



ERS-007 Participant Rolling Outage Plan

Guideline

© Vector Limited 2019

The information contained in this document is proprietary to Vector. Please keep it confidential. By using this document, you agree to protect it from loss, misuse, and disclosure to any person who does not need to know the information within it to fulfil obligations owed to Vector.



Table of Contents

I.	Document control.....	2
II.	Revisions	2
III.	Documents.....	2
1.	Overview	3
1.1	System operator rolling outage plan.....	3
1.2	Participant rolling outage plan	3
1.3	Definitions	3
2.	Coordination with system operator.....	4
2.1	Implementation of rolling outages.....	4
2.2	Arrangements for disconnecting and restoring demand	4
2.3	Requirements after receiving a direction.....	4
2.4	Grid exit points	4
3.	Communications	5
3.1	Key personal	5
3.2	Preferred means of communication.....	5
3.3	Regular performance updates	5
3.4	System operator contact details	6
4.	Prioritisation of demand to be disconnected by distributors.....	6
4.1	Priorities	6
4.2	Communication with affected retailers and major consumers	6
4.3	Retailer agreements	7
4.4	Interruptible load	7
4.5	Automatic underfrequency load shedding (AUFLS).....	7
4.6	Responsibility for selecting customers	7
5.	Capability of achieving savings targets	8
5.1	Saving targets	8
5.2	Implementing rolling outages.....	8
5.3	Sequence of outages.....	9
5.4	Other personnel	9
6.	Continuing compliance with other Code obligations	9
6.1	Other obligations under the Code.....	9

I. Document control

Document Owner	[]	Electricity Operations Reactive Response Manager
Document Approver	[]	General Manager - Electricity Operations and Maintenance
Date for next review	June 2026	

II. Revisions

Approved Versions	Date	Revision Notes
6	June 2017	Updated energy consumption data; Updated Roles and Responsibilities
7	March 2022	General redraft, updated roles and responsibilities
8	June 2024	Updated roles and contact details

III. Documents

Document Number	Document Title
ERP-SD-001	Emergency Response Plan for Electricity and Gas Distribution
EOS-019-019	Vector Emergency Load Shedding Strategy
	Auckland Engineering Lifelines Technical Publication Priority Routes and Critical Sites
	System Operator Rolling Outage Plan (SOROP)
	Security of Supply Forecasting & Information Policy (SoSFIP)

1. Overview

1.1 System operator rolling outage plan

The Electricity Industry Participation Code (the Code) requires the system operator to prepare and publish a system operator rolling outage plan (SOROP). A SOROP must—

- (a) describe events that the system operator predicts will be likely to give rise to the need to make a supply shortage declaration
- (b) set out thresholds that the system operator will apply in deciding whether to make a supply shortage declaration
- (c) specify how the system operator intends to determine what directions to give to address the shortage of electricity supply or transmission capacity that gives rise to the declaration
- (d) identify specified participants, or a class or classes of specified participants, who are required to develop participant rolling outage plans
- (e) specify criteria, methodologies, and principles to be applied in implementing outages, or taking any other action, to be provided for in participant rolling outage plans

The SOROP is a document incorporated into the Code by reference and published on the Electricity Authority's [website](#).

1.2 Participant rolling outage plan

The SOROP requires Vector to have a participant rolling outage plan which must—

- (a) be consistent with the SOROP
- (b) comply with any requirements specified by the system operator
- (c) specify the actions that Vector will take to achieve, or contribute to achieving, reductions in the consumption of electricity (including any target level of reduction of consumption of electricity in accordance with criteria, methodologies, and principles specified in the SOROP) to comply with a direction from the system operator¹.

This document has been approved by the system operator to meet the above requirements and is published on Vector's [website](#).

1.3 Definitions

Term	Description
AUFLS	Automatic under frequency load shedding
Code	Electricity industry participation code 2010
Feeder	A high voltage supply line typically supplying between 100 and 2000 customers
GEN	Grid emergency notice
GXP	Grid exit point
Rolling outages	Planned electricity disconnections spread over different parts of the network at differing times to avoid prolonged outages at any one location.

¹ Under clause 9.15 of the Code, the system operator may, at any time in the period during which a supply shortage declaration is in force, give a written direction to specified participants to contribute to achieving reductions in the consumption of electricity by implementing outages or taking any other action specified in the direction.

SCADA	Supervisory control and data acquisition
SOROP	System operator rolling outage plan
Supply shortage declaration	Declaration made by the system operator under clause 9.14 of the Code
System operator	Operator of the national electricity transmission grid

2. Coordination with system operator

2.1 Implementation of rolling outages

Vector will coordinate the implementation of its rolling outages with the system operator in order to ensure that rolling outages across an affected region do not have unexpected power system outcomes.

2.2 Arrangements for disconnecting and restoring demand

Vector's arrangements for disconnecting and restoring demand are described in section 5.2 of this plan.

2.3 Requirements after receiving a direction

After receiving a direction, Vector will use best endeavours to—

- (a) not increase or decrease its demand by more than 25 MW in any five-minute period without the system operator's prior approval
- (b) minimise the impact on frequency and voltage stability
- (c) minimise the disconnection and restoration of its demand during times when demand is typically ramping up or down in the region affected by the supply shortage (for example, either side of morning and evening peaks).

2.4 Grid exit points

The table below sets out Vector's GXPs at which rolling outages may occur or will not occur.

GXP	Rolling outages may occur	Reasons why rolling outages will not occur
ALB0331, ALB1101 HEN0331 HEP0331 HOB1101 LFD1101 MNG0331, MNG1101 OTA0221 PAK0331 PEN0221, PEN0331, PEN1101 ROS0221, ROS1101 SLV0331 TAK0331 WEL0331 WIR0331 WRD0331	Yes	N/A

3. Communications

3.1 Key personnel

The table below sets out Vector's key personnel for the system operator to contact about matters relating to supply shortages, supply shortage declarations, directions and rolling outages.

Position	Communications	Contact details
Duty Controller	Operational matters, including directions	[]
Electricity Operations and Response Manager	Operational matters, including directions	[]
General Manager - Electricity Operations and Maintenance	Administrative matters and escalation	[]

3.2 Preferred means of communication

The preferred means of communication with Vector's key personnel—

- for non-urgent matters, in writing (email) followed up by verbal (phone) in case the written communication has not been acknowledged within 2 business days
- urgent matters should at first be verbally communicated, confirmed with email communications

3.3 Regular performance updates

When a direction containing a savings target applies, Vector will regularly provide information to the system operator about its performance against the savings target, including the nature and extent of the rolling outages implemented by Vector.

3.4 System operator contact details

Administrative communications (relating to supply shortage declarations, directions to save energy, acknowledgment of receipt of a direction to save energy, rolling outage monitoring, distributor load/load shedding forecasts, media/public communications) should be directed to:

- system.operator@transpower.co.nz
- 04 590 7000

4. Prioritisation of demand to be disconnected by distributors

4.1 Priorities

Vector will disconnect demand on its network for rolling outages in accordance with the following priorities. Priority 1 is the demand that should least readily be disconnected and priority 6 is the demand that should most readily be disconnected.

Priority	Priority concern	Maintain supply to:
1	Public health and safety	Critical health and disability services e.g. major hospitals, air traffic control centres, emergency operation centres
2	Maintaining important public services	Lifelines infrastructure e.g. energy control centres, communication 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	Maintaining production	Central business districts, commercial and industrial premises
6	Avoiding disruption to households	Residential premises

These priorities are taken from the SOROP and intended as a guide. They do not prevent Vector making pragmatic decisions based on particular circumstances and its knowledge of local communities.

4.2 Communication with affected retailers and major consumers

Vector will endeavour to give retailers as much advance notice as possible of pending rolling outages to enable them to notify medically dependant customers. Priority sites listed in Auckland Engineering Lifelines Technical Publication Priority Routes and Critical Sites will be taken into consideration when scheduling rolling outages.

Vector generally notifies customers of pending outages through relevant communication channels such as digital (website), media and social media and key account managers and community engagement, and through the call centre being provided with similar key messages to respond to any enquiries. Vector also notifies customers (where practicable) of unplanned outages/emergency repairs via email or text. Some retailers may also choose to separately communicate with medically dependent customers for longer duration outages. When requested to reduce demand with rolling outages, Vector will endeavour to advise customers in advance, on the basis that we receive sufficient advanced notification. The decisions about the type of channel/s used to notify customers

will be based on factors like the extent and length of rolling outages and the timing for receiving advanced notification.

4.3 Retailer agreements

Vector does not have any agreements with retailers or consumers on its network that may adversely affect its ability to comply with directions.

4.4 Interruptible load

The table below sets out the demand on Vector's network that may be used for the provision of interruptible load for the instantaneous reserve market.

GXP	Estimated percentage of average annual demand for interruptible load (MW)
Albany	0%
Henderson	0%
Hepburn	4%
Hobson	0%
Lichfield	0%
Mangere	6%
Otahuhu	6%
Pakuranga	6%
Penrose	4%
Roskill	6%
Silverdale	0%
Takanini	6%
Wellsford	0%
Wiri	6%
Wairau	0%

4.5 Automatic underfrequency load shedding (AUFLS)

As total load decreases during rolling outages, the amount of load required for AUFLS will also decrease and some feeders reserved for AUFLS blocks may be included in rolling outages.

4.6 Responsibility for selecting customers

Vector is solely responsible for determining which consumers' demand on its network is disconnected for rolling outages.

5. Capability of achieving savings targets

5.1 Saving targets

The table below sets out how Vector intends to achieve energy savings targets and capacity targets of up to 25% reduction of its electricity consumption for the same period in the previous year.

Savings required	No of days per week	Average time off per feeder each day
5%	5	4 hours
10%	6	6 hours
15%	7	6 hours
20%	7	8 hours
25%	7	10 hours

The higher the savings required, the higher the priority groups set out in paragraph 4.1 of this plan that must be targeted. Vector estimates it can achieve 25% savings by targeting priority groups 3 to 6 only, leaving priority groups 1 and 2 unaffected.

For the avoidance of doubt, an energy savings target may be more than a 25% reduction of the electricity consumption for the same period in the previous year.

5.2 Implementing rolling outages

Vector's methodology for implementing rolling outages are as follows:

- (a) Vector will send an acknowledgment by email to the system operator as soon as practical after becoming aware of receiving a direction. The acknowledgement will include Vector's understanding of the requirement specified in the direction.
- (b) For developing events (nine days out to real time), Vector will—
 - review the savings target received from the system operator and decide whether rolling outages are required to meet the target and the extent of the outages required
 - determine the number of feeders to be included in rolling outages from feeder list
 - prepare rolling outages log sheets to list selected feeders and proposed shed times
 - notify feeder shutdowns and times internally for the purpose of communications
 - provide the system operator with a daily week-ahead forecast of half-hourly system load at each GXP during any period in which rolling outages are scheduled
 - consult with the system operator prior to implementing rolling outages to establish a process for shedding and restoration
- (c) appoint a dedicated Electricity Operations Controller to control disconnection and restoration of feeders via SCADA in real time
- (d) restore load disconnected during rolling outages in consultation with the system operator. This is to prevent overloading the transmission network and creating further instability. Vector will ensure that all feeders are returned to service in a controlled manner to maintain system stability
- (e) measure actual energy savings by plotting the normal network load graph during period of planned rolling outages and plotting a savings curve for the same period. This way energy savings can be calculated and monitored

For load shedding to meet a weekly target, Vector will monitor the energy savings against the savings target and review future load shedding. Vector will adjust future feeder selection to compensate for any under- or overachieving of targets. Vector will prepare daily and weekly reporting of consumption relative to target levels. During the period of rolling outages, Vector will report weekly by email to the system operator the actual energy usage compared with the energy used in corresponding week of previous year.

5.3 Sequence of outages

Vector is not required to include a list of all feeders, or the sequence of outages to be applied to those feeders, in this plan. The detailed list of feeders associated with percentage savings required are listed in the Vector internal document EOS-019-019.

5.4 Other personnel

In addition to the key personnel described in paragraph 3.1 of this plan, the table below sets out all other personnel who will be involved in implementing Vector's rolling outage plan and their roles.

Position	Role	Contact details
GM - Electricity Operations and Maintenance	Responsible for reporting to the system operator on Vector's performance against savings targets	[]
Chief People and Comms Officer	Responsible for communicating with public agencies (for example, police, civil defence and local authorities) and the media (if required)	[]
Chief Public Policy & Regulatory Officer		[]

6. Continuing compliance with other Code obligations

6.1 Other obligations under the Code

When a direction applies, Vector will continue to comply with all of its other obligations under the Code. Without limitation:

- (a) Vector will make and revise its bids and reserve offers to take into account its obligation to comply with the direction
- (b) if there is a grid emergency, Vector will comply with its obligations under the Code that apply in grid emergencies
- (c) despite the direction, Vector will remain capable of providing any automatic under-frequency load shedding it is obliged to provide under the Code.