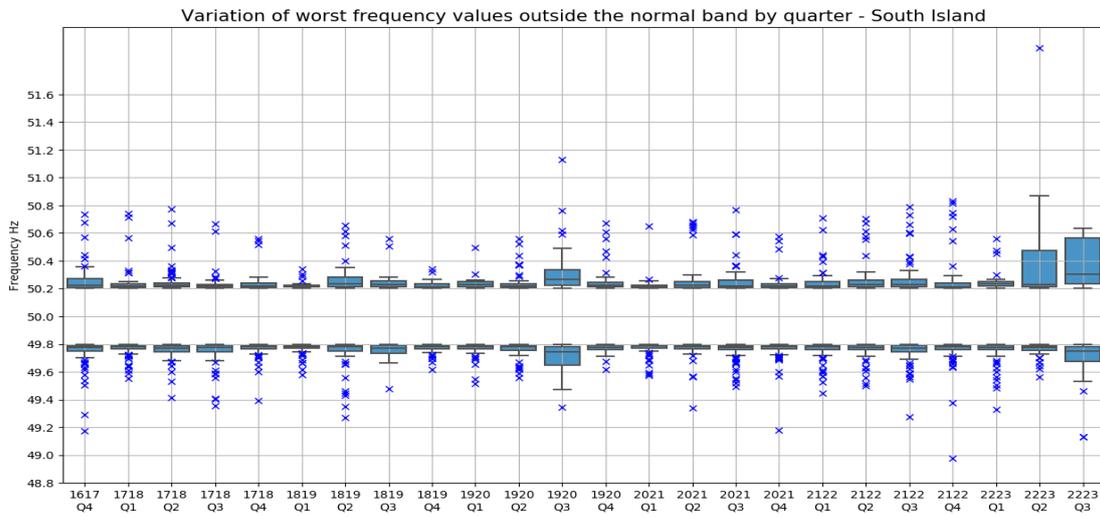
17.1 Maintain frequency in normal band (Frequency value)

The following charts show the distribution of the worst frequency excursion outside the normal band (49.8 to 50.2 Hz) during the reporting period.

North Island



South Island



*2022/23 Q3 contains data for January and February only

Note1: These box and whisker charts show the distribution of data. The “box” represents the distribution of the middle 50% of the data, the “whiskers” indicate variability, and outliers are shown as single data points.

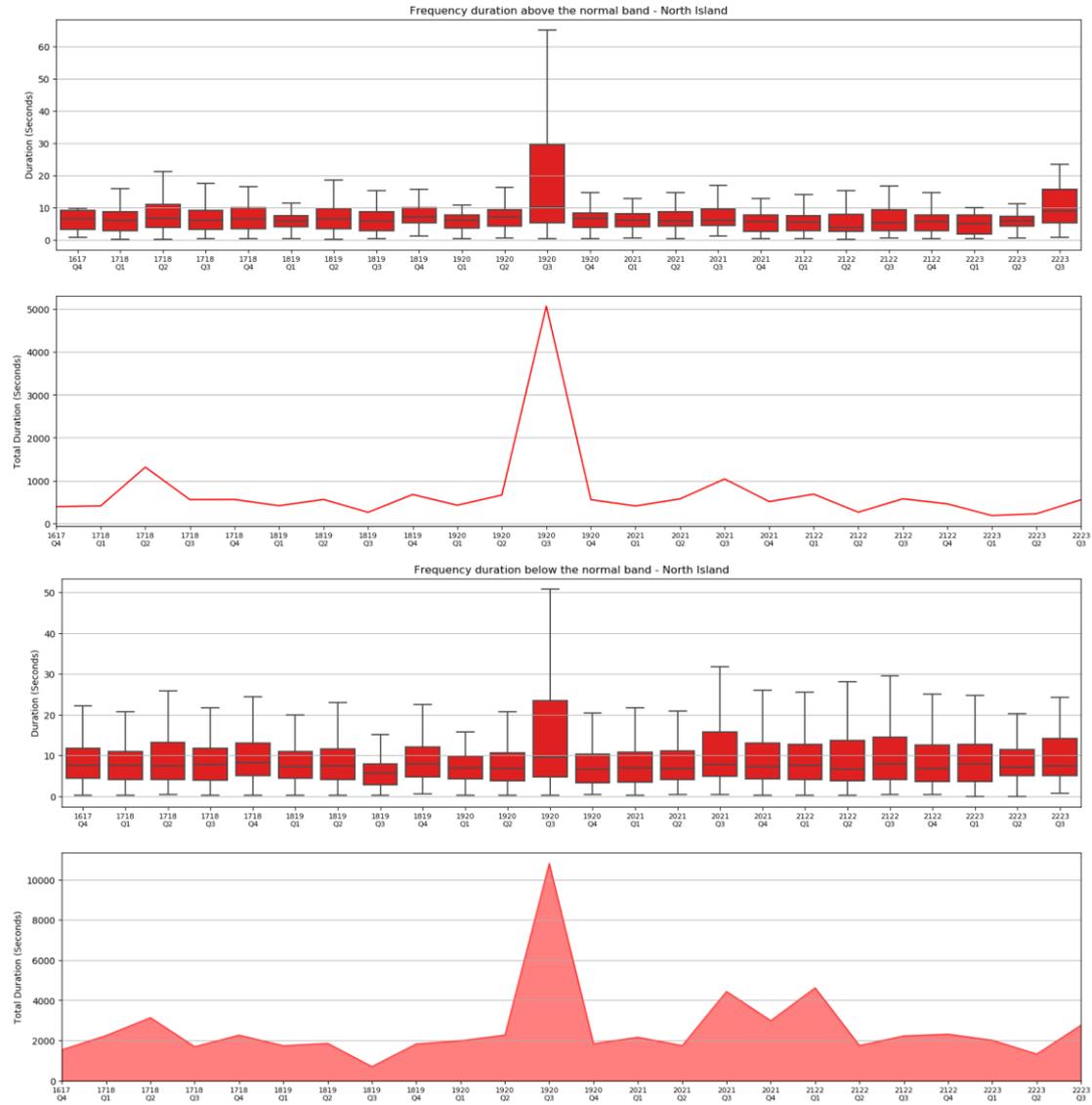
Note2: The “box” for Q2 2022/23 above the normal band is a reflection of more Tiwai excursions than average and the HVDC runback in October.

Note3: The “box” for Q3 2022/23 above the normal band is a reflection of nine Tiwai excursions and the Huntly unit 5 trip in January.

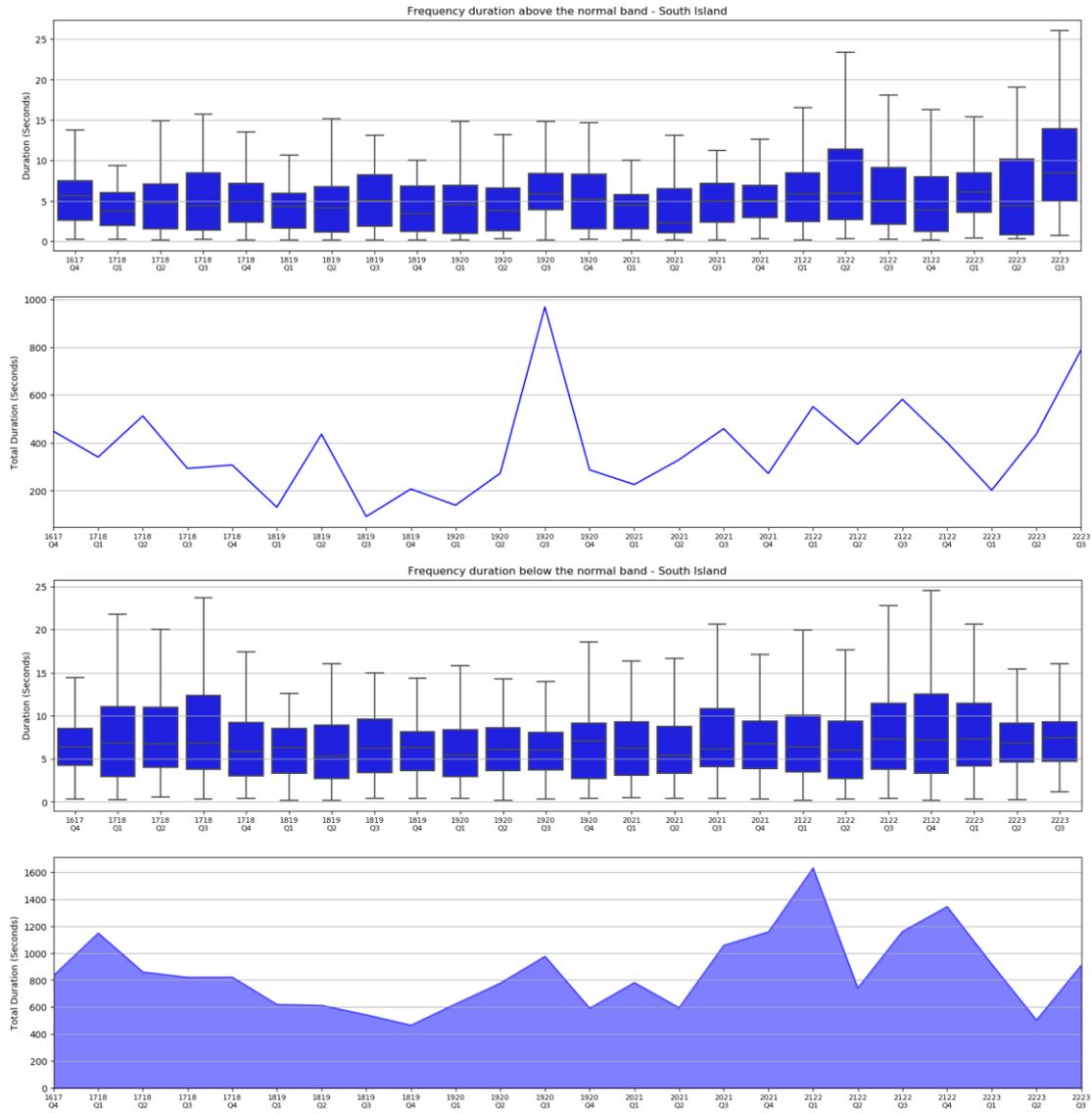
17.2 Recover quickly from a fluctuation (Time)

The following charts show the median (box plot) and total (line chart) duration of all the momentary fluctuations above and below the normal band for each island.

North Island



South Island

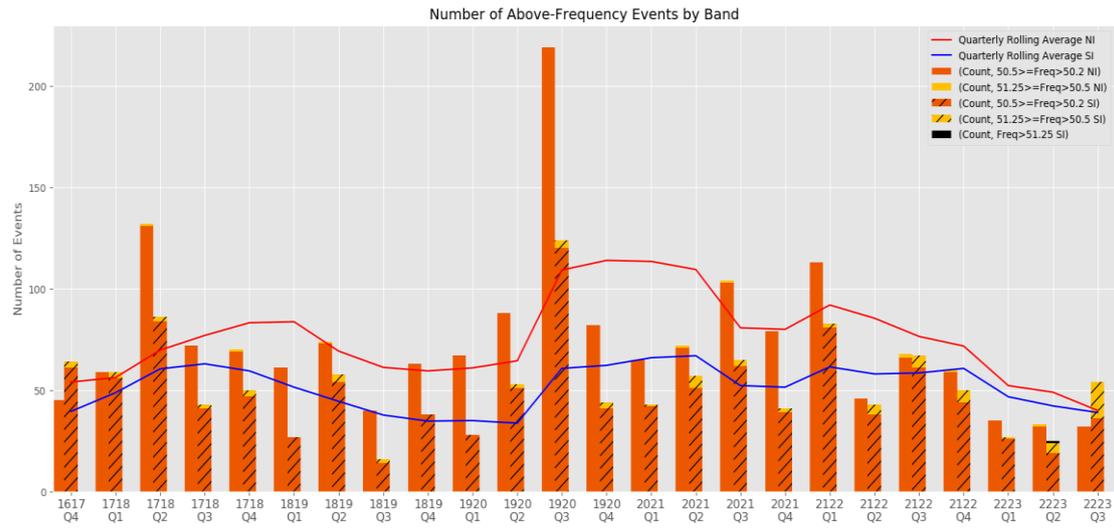


These graphs have not been updated since 2022/23 Q2; they will only be updated at the end of each quarter

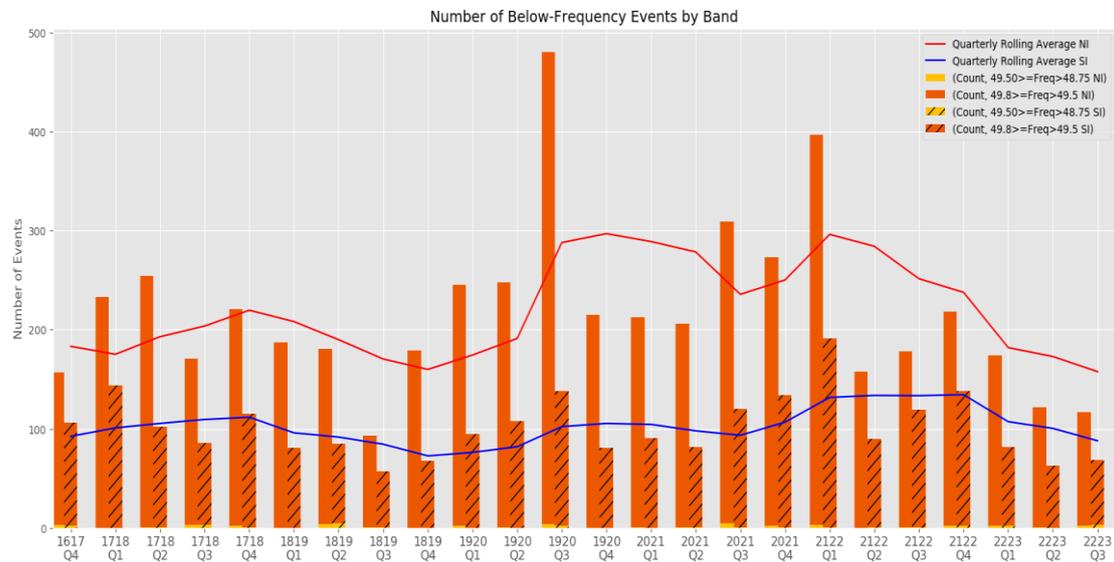
17.3 Manage frequency and limit rate of occurrences during momentary fluctuations (Number)

The following charts show the number of momentary fluctuations outside the frequency normal band, grouped by frequency band, for each quarter. The information is shown by island, including a 4-quarter rolling average to show the prevailing trend.

Over-frequency events



Under-frequency events



2022/23 Q3 contains data for January and February only (the 4-quarterly rolling averages for NI and SI will only be comparable with previous quarters at the end of March).

17.4 Manage time error and eliminate time error once per day

There were no time error violations in the reporting period.

18 Voltage management

Upper North Island Voltage Management

The Pakuranga-Whakamaru_1 circuit is now in service. With increased generation from Huntly and contributions from the newly commissioned Otahuhu reactor, we expect to be able to manage voltage with overhead switching over low demand periods through the rest of the summer. Arrangements are in place with the grid owner should switching of cables be required.

19 Security notices

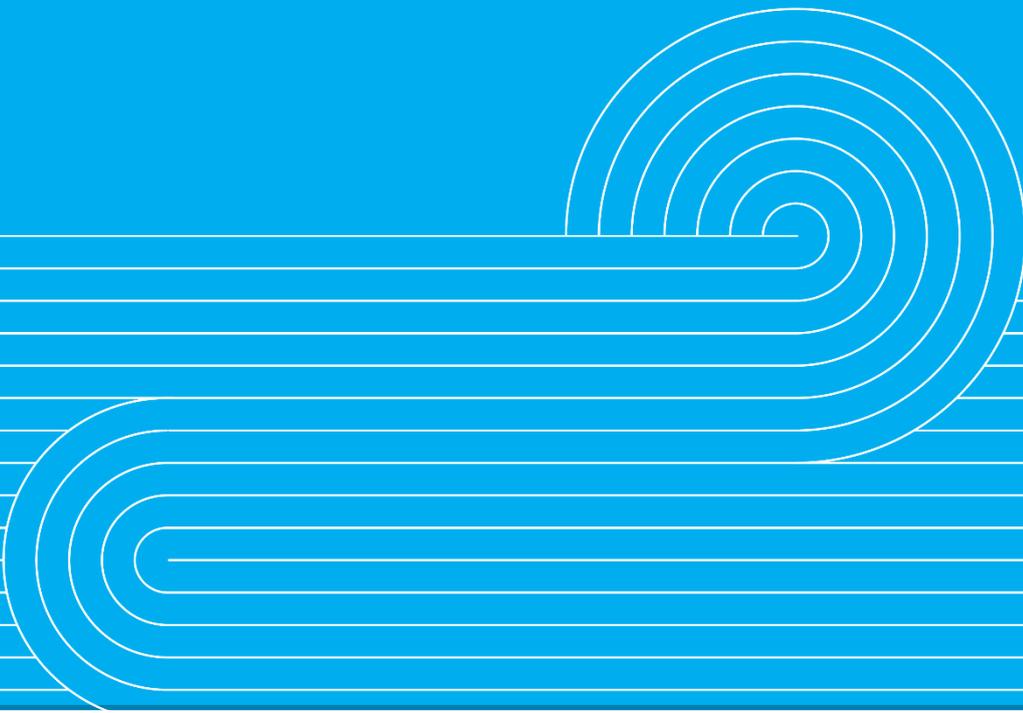
The following table shows the number of Warning Notices, Grid Emergency Notices and Customer Advice Notices issued over the last 12 months.

Notices issued	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23
Demand Allocation Notice	-	-	-	-	-	-	-	-	-	-	-	-	-
Grid Emergency Notice	-	-	-	-	1	-	-	1	1	1	-	-	1
Warning Notice	-	-	-	1	-	-	-	-	1	-	-	-	-
Customer Advice Notice	9	15	14	15	28	24	25	35	33	30	17	11	4

20 Grid emergencies

Date	Time	Summary Details	Island
14/02//23	08:00	A grid emergency was declared following the loss of supply to the Hawkes Bay caused by Cyclone Gabrielle. The grid emergency closed on 10 March; several revisions to the original notice were issued, as the situation changed.	N

Appendices



Appendix A: Discretion

24 instances

In recent months, discretion has been reclassified to include the process to manage generators on minimum MW values overnight. As a result, the list of discretions in this report is much larger than recorded in previous months.

Event Date and Time	Description
1/02/2023 6:46	ROT1101 WHE0 Discretion Max: 0 Start: 01-Feb-2023 07:00 End: 01-Feb-2023 08:30 Required for switching purposes for ROT bus outage. Last Dispatched MW: 23.5
1/02/2023 22:23	MAN2201 MAN0 Discretion Max: 0 Start: 01-Feb-2023 22:23 End: 01-Feb-2023 22:30 GC claimed 13.82.2a due to plant safety - minimum output is 80MW (dispatch is 60.9MW) Last Dispatched MW: 60.9 Was scheduled to 0MW this TP anyway but due to poor wind offers (250MW vs 82MW actual) MAN is marginal.
1/02/2023 22:25	MAN2201 MAN0 Discretion Max: 0 Start: 01-Feb-2023 22:25 End: 01-Feb-2023 22:30 GC claimed 13.82.2a due to plant safety - minimum output is 80MW (dispatch is 60.9MW) Last Dispatched MW: 60.9 Was scheduled to 0MW this TP anyway but due to poor wind offers (250MW vs 82MW actual) MAN is marginal. Last Dispatched MW: 60.9
1/02/2023 22:33	MAN2201 MAN0 Discretion Max: 0 Start: 01-Feb-2023 22:33 End: 01-Feb-2023 23:00 GC claimed 13.82.2a due to plant safety - minimum output is 80MW (dispatch is 72MW) Was scheduled to 0MW last TP anyway but due to poor wind offers (250MW vs 82MW actual) MAN is marginal. Last Dispatched MW: 0
1/02/2023 23:03	MAN2201 MAN0 Discretion Max: 0 Start: 01-Feb-2023 23:03 End: 01-Feb-2023 23:30 GC claimed 13.82.2a due to plant safety - minimum output is 80MW (dispatch is 17MW) Last Dispatched MW: 0
2/02/2023 19:52	TKA0111 TKA1 Discretion Max: 0 Start: 02-Feb-2023 19:52 End: 02-Feb-2023 20:00 Albury Tekapo A tripped, Loss of connection to Tekapo A Last Dispatched MW: 13
2/02/2023 23:38	MAN2201 MAN0 Discretion Max: 0 Start: 02-Feb-2023 23:38 End: 03-Feb-2023 01:00 GC claimed 13.82.2a due to plant safety - minimum output is 80MW (dispatch is 3.2MW) Was scheduled to 0MW this TP but due to inaccurate IG offers (170MW vs 92MW actual) MAN is marginal. Last Dispatched MW: 3.27
3/02/2023 14:55	ROT1101 WHE0 Max: 0 Start: 03-Feb-2023 14:55 End: 03-Feb-2023 15:30 Required to be dispatched off for Outage Return. Last Dispatched MW: 23.5

Event Date and Time	Description
3/02/2023 22:02	MAN2201 MAN0 Discretion Max: 0 Start: 03-Feb-2023 22:02 End: 04-Feb-2023 00:00 Claimed Rule 13.82a. Last Dispatched MW: 22.92 Rule 13.82(2)(a) claimed for a MAN dispatch of 22.9MW. MAN minimum run 80MW. Discussed with SC whom determined MAN not required on and producing MWs, though still should be available for reserves.
4/02/2023 21:40	MAN2201 MAN0 Discretion Max: 0 Start: 04-Feb-2023 21:40 End: 04-Feb-2023 22:30 Claimed Rule 13.82(2)(a). SC advises MAN energy not required, but to ensure MAN reserves still available. Last Dispatched MW: 48.75
5/02/2023 0:01	MAN2201 MAN0 Discretion Max: 0 Start: 05-Feb-2023 00:01 End: 05-Feb-2023 00:30 Claimed Rule 13.82(2)(a). SC advises MAN energy not required, but to ensure MAN reserves still available. Last Dispatched MW: 0
8/02/2023 19:31	HLY5 scheduled below their minimum operating run of 182MW. Trader would claim Rule 13.82(a) citing minimum run of 182MW for plant safety. NI manual CE risk set to 181MW from 23:00 to 06:30. Studies show keeping HLY5 on at its minimum run is the least cost solution. Note, helps manage risk of EDG_KAW_3 risk as well, scheduling ~200MW export on single circuit. Using the KAW_110 risk group for this outage is inaccurate, the total of the generators in the area is not the same as the risk if the circuit tripped (due to lost load). Consideration needs to be given to how to manage this given the flows are changing all the time.
9/02/2023 13:19	MAN2201 MAN0 Discretion Max: 309 Start: 09-Feb-2023 13:19 End: 09-Feb-2023 15:00 Remaining off economic dispatch after line 1 offload Last Dispatched MW: 490
13/02/2023 10:40	MAN2201 MAN0 Discretion Max: 158 Start: 13-Feb-2023 10:40 End: 13-Feb-2023 12:00 TWI extended potline reduction. MAN not returning to economic dispatch. Last Dispatched MW: 326
13/02/2023 21:31	KPA1101 KPI1 Discretion Max: 0 Start: 13-Feb-2023 21:31 End: 13-Feb-2023 22:00 OPK_KPI_SFD_2 and OPK T4 tripped. Last Dispatched MW: 13
14/02/2023 7:42	TUI1101 TUI0 Discretion Max: 0 Start: 14-Feb-2023 07:42 End: 14-Feb-2023 09:00 RDF substation tripped Last Dispatched MW: 12
21/02/2023 4:10	SFD2201 SFD22 Discretion Min: 10 Start: 21-Feb-2023 04:10 End: 21-Feb-2023 04:30 Discretioned on for voltage support- High steady state volts at TWH. Check SC MOL entries for details. Last Dispatched MW: 0
21/02/2023 4:13	SFD2201 SFD22 Discretion Min: 16 Start: 21-Feb-2023 04:13 End: 21-Feb-2023 05:30 CCC advised that SFD22 unit rough running range is 16MW. So discretion is amended to reflect that. Last Dispatched MW: 10
24/02/2023 3:00	TUI1101 TUI0 Discretion Min: 44 Start: 24-Feb-2023 03:00 End: 24-Feb-2023 04:00 Required for security in Hawkes Bay . Last Dispatched MW: 43.85
24/02/2023 3:01	TUI1101 KTW0 Discretion Min: 36 Start: 24-Feb-2023 03:01 End: 24-Feb-2023 04:00 Required for security in Hawkes Bay. Last Dispatched MW: 24.13

Event Date and Time	Description
25/02/2023 1:52	HLY5 scheduled below their minimum operating run of 182MW. HLY operator advised they would claim Rule 13.82(a) citing minimum run of 182MW for plant safety. Studies show keeping HLY5 on at its minimum run is the least cost solution and they are also required for North Island voltage support. NI Optional Island Manual CE risk set to 181MW from 02:00 to 06:00.
25/02/2023 4:26	TUI1101 TUI0 Discretion Min: 44 Start: 25-Feb-2023 04:26 End: 25-Feb-2023 05:30 Required for Hawkes Bay security Last Dispatched MW: 43.87
25/02/2023 4:27	TUI1101 KTW0 Discretion Min: 36 Start: 25-Feb-2023 04:27 End: 25-Feb-2023 05:30 Required for Hawkes Bay security Last Dispatched MW: 22.17
25/02/2023 4:36	MAT1101 MAT0 Discretion Min: 19 Start: 25-Feb-2023 04:36 End: 25-Feb-2023 05:30 Rule 13.82a claimed due to resource consent Last Dispatched MW: 17.53