



Participant Rolling Outage Plan

SYSTEM OPERATOR IMPOSED LOAD REDUCTION

Reviewed December 2023



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Disclaimer

This participant rolling outage plan has been prepared by EA Networks to provide guidance on operating procedures, for use by persons operating the EA Networks distribution network.

Although this plan is recommended as good practice for operating the EA Networks network, it should not be relied on as a substitute for any legislative requirements or best industry practice as set out in the various national electrical industry publications.

It needs to be understood that, owing to the variable nature of loadings on the network, load savings on feeders as indicated are estimations only and further considerations may be required at the time to fulfil actual requirements.

This plan can only be modified with the approval of the System Operator. The most current version is available on EA Networks' intranet system with one hard copy held by the Network Control Manager.

EA Networks has direct contracts with some large customers that have contracted for specific security of supply arrangements. These contracts require EA Networks to exclude relevant feeders from its rolling outage plan to the extent reasonably practicable. The exclusions do not prevent EA Networks from complying with directions issued by the System Operator.

NOTE: Discretionary hard copy publications must be viewed as only being accurate on the day they are published.

Documentation Revision Control

Document Version	Description	Date
Version 001	Initial document.	20/1/10
Version 002	Update High Impact Consumers.	4/2/10
Version 003	Insert indicative plans section 16. Minor terminology and typo changes.	10/3/10
Version 004	Alterations to Grid Emergency flow chart. Insert Weekly MWh saving. Emphasise criteria for high impact consumers. AUFLS clarification % load reduction.	22/3/10
Version 005	Reference to Appendix P, EA Networks Operation Manual "Feeder Rolling Shutdown Sequence" added. Feeder outage duration times clarified.	28/3/10
Version 006	Minor changes to clarify wording.	22/4/10
Version 007	Change company name.	31/5/13
Version 008	Refer to Electricity Authority, Review contact names, Review AUFLS zone 2 load reduction percentages, Alterations Appendix A and B. Add Hyperlinks.	1/12/14
Version 009	Changed format, updated schedule of rolling targets, added information as required based on System Operator Rolling Outage Plan (30 September 2010).	24/3/2015
Version 010	Updated distribution list, updated Load profile, schedule for achieving target updated.	07/06/2017
Version 011	Updated, modified to reflect the 66kV only supplies taken from the GXP.	27/09/2019
Version 012	Various changes for accuracy and compliance with System Operator requirements.	15/12/2023

Next review scheduled for **December 2025**.

1. Introduction

This plan is provided to comply with the requirements of the System Operator Rolling Outage Plan (SOROP).

The procedures outlined are in response to major generation shortages and/or significant transmission constraints. Typical scenarios include unusually low inflows into hydro-generation facilities, reduced wind generation, unavailability of multiple thermal generating stations, or thermal fuel shortfalls or multiple transmission failures.

How an event is declared and how the System Operator should communicate its requests are detailed.

The main energy saving measure listed is rolling outages and how these are structured and implemented is discussed.

NOTE: This plan refers to the [EA Networks Electricity Network System Operating Manual](#) for particular operational responses.

2. Purpose

Under the Code, participant rolling outage plans (PROP) are required to specify the actions that would be taken to:

- Reduce electricity consumption when requested by the System Operator.
- Comply with requirements of the System Operator Rolling Outage Plan (SOROP).
- Supplement the System Operators Rolling Outage Plan.

Reducing demand by disconnecting supply to customers must be viewed as a last resort after all other forms of savings including voluntary savings had been exhausted. EA Networks will apply best endeavours in providing continuous supply to consumers connected to the network.

3. Definitions

AUFLS	Automatic under Frequency Load Shedding
EDB	Electricity Distribution Business, an electricity distribution network owner/operator
Feeder	A high voltage supply line typically supplying between 100 and 2000 customers.
GXP	Transpower Grid Exit Point
GEN	Grid Emergency Notice
Network Controller	The EA Networks employee who at the time is responsible for the day-to-day control and operation of EA Networks distribution network
Network Control Manager	The EA Networks employee who is responsible for the operational management of the EA Networks distribution network and compliance to the participant outage plan
Operating Manual	EA Networks' Electricity Network System Operating Manual
PROP	Participant Rolling Outage Plan (this plan)
Code	Electricity Industry Participation Code
Rolling Outages	Planned electricity disconnections spread over different parts of the network at differing times to avoid prolonged outages at any one location
SOROP	System Operator Rolling Outage Plan
System Operator	Operator of the national electricity transmission grid

Upper South Island (USI)

Upper South Island is the group of South Island EDBs from the Waitaki River north to the top of the South Island who have opted into the USI load control group to manage overall load within the Upper South Island transmission constraints advised by Transpower.

4. Background

System Operator

The Electricity Industry Act 2010 requires the System Operator to manage supply emergencies. Specific functions of the System Operator in relation to security of supply are set out in Parts 7 and 9 of the Code, including associated policies.

EA Networks

EA Networks is the electricity distribution network (lines) company (EDB) that owns, operates, and maintains the lines, cables, and substations delivering electricity to the Ashburton District and the upper Rangitata Gorge in South Canterbury District.

5. Range of Events

Events that could lead the System Operator to make a supply shortage declaration can in general terms be categorized as:

- Developing Events – an event that evolves over time, for example, a period of unseasonably low inflows to hydro catchments; and
- Immediate Events – an event that occurs with little or no warning, usually as a result of a transmission or major power station failure or unavailability of intermittent renewable generation that cannot be accurately forecast.

Communication with retailers, civil defence and other stakeholders will be as per notification procedures described in EA Networks' [Operating Manual](#).

5.1. Actions for Immediate Events

5.1.1. System Stability

The System Operator is required to keep enough reserve generation to cover the risk of the largest connected generator tripping. They are also required to keep the system frequency within close bounds of 50Hz. If a large generator trips, it may cause a reduction in frequency which if not rectified can result in other generators tripping and could lead to cascade failure of the transmission system.

As reserve generation cannot immediately pick up the load of a disconnected generator, an immediate load reduction is required until additional generation can pick up load. Automatic load shedding groups reduce load in stages until the frequency stabilises.

To recover from immediate events, electricity consumption can be reduced by the following mechanisms:

5.1.2. Reserve Market

Generators, load users with interruptible load such as distribution networks, or flexibility traders/commercial/ industrial users with interruptible load may offer-in reserve capacity to cover the risk of the largest generating unit or a critical transmission line tripping. The ability to do this is affected by the numbers of frequency capable relays installed and the likely revenue stream from the market less the compliance costs of participating in the reserve market. EA Networks does not presently participate in this market.

5.1.3. Automatic Under Frequency Load Shedding (AUFLS)

If the load shed by the Reserve Market tripping is insufficient to stabilise the network, further automatic load reduction will be initiated directly by Transpower and Electricity Distribution Business' AUFLS systems across the entire power system (in the case of a low frequency event that is shared between both islands via the HVDC link) or within either island depending on the characteristics of the event. EA Networks has recently commissioned AUFLS on 11 kV and 22 kV feeders at all their Zone Substations. There are two load blocks for AUFLS, the second with two trip thresholds. The settings are as below:

Characteristic	Block 1 of 16%		Block 2 of 16%	
Trip Frequency	47.5Hz	47.5Hz	46.5Hz	
Trip Time	0.4s	15s	0.4s	

Note: EA Networks' 66kV circuits are ring connected and have embedded generation; Highbank, Montalto, and soon some multi-MW solar farms. AUFLS does not control these 66 kV circuits. Tripping of these circuits is only initiated by the System Operator directly requesting EA Networks to manually shed multiple circuits connected to its 66kV sub transmission network.

5.1.4. Supply Restoration

Restoration of disconnected load must be restored in conjunction with the System Operator's instructions. This is to prevent overloading the transmission grid and/or creating further frequency instability.

5.1.5. Transmission Grid Emergency

The System Operator may request EA Networks to reduce load under a grid emergency notice (GEN). The same notice will go to the Upper South Island (USI) group manager, who is Orion. EA Networks is under an agreement with the USI group so that the initial response, shedding of water heating channels, will be controlled by Orion with the USI load controller. Orion will set the USI load limit to reduce the load of the collective group by the required value set by the System Operator and the Load Management Controller will start shedding the water heating channels. The System Operator will be advised and, if more shedding is required, the System Operator will instruct EA Networks to disconnect more load as per the rolling feeder outage sequence schedule (Refer Appendix B).

If an Immediate Event is in place, the Grid Emergency will take precedence.

If the System Operator declares a supply shortage during a Grid Emergency, then EA Networks will immediately respond to the request by planning, implementing, and scheduling rolling outages as provided in sections 6 to 12 of this plan and in the rolling feeder outage sequence schedule (Refer Appendix B).

6. Authorisation to Receive Direction and Activate

6.1. System Operator's Point of Contact

For possible participant outages, the System Operator will initiate dialog with the Duty Network Controller. The communications and directions are to be received via the telephone numbers listed below, while written communications are expected to be sent through to the Network Controller's email address.

Duty Network Controller

Name: EA Networks Control Centre – Duty Network Controller
 Phone: +64 3 307 9851
 Mobile: +64 27 457 3883
 Email: control@eanetworks.co.nz

Additional Contacts:

Network Control Manager (currently vacant)

Name:
 Phone:
 Mobile:
 Email:

General Manager - Network

Name: Pete Armstrong
 Phone: +64 3 307 9823
 Mobile: +64 27 502 8078
 Email: parmstrong@eanetworks.co.nz

Changes to these contact details will be advised to the System Operator and to the Electricity Industry Emergency Contact List via EI ECL@transpower.co.nz.

6.2. Implementation Responsibility

The Duty Network Controller must, as soon as possible, notify the Network Control Manager, or the General Manager - Network (GM - Network) should the Network Control Manager be unavailable. Where possible, this notification should occur prior to any operations affecting supply to consumers. The Network Control Manager will notify the GM - Network as soon as they are available. For some emergencies, operating measures may be required immediately. Imposed supply interruptions to consumers shall where possible be applied on a fair and equitable basis. For after normal working hours or where the Network Control Manager is not available, the Duty Network Controller shall notify company management in accordance with Section 6 of EA Networks' Operating Manual.

7. Implementing Rolling Outages**7.1. Schedule for Achieving Target Levels**

EA Networks' **indicative** plans for achieving 5%-25% savings are outlined in the following tables. The cumulative outage durations will be dependent upon the percentage savings level requested. Outages shall be of maximum five hours duration (two per day), with each individual feeder load group only allocated once per day. Feeders would be shed on a half day cycle with the frequency based on the priority allocated to the feeder load group.

7.1.1. Winter

Savings Target	Feeders Impacted	Number of Outages per Day	Maximum Outage Durations	Approximate Weekly MWh savings for typical winter week
5%	3	5	2hrs	29
10%	4	10	3hrs	174
15%	5	15	4hrs	522
20%	7	20	6hrs	1392
25%	9	25	6hrs	2175

7.1.2. Summer

Savings Target	Number of Feeders Impacted	Number of Outages per Day	Maximum Outage Durations	Approximate MWh savings for typical summer week reductions given near peak loadings
5%	3	5	2hrs	82
10%	6	10	3hrs	498
15%	9	15	4hrs	1467
20%	12	20	6hrs	3912
25%	15	25	6hrs	6112

EA Networks have high load variability in summer caused by irrigation pumping sensitivity to rainfall. Comparisons between the same weeks in current and previous years may result in unattainably large energy savings targets being required. This anomaly should be identified with the System Operator at the earliest opportunity.

7.2. How the Plan Meets the Criteria of Part 5 of the SOROP?

For a planned event (>24hours), to ensure public health and safety is preserved and costs to economy are minimised, priority consumers (refer Appendix B) will be notified and where possible arrangements made to satisfy basic requirements.

The priority criteria outlined in section 5.1 of the System Operator Rolling Outage Plan (SOROP) have been applied in developing the strategy for implementing rolling outages within the EA Networks supply area.

Priority	Priority Concern	Maintain Supply to:
1	Public Health and Safety	EA Networks NOC Ashburton Hospital (if on-site generation is not adequate) Ashburton District Council emergency operation centre Police, Fire and Ambulance infrastructure
2	Maintaining important public services	Communication networks Water treatment and sewage pumping stations Fuel delivery services
3	Public Health and Safety	Medical centres, rest homes and residential care facilities. Schools, churches and public halls acting as CDEM facilities. Street lighting and traffic signals
4	Animal health and food production/storage	Dairy farms and chicken/turkey sheds ANZCO, Silver Fern Farms, Talleys
5	Maintaining production	Ashburton CBD Commercial and industrial premises throughout Mid-Canterbury
6	Avoiding disruption to households	Residential premises

*Reference: priorities in this table are based on information contained in section 13 of the National Civil Defence Emergency Management Plan 2015.

7.3. Load Disconnection Process

Each distribution feeder exiting a zone substation (or switching station, or group of feeders where they belong to a parallel or ring supply) will be named as a “Rolling outage feeder”.

Rolling outage feeders will each be assigned a priority determined from the mix of customers supplied on each feeder (residential, commercial, industrial, farming, essential services, etc.) and by applying the priority criteria included in section 5.1 of the SOROP. Rolling outage feeders will be included in a rolling outage sequence schedule (refer Appendix B) maintained and updated from time to time as appropriate. Regular reviews of the sequence will be made, taking into account seasonal variations and disruptions to high impact consumers.

7.4. Feeder rolling schedule - Summer vs Winter Loads

There is a clear difference between what types of load come online and go offline during the respective seasons.

Summer months bring irrigation loads online. The majority of these loads are in the rural sectors of the Distribution Network and hence are serviced from Rural Substations.

Winter months bring heating loads online and irrigation loads go offline. During this time of the year, the heating loads are insignificant in relation to national demands but are still contributing to the national generation shortfall that is being managed in an event.

Three different orders of interruptions are provided to allow for rotation of interruption times to assist in minimising inconvenience to consumers and to provide a sense of fairness to all consumers. Where possible, outages should be programmed to be held during daylight hours, between 8am and 5pm, only extending into the evening where necessary to achieve the required savings level or accommodate switching logistics.

A set of switching instructions will be prepared for each rolling outage group, and a record of the off and on times will be maintained on the supplementary log as illustrated in Appendix C.

Unless advised otherwise by the System Operator, the rolling outages plan must provide sufficient time for switching of load to ensure that EA Networks load does not dramatically increase or decrease load in any 5-minute period. The Duty Network Controllers shall monitor activities in relation to this limit so that an increase or decrease of demand is not by more than 25 MW in any five-minute period without the system operator’s prior approval. EA Networks has in the past reached 181MW of load in the middle of summer. Most of this load was due to irrigation. An average winter day will see the load only reach 65MW, and this will be during the day, with the night load being even lower. This means that for EA Networks to make a saving of 20%, and that number to be in the region of 25MW, there will have to be summer load of 120MW or more.

EA Networks 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, and
- (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).

If EA Networks is unable for some reason to meet the load disconnection/restoration ramp rates, or if there is expected to be a material departure (greater than 20%) from the previously provided half hourly GXP load forecast / load profile, then EA Networks would communicate directly with the System Operator.

7.5. Grid Exit Points at which the distributor plans to implement rolling outages

EA Networks has only one Grid Exit Point (Ashburton ASB) which has three transformer feeds into an EA Networks 66kV ring bus configuration. Due to this, Rolling Outages initiated by the System Operator by switching out individual 220/66kV transformers will either have no effect or cause a complete black out if the remaining transformers

cascade trip on overload. Rolling outages should only happen at distribution feeder level, and this should be done by the EA Networks Controller on duty under the instructions of the System Operator.

7.6. Process for restoring load in a controlled manner

Prior to notifying and implementing a rolling outage plan, EA Networks will consult with the System Operator Security Coordinator to establish and agree to a process for shedding and restoration, which may include a MW load cap to operate under during restoration phases. Under the USI agreement, EA Networks will be given a maximum load value from the USI group manager to which it should load shed, and the same process will be used to restore load within the five-minute constraints. The USI value will only be used if the load that was shed was not beyond the hot water load. If the load that EA Networks needs to shed is above the hot water load, then EA Networks will shed/restore their own load to meet the targets set by the System Operator.

7.7. How the operational plan is to be communicated with the System Operator

EA Networks will contact the System Operator Emergency Response Project Manager for administration purposes including reporting performance against targets using the following details:

system.operator@transpower.co.nz

Transpower New Zealand Ltd
 Waikoukou
 22 Boulcott St,
 Wellington 6011
www.transpower.co.nz
 Telephone: 0800 488 500

7.8. Backup arrangements to cover unexpected contingencies

If an unplanned event (Interruption by fault) were to occur in the distribution network when participant rolling outage plans were in effect, the Network Control Manager, GM - Network, Chief Executive, or a member of the network management in accordance with section 6 of EA Networks' Operating Manual will make the decision to modify the rolling outage to maintain the designated target. Where possible, any changes to the planned timetable should be published on EA Networks website and communicated to retailers.

8. Coordination with Grid Emergencies

8.1. Grid Emergencies

If the System Operator declares a Grid Emergency during a Developing Event, the Grid Emergency will take priority. As water heating load generally would not be used to reduce load in a Developing Event, EA Networks would make water heating load available for load reduction when required for the grid emergency. This load would be shed, and the System Operator advised. The System Operator may then instruct the Duty Network Controller to shed load to a predetermined value and time period.

8.2. Process for reverting to Participant Rolling Outage Plan at the end of Grid Emergency

The System Operator will directly contact EA Networks' Duty Network Controller to advise that the Grid Emergency has been revoked and announce what the desired state of the rolling outage plan is to be.

9. Monitoring and reporting performance against targets

9.1. Target Monitoring and Reporting

The Duty Network Controller in conjunction with the Network Control Manager will monitor actual demand versus the target and report values to the System Operator at regular intervals or at intervals agreed by both parties.

For load shedding to a daily target, the Network Control Manager assisted by the Senior Distribution Management System Engineer will monitor the System Operator's report of our savings results to our target and together with the Chief Executive and GM - Network, review future load shedding to increase or decrease the amount of rolling outages to enable the weekly target to be met. In parallel (as a check) with the System Operator, the Network Control Manager will be responsible for daily and weekly reporting of consumption relative to target levels (using our data sources). The GM - Network, Network Control Manager and Network Controllers will review weekly targets and prepare plans for weekly rolling outages based on savings required.

In the case of daily or real time limits, where the System Operator reporting will be too slow for real time action to be taken, the Network Control Manager assisted by the Senior Distribution Management System Engineer will monitor our savings and adjust accordingly in the timeframe required.

The Network Controller will also provide regular reports to the System Operator (at a frequency notified by the System Operator) assessing compliance with this plan and compliance with direction from the System Operator.

9.2. Monitoring

The Duty Network Controller will enter in the Rolling Outage Log, times of disconnection and reconnection of all feeder interruptions. The log supplement sheet to be used by Network Controllers is shown in Appendix C.

9.3. Systems to be used for monitoring savings performance against targets

EA Networks Duty Controller will utilise EA Networks Supervisory Control and Data acquisition (SCADA) System to monitor the savings performance against targets set out by System Operator.

9.4. How performance will be reported to the system operator

The Duty Network Controller will provide regular reports to the System Operator (at a frequency and over a communications medium advised by the System Operator) assessing compliance with this plan and compliance with directions from the System Operator.

10. Load restoration

10.1. Who revokes the Supply Shortage Declaration.

The System Operator will advise the Duty Network Controller of the withdrawal of the Supply Shortage Declaration. The communications and directions are to be received by telephone and/or via email. The System Operator shall immediately advise the Network Control Manager, GM - Network, Chief Executive, or a member of network management of the status change.

10.2. How load restoration is to be coordinated with the system operator

The Duty Controller will consult with the System Operator to establish and agree to a process for restoration, which may include a MW load cap to operate under during restoration phases.

10.3. The process for restoring load in a controlled manner

Restoration of disconnected load must be restored in conjunction with the System Operator by the Duty Network Controller. This is to prevent overloading the transmission grid and/or creating further instability. Under the USI agreement, EA Networks will be given a value from the USI group manager to which it should load shed, and the same process will be used to restore load.

10.4. Process for restoring load in a controlled manner – Supply Shortage

Prior to notifying and implementing a rolling outage plan, EA Networks will consult with the System Operator Security Coordinator to establish and agree to a process for shedding and restoration, which may include a MW load cap to operate under during restoration phases. Under the USI agreement, EA Networks will be given a maximum load value from the USI group manager to which it should load shed, and the same process will be used to restore load within the five-minute constraints. The USI value will only be used if the load that was shed, was not beyond

the hot water load. If the load that EA Networks needs to shed is above the hot water load, then EA Networks will shed/retore their own load to meet the targets set by the System Operator.

11. Communication Strategy

11.1. Strategy for informing rolling outage plan to stakeholders

Communication with retailers, civil defence and other stakeholders will be as per notification procedures described in EA Networks' Operating Manual section 3.6. In the event of immediately imposed load reductions, the Duty Network Controller will refer Civil Defence, retailer, and media inquiries to the Network Control Manager or in their absence, the GM - Network. If they are unavailable, calls are to be referred to the Chief Executive or GM - Customer and Commercial.

In the event of EA Networks' initiating a Major or Extreme Event under the Standard - Emergency Preparedness Part 2 – Extreme Events, the communication arrangements of the CIMS structure will be used, with the Public Information role providing information to the media, retailers, connected customers, and other stakeholders. The Civil Defence Liaison role will provide information to Civil Defence, Police, and local authorities.

11.2. Coordination of public messages with System Operator

If the System Operator has made a supply shortage declaration in response to a developing event, it may put in place general media advertising covering the need to conserve electricity and advising that rolling outages will be necessary.

If EA Networks plans to issue a public message related to rolling outages, then this will be sent to the System Operator for review before being released. Any such communication will give a time for response from the System Operator, so as their feedback can be included before EA Networks issues the message to the public.

11.3. Notifications to Public Agencies

In general, media and consumer notifications will be carried out in accordance with Sections 3.6 and 6 of [EA Networks' Operating Manual](#).

However, with the wide scale impact of rolling outages it is not feasible to use the standard planned outage notification process (mainly because retail and postal systems could not process the many outage notifications required).

In the event of EA Networks' initiating a Major or Extreme Event under the Standard - Emergency Preparedness Part 2 – Extreme Events, the communication arrangements of the CIMS structure will be used, with the Public Information role providing information to the media, retailers, connected customers and other stakeholders and the Civil Defence Liaison role providing information to Civil Defence, Police and local authorities.

When implementing an extended rolling outage plan, EA Networks will notify outages in a number of ways:

- Public notices - EA Networks will place public notice advertisements providing a rolling outage timetable showing the times and areas affected by rolling outages. The advertisement will provide details of our website page for Consumers that wish to seek more information.
- EA Networks website - a dedicated website page will be set up which shows the rolling outage timetable. A future plan is to allow consumers to register their ICP and request future planned interruption information.

Where possible, EA Networks will provide 7 days' notice of all rolling outage plans, generally publishing and issuing notifications on a Monday to apply from the following Monday.

12. Appendices

12.1. Appendix A: Draft of Rolling Outage Public Notice

ELECTRICITY SUPPLY INTERRUPTIONS

Please read - your supply may be affected

EA Networks is required to reduce electricity consumption with rolling power outages across the Ashburton District to meet a X% savings target set by the System Operator in response to the current energy crisis.

Voluntary savings have already helped us reduce the impact of rolling outages, and further savings may allow us to reduce these planned cuts further.

Outages will occur within the time periods noted in the schedule below. Wherever possible, we will delay cuts and restore power early, so please treat all lines as live.

Within each area we have prioritised individual circuits to minimise the cost and disruption to our community, and timed outages accordingly.

YOUR SAFETY AND PROTECTION

It is important to ensure you keep safe around electricity even when it is off.

- Power may be restored at any time.
- Please leave all appliances off during power cuts, particularly ovens and cook tops.
- To prevent damage to computers and other electrical equipment turn power off at the wall prior to outages.

Are you reliant on power ... If your health may be affected by these outages, you will need to make alternative arrangements or contact your health care provider for assistance. Please note telephones that rely on a mains supply may not operate during outages, so plan in advance.

Traffic lights will be affected by these outages, so please avoid travelling in the affected areas if possible. Avoid using lifts.

12.2. Appendix B: Zone Substation Feeder Rolling Shutdown Sequence

Substation	Feeder	Season		Priority	Sequence			Con-troller	Open	Close	Operation Notes	Operator Location	High impact Customer
		Summer	Winter		1st	2nd	3rd						
		Est. MW	Est. MW		3hr window	3hr window	3hr window						
ASHBURTON	Ashburton South	1	1	2							Feeder C.B TD26	SCADA	New Countdown
ASHBURTON	Ashburton West	1.5	2	1							Feeder C.B TE25	SCADA	Council building + Rest Home Coldstream + New World
ASHBURTON	CBD	1.7	2.5	2							Feeder C.B TX06	SCADA	Radio Stations + Police + Fire Station + Dr's
ASHBURTON	Hampstead	1	1	3							Feeder C.B TR12	SCADA	School + Resedential
ASHBURTON	Industrial Estate	1.5	1.5	5							Feeder C.B TQ13	SCADA	Industrial
ASHBURTON	Lagmhor	0	2	6							Feeder C.B TC27	SCADA	N/O at Melcombe St Network Centre
ASHBURTON	Netherby	1	1	1							Feeder C.B TK19	SCADA	Princes Court and Tuarangi Home Hospital
ASHBURTON	Oak Grove	1	1	1							Feeder C.B TJ20	SCADA	Hospital + Three Rivers Health
ASHBURTON	Tinwald East	1.5	2	3							Feeder C.B TY05	SCADA	Terrace View Rest Home + Residential
ASHBURTON	Wills St	1	3.5	2							Feeder C.B TO15	SCADA	Rosebank, ADC pumps (Domain)
ASHBURTON	Winchmore	3	1.5	2							Feeder C.B TW07	SCADA	Dewalt Home + ADC pumps (Middle Rd)
CAREW	Carew	3.3	0.3	4							Feeder C.B NV05	SCADA	Dairy Farms
CAREW	Ealing	1.4	0.3	4							Feeder C.B NX03	SCADA	Dairy Farms
CAREW	Fountaines Rd	2.7	0.3	4							Feeder C.B NY02	SCADA	Dairy Farms
CAREW	Hinds West	1	0.3	4							Feeder C.B NW04	SCADA	Hinds Township
CAREW	Stonylea Rd	2	0.3	4							Feeder C.B NT07	SCADA	Dairy Farms
CAREW	Lismore	2	0.3	4							Feeder C.B NU06	SCADA	Dairy Farms
COLDSTREAM	Coldstream	3	0.3	4							Feeder C.B JW04	SCADA	Dairy Farms
COLDSTREAM	Hinds South	3.5	0.2	4							Feeder C.B JY02	SCADA	Dairy Farms
COLDSTREAM	Junction Rd	2.5	0.2	4							Feeder C.B JX03	SCADA	Dairy Farms
COLDSTREAM	Poplar Rd	3.5	0.2	4							Feeder C.B JV05	SCADA	Dairy Farms

Substation	Feeder	Sequence		Priority	Sequence			Con-troller	Open	Close	Operation Notes	Operator Location	High impact Customer
		Summer	Winter		1st	2nd	3rd						
		Est. MW	Est. MW		3hr window	3hr window	3hr window						
DORIE	Dorie East	2.7	0.2	4							Feeder C.B RW04	SCADA	Dairy Farms
DORIE	Dorie West	3.5	0.7	4							Feeder C.B RZ01	SCADA	Dairy Farms
DORIE	Rakaia Huts	2.7	0.2	4							Feeder C.B RY02	SCADA	Rakaia Huts
EIFFELTON	Lynnford	1	0.2	4							Feeder C.B YY02	SCADA	Dairy Farms
EIFFELTON	Flemmington	2	0.2	4							Feeder C.B YW04	SCADA	Lake Hood Residential + Dairy Farms
EIFFELTON	Longbeach	2	0.2	4							Feeder C.B YV05	SCADA	Dairy Farms
EIFFELTON	Willowby	1.5	0.2	4							Feeder C.B YX03	SCADA	Dairy Farms
ELGIN	Stanley Rd	1.5	0.3	4							Feeder C.B QV08	SCADA	Dairy Farms
ELGIN	Wakanui	2	0.2	4							Feeder C.B QW06	SCADA	Dairy Farms
ELGIN	Spare	0	0	4							Feeder C.B QY03	SCADA	Dairy Farms
ELGIN	Huntingdon	2	0.2	4							Feeder C.B QX05	SCADA	Dairy Farms
FAIRTON	Mitcham	0.6	0.6	4							Feeder C.B FH19	SCADA	Dairy Farms
FAIRTON	Fairton	0.2	0.2	4							Feeder C.B FI18	SCADA	Fairton township
FAIRTON	Talleys Fairfield	0	0	4							Feeder C.B FJ17	SCADA	Talleys storage
FAIRTON	Newlands	3.5	3.5	3							Feeder C.B FM14	SCADA	Talleys + Dairy Farms
FAIRTON	Rakaia Hwy	0.35	0.35	1							Feeder C.B FN13	SCADA	Dairy Farm + Marae
FAIRTON	Business Estate West	2.1	2.1	1							Feeder C.B FT07	SCADA	EA Networks
FAIRTON	Company Rd	0.9	0.9	6							Feeder C.B FU06	SCADA	Residential
FAIRTON	Works no1	0.3	0.3	6							Feeder C.B FY02	SCADA	ex Silver Fern Meatworks
HACKTHORNE	Hackthorne	3	0.2	4							Feeder C.B KV05	SCADA	Dairy Farms
HACKTHORNE	Hackthorne South	2	0.2	4							Feeder C.B KX03	SCADA	Dairy Farms
HACKTHORNE	Maronan	3	0.2	4							Feeder C.B KW04	SCADA	Dairy Farms
HACKTHORNE	Punawai	3	0.2	4							Feeder C.B KY02	SCADA	Dairy Farms
HACKTHORNE	Mayfield	2	0.6	4							Feeder C.B KU06	SCADA	Mayfield township + Dairy farm
HACKTHORNE	Westerfield Rd	2	0.08	4							Feeder C.B KT07	SCADA	Dairy Farms

Substation	Feeder	Season		Priority	Sequence			Con-troller	Open	Close	Operation Notes	Operator Location	High impact Customer
		Summer	Winter		1st	2nd	3rd						
		Est. MW	Est. MW		3hr window	3hr window	3hr window						
LAGMHOR	Ferimans Rd	2.5	0.3	4							Feeder C.B GY02	SCADA	Dairy Farms
LAGMHOR	Frasers Rd East	2.5	0.3	4							Feeder C.B GV05	SCADA	Tinwald sub
LAGMHOR	Frasers Rd West	3.5	0.3	4							Feeder C.B GX03	SCADA	Dairy Farms
LAGMHOR	Winslow	2	0.3	4							Feeder C.B GW04	SCADA	Dairy Farms
LAURISTON	Barrhill	4	0.2	3							Feeder C.B UY02	SCADA	School + BCI
LAURISTON	Braemar	3.5	0.2	4							Feeder C.B UW04	SCADA	Dairy Farms
LAURISTON	Mitcham	4	0.2	4							Feeder C.B UX03	SCADA	Dairy Farms
LAURISTON	Urrall	2.5	0.2	4							Feeder C.B UV05	SCADA	Dairy Farms
METHVEN 33	Springfield	0.2	0.2	5							Feeder C.B BS83	SCADA	Residential + Dairy
METHVEN 66	Mt Hutt	0.9	0.9	4							Feeder C.B VU06	SCADA	Dairy Farms
METHVEN 66	Line Rd	0.28	0.28	4							Feeder C.B VY02	SCADA	Dairy Farms
METHVEN 66	Methven Central	0.5	0.5	3							Feeder C.B VT07	SCADA	Methven business + 2 Schools
METHVEN 66	Methven North	1.5	1.5	5							Feeder C.B VR09	SCADA	Businesses
METHVEN 66	Methven South	1.5	1.5	1							Feeder C.B VS08	SCADA	Methven House(Elder care)
MOUNT HUTT	Blackford Rd	3	0.2	4							Feeder C.B MW04	SCADA	Dairy Farms
MOUNT HUTT	Mt Hutt 1	0.3	1.5	5							Feeder C.B MX03	SCADA	Ski field
MOUNT HUTT	Mt Hutt 2	0.3	1.5	5							Feeder C.B MY02	SCADA	Ski field
MT SOMERS	Anama	1	0.2	4							Feeder C.B SY02	SCADA	Radio repeater and dairy farm
MT SOMERS	Ashburton Gorge	1	0.5	5							Feeder C.B SX03	SCADA	Farming + Lime works
MT SOMERS	Staveley	0.5	0.2	4							Feeder C.B SW04	SCADA	Dairy Farms
MT SOMERS	Mt Somers	0.5	0.2	6							Feeder C.B SS08	SCADA	Mt Somers Village
MT SOMERS	Buccluch	0.8	0.3	4							Feeder C.B BE43	SCADA	Dairy Farms

Substation	Feeder			Priority	Sequence			Con- troller	Open	Close	Operation Notes	Operator Location	High impact Customer
		Summer	Winter		1st	2nd	3rd						
		Est. MW	Est. MW		3hr window	3hr window	3hr window						
NORTHTOWN	Allenton	0.5	0.5	6							Feeder C.B ZN13	SCADA	Residential
NORTHTOWN	Chalmers	0.5	0.5	6							Feeder C.B ZI18	SCADA	Residential
NORTHTOWN	Seafield Rd	1	1	4							Feeder C.B ZR09	SCADA	Ash Meat processors + Dean
NORTHTOWN	Davis Crescent	0.5	0.5	3							Feeder C.B ZX03	SCADA	Rest home Princes Court
NORTHTOWN	Golk Links	0.5	0.5	6							Feeder C.B ZV05	SCADA	Residential
NORTHTOWN	King St	1.5	1.5	6							Feeder C.B ZL15	SCADA	Residential
NORTHTOWN	Princes St	1	1	2							Feeder C.B ZK16	SCADA	ADC pumps (Check) + Pierre
NORTHTOWN	Racecourse Rd	0.5	0.5	1							Feeder C.B ZS08	SCADA	Hotel Ashburton
NORTHTOWN	Saunders Rd	2.5	2.5	3							Feeder C.B ZG20	SCADA	Millstream rest home/hospital + G Hart
NORTHTOWN	Smithfield Rd	0.5	0.5	6							Feeder C.B ZW04	SCADA	Residential
NORTHTOWN	West St	1.5	1.5	1							Feeder C.B ZM14	SCADA	RX Plastics,Rosebank, ADC Pumps + David
OVERDALE	Acton	3	0.2	4							Feeder C.B OV05	SCADA	Dairy Farms
OVERDALE	Chertsy	3.5	0.4	4							Feeder C.B OY02	SCADA	Dairy Farms
OVERDALE	Hatfield	2.5	0.4	4							Feeder C.B OX03	SCADA	Dairy Farms
OVERDALE	Overdale South	3	0.2	4							Feeder C.B OU06	SCADA	Dairy Farms
OVERDALE	Rakaia	1	0.7	6							Feeder C.B OW04	SCADA	Rakaia Township
PENDARVES	Christys Rd	2.5	0.2	4							Feeder C.B PV05	SCADA	Dairy Farms
PENDARVES	Kyle	4.2	0.2	4							Feeder C.B PX03	SCADA	Dairy Farms
PENDARVES	McCrorys Rd	1.5	1.5	4							Feeder C.B PY02	SCADA	Dairy Farms
PENDARVES	Pendarves west	3	0.2	4							Feeder C.B PW04	SCADA	Dairy Farms
PENDARVES	Pendarves North	3	0.2	4							Feeder C.B PT07	SCADA	Dairy Farms
SEAFIELD	CMP(Backup)	0	0	6							Open 22kV Feeder EG73	SCADA	Normally open
SEAFIELD 66	CMP	7	7	4							Open 11kV Feeder EF67	SCADA	** CMP (Load reduction) ???
WAKANUI	Elgin	0	0	6							Feeder C.B WX03	SCADA	Normally open
WAKANUI	Hakatere	2	0.2	4							Feeder C.B WY02	SCADA	Five Star + Hakatere Huts + Dairy farms
WAKANUI	Seaview	4	0.2	4							Feeder C.B WV04	SCADA	Dairy Farms

Key to colour coding of Priority for maintenance of supply.

Shed	Colour coding
1st	6
2nd	5
3rd	4
4th	3
5th	2
6th	1

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.

*Reference: priorities in this table are based on information contained in section 13 of the National Civil Defence Emergency Management Plan 2015.

After-hours controllers' homes are identified as important. Outside business hours, after-hours controllers operate from home. Tripping the feeder the duty after-hours controller is on would disrupt the ability to trip and restore load according to the PROP. During business hours, this will not form part of the decision of which feeders to trip and off-duty after-hours controllers' homes will not be considered important.

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