Customer Private High Voltage Installations Policy

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Official

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TasNetworks acknowledges the palawa (Tasmanian Aboriginal community) as the original owners and custodians of lutruwita (Tasmania). TasNetworks, acknowledges the palawa have maintained their spiritual and cultural connection to the land and water. We pay respect to Elders past and present and all Aboriginal and Torres Strait Islander peoples.

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Table of Contents

Policy Overview	3
Who does this Policy apply to?	3
The Policy	4
Purpose	4
Definitions	4
Principles	4
Supply Voltage	5
Metering	5
Standard Requirements	5
Customer Contribution	6
Typical Single-Line Diagrams (SLD)	6
Testing and Commissioning	6
Roles and responsibilities	7
Maintenance of policy	7
Implementation	7
Compliance	7
References	8
Attachments	9
Appendix A – Commissioning Certificate	11

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Policy Overview

TasNetworks reviewed the requirements and regulations applying to private HV installations seeking connection to the distribution network. Under the National Electricity Rules (NER), a customer must comply with reasonable requirements of the Network Service Provider (TasNetworks) in respect of design requirements of equipment proposed to be connected to the network. The connection to the TasNetworks distribution network shall include any customer contribution towards the costs of such arrangements.

This policy outlines the basic requirements that need to be met to enable such connections to be made. Further technical detail is provided in the TasNetworks Distribution Network Planning Manual (R0002474378) and applicable TasNetworks technical standards.

Who does this Policy apply to?

This policy applies to the electrical supply connection arrangement for private high voltage installations connecting to the TasNetworks distribution network, including customer contributions towards the cost of such arrangements.

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The Policy

Purpose

The purpose of this policy is to provide a prudent and consistent guideline for the connection of private high voltage electrical installations to TasNetworks network.

This policy recognises compliance obligations and requirements associated with industry guidelines, rules, and standards. Whilst due care is taken to ensure the accuracy of this document, it is the responsibility of the owner of the private high voltage installation to ensure their compliance with all relevant legislation and standards.

Definitions

High Voltage

High voltage (HV) means any voltage over 1,000 volts, but normally means 11,000 V or 22,000 V.

Customer

A person or entity that purchases electricity supplied through a distribution system to a connection point.

Connection Point

The agreed point of supply established between TasNetworks and the customer.

Private high voltage installation

Is a HV electrical installation wholly owned and controlled by a customer.

Principles

This policy has the following main principles:

- TasNetworks makes available a HV supply when:
    - the customer requests a HV supply
    - the customer's load is not suited to a low voltage supply
    - the customer's voltage is not suited to a low voltage supply
- TasNetworks distribution network shall not be adversely affected by the operation of the customer's electrical installation, or by the occurrence of a fault within the customer's electrical installation.
- The customer shall install and maintain appropriate electrical protection systems that isolate an electrical fault within their electrical installation from TasNetworks distribution network.
- TasNetworks shall provide an isolation point and a protection device (circuit breaker) between its high voltage system and the customer's installation.
- The operation of isolating the customer's installation from the distribution network shall not affect other customers connected to the network.
- There shall be physical separation of HV switchboards in ground-mounted substation arrangements.
- Shared services e.g. earth mats, equipment enclosures etc, shall be in accordance with the individual negotiated arrangement and comply with the relevant TasNetworks and Australian Standards.

Supply Voltage

TasNetworks can provide supply voltages ranging from 6.6 to 66 kV for private HV installations. Typical high voltage connections are at 11 kV and 22 kV although other voltages may be negotiated.

Metering

The installation shall be metered at high voltage at each connection point in accordance with the National Electricity Rules. The customer HV meter must be installed on the load side of the customer HV circuit breaker. The customer will be responsible for the installation and ongoing maintenance of the HV meter via an authorised meter provider.

Standard Requirements

- A customer must have a HV connection when their requested load exceeds 3000 kVA. Private HV installations must comply with the requirements of relevant standards, legislation, regulation, and codes of practice. This includes, but is not limited to the following documents, or any document that supersedes or amends them in future:
    - Occupational Licensing Act 2005.
    - Occupational Licensing (Electrical Work) Regulations 2018.
    - Occupational Licensing Electricity Consumption Metering Code of Practice 2022.
    - Standards of Electrical Work Code of Practice 2017.
    - Occupational Licensing (High Voltage Electrical Work - Certification and Energisation) Code of Practice 2021.
    - AS 2067.
    - AS/NZS 3000.
    - AS/NZS 7000.
    - TasNetworks' Medium Voltage Embedded Generation Technical Requirements (where applicable); and
    - All other relevant TasNetworks' Standards.

- The TasNetworks isolator and protection device shall:
    - be on the line side of the customer main circuit breaker.
    - operate simultaneously in all active conductors.
    - be non-reclosing; and
    - be able to be locked in the open position.

- The customer main control device shall:
    - be a circuit breaker.
    - operate simultaneously in all active conductors; and
    - be equipped and set with protection that will co-ordinate with TasNetworks' feeder protection devices.

- No customer equipment shall be installed on any TasNetworks assets or in any TasNetworks site.
- The separation between the TasNetworks switching equipment and the nominated connection point shall be no more than a nominal 20 route metres. Any increase beyond the nominal 20 route metres shall be by written approval of the Principal Design Engineer.
- To ensure the safety of TasNetworks personnel and ease of identification of isolation points in emergencies, TasNetworks will provide one point of supply to a customer's property. Additional

points of supply on the same title will need prior approval by TasNetworks and may require additional fees.
- It is necessary for the customer requesting the HV supply to arrange any easements necessary to support that infrastructure.
- The customer must complete a commissioning certificate verifying the correct installation of the site before commissioning a new or upgraded private HV connection point (**Appendix A – Commissioning Certificate**).

Customer Contribution

- The Customer shall contribute towards the costs of the establishment of the HV connection, any relevant connection assets, and network augmentation in accordance with the TasNetworks Distribution Connection Pricing Policy.
- All costs beyond the connection point are the customer's responsibility.

Typical Single-Line Diagrams (SLD)

Connection applications must include a SLD of the proposed private HV installation. Figures 1, 2 and 3 of Attachment 1 are typical single-line diagram connection arrangements for private HV installations. Customer switchboards are only shown schematically.

Testing and Commissioning

The proponent shall provide TasNetworks no less than 30 working days' notice of their intent to begin testing, commissioning and final energisation of the private HV site. At this time, they must also provide a Testing and commissioning plan for the HV system.

TasNetworks requires at least 10 working days to review documentation that verifies that the private HV installation is suitable for connection to our network. Documentation must include:

- Design of the installation (at minimum this must include a primary single line diagram and a metering and protection single line diagram).
- Earthing design / performance report.
- Protection co-ordination report.
- Installation and protection test reports (including test results for the HV equipment and transformers as a minimum); and
- Certificate of compliance from your certifying engineer, specifically the High Voltage Electrical Work Certificate of Compliance as per the requirements of the Occupational Licencing (High Voltage Electrical Work – Certification and Energisation) Code of Practice 2021.

The connection process is completed once the required signatures for all fields of the Commissioning Certificate in **Appendix A – Commissioning Certificate** are obtained.

General Requirements

Testing and commissioning shall only commence after the installation of metering equipment required to facilitate the connection.

The proponent shall prepare and provide to TasNetworks an appropriate testing and commissioning plan for the HV System. The testing and commissioning plan must be prepared by a suitably qualified engineer and is to be provided no less than 30 working days prior to the commencement of testing and commissioning.

The test and commissioning plan shall include the following:

- The contact number(s) and details (including appropriate qualifications) of the person(s) responsible for undertaking the testing and commissioning.
- Confirmation that the single line diagram reflects the installed system.
- Confirmation that the private HV site and its components are as per specification and have been certified as electrically compliant and safe to energise.
- Confirmation that the protection settings are as per TasNetworks' requirements.
- Test procedures for validation of protection settings and compliance against relevant standards

Roles and responsibilities

Maintenance of policy

TasNetworks Network Planning Leader is responsible for the review and maintenance of this policy statement.

Implementation

TasNetworks Network Planning Leader is responsible for the implementation of this policy when:

- network provides a new electricity supply connection at high voltage; or
- when undertaking extensions or alterations involving existing private HV installations.

This Policy comes into effect upon the date of approval. Any ongoing negotiations with customers at the time of the approval should, where possible, consider the change in policy. However, if such negotiations and designs are substantially complete at the time of approval then such designs only have to align with the previous version of this policy.

Compliance

Breaches of this policy will be treated seriously and may, if necessary, result in disciplinary action being undertaken. Depending on the circumstances of the case, this may include an apology, counselling, training, demotion or termination of employment. Behavior that is not a breach of this Policy may still be found to be inappropriate or unreasonable. For example, it may be a breach of the TasNetworks Code of Conduct. In this instance, disciplinary action may still result.

Public Interest Disclosure Statement ("Whistleblowers")

If an individual is concerned about the consequences associated with reporting a serious breach of this Policy, that individual should refer to the Public Interest Disclosure (Whistleblowers) Policy available on The Zone or talk to their Leader.

References

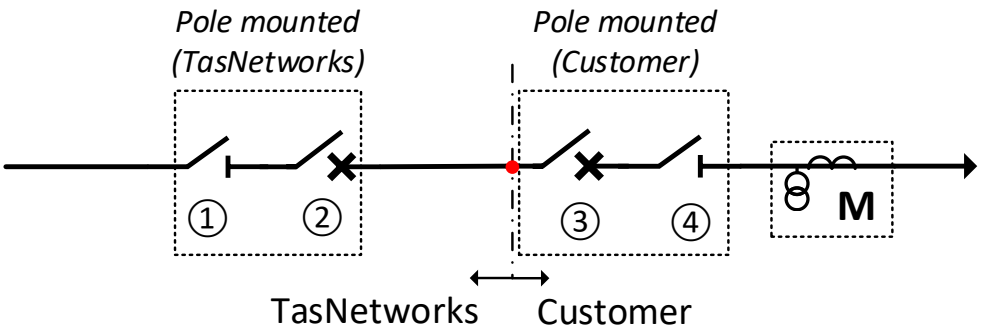
- Distribution Substation Design and Construction Manual SAA Wiring Rules AS/NZS 3000 and AS2067.
- Distribution Network Planning Manual (R0002474378).
- Occupational Licensing Act 2005.
- Occupational Licensing (Electrical Work) Regulations 2018.
- Occupational Licensing Electricity Consumption Metering Code of Practice 2022.
- Standards of Electrical Work Code of Practice 2017.
- AS/NZS 7000.
- Occupational Licensing (High Voltage Electrical Work - Certification and Energisation) Code of Practice 2021.
- Distribution Connection Pricing Policy.
- Electricity Wayleaves and Easements Act 2000.

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Attachments

- The TasNetworks-owned cable supplying a customer switchboard will be ≤ 20 metres unless otherwise approved by TasNetworks.
- A TasNetworks owned protection device is required when an uncleared fault on a customers' installation would result in an unacceptable impact on the reliability of supply to shared distribution network.
- The customer's isolation device can be installed downstream (as shown below) or upstream of the customer's circuit breaker.

Overhead Arrangement



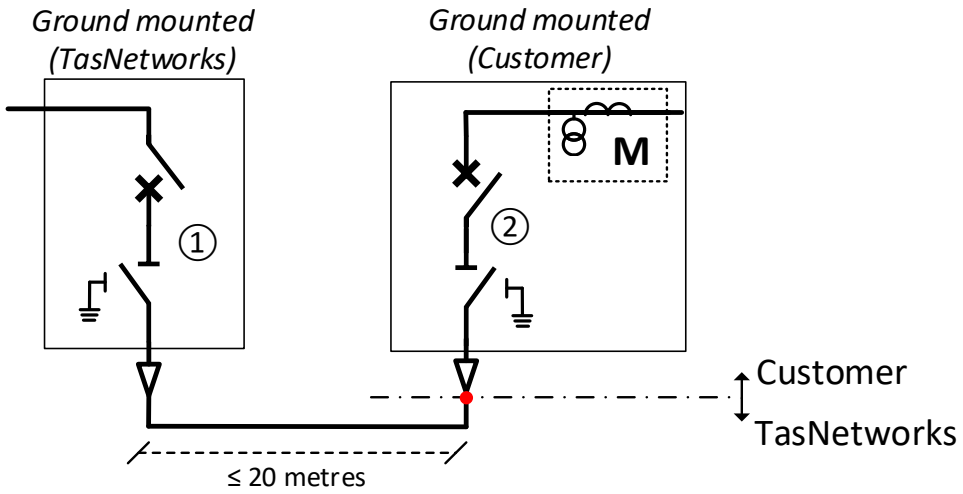
① A TasNetworks owned HV Isolator (e.g. HV Link, Load Break Switch or Air Break Switch)

② A TasNetworks owned protection device (e.g. Pole Mounted Recloser)

③ Customer owned protection device

④ Customer owned HV Isolator (e.g. HV Link, Load Break Switch or Air Break Switch)

Underground Arrangement

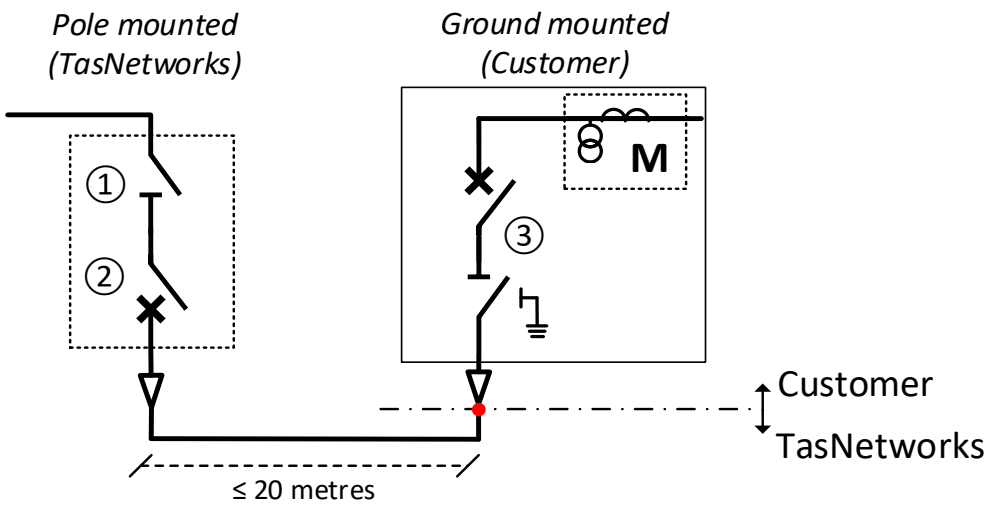


① TasNetworks owned ground-mounted protection device and isolation switch

② Customer owned ground-mounted protection device and isolation switch

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Hybrid Arrangement



① A TasNetworks owned HV Isolator (e.g. HV Link, Load Break Switch or Air Break Switch)

② A TasNetworks owned protection device (e.g. Pole Mounted Recloser)

③ Customer owned ground-mounted protection device and isolation switch

Appendix A – Commissioning Certificate

Project Title			
Customer		Customer Contact	
Customer Phone #		Customer Email	
Connection Date			
Summary of Work performed/Assets being connected to TasNetworks Network			

	CERTIFICATION	(Please tick appropriate boxes)	
1	TasNetworks has been notified of the customer's intended date of commissioning with **no less than 30 working days' notice.**	Customer Engineer	☐
2	TasNetworks has been provided the following documentation **no less than 10 working days** before the intended date of commissioning: • Design of the installation (at minimum this must include a primary single line diagram and a metering and protection single line diagram). • Earthing design / performance report. • Protection co-ordination report. • Installation and protection test reports (including test results for the HV equipment and transformers as a minimum). • Testing and commissioning plan for the HV system; and • Certificate of compliance from your certifying engineer, specifically the High Voltage Electrical Work Certificate of Compliance as per the requirements of the Occupational Licencing (High Voltage Electrical Work – Certification and Energisation) Code of Practice 2021	Customer Engineer	☐
3	All online commissioning tests have been completed and results confirmed to be satisfactory	Customer Engineer	☐
4	Commissioning test results have been reviewed and accepted by TasNetworks	Network Performance (TasNetworks)	☐
5	The equipment complies with appropriate standards and connection agreement requirements. Identified defects and/or interim operating limits are documented and have been accepted by TasNetworks along with agreed timeframe for rectification	Customer Engineer Network Performance (TasNetworks)	☐ ☐
6	All protection and/or auxiliary relays have been tested; final settings applied; SCADA commissioning completed	Customer Engineer	☐

		Protection and Control (TasNetworks) Network Operations and Control Systems (TasNetworks)	☐ ☐
7	To the best of the connecting customer's knowledge the equipment is ready for safe connection to the Network.	Customer Engineer	☐
8	Metering Provider has been engaged for the provision of metering services and arrangements have been made to commission the new metering on the energisation date.	Customer Engineer	☐
List any limitations to the Equipment			
List Variances from Performance Standards or Connection Agreement			

Customer	Name	Sign	Date
Engineer			
Project Manager			
TasNetworks	**Name**	**Sign**	**Date**
Network Performance			
Protection and Control			
Network Operations Control Systems			
Network Operations			



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