



Isolation and Disconnection of Customer Service Mains

Document summary

The purpose of this document is to detail the general process and technical requirements when Customer Installations (LV or HV) are to be isolated or disconnected, temporarily or permanently. This includes specific technical detail on how Service Mains should be 'made safe'.

Document approval

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1.0 Introduction

1.1 Purpose

The purpose of this document is to detail the general process and technical requirements when customer Service Mains (LV or HV) are to be isolated or disconnected, temporarily or permanently.

This document includes specific technical details on how Service Mains should be **'made safe'** when temporarily or permanently disconnected or isolated from the Northpower electricity network.

1.2 Scope

This document describes the background, technical requirements, and processes to be followed when customer Service Mains are being:

- Temporarily isolated (or disconnected) for reasons of safety:
 - Reactive (unplanned) - situations where there are safety concerns (i.e., a “check for safety”)
 - Planned - to allow customers to undertake private works near or on their service mains.
- Retailer managed temporary isolations (for retailer business purposes)
- Permanently disconnected (or decommissioned)
- Disconnected or Decommissioned due to being 'Long Term Disconnected' Installations. Including Northpower's obligations (under the Electricity Act 2010) for providing continuance of supply to installations remaining connected on 1 April 1993.

This document provides specific technical detail on how Service Mains should be 'made safe' when being disconnected or isolated (temporarily or permanently).

Exclusions:

The below activities are excluded from this document:

- Customer Service Mains or Installations identified as unsafe follow the process detailed in Network's *Unsafe Service Mains and Installations Standard*. This includes the WorkSafe notification requirements.
- Managing incidents where HV and LV lines clash. Refer to *Managing High and Low Voltage Clash Events Procedure*.

1.3 Application

This standard shall be used by Retailers, Northpower staff and Contractors when customer Installations (LV or HV) are to be isolated or disconnected, temporarily or permanently.



2.0 References

Internal Reference	Details
New LV Service Connections Standard	Northpower's core processes and technical requirements for low voltage service connections to Northpower's network.
Customer Initiated Works (CIW) Standard	This document details Northpower's standard for managing Customer Initiated Works, where a customer connection requires works to amend or upgrade the electricity distribution network to enable their connection to the distribution network.
Asset Ownership Identification and Demarcation (under action)	This standard details Northpower Network's requirements for the identification and demarcation of ownership, inspection and maintenance guidelines and transfer of ownership process for electricity reticulation.
Network Approved Contractor Standard	Requirements for contractors obtaining Network Approved Contractor Status, allowing specifically approved work activities on (or in close proximity to) the Northpower electricity network.
Unsafe Customer Service Mains and Installations Procedure	Northpower's procedure for managing customer owned unsafe Service Mains or Customer Installations, including managing risks to health and safety, customer management and notifications to WorkSafe (where applicable which includes details for Safety Isolation Tags and Safety Cards).
Distribution As-Built Records Standard	Northpower requires new construction, corrective and reactive maintenance activities that impact the Northpower Network to be provided to an approved As-Built standard. This document details the Network's requirements for all As-Built documentation, including As-Built plans, data capture forms, test records and photographs.
Reactive Safety Isolations and Disconnections Process	High Level Process
Planned Isolations for Customer Works Process	High Level Process

External Reference	Details
AS/NZS 3000	Electrical Installations (Australian/New Zealand wiring rules)
AS/NZS 4777	Grid Connection of Energy Systems via Inverters
Electricity Act 1992	Sets the framework for electrical safety. www.legislation.govt.nz
EEA (Electricity Engineers Association) Guides	Guides including: EEA Guide for Livening of Service Connections to Premises EEA Guide to Live LV Electrical Work EEA Safe Practices
Electrical Safety Regulations (ESR)	Electricity (Safety) Regulations 2010. www.legislation.govt.nz
SM-EI (Safety Manual Electricity Industry)	The Safety Manual – Electricity Industry (SM-EI), Parts 1-3
https://northpower.com/	Northpower website
https://service.northpower.com/	Northpower Service Central'



3.0 Definitions

Terminology	Definition
Certificate of Compliance (COC)	A Certificate of Compliance (COC) as required by and defined in the Electricity Safety Regulations. A COC includes a statement by the issuer confirming that the prescribed electrical work has been done lawfully and safely.
Connected, Energised or Livened	The installation is electrically connected to the network.
Certificate of Verification (COV)	A Certificate of Verification (COV) purpose is to verify the condition and safety of the electrical circuits in the property.
Customer	The person(s) associated with the electricity Installation (including property owner, tenant etc.), who makes a request to Northpower
Customer Initiated Works (CIW)	Work to construct new assets that would form part of Northpower's network (and be owned by Northpower) and work to upgrade, alter or relocate existing Northpower assets for any of the following purposes: <ul style="list-style-type: none"> • The extension of the Northpower network including new subdivisions. • The modification of the Northpower network to meet the electrical capacity needs for new or existing Customer connections. • The moving, relocating or altering of the existing Northpower network assets for an existing Customer or a third party interested in relocating the assets.
De-energised	Not connected to any source of electrical supply but not necessarily at zero voltage, e.g., may have an induced voltage (as per the SM-EIs (Safety Manual Electricity Industry)).
Decommissioned	The meters have been removed and the physical removal of reticulation (either consumer's or network) related to the supply of electricity e.g., complete or a section of line (other than a removable fuse-link(s), jumper or line-break), or removal of a dedicated transformer, such that both the installation and the consumer's service main has been disconnected or removed from the network.
Disconnected	The installation or private works is physically disconnected by removing all the phase wires (including any pilot wire if present) plus the neutral from the Northpower's network. Typically, this connection would be at the Point of Supply or connection to Northpower's network.
Disconnection	The process involved in disconnecting an Installation or private works from Northpower's network. This work generally requires the use of tools.
Electrical Safety Certificate (ESC)	Electrical Safety Certificate
Field Service Providers (FSP)	Contractors engaged by Northpower network, including Northpower Contracting
High Voltage (HV)	As defined in the Electricity Safety Regulations
Installation Control Point (ICP)	The point at which a consumer's service is connected to the Northpower network.
Installation	Defined as "Electrical Installation" under the Electricity Act, Pt1, s2 (1):



Terminology	Definition
	<p>Means all fittings –</p> <ul style="list-style-type: none"> • That form part of a system for conveying electricity; and • That form part of such a system at any point from the point of supply to a consumer to any point from which electricity conveyed through that system may be consumed; and • Includes any fittings that are used, or designed or intended for use, by any person, in or in connection with the generation of electricity for that person's use and not for supply to any other person; but • Does not include any electrical appliance
Isolation	The act of removing the electricity supply from an installation (i.e., de-energising) by an operating action of removing a link, such as a fuse or isolator link.
Low Voltage (LV)	As defined in the Electricity Safety Regulations
Livening Agent	A Network Approved Contractor, who is specifically authorised to liven connections to the network.
Long Term Disconnected	ICPs (Installation Control Point) which had the Registry Status of Disconnected Vacant for several years and where the occupiers have not agreed to permanent disconnection (decommissioning) and the connection is physically disconnected from the Northpower Network by removal of the service connection from the Northpower Network. Section 105 of the Electricity Industry Act 2010 places an obligation on Northpower to ensure a continuance of supply to existing ICPs.
Made Safe (made Electrically Safe)	Means, in relation to works, installations, fittings, appliances, and associated equipment, that there is no significant risk that a person or property will be injured or damaged by dangers arising, directly or indirectly, from the use of, or passage of electricity through, the works, installations, fittings, appliances, or associated equipment. (E(S)R definition).
Metering Equipment Provider (MEP)	Under section 5 of the Act, an MEP means a person who, in accordance with the Code: (a) assumes responsibility for any metering installation; or (b) is appointed to be responsible for any metering installation
Network Approved Contractor (NAC)	Contractors that have been pre-approved by Northpower to undertake specified works on, or in close proximity to, the Northpower network. These are generally engaged directly by non-Northpower parties (i.e., Retailer, Customer etc.)
Northpower	Northpower's 'electricity network,' the owner and operator of the electricity distribution network.
Northpower Contractor	A Contractor engaged by Northpower to undertake works on the network, in this case the isolation or disconnection of the installation.
Permanent Disconnection	Disconnecting a customer's supply in instances where the supply is no longer required. For example, when a building is removed or condemned. Requires the use of tools to effect disconnection. The ICP is typically decommissioned.
Permanently Dismantled	The network or part of the network supply has been permanently removed.
Point of Connection	The point where the installation's service connects to Northpower's network generally with service fuses.



Terminology	Definition
Point of Supply	<i>As defined in section 2(1) of the Electricity Act:</i> Generally, the Point of Supply, in relation to any premises, is the point at which fittings used or intended to be used for the exclusive purposes of supplying electricity to those premises enter those premises.
Prescribed Electrical Works (PEW)	<i>As defined in Electricity (Safety) Regulations.</i> Regulations 65, 67, 73 and 74 state that anyone energising a main switchboard where Prescribed Electrical Work is being carried out must ensure that all applicable testing requirements of the Regulations have been carried out.
Retailer	The electricity retailer who the Customer purchases electricity from, and who has a contractual relationship with Northpower under a Distribution Agreement.
ROI (Record of Inspection)	Record of Inspection is a formal document detailing an inspection of high-risk prescribed electrical work (PEW) as required by Regulation 72 of the Electricity (Safety) Regulations 2010
Safety Card	<i>Safety Cards</i> are used for the purpose of leaving important information on site, either with Customers directly or left at the premise (for example in their letter box/doorstep). These are provided as a notification of issues and/or as a prompt for contacting Northpower.
Safety Isolation Tag	A tag/notice attached to the point of isolation for the purpose of providing a physical warning to any person(s) that Northpower has isolated the electrical assets for safety purposes.
Service Main	The connection from the Point of Supply to the Installation's main MEN (Multiple Earthed Neutral) switchboard.
Unsafe Service Main	Private service main (overhead line or underground cable) or installation assets that pose an immediate or imminent danger to persons, property or animals. Refer to <i>Unsafe Customer Service Mains and Installations</i> for full details and procedure.

4.0 Overview

This document has been structured to detail requirements for the range of scenarios Northpower encounters for Customer Service Mains and their isolation or disconnection.

- Temporary Isolations and Disconnections (for planned and reactive situations)
- Permanent Disconnections (including where required for Prescribed Electrical Works)
- Disconnection of distributed generation
- Northpower's '**made safe**' requirements for common scenarios, including example diagrams (refer to Appendices)

And in addition:

- Disconnected or Decommissioned due to being Long Term Disconnected Installations. This includes Northpower's obligations (under the Electricity Act 2010) for providing continuance of supply to installations remaining connected on 1 April 1993.



5.0 Temporary Isolations & Disconnections

Temporary Isolations (and Disconnections) are initiated for two purposes – either planned or on a reactive basis (unplanned).

5.1 Reactive: Safety Isolations & Disconnections

Where a customer (or member of the public) has concerns about the safety of electrical assets, they should contact Northpower's Fault Line: **0800 10 40 40**.

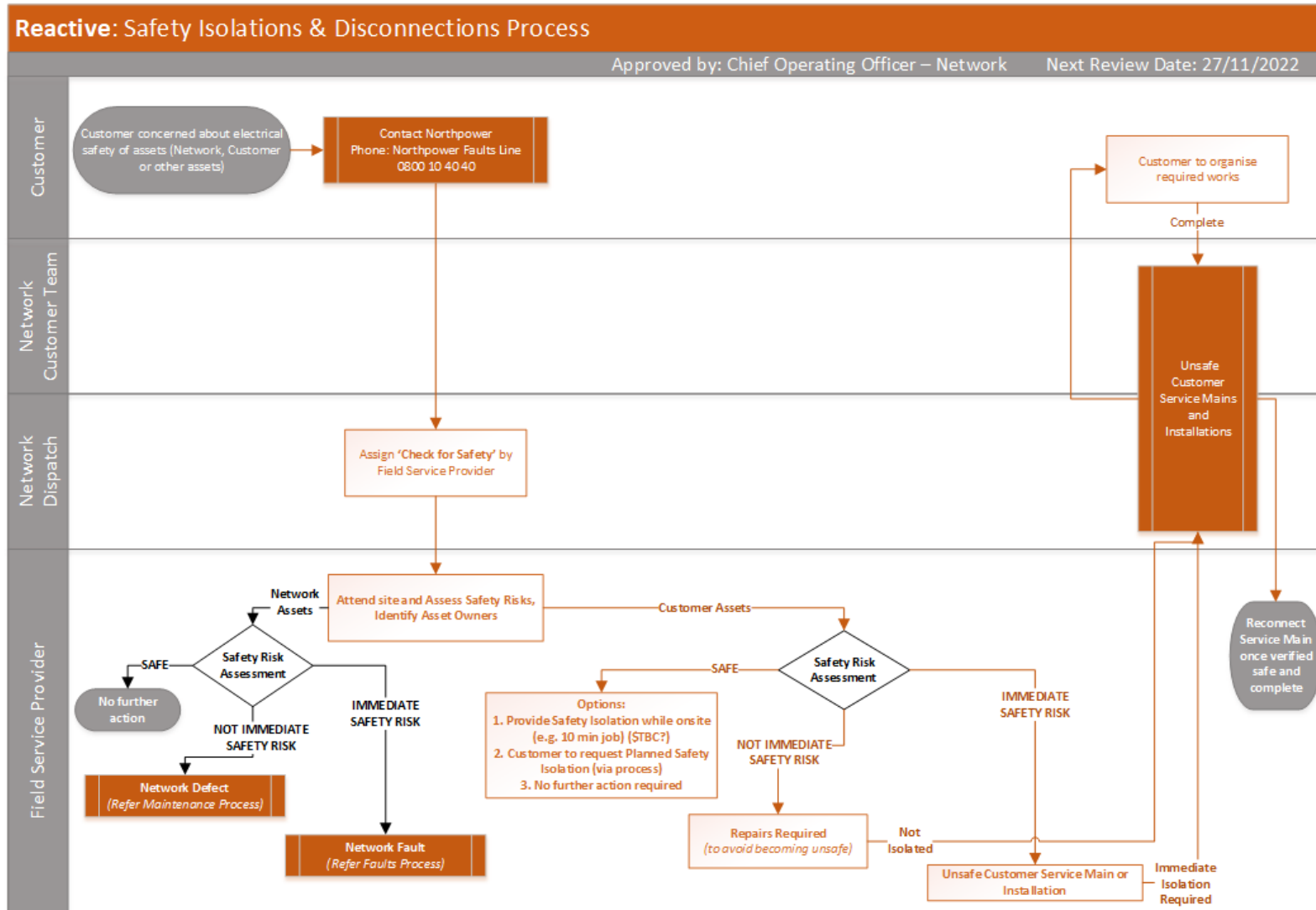
Northpower will log the call and send a Field Service Provider to assess the risks (commonly referred to as a "check for safety") and take the appropriate action:

- Where a Customer Service Main or Installation is assessed as:
- **Being unsafe** (posing an imminent danger to persons or property):
 - the Field Service Provider will Isolate this ICP for safety and complete the *Unsafe Customer Service Mains* form. This Installation shall not be relivened until the repairs meet the requirements listed in section 5.5 LV Reconnection Requirements.
- **Needing repair works** to avoid becoming unsafe, the *Unsafe Customer Service Mains and Installations process* shall be followed.
- **No safety concerns** the Field Service Provider will advise the customer and advise the NOC of their findings.
- Costs for 'Check for Safety' services

Northpower provides the "check for safety" as a free safety service, and there is no cost for the initial call out. However, there will be costs for any works required on Customer Service Mains or Installations.



5.1.1 High Level Process - Reactive Safety Isolations & Disconnections



5.2 Planned: Isolations for Customer Works

5.2.1 Request Process - via Northpower

All customer requests for planned temporary isolations of an Installation shall be lodged by the Customer contacting Northpower – either by:

Website: Requests can be made through ‘Northpower Service Central’ from the Northpower website: <https://service.northpower.com/>

Phone: Contacting Northpower on **0800 10 40 40**

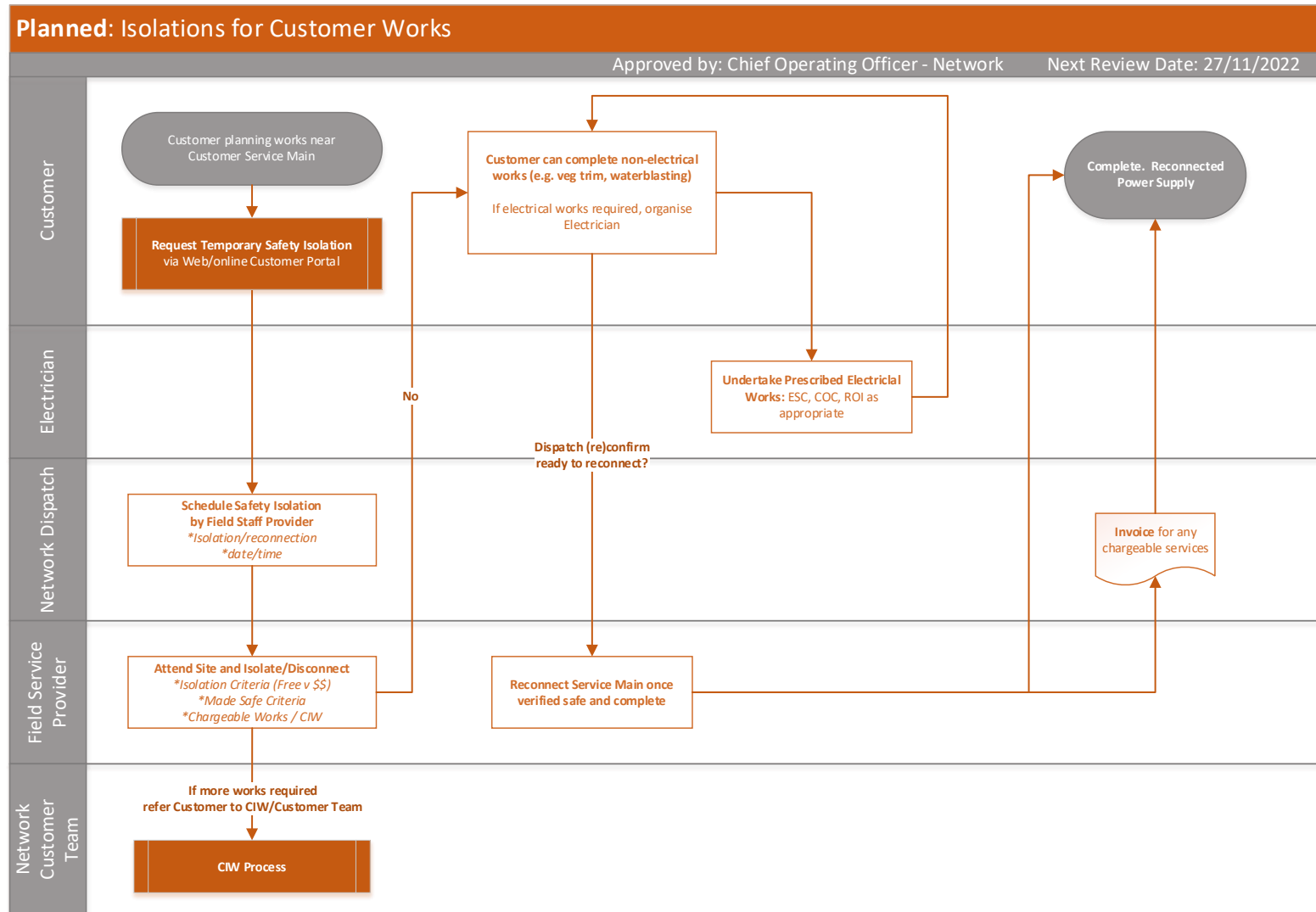
When applying for a Temporary Disconnection Service the customer will be required to let Northpower know the date and time that they require the power reconnected.

Further information on the request process is available on Northpower’s website www.northpower.com and search: *Arrange a temporary (safety) disconnection*.

Northpower will then organise for a Northpower Contractor to undertake the temporary Isolation (or Disconnection) in accordance with this standard.



5.2.2 High Level Process – Planned Isolations for Customer Works



5.2.3 LV Temporary Isolations

Where requested, Northpower will provide a safety isolation service to Customers when they wish to undertake planned works safely near or on their LV Service Main (overhead line/underground cable) supplying their Installation.

The Service Main will be de-energised. This is typically to allow Customers to undertake planned private works safely on their property, including minor tree trimming, painting, routine property repairs, and building a fence above an underground service main cable.

5.2.4 LV Isolation Charges and Conditions

Free of charge:

- An Isolation can be achieved by de-energising only (i.e., pulling the supply fuses) to the Customer Service Main that supplies the Installation.
- The request for an Isolation:
 - has been received by Northpower at least two (2) working days in advance of the required isolation date; and
 - has a requested Isolation day/time during normal business hours (i.e., weekdays between 8 am and 4 pm).
- Two (2) isolations per annum per Installation will qualify for free Isolation. Additional Customer requests will be chargeable. **Note:** Under extenuating circumstances, Northpower's *Customer Experience Manager* has the discretion to waive this requirement.

Chargeable:

If the Isolation request does not meet the above conditions, Northpower may charge for the Isolation service. Specifically, when:

- Isolation requires the Service Main to be **physically disconnected** (i.e., the wires – including the neutral - of the Service Main must be cut away from Northpower's network, then this work shall be treated as chargeable and handled in accordance with *section 6 Temporary Disconnections for Prescribed Electrical Works*.

Timing of Isolation (and Reconnection)

Northpower will use its best endeavours to undertake the Isolation at the requested time; however, it cannot be guaranteed. This service is dependent on the availability of a Northpower Contractor (e.g., they may all be busy attending to faults), and network fault responses shall always take precedence over requests for temporary isolations.



Isolation Tags

When the Service Main has been isolated, Northpower shall:

- Place a **Safety Isolation Tag** at the isolation point (where practicable).
- Inform the Customer (or their representative on site) if they are at home and leave a **Safety Card** to confirm to the Customer the Isolation has occurred.

Note – refer to *Unsafe Service Mains* for details on Safety Isolation Tags and Safety Cards.

5.3 'Retailer Managed' Temporary Isolations

Northpower allows Retailers to undertake temporary Isolations and re-energisations of low voltage Service Mains supplying their customer's installation provided specific criteria are met. This includes underground and overhead service connections.

Examples of when Retailers may wish to undertake this includes (but are not limited to):

- Customers with electricity accounts that are overdue/bad debts
- Vacant premises
- Change of Customer (move-in / move out)
- Installation of Metering

5.3.1 Requirements for Retailers

A Retailer who wishes to undertake this work must meet the following requirements:

- The works are **limited to only** removing/reinserting the service fuse, excluding any works or modifications to Northpower network assets. This is limited to the items in *Appendix 1: Technical Requirements for Temporary Isolations and Disconnections*:
 - LV Overhead Service
 - LV Pole Riser Cable
 - LV Underground Service
- The Retailer engages a Network Approved Contractor, who holds current Northpower authorisation(s) specifically for work activity(s):
 - LV Service Connections & Disconnections (de-energised) – Overhead
 - LV Service Connections & Disconnections (de-energised) – Underground
 - Refer to the *Network Approved Contractor* Standard for further details.
- The Network Approved Contractor must apply their company's '**Isolation Tag**,' which:
 - **must** clearly identify their company name and contact details, and
 - where practicable also includes: a reference, date of isolation, reason for isolation.
- The Retailer manages all aspects of the process, including the customer relationship, works and associated costs. This includes all relevant processes for the management of medically dependent customers.



5.3.2 Procedure for Retailers

Where Retailers undertake temporary isolation or re-energisation, the following core process applies:

- The Retailer is to communicate with their customer appropriately
- The Retailer is to provide any notifications or updates directly to Northpower (in the format required by Northpower and updated from time to time).
 - *For example*, a list of scheduled Isolations so that Northpower has information available if Customers contact Northpower directly.
- The Retailer shall engage a Network Approved Contractor to undertake the:
 - Isolation, by following *section 5.4 LV Isolations - Technical Requirements*
 - Re-energisation (Reconnection), by following *section 5.5 LV Reconnection Requirements*
- The Retailer is to ensure any relevant update(s) are made to the ICP Registry.
- The Retailer is responsible for the costs incurred in managing the Isolation (de-energisation) and re-energisation process.
- The Retailer is responsible for all aspects related to managing their customer, communications, costs, and disputes. This includes all relevant processes for the management of medically dependent customers.

If Northpower receives any communications (queries, complaints) from the Customer, these will be redirected to the relevant Retailer.

5.4 LV Isolations - Technical Requirements

LV Isolations shall be undertaken by following *Appendix 1: Technical Requirements for Made Safe – Temporary Isolations & Disconnections*.

5.5 LV Reconnection Requirements

Reconnections (i.e., the process of re-energising the Installation by replacing the fuses at the point of Isolation for the Service Main) shall meet the following requirements:

- Review the information on the relevant (*Safety*) *Isolation Tag* that has been applied by the contractor who isolated the Service Main. Where required, contact the contractor for further information to enable the reconnection to proceed further.
- Before reconnecting to a power supply of a low or extra-low voltage Installation or part Installation on which Prescribed Electrical Work has been done, the person making the connection must follow the requirements of Regulation 73A, Electricity (Safety) Regulations. The Customer's Electrical contractor or Inspector shall provide certification as relevant to the risk category of PEW:
 - *High Risk Work* – requires a ROI and COC
 - *General Risk Work* – requires a COC
 - *Low Risk Work* - requires an ESC or COC



- Before reconnecting to a power supply of a low or extra-low voltage installation or part installation when no general or high-risk prescribed electrical work has been done, if the period since the last disconnection or isolation of the installation or part installation is more than 6 months, then the person proposing to reconnect or restore supply must follow the requirements of Regulation 74 of the Electricity (Safety) Regulations (Reconnecting or Restoring Power Supply to Certain Low Voltage Installations).
 - This includes a Certificate of Verification (COV), which is to be provided by the Customer's Electrical Contractor or Inspector
- Follow the requirements prescribed in Northpower's *New LV Service Connections* standard, particularly the *Connection and Livening* section.
- Comply with SM-EI parts 1-3.
- Comply with EEA Guides, including:
 - *EEA Guide for Livening of Service Connections to Premises*
 - *EEA Guide to Live LV Electrical Work*

Notes:

- Reconnections of Disconnections follow the same requirements.
- Where the Customer has had Prescribed Electrical Works carried out, Northpower's Contractors will only verify that the requirements of the Electricity Safety Regulations have been met by the Customer.
- Any tests and certifications of Prescribed Electrical Works must be completed by the Customer's Electrical Contractor or Inspector.

5.6 HV Temporary Isolations

Requests from Customers for the temporary isolation of HV Service Mains are chargeable due to the special isolation and access requirements that apply to works on high voltage lines. The provisions of section 6 *Temporary Disconnections for Prescribed Electrical Works* will apply.

5.6.1 HV Isolations – Technical Requirements

HV Isolations shall be undertaken by following *Appendix 1: Technical Requirements for Made Safe – Temporary Isolations & Disconnections*.

5.7 Northpower Network Owned HV Reconnection Requirements – Temporary HV Isolations

The Electricity Safety Regulations treat HV Installations as 'works'. Northpower's requirements for reconnecting an HV Installation to the network include:

- A written assurance from the owner or operator of the HV network that it is safe to liven, and
- If Prescribed Electrical Work has been carried out, confirmation evidence that the testing requirements prescribed in Regulation 38 in the Electricity (Safety) Regulations have been complied with.



5.8 Privately Owned/Operated HV reconnection requirements – Temporary HV Isolations

The Electricity Safety Regulations require the following concerning reconnection of Privately Owned/Operated HV Installations:

- If Prescribed Electrical Work has been carried out, then testing requirements is prescribed in Regulation 38 in the Electricity (Safety) Regulations, and
- All high-risk work done on high voltage installations must be inspected and a COC and ROI issued.

6.0 Temporary Disconnections for Prescribed Electrical Works

Any Prescribed Electrical Work that requires a Service Main to be disconnected from, or the alteration of Northpower's network, should be treated as if the work is *Customer Initiated Work* and are fully chargeable to the person requesting the works.

For clarity, this includes where the Service Main must be physically disconnected (i.e., the wires – including the neutral - of the Service Main must be cut away from Northpower's network (e.g., a line drop)). This work is excluded from the Isolation service outlined in *section 5.2.3 LV Temporary Isolations*.

6.1 Request Process – via Northpower

All requests for temporary disconnections for Prescribed Electrical Work are to be lodged by the Customer through the request process outlined in *section 5.2.1 Request Process*.

6.2 Reconnection Requirements - Temporary Disconnections

Refer to *section 5.5 - LV Reconnection Requirements*.

7.0 Permanent Disconnections

7.1 Overview

The main purpose of a permanent disconnection from the Northpower network, as opposed to a temporary one, is to permanently disconnect the installation from the Northpower network and to leave the site property in a safe state.

It is required that all conductors on the installation be disconnected from the network. The point of disconnection shall be left in a clean, safe state with minimal disturbance to the public and to private property. Northpower's technical requirements for ensuring a Service Main is 'made safe' is provided in the *Appendices* of this document.

7.2 Request Process - via Retailer

All Customer requests for permanent disconnections must be lodged by the Customer by contacting their Retailer, who will then organise a permanent disconnection with their chosen contractor.

Northpower's website contains further information on the request for a *permanent disconnection*.



Only Network Approved Contractors can carry out a permanent disconnection.

7.3 Permanent Disconnection Scenarios

Instances, where a permanent disconnection of the installation is required, includes (but is not limited to):

- A permanent disconnection is requested by the Customer (property owner).
- The building or plant is planned to be removed, dismantled, condemned, or damaged by fire or any other destructive means and will not be replaced or repaired to an electrically safe state according to *AS/NZS 3000:2007 Wiring Rules*.
- As ordered by Northpower for:
 - persistent non-compliance of the customer with Northpower network connections or operational standards,
 - persistent breach of government legislation concerning their network connection,
 - re-energising a temporarily disconnected installation by personnel not authorised by Northpower,
 - any situation that presents a safety hazard (such as an unsafe installation and unsafe privately owned service lines, poles, and fittings).

An ICP can only be decommissioned where:

- the Distributor is advised by a landowner, and (if the landowner is not the customer) the Customer, or the Trader that electricity is no longer required at the ICP; or
- it is necessary to Decommission the ICP because public safety is at risk; or
- the Registry notifies the Distributor that the ICP has the status of "Inactive", with the reason given "De-energised – ready for decommissioning", the ICP has been De-energised, and the Trader has attempted to recover any Metering Equipment; or
- if the Distributor has not provided Distribution Services in respect of the ICP for 6 months or more

Continuance of supply obligations (i.e., pre 1992 connections) must not be decommissioned unless the landowner agrees and this is documented in writing in accordance with Northpower's requirements.

7.4 Ownership of Equipment

Where a permanent disconnection results in Northpower assets being made redundant, those assets shall be recovered and returned to Northpower. Costs involved may be recovered from the Customer.

Ownership of equipment on the Customer's property may sometimes not be obvious. This shall be clearly defined before the application for disconnection is approved.

Northpower's standard *Asset Ownership Identification and Demarcation Standard* provides further detail on ownership.



Northpower does not own the LV metering and is the responsibility of the Retailer to arrange removal. The Customer shall contact their Retailer to arrange removal of the metering.

7.5 Low Voltage Disconnections

Permanent LV disconnections shall be carried out by a Network Approved Contractor working in accordance with Northpower's *Customer Initiated Works* (CIW) processes. The Customer Services Team can provide guidance on this process.

7.5.1 LV Disconnections – Technical Requirements

LV Disconnections shall be undertaken in accordance with *Appendix 2: Technical Requirements for Made Safe – Permanent Disconnections*.

Any disconnection also requires:

- The Disconnection works to be performed to minimise disruption/interruptions to other Customers
- The network line to be left in a clean, safe condition after the Disconnection works
- As-Built information shall be provided as required in section 7.7 *Completion Documentation and As-Built*.

Example diagrams of Disconnections are provided in the *Appendices*, including diagrams of typical LV Overhead Disconnections and LV Underground Disconnections.

7.6 High Voltage (HV) Disconnections

Permanent HV disconnections shall be carried out by Northpower Contracting working in accordance with Northpower's Customer Initiated Works processes. The Customer Service Team can provide guidance on this process.

All HV disconnections require Northpower's Network Operations Centre (NOC) approval. NOC may impose special requirements in the approval process on a case-by-case basis.

Where customers have an HV service to an Installation, all redundant Northpower owned equipment and assets (except underground cables) shall be recovered from the site where it is exclusively for that Customer. **Note:** *this may include line hardware, switches, transformers, CT's, VT's, SCADA (Supervisory Control and Data Acquisition) equipment, etc.*

7.6.1 HV Disconnections -Technical Requirements

HV Disconnections shall be undertaken in accordance with *Appendix 2: Technical Requirements for Made Safe – Permanent Disconnections*.

Any Disconnection also requires:

- The Disconnection works to be performed to minimise disruption/interruptions to other Customers.
- The network line to be left in a clean, safe condition after the Disconnection works.
- As-Built information shall be provided as required in section 7.7 *Completion Documentation and As-Built*.



Example diagrams of Disconnections are provided in the *Appendices*, including diagrams of typical HV Overhead Disconnections and HV Underground Disconnections.

7.6.2 Environmental and Health Risks for Underground Cables

Redundant underground cables owned by Northpower within the road corridor shall be suitably earthed and capped and abandoned and recorded as such in GIS (Geographical Information System).

Redundant underground cables on private property, whether covered by an easement or not, will be earthed and sealed and then transferred to the landowner. These become the property of the owner. Northpower will advise the landowner of any potential environmental or health risks associated with leaving the cable in situ.

7.7 Completion Documentation & As-Built

Once the permanent disconnection is complete, the Network Approved Contractor (i.e., the contractor carrying out the permanent disconnection works) shall submit to Northpower:

- Full details of the disconnection work and As-Built information as required in this section, within ten (10) working days following the processes outlined within Northpower's:
 - *Distribution As-Built Records Standard*, and
 - *Customer Initiated Works Standard*

At a high level, the information to be submitted includes (as a minimum):

- Service Main's status (i.e., Decommissioned, Disconnected)
- Where the Service Main has been disconnected from the network
- Which assets have been physically removed or disconnected and retired in place (installation, conductors, poles, link/fuse (HV))
- Description of works undertaken
- Annotated (marked-up) As-Built drawing showing the reticulation removed.

Note: Refer to Network document *Distribution As-Built Records Standard* for full details of information required to be submitted.

Once Northpower has received complete and accurate As-Built and works completion information, this information shall be used to:

- Update the GIS - to reflect the asset changes
- Decommission the ICP and update the relevant systems, including the ICP Registry. The ICP number will be marked as decommissioned and shall not be reused.

Note - Further detailed information on ICP management is to be obtained from Northpower's Commercial & Regulatory team.





8.0 Disconnection of Distributed Generation (or Embedded Generation)

8.1 Disconnecting Installation

Installations with distributed generation systems (either identified as export only or import/export) shall follow the exact requirements for Permanent Disconnections as detailed in this standard.

8.2 Decommissioning the Generation system (only)

Where a Customer is only decommissioning their distributed generation system (so it cannot export to the Network), but the installation is not being disconnected (or decommissioned), the Customer must notify Northpower as per the *New LV Service Connections Standard*. Northpower may also require a verification visit by a Network Approved Contractor before the ICP may be changed to an import only ICP.

9.0 Document Review History

Version Number	Date	Revision Notes (reason for change)
1.0	07/12/2022	New standard. Defining clearer information for Isolations & Disconnections process and technical requirements for 'make safe'. Replaces <ul style="list-style-type: none">ENS 02.01.120 Disconnected Installation Management.ENS 05.01.011 Retailer Managed Isolations and Re-energisations for LV Service Connections



Appendix 1: Technical Requirements for “Made Safe”- Temporary Isolations & Disconnections

Technical Requirements for Made Safe – Temporary Isolations & Disconnections

Where Northpower requires an installation/service/connection to be isolated or disconnected, the installation must always be left in a safe state (“made safe”). A ‘made safe’ state means (wherever practicable) that the installation cannot be re-energised / livened accidentally or indirectly.

In practice, there are various installation types and connection scenarios – the following table covers the vast majority. However, where exceptions to these scenarios do occur:

- the following information should be used as guidance to achieve the outcome of ‘made safe’, and
- any remaining exceptions or concerns are to be escalated to the Northpower Network engineering team to provide a solution.

	MADE SAFE REQUIREMENTS: TEMPORARY	
TYPE OF CONNECTION	TEMPORARY ISOLATION (de-energisation only)	TEMPORARY DISCONNECTION (Physically disconnected, e.g. line drop) <i>Note – excluded from ‘Retailer Managed’ Isolations</i>
All scenarios – apply safety warnings	Apply Safety Isolation Tag, leave Safety Card and where applicable apply a red warning disc to unsafe poles. <i>(*Retailer managed isolations: only apply Isolation Tag)</i>	Apply Safety Isolation Tag, leave Safety Card and where applicable apply a red warning disc to unsafe poles.
LV Overhead Service	Remove Service Fuse (LV). <i>Note: The service fuse may be left on the pole at cross arm height.</i>	Apply the Temporary Isolation measures, and Physically disconnect the service line, coil up and securely attach to a safe location.
LV Pole Riser Cable	Remove Service Fuse (LV). <i>Note: The service fuse may be left on the pole at cross arm height</i>	Apply the Temporary Isolation measures, and Physically disconnect, cap the cable conductor tails and coil up the conductor tails so they can be safely attached to the pole
LV Underground Service	Remove Service Fuse (LV) in pillar or cabinet. <i>Note: The service fuse may be left in the pillar or cabinet</i>	Apply the Temporary Isolation measures, and Physically disconnect and cap the cable (leave inside pillar/cabinet)
HV Overhead Service	Operate HV Switch, Link or Fuse - remove DO Link/Fuse. Instructions regarding earthing will come from Northpower’s Networks Operation Centre (NOC)	Apply the Temporary Isolation measures, and Physically disconnect the service, coil up and securely attach to a safe location.
HV Underground Service Pole Riser Cable	Operate HV Switch, Link or Fuse - remove DO Link/Fuse. Instructions regarding earthing will come from Northpower’s Network’s Operation Centre (NOC)	Apply the Temporary Isolation measures, and Physically disconnect and cap the cable.
HV Underground Service	Operate HV Ground Mounted Switch and apply earth switch	Apply the Temporary Isolation measures, and Physically disconnect and cap the cable.
Shared Transformer	Remove fuse links supplying customer’s LV service	As per Temporary Isolations & any required works to physically disconnect the service
Dedicated Transformer	Remove fuse links to LV service. However, where there is no LV isolation or fuses, then isolate using the HV switch/fuse switch	As per Temporary Isolations & any required works to physically disconnect the service





Appendix 2: Technical Requirements for “Made Safe” – Permanent Disconnections

Technical Requirements for Made Safe – Permanent Disconnections

Where Northpower requires an installation/service/connection to be isolated or disconnected, the installation must always be left in a safe state (“made safe”). A ‘made safe’ state means (wherever practicable) that the installation cannot be re-energised / livened accidentally or indirectly.

In practice, there are various installation types and connection scenarios – the following table covers the vast majority. However, where exceptions to these scenarios do occur:

- the following information should be used as guidance to achieve the outcome of ‘made safe’, and
- any remaining exceptions or concerns are to be escalated to the Northpower Network engineering team to provide a solution

TYPE OF CONNECTION	MADE SAFE REQUIREMENTS: PERMANENT DISCONNECTION
All scenarios – apply safety warnings	Apply Safety Isolation Tag, leave Safety Card and where applicable apply a red warning disc to unsafe poles.
LV Overhead Service: Single installation of a pole take-off	<p>Where a single installation exists on a pole take-off:</p> <ul style="list-style-type: none"> • The pole mounted service fuses are to be removed. Removal of the service fuse may include the complete assembly or if not practical the fuse cartridge and all take-off-line materials located in roadway shall be recovered from site. • The first span from the network connection point shall be totally removed (cut away) and: <ul style="list-style-type: none"> (a) If <u>Customer owned</u> service: ask customer if they wish to keep it. If they want to keep it: roll up securely and place where requested. If they don't want it, then remove from site. (b) If <u>Network owned</u> conductor: remove from site (c) If removing the span of conductor may affect the structural integrity of the remaining line(s), install additional structural support e.g., guy wire • The customer may then remove any not-in use poles and other structural materials remaining on their property (at their own expense).
LV Overhead Service: Several customers supplied	<p>Where several customers are supplied from a section of overhead line crossing the private property of the customer to be disconnected, the line will usually have an easement and remain in place.</p> <p>Where no easement exists, Network Engineering to be made aware to identify if one should be established immediately or an alternative route shall be established to supply the remaining customers.</p>
LV Pole Riser Cable	<p>The customer service main cable shall be disconnected from the service fuses. Where the service fuse is mounted on a pole:</p> <ul style="list-style-type: none"> • The fuses assembly is to be removed completely or if not practical the fuse cartridge can be removed. • The customer's service main cable shall be coiled up and left on the pole if not practical to be removed from the pole
LV Underground Service	<p>The customer service main cable shall be disconnected from the service fuses. Where the service fuse is mounted in a Northpower pillar or cabinet, the service fuse cartridge shall be removed.</p> <p>Note: The service main cable tail or ends may be left in the pillar if not practical to remove from the pillar. The cable end shall be left in a way that will not interfere or come into contact with other live equipment.</p>
LV Service fuse located on the installation site rather than boundary	<p>Where the service fuse is located on the installation site rather than the boundary, the fuse assembly shall be removed.</p> <p>The service cable shall be physically disconnected from the distribution network. However, it may be necessary that a new pillar be installed on the customer's boundary and the network reticulation brought into the pillar.</p> <p>Note: This is required when the service cable is teed off the low voltage distribution network.</p> <p>Wall mounted distribution boxes, where the distribution box may still supply existing customers or anticipated future customers, shall remain in service. If the wall is to be demolished or otherwise unsuitable for retaining the distribution box, the distribution point shall be relocated to</p>





TYPE OF CONNECTION	MADE SAFE REQUIREMENTS: PERMANENT DISCONNECTION
	<p>a ground mounted distribution pillar or cabinet. Such works will usually incur significant planning and cost and so require consultation with Northpower CIW team on a case-by-case basis.</p> <p>Note: Cable ends in any of the above situations shall be capped to prevent moisture ingress.</p>
HV Overhead Connection	<p>Note - Instructions regarding earthing will come from Northpower's Networks Operation Centre (NOC)</p> <ul style="list-style-type: none"> • The network connection point shall be permanently isolated and the first span from the customer ICP connection point shall be removed from the network. • The conductors of the cut away span shall be effectively earthed at the next pole. • Removing a span off a conductor may affect the structure integrity of the remaining line(s) and additional structure support e.g., guy wire. • Controlling links or switches opened and tagged until they can be removed in conjunction with other works. • The network line shall be left in a clean, safe condition, after disconnection.
HV Underground Connection	<p>Note - Instructions regarding earthing will come from Northpower's Network Operations Centre (NOC)</p> <ul style="list-style-type: none"> • The high voltage service cable shall be de-energised and disconnected from the Northpower electricity network. • The section of cable located in a road corridor may be left in-situ at Northpower discretion. This includes the disconnection of "T" joint type connections to the network. • For "pole rise" the cable may be left on Northpower's pole, at Northpower's discretion, if the pole forms part of the assets supplying other customers. • Abandoned HV cables ends shall be earthed by bonding at both ends, all cores together and the screen while ensuring the screen has an earth connection. Fitting a suitable cap to prevent ingress of moisture. One simple method of earthing can be achieved by driving a nail into each core and then connection together using a piece of bare wire.
Shared Transformer	Refer relevant LV items above.
Dedicated Transformer	Where the customer is the only customer on the distribution transformer the transformer and associated hardware shall be removed as the transformer may be able to be utilised elsewhere.

