TRANSPOWER

ELECTRICITY AUTHORITY TE MANA HIKO

Industry Exercise 2025

Webinar 1

4 March 2025

Opening **Karakia**

Kia tau te rangimarie
O te Rangi e tū iho nei
O Papatūānuku e takoto nei
O te taiao e awhi nei
Ki runga i a tātou
Tihei Mauri ora

Translation

Let the peace
of the sky above us
of the earth laid out here
and of the all-embracing universe
settle upon us
Breathe the breath of life

Industry Exercise 2025 – Overview

Objective

- To build resilience and ensure industry is collectively prepared for a major power system event

Outcome

- So that we as an industry can minimise the impact on consumers as much as possible

Approach

- We have chosen to test a dry winter situation to:
  - build industry-wide capability to implement rolling outages
  - test both operational and communication responses, and the interplay between both

Industry Exercise 2025 Structure

Webinar 1 (today, 9:30 – 12:30): Rolling outages process

- Learn about industry processes for an extended electricity supply shortage.

Webinar 2 (18 March, 9:30 – 12:30): Preparing for the Industry Exercise

- Understand how the industry exercise will work and what you need to do to prepare.

Industry Exercise (9 April, 9:30 – 15:00)

- Take part in the simulated rolling outages exercise.

Today's agenda

09:30 – 09:40 Welcome, housekeeping, overview
Matt Copland, Head of Grid & System Operations, Transpower

09:40 – 10:40 Overview of System Operator Rolling Outage Plan (SOROP)
Dean Eagle, Market Technical Specialist, Transpower

10:40 – 11:20 The rolling outage process – planning and execution
Dean Eagle, Market Technical Specialist, Transpower
Tim Connolly, Operations Manager, Transpower
Haden Power, Network Operations Future Manager, Powerco

11:20 – 11:50 Responsibilities under Consumer Care Obligations
Carolina Rodriguez, Principal Analyst Retail and Consumer Policy, Electricity Authority

11:50 – 12:20 Official Conservation Campaign and rolling outage communications
Nathan Green, Principal Advisor Corporate Communications, Transpower

12:20 – 12:30 Final questions, close
Matt Copland, Head of Grid & System Operations, Transpower

New Approved System Operator Rolling Outage Plan (SOROP)

Agenda

- What is the SOROP
- Why did we change it
- What's changed
- What does it mean for you
  - Normal BAU processes
  - Supply shortage
- What information is available to assist
- Questions

What is the SOROP?

If rolling outages are needed due to a supply shortage, the SOROP specifies:

- the actions that the system operator and participants must take
- what must be included in participant rolling outage plans.

Certification – Clause 4(1)(a) of Schedule 2 of the Legislation Act 2019

I certify that this document is a correct copy of the system operator rolling outage plan adopted as having legal effect as part of the Electricity Industry Participation Code 2010 from **1 September 2024** by *Gazette* notice dated 20 August 2024

Sarah Gillies, Chief Executive

Electricity Authority

Date: 21/08/2024

System Operator Rolling Outage Plan

Effective from 1 September 2024

1. Background

1.1 This Plan is the **system operator rolling outage plan**, which the **system operator** is required to prepare and **publish** under clause 9.2 of the **Code**.

1.2 This Plan provides for the management and co-ordination of planned **outages** as an emergency measure during energy shortages.

1.3 Other policies and procedures detail how the **system operator** will provide security of supply related information and respond in other ways to emergencies and security of supply situations. These include the **security of supply forecasting and information policy**, the **emergency management policy**, the **policy statement,** and the clauses of the **Code** relating to **grid emergencies**.

2. Glossary

2.1 In this Plan, unless the context otherwise requires-

capacity savings target means a **savings target** expressed as a maximum instantaneous **demand** (in MW) during a period.

Code refers to the Electricity Industry Participation Code 2010.

available hydro storage has the meaning given to that term in the **security of supply forecasting and information policy**.

1

What is a supply shortage?

- Shortage of electricity supply

- Shortage of capacity

Why did we change the SOROP (1)

- No clear guidance or definition of:
  - when a supply shortage should be declared and revoked.
  - what savings targets should be set, or what they're aiming to do.
- Forecasting issues – used probabilistic modelling rather than the current (or worst) state
- No accounting for load growth or step changes.

Why did we change the SOROP (2)

- Asking for some information in PROPs we don’t need and wouldn’t use.
- Little input for specified participant feedback on some actions/information provided.
- Little co-ordination of specified participant plans with the overall situation.
- Opportunity to clarify info and formatting to go into PROPs.

What's changed in the SOROP (1)

- We have defined a supply shortage for:
  - shortage of electricity supply, and
  - shortage of capacity.
- The trigger for declaring a supply shortage is if we see any extended periods of unplanned outages (loss of supply) in our model over the next 35 days.
- With an electricity supply shortage, we also need to have declared an Official Conservation Campaign (OCC).

What’s changed in the SOROP (2)

- Use of inflow forecast for next 7 days and 1% inflows after that.
- Forecast for non-hydro generation.
- Use of a 35-day demand forecast (not last years’ demand) for our modelling on the trigger and for setting savings targets.
- Specified participant feedback on this forecast is provided for.

What’s changed in the SOROP (3)

- Savings targets designed to avoid unplanned outages over 35 days. Not related to holding hydro lakes at any certain level.
- Feedback on savings targets provided for but savings only revised in specific circumstances.

What’s changed in the SOROP (4)

- Contact information should be provided in one table
- The contact information will be used in co-ordinating activities.
- Provide a schedule of rolling outages, once savings targets are notified by the system operator.
- Provide a GXP demand level forecast for any conforming nodes*, once savings targets are notified by the system operator.

What’s changed in the SOROP (5)

- Contact information must be redacted before being published publicly.
- We don’t need information on interruptible load.
- We don’t need feeder level information.
- We don’t need the notices you would send to notify of outages nor your template log to record rolling outages.
- From direct connects we don’t need a “full information plan”.

What's all the GXP level demand forecast information?

- A demand forecast has been mentioned as something we provide, and you provide so let's explain what these are.
- We will use (and provide for your review) a 35-day demand forecast in determining:
  - whether/when to declare a supply shortage, and
  - what the savings targets should be as a result.
- Our 35-day demand forecast excludes any rolling outages. It's important we calculate when to start and how much to cut before accounting for rolling outages.

What's all the GXP level demand forecast information?

- From you we require:
  - Feedback (within 48hrs of savings targets being notified) if the above demand forecast looks grossly wrong.
  - A schedule of outages of the appropriate 7 days.
  - GXP demand forecast information for the appropriate 7 days for lines companies.
  - You can use our demand forecast and adjust to provide your GXP demand forecast.
  - We don't know when/where you will cut supply, that's why we require this information.
  - Direct Connects should update their bids via WITS.

What do these changes mean for you (1)

- Normal BAU processes

- During a supply shortage

What do these changes mean for you (2)

- Normal BAU processes:
  - Your PROP needs to state you'll provide those 7-day outage lists and daily GXP demand.
  - Your PROP should have contact information condensed into one table. A general email for admin and phone/email for operational matters is best.
  - Redact all contact details before publishing on your website (but we need those contact details in the PROP sent for review).
  - Table for prioritisation of demand is a guideline only.

What do these changes mean for you (3)

- Normal BAU processes:
  - Energy savings targets in your PROP should be in tables with levels of 5-25%.
  - These numbers should be based on August demand.
  - These are weekly targets not hourly or daily.

What do these changes mean for you (4)

- What doesn’t need to go in your PROP:
  - We don’t need information on interruptible load.
  - We don’t need feeder level information.
  - We don’t need example logs for outages or example notices.
  - We don’t need information for a “full information plan” from direct connects.

What do these changes mean for you (5)

- Supply Shortage has been declared:
  - Respond to any direction by email within 48 hrs.
  - There will be a 35-day demand forecast to review and provide feedback if it looks wrong.
  - Provide a rolling 7-day outage list.
  - Provide a half hourly GXP demand forecast for the next 7 days.
  - Both provided daily to the system operator, once savings targets have been notified.

What do these changes mean for you (6)

- Supply Shortage has been declared:
  - Ensure contact information is correct and updated.
  - Outage time coordination will be required between specified participants and system operator.
  - Implement what is in your participant rolling outage plan.
  - You provide regular information on performance vs targets.
  - We provide daily demand data.

We’re here to help

- Feel free to flick me an email or give me a call for any questions
  - dean.eagle@transpower.co.nz
  - 04 590 7139
- Please read the new SOROP, it’s on our website: https://www.transpower.co.nz/system-operator/information-industry/operational-information-system/rolling-outage-plans
- Revised guidelines to assist with preparing a participant rolling outage plan on our website.
- Template participant rolling outage plans (initially for lines companies then direct connects).

Any questions

Please raise your hand

Rolling Outage Process – Planning and Execution

Summary of the Scenario

- A shortage of electricity supply (not shortage of capacity).
- Dry hydro storage lakes.
- Set in July-August, demand high, supply low.
- Demand cannot be fully met from day 28.

An overview of the process (1)

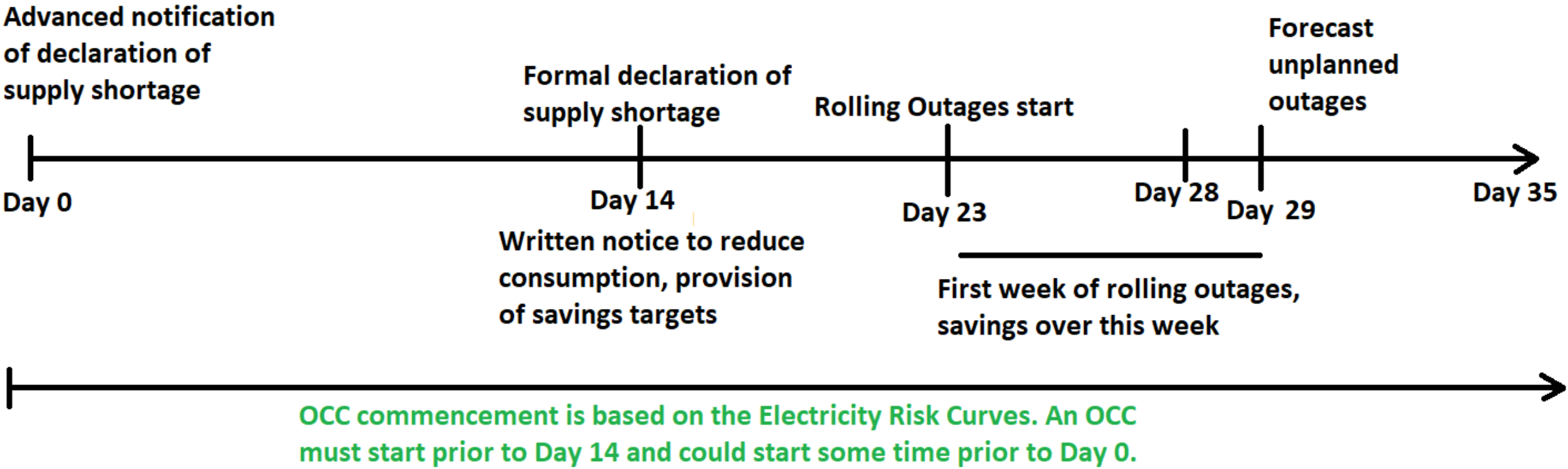
- To declare a supply shortage, we require:
  - Modelling that shows an extended period of unplanned outages within the next 35 days.
  - Commencement of an OCC (if its for a shortage of electricity supply).

An overview of the process (2)

- Modelling is undertaken by EnergyLink working with Transpower.
  - ➢ Inputs defined in the SOROP.
- Extended period likely to be 7 days or more.
- Unplanned outages means loss of supply, lights out, non-supply.
- OCC is a separate process.

An overview of the process (3)

- Possible Timeline



Notification of a supply shortage (1)

- Customer Advice Notice (CAN) for advance notification of a supply shortage (14 days in advance).
- No notifications for OCC in this exercise, would happen in real event.
- CAN for declaration of supply shortage.
- Savings targets (these are weekly energy targets):
  - 9 days lead time before rolling outages start.
- 35-day demand forecast (individualized):
  - Used in setting savings targets.
  - 48 hours to review (if you wish).

Notification of a supply shortage (2)

- We will require some information back from you (lines companies and direct connect customers).
- Any changes to outage timings would be notified via phone call, followed up in writing.
- Some things to note:
  - Our notices and communications will clearly state what actions to take (if any) and what response (if any) is required.
  - Your savings targets may be different from other participants.
  - Savings target is weekly, not daily.
  - Savings targets may increase every week if situation doesn't improve.

Information we require from you

- Feedback on that 35-day demand forecast (not essential). As its used for setting savings targets look at days 23-30 for first week or rolling outages.
- Week ahead rolling outage schedule (GXP, time off, time on) noting when rolling outages start (day 23 on our timeline so we need info for days 23-30).

GXP	Outage Start time	Outage restore time
ABC0111	08:00	15:00
DEF0331	08:00	15:00
GHI0331	08:30	15:30
JKL0111	08:30	15:30
MNO0331	08:30	15:30

Information we require from you

- Week ahead half hourly GXP demand (take our forecast and subtract your outages).

Date	BRK0331		BPE0551		BPE0331		CST0331		GYT0331		Total Reduction in MW	Start Time	Restoration Time
2/09/2024 7:00	20.70	14.98	0.00	0.00	63.40	54.94	45.90	39.13	10.30	9.42	127.67	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 7:30	19.90	13.99	0.00	0.00	62.10	53.51	44.10	30.40	9.90	9.07	185.69	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 8:00	19.20	13.57	0.00	0.00	59.40	51.27	42.10	27.86	9.80	8.99	184.28	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 8:30	18.40	13.10	0.00	0.00	57.40	49.93	40.30	26.23	9.40	8.69	177.43	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 9:00	17.70	12.87	0.00	0.00	56.20	49.09	38.70	24.73	8.90	8.32	172.76	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 9:30	16.60	12.10	0.00	0.00	53.10	46.31	36.10	22.76	8.30	7.86	167.69	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 10:00	15.40	11.26	0.00	0.00	49.50	43.02	33.00	20.07	7.50	7.07	163.66	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 10:30	14.10	10.17	0.00	0.00	46.20	40.07	30.20	17.35	6.80	6.37	162.24	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 11:00	13.30	9.54	0.00	0.00	44.30	38.44	28.30	15.65	7.20	6.81	159.12	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 11:30	12.30	8.67	0.00	0.00	40.70	34.69	25.90	13.18	7.10	6.67	159.12	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 12:00	11.60	8.05	0.00	0.00	38.30	32.51	23.60	10.46	5.50	5.14	157.57	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 12:30	11.00	7.64	0.00	0.00	36.60	30.93	22.00	9.34	4.80	4.42	154.42	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 13:00	10.90	7.61	0.00	0.00	35.70	30.03	21.60	9.47	4.70	4.32	152.61	2/09/2024 6:30	2/09/2024 13:30
2/09/2024 13:30	10.70	10.70	0.00	0.00	34.80	33.72	21.20	12.68	4.80	4.80	60.57	2/09/2024 6:30	2/09/2024 13:30

Powerco Rolling Outage Model

Haden Power | March 2025

Problems to solve

What customers do we offload

What feeders contain customers we need to keep energized

Meeting Savings Targets

How many feeders do we offload to reduce 5%, 10%, 15%...

How to provide GXP 30min forecasting

We are required to send Transpower 30min load forecasts at each conforming GXP, how can we do this..

How do we offload hundreds of feeders

How do we practically offload hundreds of feeders, what are the logistics of this.

What customers do we offload

What feeders contain customers we should keep energized

Importance of customer information

We understand our customer types and their criticality levels.

Using this data, we identified feeders serving critical customers and compiled a list of available feeders.

We excluded AUFLS 1, 2 block feeders; Blocks 3 and 4 are included.

This resulted in 456 feeders available for offloading with reduced criticality, containing no priority 1 or 2 customers.

Powerco has 684 11kV feeders in total.

Priority	Priority Concern
1	Public health and safety
2	Maintaining important public services
3	Public health and safety
4	Animal health and food production/storage
5	Maintaining production
6	Avoiding disruption to households

Meeting Savings Targets

How many feeders

How many feeders do we offload to reduce 5%, 10%, 15%...

We store historical current readings on all feeders.

This was used to get the average MW per feeder.

This information enabled us to select the quaintly and duration of feeders to offload, helping us meet our savings target.

We also map the outage for customer notifications.

Feeder	Excel PI Tag	Feeder Rating	ICP Count	Outage Planner Adhoc Outage#	Priority Customers	Priority Rating	Outage Duration (Hours)	Weekday MW Sep 2023 (Average per hr)	Weekend MW Sep 2023 (Average per hr)	Weekday MW Oct 2023 (Average per hr)
WBY CB 8	WBY CB 8 I	F3	694	A005245	Pump Station	3	3	0.63	0.74	0.59
BRD CB 1	BRD CB 1 I	F3	513	A005163	Pump Station, School,	3	3, 5	0.45	0.45	0.41
BKL CB 10	BKL CB 10 I	F3	849	A005156	Multiple Schools, School Hostel, Kindy,	3	5	1.44	1.33	1.42
BKL CB 8	BKL CB 8 I	F3	1426	A005159	Multiple Schools,	3	5	1.38	1.46	1.32
CHA CB C856	CHA CB C856 I	F3	591	A005164	School, Resthome,	3	5	0.65	0.60	0.59
FRG CB 7	FRG CB 7 I	F3	989	A005169	Playcentre, Daycare,	3	3, 5	0.88	0.96	0.83
HAT CB 11	HAT CB 11 I	F3	505	A005172	Pump Stations, SCADA Bastia Hill Repeater,	3	3	0.58	0.59	0.53
ING CB 61	ING CB I61 I	F3	944	A005174	Rest Home, Police Station, Schools,	3	5	1.01	0.93	1.30
KST CB 13	KST CB 13 IA	F3	1329	A005177	Pump Stations, School, Kindy, Medical Centre	3	3, 5	1.07	1.07	1.00
KST CB 21	KST CB 21 IA	F3	1491	A005178	Medical Centres,	3	5	1.35	1.39	1.25
MAI CB 23	MAI CB 23 I	F2	1251	A005189	Daycares, Medical Centres, School, Bore	3	3, 5	1.43	1.32	1.37
MTP CB 1	MTP CB 1 I	F3	810	A005195	Resthomes, School,	3	5	0.61	0.64	0.56
MTP CB 2	MTP CB 2 I	F3	290	A005196	Te Kōhanga Reo,	3	3, 5	0.26	0.24	0.21
MAA CB 3	MAA CB 3 I	F3	530	A005186	School, Retirement Village, Pump Station	3	3, 5	0.48	0.47	0.44

Forecasting

How to provide GXP 30min forecasting

We need to send 30-minute load forecasts to Transpower for each conforming GXP. How can we achieve this?

We start with the Transpower provided forecast, and load this into our model.

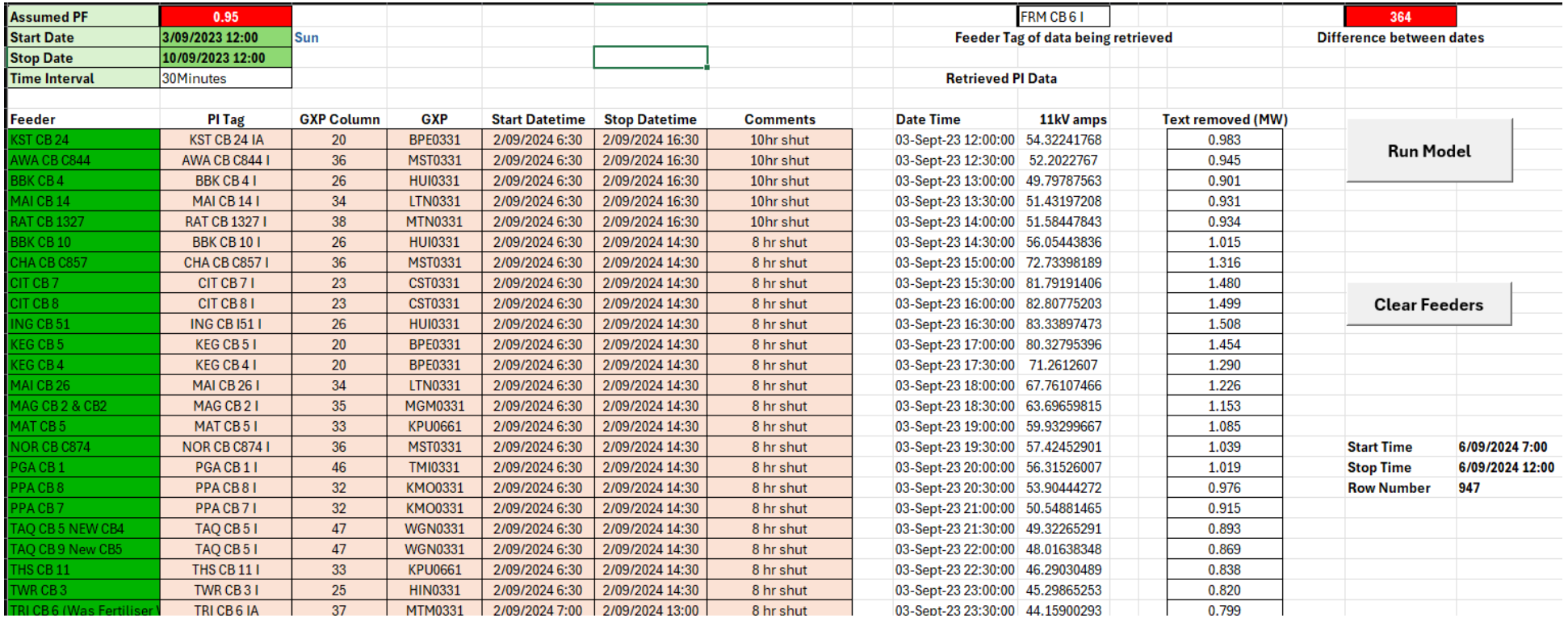
Transpower provided GXP 30min MW forecast

	A	B	C	D	E	F	G	H	I	J	K	L
1	Date	BRK0331	BPE0551	BPE0331	CST0331	GYT0331	HWA1101	HWA1102	HWA0331	HWA0332	HIN0331	HUI03
2	1/09/2024 12:00	10.9	0	34.5	21	2.3	0	0	14.1	10.1	7.6	
3	1/09/2024 12:30	10.4	0	32.7	20.2	2.1	0	0	13.6	10.3	7.3	
4	1/09/2024 13:00	10.2	0	32	20.4	2.2	0	0	13.3	10.5	7.4	
5	1/09/2024 13:30	10	0	31.8	20.5	1.6	0	0	13.2	10.6	7.3	
6	1/09/2024 14:00	9.5	0	30.3	22.2	1.9	0	0	12.7	10.3	7.2	1
7	1/09/2024 14:30	9.5	0	29.4	22.2	2	0	0	12.6	10.4	7.2	1
8	1/09/2024 15:00	9.4	0	29.6	22	1.4	0	0	12.4	10.4	7.2	1
9	1/09/2024 15:30	9.5	0	29.5	22.1	1.5	0	0	12.4	10.4	7.3	1
10	1/09/2024 16:00	9.7	0	30.8	22.2	1.8	0	0	12.6	10.3	7.7	
11	1/09/2024 16:30	10	0	31.7	22.8	2.4	0	0	13.7	10.3	8.5	1
12	1/09/2024 17:00	10.7	0	34.2	24.7	3.7	0	0	15.6	10.2	10	1
13	1/09/2024 17:30	11.7	0	39.3	27.6	5.3	0	0	18.3	10.3	12.4	1
14	1/09/2024 18:00	13.8	0	46.9	31.6	5.9	0	0	20.9	10.6	15	1
15	1/09/2024 18:30	15.9	0	53.8	34.6	7.7	0	0	22.9	10.8	17.3	1
16	1/09/2024 19:00	17.7	0	59.9	39.5	9.7	0	0	23.9	10.8	18.9	1
17	1/09/2024 19:30	18.4	0	63.2	42.2	9.8	0	0	23.6	10.8	19.3	1
18	1/09/2024 20:00	18.7	0	62.2	42.9	9.2	0	0	22.8	10.8	19.3	1
19	1/09/2024 20:30	18.3	0	58.9	41.5	8	0	0	20.8	10.4	18.2	1
20	1/09/2024 21:00	18	0	57.5	40.8	8.7	0	0	20	10.1	16.9	
21	1/09/2024 21:30	17.6	0	56.5	39.8	9	0	0	18.9	9.7	16.4	1

Forecasting

The selected feeders are then listed in the rolling outage tool, with each feeder having its date, GXP, and time off/on.

The model computes the energy for each feeder at 30-minute intervals.



Assumed PF	0.95							FRM CB 6 I		364
Start Date	3/09/2023 12:00	Sun						Feeder Tag of data being retrieved		Difference between dates
Stop Date	10/09/2023 12:00									
Time Interval	30Minutes							Retrieved PI Data		
Feeder	PI Tag	GXP Column	GXP	Start Datetime	Stop Datetime	Comments		Date Time	11kV amps	Text removed (MW)
KST CB 24	KST CB 24 IA	20	BPE0331	2/09/2024 6:30	2/09/2024 16:30	10hr shut		03-Sept-23 12:00:00	54.32241768	0.983
AWA CB C844	AWA CB C844 I	36	MST0331	2/09/2024 6:30	2/09/2024 16:30	10hr shut		03-Sept-23 12:30:00	52.2022767	0.945
BBK CB 4	BBK CB 4 I	26	HUI0331	2/09/2024 6:30	2/09/2024 16:30	10hr shut		03-Sept-23 13:00:00	49.79787563	0.901
MAI CB 14	MAI CB 14 I	34	LTN0331	2/09/2024 6:30	2/09/2024 16:30	10hr shut		03-Sept-23 13:30:00	51.43197208	0.931
RAT CB 1327	RAT CB 1327 I	38	MTN0331	2/09/2024 6:30	2/09/2024 16:30	10hr shut		03-Sept-23 14:00:00	51.58447843	0.934
BBK CB 10	BBK CB 10 I	26	HUI0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 14:30:00	56.05443836	1.015
CHA CB C857	CHA CB C857 I	36	MST0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 15:00:00	72.73398189	1.316
CIT CB 7	CIT CB 7 I	23	CST0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 15:30:00	81.79191406	1.480
CIT CB 8	CIT CB 8 I	23	CST0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 16:00:00	82.80775203	1.499
ING CB 51	ING CB I51 I	26	HUI0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 16:30:00	83.33897473	1.508
KEG CB 5	KEG CB 5 I	20	BPE0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 17:00:00	80.32795396	1.454
KEG CB 4	KEG CB 4 I	20	BPE0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 17:30:00	71.2612607	1.290
MAI CB 26	MAI CB 26 I	34	LTN0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 18:00:00	67.76107466	1.226
MAG CB 2 & CB2	MAG CB 2 I	35	MGM0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 18:30:00	63.69659815	1.153
MAT CB 5	MAT CB 5 I	33	KPU0661	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 19:00:00	59.93299667	1.085
NOR CB C874	NOR CB C874 I	36	MST0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 19:30:00	57.42452901	1.039
PGA CB 1	PGA CB 1 I	46	TMI0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 20:00:00	56.31526007	1.019
PPA CB 8	PPA CB 8 I	32	KMO0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 20:30:00	53.90444272	0.976
PPA CB 7	PPA CB 7 I	32	KMO0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 21:00:00	50.54881465	0.915
TAQ CB 5 NEW CB4	TAQ CB 5 I	47	WGN0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 21:30:00	49.32265291	0.893
TAQ CB 9 New CB5	TAQ CB 5 I	47	WGN0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 22:00:00	48.01638348	0.869
THS CB 11	THS CB 11 I	33	KPU0661	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 22:30:00	46.29030489	0.838
TWR CB 3	TWR CB 3 I	25	HIN0331	2/09/2024 6:30	2/09/2024 14:30	8 hr shut		03-Sept-23 23:00:00	45.29865253	0.820
TRI CB 6 (Was Fertiliser	TRI CB 6 IA	37	MTM0331	2/09/2024 7:00	2/09/2024 13:00	8 hr shut		03-Sept-23 23:30:00	44.15900293	0.799

Run Model

Clear Feeders

Start Time	6/09/2024 7:00
Stop Time	6/09/2024 12:00
Row Number	947

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Forecasting

The script fetches historical loading data from one year prior, aggregates it for each GXP, and plots it against the forecast provided by Transpower.

We run this for the week ahead. The model generates a new column beside the original forecast value, highlighting the reduced MW value in red.

Modelled GXP 30min MW forecast

Date	BRK0331		BPE0551		BPE0331		CST0331		GYT0331	
2/09/2024 4:30	16.30	16.30	1.70	1.70	56.00	56.00	40.90	40.90	8.70	8.70
2/09/2024 5:00	17.40	17.40	2.10	2.10	58.20	58.20	43.70	43.70	9.50	9.50
2/09/2024 5:30	20.00	20.00	1.20	1.20	62.00	62.00	46.80	46.80	10.30	10.30
2/09/2024 6:00	21.10	21.10	0.00	0.00	64.40	64.40	48.10	48.10	10.60	10.60
2/09/2024 6:30	21.20	21.20	0.00	0.00	65.00	63.67	47.80	45.75	10.60	10.60
2/09/2024 7:00	20.70	14.98	0.00	0.00	63.40	54.94	45.90	39.13	10.30	9.42
2/09/2024 7:30	19.90	13.99	0.00	0.00	62.10	53.51	44.10	30.40	9.90	9.07
2/09/2024 8:00	19.20	13.57	0.00	0.00	59.40	51.27	42.10	27.86	9.80	8.99
2/09/2024 8:30	18.40	13.10	0.00	0.00	57.40	49.93	40.30	26.23	9.40	8.69
2/09/2024 9:00	17.70	12.87	0.00	0.00	56.20	49.09	38.70	24.73	8.90	8.32
2/09/2024 9:30	16.60	12.10	0.00	0.00	53.10	46.31	36.10	22.76	8.30	7.86
2/09/2024 10:00	15.40	11.26	0.00	0.00	49.50	43.02	33.00	20.07	7.50	7.07
2/09/2024 10:30	14.10	10.17	0.00	0.00	46.20	40.07	30.20	17.35	6.80	6.37
2/09/2024 11:00	13.30	9.54	0.00	0.00	44.30	38.44	28.30	15.65	7.20	6.81
2/09/2024 11:30	12.30	8.67	0.00	0.00	40.70	34.69	25.90	13.18	7.10	6.67
2/09/2024 12:00	11.60	8.05	0.00	0.00	38.30	32.51	23.60	10.46	5.50	5.14
2/09/2024 12:30	11.00	7.64	0.00	0.00	36.60	30.93	22.00	9.34	4.80	4.42
2/09/2024 13:00	10.90	7.61	0.00	0.00	35.70	30.03	21.60	9.47	4.70	4.32
2/09/2024 13:30	10.70	10.70	0.00	0.00	34.80	33.72	21.20	12.68	4.80	4.80
2/09/2024 14:00	10.60	10.60	0.00	0.00	34.60	33.55	20.90	18.29	4.90	4.90
2/09/2024 14:30	10.50	10.50	0.00	0.00	34.20	33.15	21.20	18.61	5.10	5.10
2/09/2024 15:00	10.70	10.70	0.00	0.00	33.40	33.05	22.50	22.50	4.90	4.90
2/09/2024 15:30	10.60	10.60	0.00	0.00	33.10	32.70	23.30	23.30	4.70	4.70
2/09/2024 16:00	10.70	10.70	0.00	0.00	33.10	32.63	23.20	23.20	5.50	5.50
2/09/2024 16:30	11.00	11.00	0.00	0.00	34.30	33.73	23.60	23.60	6.00	6.00
2/09/2024 17:00	11.80	11.80	0.00	0.00	36.90	36.90	25.00	25.00	6.40	6.40

Forecasting

The model generates the summary of total energy saving for the week.

This 5% example is a reduction of 5120 MWh that's 5.4% of the total energy for that week.

Modelled GXP 30min MW forecast

BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS
WKO0331		WGN0331		WVY0111		Total Reduction in MW	Start Time	Restoration Time			Summary		
26.10	26.10	19.90	19.90	3.30	3.30	0.00							
26.50	26.50	20.20	20.20	3.10	3.10	0.00							
28.60	28.60	22.00	22.00	3.30	3.30	0.00							
29.60	29.60	22.70	22.70	3.10	3.10	0.00							
30.10	30.10	22.90	22.49	3.20	3.20	15.02	As per column A						
28.90	25.60	22.40	16.05	3.20	3.20	127.67					Total MWhr Reduced	5120.97	
27.70	24.29	21.30	8.16	3.10	3.10	185.69					Total Percentage Reduced	5.4	
26.70	23.18	20.70	7.55	3.10	3.10	184.28					Sum Transpower MWHr	95436.5	
26.10	22.64	20.60	7.76	2.90	2.90	177.43					Sum Model MWHr	89592.0	
25.20	21.87	20.30	8.24	2.80	2.80	172.76							
23.90	20.62	19.90	8.18	2.80	2.80	167.69							
22.00	18.88	19.30	7.94	2.60	2.60	163.66							
20.80	17.78	18.50	6.98	2.40	2.40	162.24							
20.00	17.02	18.10	6.75	2.40	2.40	159.12							
19.10	16.22	17.20	5.99	2.30	2.30	159.12							
18.40	15.55	16.40	5.58	2.20	2.20	157.57							
17.90	14.94	16.00	5.67	2.10	2.10	154.42							
18.00	15.14	15.80	5.72	2.00	2.00	152.61							
18.20	18.20	15.60	10.04	2.10	2.10	60.57							
17.80	17.80	15.40	14.67	1.90	1.90	16.67							
17.50	17.50	15.30	14.60	2.00	2.00	16.84							
17.40	17.40	15.00	15.00	2.00	2.00	1.97							
17.50	17.50	15.00	15.00	1.80	1.80	1.97							
17.90	17.90	15.30	15.30	1.90	1.90	2.05							
18.50	18.50	15.60	15.60	2.00	2.00	2.10							
19.40	19.40	16.60	16.60	2.40	2.40	0.00							

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Problems to solve

Recap so far

What customers do we offload
What feeders contain customers we need to keep energized

Meeting Savings Targets
How many feeders do we offload to reduce 5%, 10%, 15%...

How to provide GXP 30min forecasting
We are required to send Transpower 30min load forecasts at each conforming GXP, how can we do this..

How do we offload hundreds of feeders
How do we practically offload hundreds of feeders, what are the logistics of this.

Offloading customers

How do we offload hundreds of feeders

How do we practically offload hundreds of feeders, what are the logistics of this

The 5% plan for our network will offload 947 feeders from Monday to Friday

190 feeders per day, with various outage times

All noncritical planned work canceled

Open 5 control desks with reduced AORs

38 feeders per desk off in the morning back on in the afternoon

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Status - Issued
Form - 220F009
Version 9 – 18 November 2020

SWITCHING INSTRUCTION SHEET – PLANNED

Date of Job:	1	SIN (NAPA ID):	
Power Outage / Permit Issue Time:	07:00	To:	16:30
Substation:	TGA, MAA, OTE, BHM, KTK, AON, OMO, HST, WBY, PPA, PMA, TRI, MTP, OMU	Feeder:	
Customer Initiated Works:	No	OMS Job Number:	
Planned Work By:	Powerco	Network Switching By:	Powerco
Purpose of Switching:	Rolling Outages Tauranga North – 5% Plan - Day 3		
Field Switcher:		Contact Details:	

Op	Location	Voltage Equipment	Action	Time	Int.
	TAURANGA GXP				
	TGA Sub: CB 19				
1.	150 Cambridge Rd	Sectionaliser 9888/2	NOC Disable ABR		
2.	1A Country Way	Recloser 9483	NOC Disable U/V		
3.	3 Westridge Drive	Sw/Gear 14486/4 **(Priority 3 = 5hr Outage)**	**07:00 NOC Open**		
4.	NOC	OMS Outage			
	HST Sub:				
5.	HST Sub	CB 1 **(Priority 4 = 6hr Outage)**	**07:00 NOC Open**		
6.	NOC	OMS Outage			
	AON Sub:				
7.	AON Sub	CB 1 **(Priority 3 = 5hr Outage)**	**07:00 NOC Open**		
8.	NOC	OMS Outage			
9.	AON Sub	CB 2 **(Priority 3 = 5hr Outage)**	**07:00 NOC Open**		
10.	NOC	OMS Outage			
11.	473 Wanui South Rd **(AON 3)**	Sectionaliser 9702/2	NOC Disable ABR		
12.	SH 2	Recloser 9489/2	NOC Disable U/V		
13.	AON Sub **LOCAL SERVICE**	CB 3 **(Priority 3 = 5hr Outage)**	**07:00 NOC Open**		
14.	NOC	OMS Outage			
15.	2842 SH 2 **(AON 4)**	Sectionaliser 13508/2	NOC Disable ABR		

Offloading customers

The 15% plan requires offloading 2608 feeders

521 feeders per day, with various outage times

All noncritical planned work canceled

Open 5 control desks

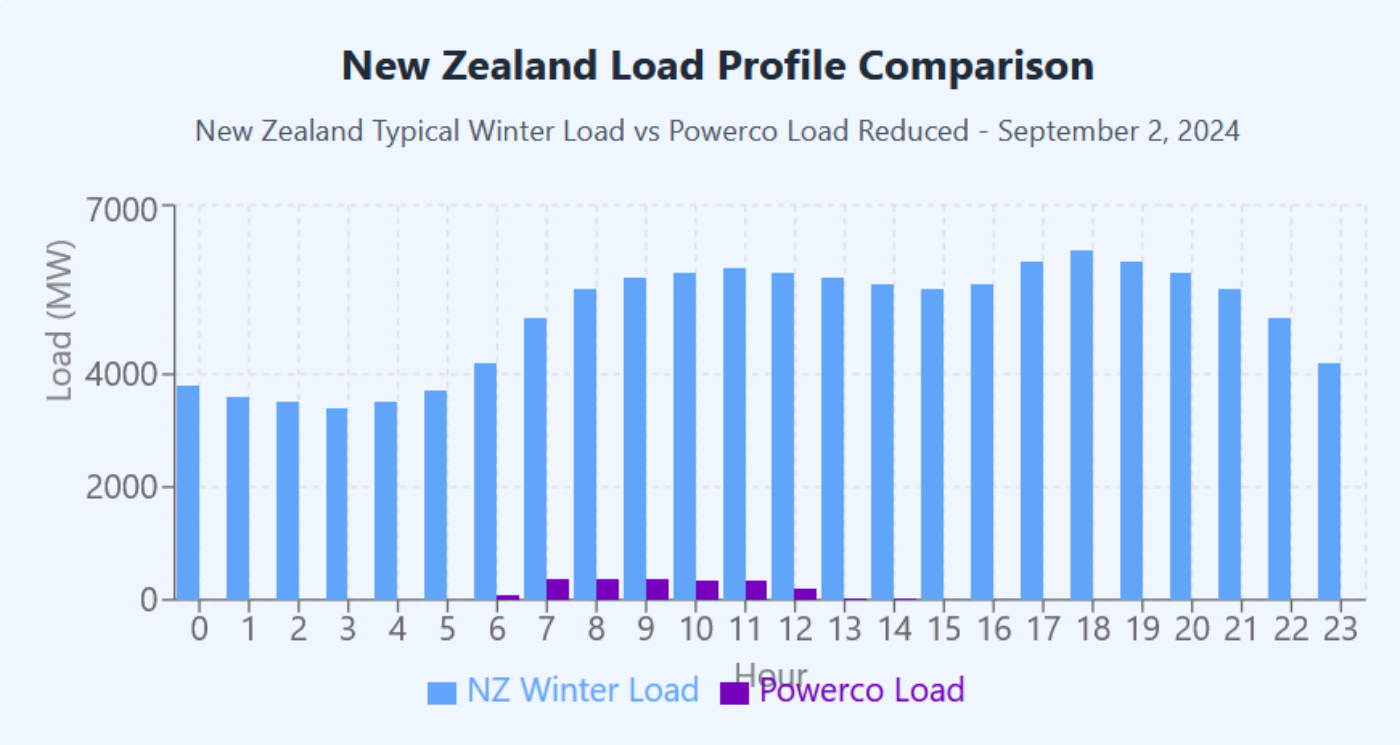
104 feeders per desk off in the morning back on in the afternoon

Offloading customers

This chart displays the 15% plan reducing the morning peak at staggered times.

For the exercise Powerco will have an operator switching the network in our simulation environment to time the duration.

We are also testing our ADMS automated switch order management during the exercise.



0.00
0.00
20.64
359.80
375.27
374.55
363.38
358.49
350.05
345.13
340.61
337.41
333.26
326.03
52.97
53.12
23.49
23.90
23.50
2.26
2.33
2.30
2.35
0.00


POWERCO

Any questions

Please raise your hand

Consumer Care Obligations

Carolina Rodriguez, Principal Analyst Retail & Consumer Policy

ELECTRICITY AUTHORITY
TE MANA HIKO

The Electricity Authority protects and empowers consumers

We protect consumers, promoting fair treatment, empowering informed choices, and building trust in the energy market.

- New Retail and Consumer Policy function
- Consumer Care Obligations
- Guides for retailers communicating price changes
- Regulations for distributors and retailers sharing information about medically dependent consumers (EIEP4A)
- Wider consumer protection programme

Consumer Care Obligations

Compare and switch to save $$

Medically dependent consumers

Why mandate the Consumer Care Obligations?

- Consistent care standards for all residential consumers
- Clear, workable protections without stifling innovation

Customer touch points

Part 2: Consumer Care Policy and related matters

Part 3: Signing up customers and contract denials

Part 4: Information and records relating to customer care

Part 5: Business-as-usual account management

Part 6: When payment difficulties are anticipated or arise

Part 7: Disconnect/ reconnection of residential premises

Part 8: Obligations in relation to medically dependent consumers

Part 9: Fees and bonds

Staged implementation

Clause 37

Clause 68

1 January 2025

Two key protections:

- Clause 37: Restrictions on disconnecting medically dependent consumers
- Clause 68: Fees must be reasonable

1 April 2025

Full obligations

Customer Compensation Scheme

Retailers must compensate qualifying customers during an official conservation campaign

$12 minimum weekly amount set by the Electricity Authority

Incentivises reductions in energy consumption

Retailers can offer their own scheme in addition

Any questions

Please raise your hand

OCC and Rolling Outages Communications Overview

Official Conservation Campaign Concept

- Aimed directly at consumers with the intention of encouraging them to reduce/minimise usage.
- Consumers are compensated by retailers during an OCC.
- Refresh of concepts designed in 2021 as attitudes and other environmental influences can impact on receptivity.
- Best practice is to test concepts on members of the public.

Campaign Brief

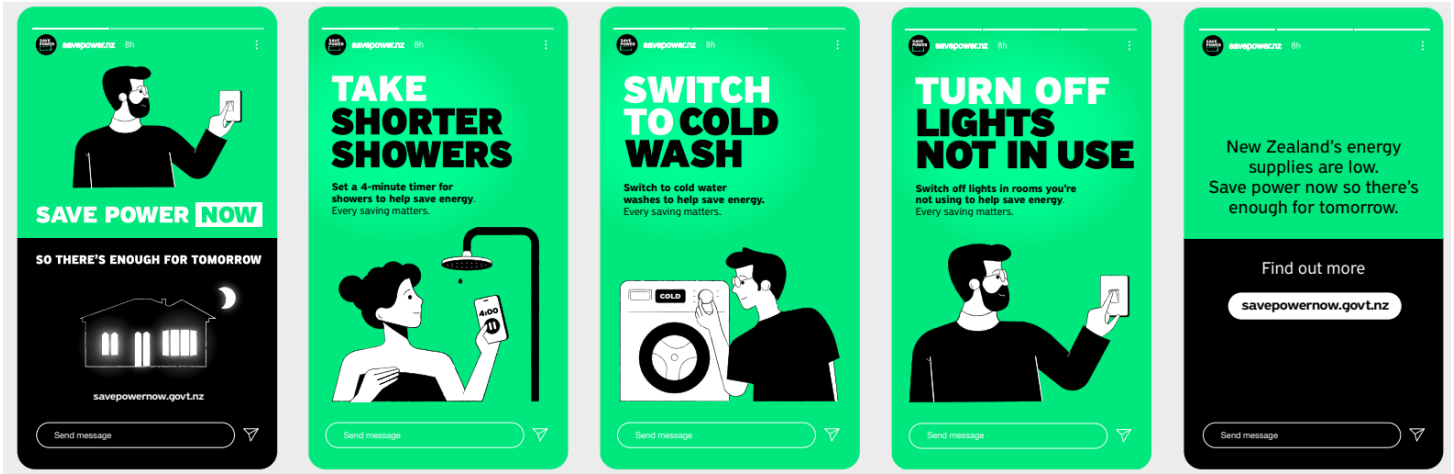
- A campaign that encourages all Kiwis to do their part to reduce power use
- Authoritative and direct, without being alarmist
- Compelling and interesting in order to drive behaviour change

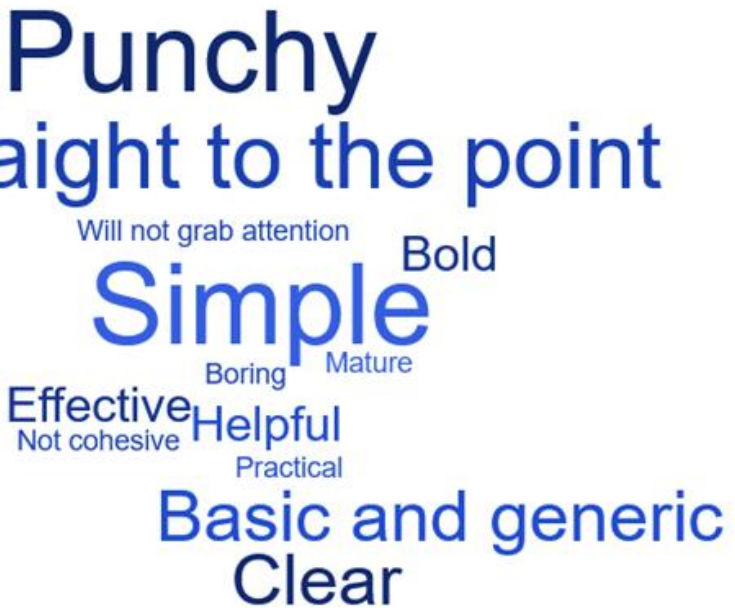
Objectives:

- Understand the severity and urgency of the situation
- Result in immediate change in consumer behaviour reducing usage
- Need to believe their actions can make a meaningful difference

The Two Concepts

Save Power Now – So there is more to go around





Rolling outages – prioritisation of customers

Priority	Priority Concern	Supply To
1	Critical public health and safety	Critical health and disability services e.g. major hospitals, air traffic control, emergency operations centres
2	Important public services	Lifelines infrastructure e.g. energy control centres, communications networks, water and sewage pumping, fuel delivery systems, major ports, public passenger transport, major supermarkets
3	Public health and safety	Vulnerable sectors e.g. rest homes, prisons, medical centres, schools, street lighting
4	Animal health and food production/storage	Dairy farms, milk production facilities, chicken sheds, cool stores
5	Domestic production	Central business districts, commercial and industrial premises
6	Households	Residential premises

Example One

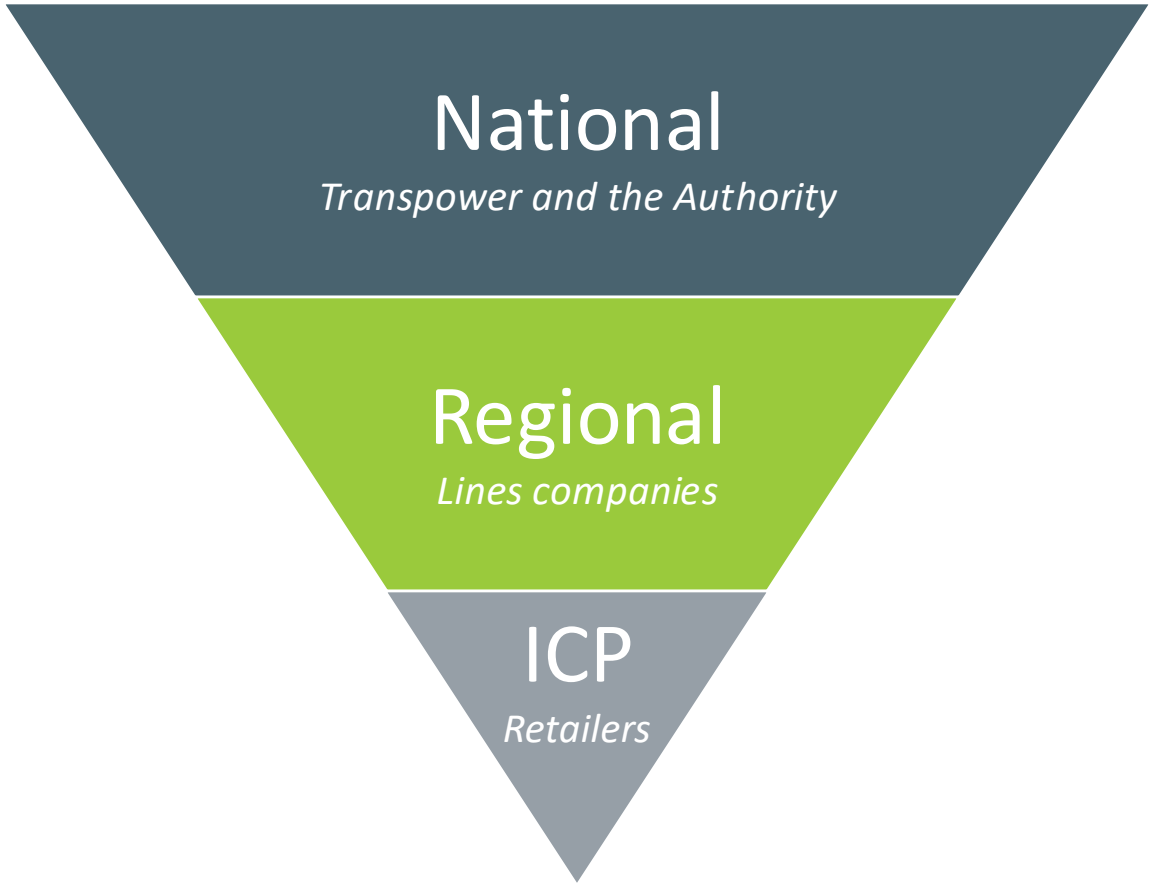
Savings Target	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5	Priority 6
5%	-	-	-	-	5 days x 4 hours	7 days x 4 hours
10%	-	-	3 days x 4 hours	5 days x 5 hours	6 days x 6 hours	7 days x 6 hours
15%	2 days x 4 hours	3 days x 4 hours	5 days x 4 hours	7 days x 5.5 hours	7 days x 7.5 hours	7 days x 9 hours
20%	4 days x 2 hours	5 days x 3 hours	7 days x 4 hours	7 days x 6 hours	7 days x 9 hours	7 days x 12 hours
25%	5 days x 4 hours	6 days x 4 hours	7 days x 5 hours	7 days x 10 hours	7 days x 12 hours	7 days x 15 hours

Example Two

Savings Target	Priority 1	Priority 2	Priority 3	Priority 4	Priority 5	Priority 6
5%	-	-	-	-	5 days x 4 hours	5 days x 5 hours
10%	-	-	-	-	6 days x 6 hours	7 days x 8 hours
15%	-	-	-	7 days x 3 hours	7 days x 8 hours	7 days x 8 hours
20%	-	-	7 days x 2 hours	7 days x 4 hours	7 days x 10 hours	7 days x 10 hours
25%	-	-	7 days x 4 hours	7 days x 8 hours	7 days x 10 hours	7 days x 10 hours

Communication process

- All have a part to play in communicating
- Three key levels of communication
  - Country
  - Region
  - Consumer
- Different levels hold different information
- Need to ensure messaging is consistent



National level - what Transpower and the Authority will do

Transpower

- Set the savings target for each week
- Communicate the savings target to lines companies and the public
- Front media on the overall national issue
- Website information including map of line companies

Electricity Authority

- Closely monitor campaign progress, with focus on consumer impact
- Keep stakeholders informed, including Ministers
- Reinforce campaign messages through Authority channels
- Remind all industry participants of their responsibilities, including Consumer Care Obligations
- Educate consumers on their rights and what they can expect from providers, eg customer compensation

Regional level - what lines companies might do

- PROPs highlight a range of things planned which can differ by lines company
  - Co-ordinate with retailers
  - Website information
  - Adverts in local papers/public notices
  - Media liaison and releases to local outlets
  - Social media
  - Contact local authorities, emergency services, civil defence
  - Flyers for letterbox distribution
  - Radio adverts
  - Pre-recorded messages on 0800 numbers
  - Information on apps

Consumer level - what retailers might do

- Email customers
- Text customers
- Phone customers
- Information on:
  - Websites
  - Apps
  - Phone lines
  - Invoices
- Pay attention to Consumer Care Obligations and medically dependent consumers

Things to consider

- There will be a lot of communication required
- Can your systems and people cope?
- How will you ensure timely and accurate comms?
- How do we as a sector ensure consistency and no gaps?
- How do we ensure everyone has accurate information eg, retailers getting the most up to date plans from lines companies?
- Compensation over and above OCC and damage claims
- Provide us feedback on challenges and possible approaches

Any questions

Please raise your hand

Final wrap up

Reminders

- A copy of today's slide deck along with a recording of the webinar will be uploaded to the Transpower website
- Any queries in relation to todays webinar or remaining engagements below (including registration) please email IndustryExercise@transpower.co.nz

Remaining engagements:

- Webinar 2 (18 March, 9:30 – 12:30)
- Industry Exercise (9 April, 9:30 – 15:00)

Closing **Karakia**

Unuhia, unuhia,
Unuhia ki te uru tapu nui
Kia wātea, kia māmā, te ngākau,
Te tinana, te wairua, i te ara tangata
Koia rā e Rongo, whakairia ake ki runga
Kia tina! Tina! Hui e! Tāiki e!

Translation

Draw on, draw on
draw on the supreme sacredness
to clear, to free the heart,
the body and spirit of humankind
That is Rongo suspended high above us
Draw together! Affirm!

Thank you

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