



CUSTOMER CONNECTION AND CONTRIBUTION GUIDELINES (CCCG) (PRE)

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1. INTRODUCTION

1.1 Background

The Peel Business Park (PBP) is a large industrial and agri-business precinct located near Nambeelup, and approximately 7km north-east of Mandurah, WA. PBP has an overall area of approximately 1,000 hectares and is being developed in several stages. Reticulation of power within Peel Business Park is through a network referred to as the Peel Microgrid, owned and operated by Peel Renewable Energy Pty Ltd (PRE) a subsidiary of Zenith Energy Operations Pty Ltd.

Approximate geographic boundaries for PBP and the first precinct are outlined in Figure 1 below.



Figure 1. Peel Business Park Overview (courtesy of CBRE/Landcorp)

1.2 Definitions

Term	Description
Peel / Zenith Energy Operations Pty Ltd	Peel Renewable Energy is a subsidiary of Zenith Energy Operations Pty Ltd, Zenith Energy Operations Pty Ltd includes, but is not limited to, the following subsidiaries: <ul style="list-style-type: none"> • Peel Renewable Energy Genco Pty Ltd (PRE) • Peel Renewable Energy Pty Ltd (PRE)
Augmentation	means the capital upgrade of the PRE Microgrid or the Western Power Network required to meet the electrical growth requirements of Customers.

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Term	Description
Third Party Retailers	means a person licenced under the Electricity Industry Act 2004 (WA) to sell electricity to Customers in the SWIS, which has agreed terms of access to the PRE Microgrid with PRE.
CC&CG	means the Customer Connection and Contribution Guidelines (this document)
CSSG	means the Customer Self Supply Guidelines.
Customer	means a person supplied or to be supplied with electricity by PRE at the PBP.
Customer's Agent	means a person acting on behalf of a Customer or any other person otherwise requiring connection and/or a supply of electricity and may include a builder, developer, tradesperson or similar person.
Distribution Network	means the distribution system components of the PRE Microgrid.
ENAC	Electricity Network Access Code 2004 (WA).
PRE-Connection Offer	has the meaning given in Section 3.3. Good Electricity Industry Practice .
LV	means Low Voltage (typically 415V for the PBP).
HV	means High Voltage (typically 22kV for the PBP). (kVA)
MPS	means Modular Package Substation.
PBP	means the Peel Business Park located near Nambeelup, WA.
PRE Microgrid	means the vertically integrated electricity networks and generation assets that are located at the PBP and operated by Peel Renewable Energy and any of its Related Bodies Corporate
Project Deed	means the contract between PRE and DevelopmentWA under which PRE is entitled to operate the PRE Microgrid.
Prudent Integrated Operator	means a person in the position of PRE responsible for operating a vertically integrated electricity supply system comparable to the PRE Microgrid with an open access approach to Third Party Retailers consistently with all legal and contractual obligations (including, in the case of PRE to DevelopmentWA under the Project Deed).
METAC	means the document of that name published on PRE's website from time to time under which PRE grants an electricity supply and connection service to Third Party Retailers.
NMI	means national meter identifier.
Non-MPS	means a Non-Modular Package Substation.
NPPCM	means the PBP - Network Performance and Planning Criteria Manual.
NSP	means Network Service Provider.
PV	means photo voltaic.
RMU	means Ring Main Unit.
SWIS	means the South-West interconnected system, as that term is defined in the Electricity Industry Act 2004 (WA).
SWIS	means the South-West interconnected system, as that term is defined in the Electricity Industry Act 2004 (WA).
Synergy	means the electrical metering provider
WP Network	means the electricity network owned and operated by WP
WP	means the Electricity Networks Corporation, established under the Electricity Corporations Act 2004 (WA) and trading as Western Power
WAER	means the Western Australia Electrical Requirements
WASIR	means the Western Australia Service and Installation Requirements

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Term	Description
WA	means the state of Western Australia
UG	means Underground (i.e. below ground cable-based infrastructure)

1.3 About the PRE Microgrid

The Peel Microgrid takes supply at 22kV from the Western Power Network (WP Network) under a conventional customer arrangement. The Peel Microgrid incorporates an internal 22kV cable network supplying several 22kV/415V distribution substations. Individual sites within the PBP are typically supplied via radial low voltage supplies from these distribution substations.

Electricity is supplied to Customers at the Peel Microgrid from, variously:

- the WP Network by Synergy, under an electricity supply agreement between Synergy and PRE.
- local renewable generation and storage infrastructure connected directly to the Peel Microgrid.

Because the Peel Microgrid is connected to the WP Network by means of a conventional Western Power customer connection, the Peel Microgrid is subject to a range of technical, safety, regulatory and related obligations that are imposed by law or under arrangements between PRE and Western Power and Synergy, respectively.

PRE is required to comply with these overarching obligations in relation to the connection of Customers, the modification of Customer equipment and facilities and the augmentation of the Peel Microgrid and, in some circumstances the augmentation of the WP Network.

1.4 Purpose and Scope

This document describes processes and requirements for arranging and managing Customer load connections to the Peel Microgrid. It also describes charges and capital contributions that apply to connections and the approach for determining how these are calculated.

This document has been developed to help ensure connections to the Peel Microgrid are implemented, operated and maintained in a way consistent with good electricity industry practice and applicable legal and regulatory requirements.

This document applies to load connections and does not cover all requirements for connecting generation to the Peel Microgrid. Requirements for the connection of generation assets are detailed separately in the PRE *Customer Self Supply Guidelines (CSSG)* - (BMSDOC-18-2212), also available from PRE.

1.5 Competency and Use

This document is intended for use by PRE (in its capacity as operator of the Peel Microgrid), Customers, Customer's Agents and Third Party Retailers, and associated industry parties and personnel.

Users of this document should have general familiarity with systems, equipment and practises commonly used for electrical installations, distribution systems and associated connections, particularly in Western Australia.

Customer's must have, or must engage with, suitably competent and qualified electrical engineers to undertake their network and protection systems design. Details of those competent persons shall be submitted with the designs.

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1.6 Employing a Licensed Person

The *Electricity (Licensing) Regulations 1991* (WA) requires that all electrical work carried out on electrical installations connected to or intended to be connected to the PRE network will be performed by persons holding the appropriate electrical worker's licenced (as issued by the Electrical Licensing Board).

1.7 Contact Information

Contact for any matters related to the contents of these Guidelines may be made through written correspondence to PRE at the following email:

newconnections@PeelRenewableEnergy.com.au

Any enquiries relating to emergencies or a specific requirement should be directed to the PRE Business General Manager as below:

Jason Good

GM Zenith Energy Operations Pty Ltd

Mobile: +61 472 873 082

Email: JasonGood@ZenithEnergy.com.au

Address: 52 Belmont Avenue, Rivervale WA, 6103

1.8 Terms and Abbreviations

Terms that are capitalised but not defined in these Guidelines have the meaning given in Definitions.

2. COMPLIANCE AND REGULATIONS

2.1 Regulation of Electricity Industry in WA

Key players in Western Australia's electricity sector in the South West, include:

- Energy Policy WA
- Synergy
- Western Power
- AEMO
- the WA Rule Change Panel
- Economic Regulation Authority of Western Australia
- Energy and Water Ombudsman Western Australia (Energy Ombudsman).

In summary, Energy Policy WA is responsible for the delivery of energy policy and transformation strategy to the Minister for Energy.

Synergy is the Western Australian Government owned gentailer responsible for supplying all "small customers" connected to the Western Power Network, as well as the Peel Microgrid. They also own the majority of generation capacity in the South West.

Western Power owns and operates the Western Power Network, to which the Peel Microgrid is electrically connected.

AEMO is the market operator and system manager of the Wholesale Electricity Market, which is established in the South West, while the Rule Change Panel is responsible for assessing rule change proposals to the rules that govern the Wholesale Electricity Market.

The Economic Regulation Authority:

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- regulates third party access to the WP Network under the Electricity Networks Access Code (2004) WA (ENAC)
- administers the electricity licensing regime.
- monitors and reports on the compliance of electricity wholesale market participants.

The Energy Ombudsman receives and resolves complaints relating to electricity providers across WA.

2.2 Regulation of the Peel Microgrid

PRE operates the Peel Microgrid pursuant to the Project Deed between it and DevelopmentWA.

PRE also holds a distribution licence and a retail licence under the Electricity Industry Act (2004) WA (Electricity Act), under each of which it is required to comply with a range of legislative and regulatory obligations in relation to the operation of the Distribution Network and the supply of electricity to Customers.

The Peel Microgrid is not subject to pricing regulation of the Economic Regulation Authority as is the case with Western Power.

2.3 Consideration of WA Service and Installation Requirements

This document has been prepared to take into account the WA Service and Installation Requirements (WASIR). This is to help ensure Customer's within PBP have a comparable and similar set of conditions, processes and requirements to those connecting to the WP Network. The information contained in the following sections of the WASIR are all relevant to the Peel Microgrid and as noted:

- Section 1 Definitions and abbreviations
- Section 2 Document management
- Section 3 Scope and legislation
- Section 4 Roles and responsibilities
- Section 5 Contact details (noting PRE's details above)
- Section 6 General requirements (noting PRE's details above)
- Section 7 Connection and disconnection applications (noting the information and clauses referenced in Section 3 of these Guidelines)
- Section 8 Notices and notifications
- Section 9 Charging policies (noting the information included in Section 5 of these Guidelines)
- Section 10 Supply characteristics (noting the applicable details for the PRE contained in the Network Performance and Planning Criteria Manual)
- Section 11 Metering (and as described in Section 4.7 of these Guidelines)
- Section 12 Low voltage supply (noting information and clauses referenced in Section 4.3 of these Guidelines)
- Section 13 High voltage distribution supply (noting information and clauses referenced in Section 4.4 of these Guidelines)
- Section 14 Substation installation requirements (noting information and clauses referenced in Section 4.5 of these Guidelines) references to the Network Operator within the WASIR should generally be read as PRE.

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3. GENERAL INFORMATION AND REQUIREMENTS

3.1 Overview

PRE should be contacted as early as practical when considering new, or altering existing, connections to the Peel Microgrid, including any of the following:

- New connections for proposed facilities/developments (including temporary supplies)
- Increasing the load demand at existing facilities
- Significantly altering load or electrical parameters in a way that could affect power-factor or power quality (also refer to the Network Performance and Planning Criteria Manual - NNPC (PRE))
- Altering the physical arrangement of existing connections (e.g. relocating switchboards or incoming cables)
- Permanently reducing load demand at existing facilities
- Permanently or temporarily disconnecting existing facilities
- Installing any alternative sources of supply, such as PV solar, generators or self-storage (e.g. batteries) (also refer to the *Customer Self Supply Guidelines - CSSG (PRE)*)

PRE will generally have specific set of requirements and expectations that will need to be accommodated in the layout, design and establishment of the connections and associated electrical installation. It is only through the connection process described in Section 3.5, and Appendix 1, that these requirements can be confirmed and agreed before being implemented.

3.2 Conditions of Supply

Taking supply from the Peel Microgrid is subject to a range of conditions encompassing regulatory, technical and commercial aspects. These conditions cover matters such as installation safety, design, costs/payment, timeframes and load/electrical parameters that must be met in order to connect and take ongoing supply from the Peel Microgrid.

Applicable conditions can be found throughout these Guidelines and are also included in relevant legislation/regulations, standards and documents including but not limited to:

- applicable legislation, including the *Electricity Act (1945) WA*, *Electricity Act*
- *Electricity (Licensing) Regulations (1991) WA* and *WA Electricity Requirements* (as issued by the Director of Energy Safety) which sets out minimum requirements for all Electrical Installations in WA
- Applicable Australian Standards including but not limited to *AS/NZS 3000* and *AS/NZS 2067*
- Applicable requirements of PRE including within the PRE Technical Rules and related parts of the *WA Distributions Connections Manual (WA DCM)* and the *Western Australian Electrical Requirements*
- Specific requirements for the Peel Microgrid including these Guidelines, *Network Performance and Planning Criteria Manual - NNPC (PRE)* – as well as related connection/supply contracts with PRE.

It is also important to note that PRE is required to comply with a range of obligations of Western Power because the Peel Microgrid is, from a Western Power perspective, a “customer connection point”.

3.3 Availability of Supply

Availability of supply, in the context of the Peel Microgrid, refers to the availability of sufficient Distribution Network, generation capacity on the Peel Microgrid, and electricity sourced from the Western Power Network to meet the needs of a particular Customer.

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Customers should not assume supply (in terms of available Distribution Network capacity and a capacity to provide electricity) will be available for a specific proposal until they receive written confirmation and agreement from PRE in terms of a connection offer and supply agreement. Accordingly, Customers should avoid making any commitments (e.g. purchase of equipment etc) until a formal connection offer has been received following the application process detailed in Section 3.5 (Connection Offer).

Where available, supply will be subject to the range of conditions outlined in Section 3.2 , as well as a more specific set of terms and conditions contained within the Connection Offer. This may include the requirement to arrange and/or fund any augmentation of the Peel Microgrid required to support the additional load or allow the connection to proceed.

3.4 Types of supply

3.4.1 Low Voltage Supplies

- District Substation - Shared Street Circuit
- District Substation - Dedicated Circuit(s)
- Sole Use Substation - Dedicated Circuit(s)

3.4.2 High Voltage Supplies:

- Ground mounted Ring Main (Outdoor)
- Ground mounted Ring Main (Indoor)
- Dedicated Feeder

Details for each type of supply may vary subject to specific requirements and are described further in Section 4. Further information related to temporary or unmetered supplies is provided in Sections 3.6 & 3.7, respectively. Applicable pricing and tariff information is also provided in Section 5.

3.5 Connection Process and Requirements

3.5.1 Process Overview

The process for implementing any new or modified connections to the Peel Microgrid is generally made up of the following key phases:

- **Application Phase:** involving initial enquiry/discussions, planning and finalising an application.
- **Review and Confirmation Phase:** including detailed assessments, preparation of a connection offer and Customer acceptance.
- **Implementation Phase:** including Customer installation and connection works, coordination, inspections, testing and commissioning.

Figure 2 – Connection Process Overview below, provides a general overview of the process/phases, and applies whether a Customer is seeking a new connection, altering an existing connection or looking to install solar or other forms of alternative sources of supply. More details can be seen in Appendix 1.

The timeframes for each phase can vary depending on the type, scale and complexity of any given proposal. Simple LV supplies may only take a few weeks for PRE to provide a Connection Offer and may require only minimal physical work. Very large or complex connections could take a number of months to discuss, consider, assess and finalise a specific Connection Offer prior to acceptance. Detailed design and construction may take several months or more depending on the project complexity and equipment lead times.

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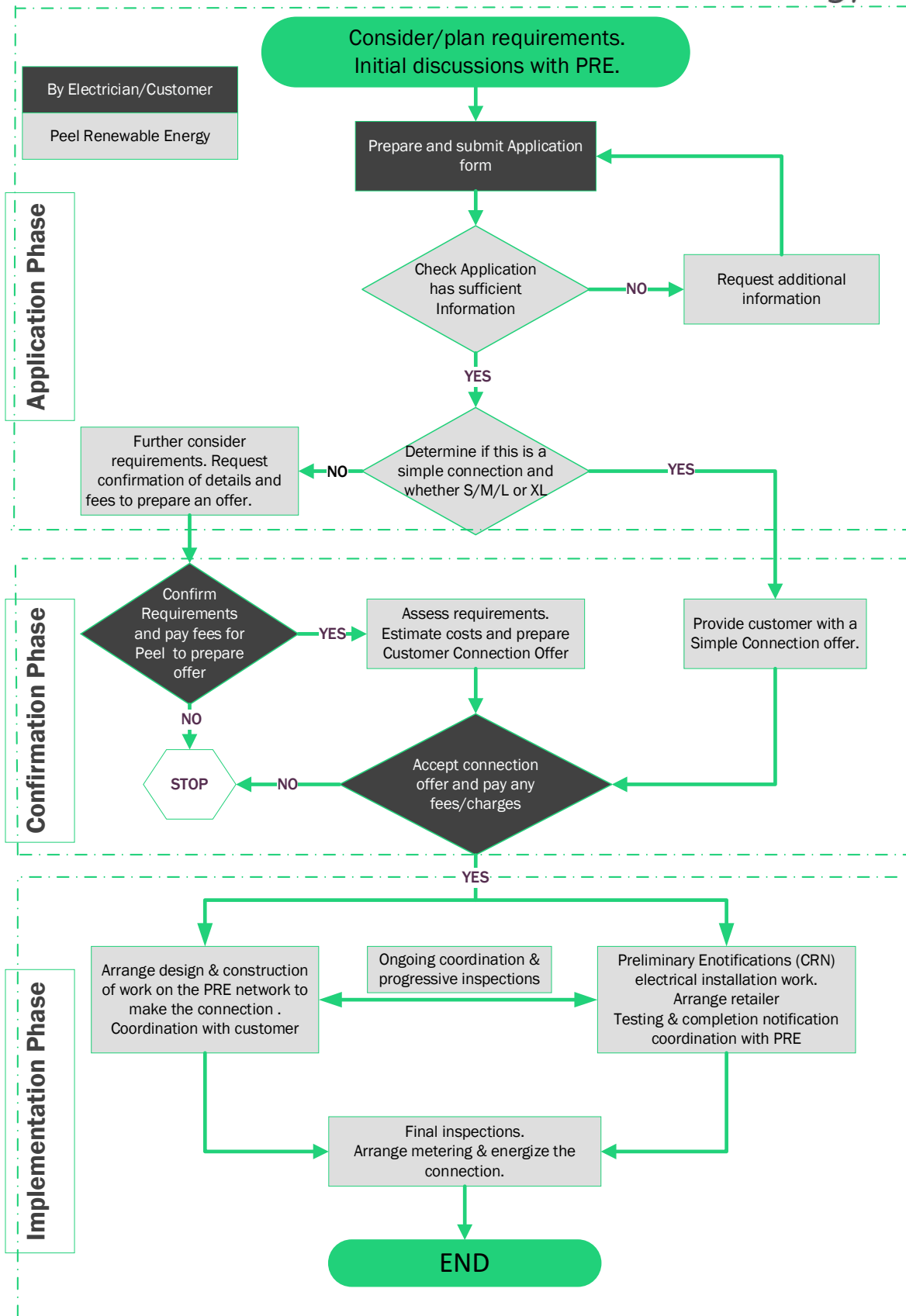


Figure 2 - Connection Process Overview

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3.5.2 Application Phase and Forms

The initial application phase will generally involve the following activities:

- Customer, Customer’s Agent and/or their appointed electrical contractor/consultant:
 - considers specific load and installation requirements
 - arranges initial discussions with PRE regarding applicable options/arrangements
 - plans/finalises initial proposals and submits application with relevant details to PRE.
- PRE will then:
 - review the application and request any additional information if required
 - consider extent of assessments and fees required to prepare an offer/quotation based on the size and complexity of the planned connected load
 - discuss and/or request additional details if necessary, and request payment of fees to prepare an offer/quotation.

Relevant application forms are available from the Peel Renewable energy’s website.

In simple cases, PRE may be in a position to start preparing an offer/quotation immediately after the initial application has been submitted. For more complex situations, confirmations and additional information may be required including:

- Confirmation of contact details
- Confirmation of electrician or other representative details
- Clarification of anticipated timing, loading, energy usage and operating details
- Details of proposed maximum demand, power factor and usage calculations
- Proposed site layouts and connection arrangements
- Proposed electrical phasing and protection details
- Details of any large plant/motors, disturbing loads and power factor correction equipment
- Proposed generation, inverter, rectifier and/or variable speed equipment details.

Where required PRE will send a written request for the additional information and may also request payment of initial fees to prepare an offer. These fees will depend on the complexity/scale of the assessment and extent of work likely to be required (refer to Section 5 for further details).

The WA Electrical Requirements (WAER) outline the technical requirements for electrical installations and should be considered in detail when planning electrical facilities. Typical details for the different types of supply available from the Peel Microgrid are also provided in Section 4.

3.5.3 Review and Confirmation Phase

Once the Customer (or the Customer’s Agent) has provided all requested information and paid the applicable fees, PRE will commence the review to confirm the required arrangements and prepare an offer/quotation. For simple situations this may only take a few weeks. For large loads or complex situations, a range of detailed assessments may be required including (but not limited to):

- A review of capacity and any upgrading requirements on the Peel Microgrid, and upstream WP Network
- Assessment of protection systems and related requirements
- Review of potential impact on WP Network voltages and regulation

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- Implications for supply reliability, power quality and power factor
- Arranging associated assessments by Western Power (where required)
- Determining any specific operating conditions that may need to be imposed
- Finalising a preferred connection arrangement, concepts and estimated costs.

PRE will use its best endeavours to provide a Connection Offer within three months of receiving all relevant information (with significantly shorter timeframes in less complex situations). An invoice for associated payment of charges may also be included which will typically involve an initial deposit of 20%, followed by the remainder 30 days prior to the commencement of construction (subject to scale of works).

The Connection Offer will also include an expiry date (typically 60 days from the date of the Connection Offer) within which it should be accepted, including payment of any associated deposit or charges.

3.5.4 Implementation Phase

Detailed design and construction can commence after acceptance of the Connection Offer. PRE will arrange design and construction of any augmentation work required on the Peel Microgrid. The Customer's electrical contractor will be responsible for all work within the electrical installation, including any associated Customer's mains and submitting necessary preliminary E-notifications with CRN (NoticesWA@PeelRenewableEnergy.com.au)

The Customer's electrician/project manager will need to maintain regular contact with PRE during both design and construction to ensure suitable coordination is achieved throughout the development of the electrical installation and associated connection. Any remaining fees or charges will also need to be paid as stipulated in the Connection Offer.

The Customer or their electrician will also need to liaise with PRE to provide sufficient lead in time for PRE to pre-arrange associated metering installation to ensure it is ready for final energisation.

Suitable testing and completion E-notifications are required prior to connection and are the responsibility of the Customer's electrician. Notifications should be submitted to PRE at the earliest opportunity to help avoid delays. NoticesWA@PeelRenewableEnergy.com.au

Notification requirements may depend on type of work involved and will generally require certification from a suitably licensed electrician and/or professionally qualified electrical engineer.

The PRE Service and Technical Installation Guidelines and technical requirements for electrical installations should be considered in detail during the design and construction of the Customer's electrical installation.

3.5.5 New Load Connections

The general process outlined above applies to all new load connections within the PBP, with new load applications requiring the following initial information:

- Electrician or other representative details (if known),
- Proposed location of their premises/facilities
- Estimated date when supply is initially required
- Initial estimate of maximum kW demand (if known)
- Initial estimate of annual MWh energy usage (if known)
- Other relevant information that might be available, such as operating times and any special electrical requirements.

General steps and detailed requirements are also consistent with the WASIR, and in particular the following clauses:

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- 7.18 - Process for LV distribution connections
- 7.19 - Connection process for HV supply.

3.5.6 Upgrading or Altering Existing Connections

Upgrading or altering an existing connection could involve any or all of the following:

- Physical changes such as relocating or installing a new main switchboard
- Any upgrades requiring an increase in site maximum demand
- Installation of new equipment that could affect the WP Network such as large motors, on-site generation or other special equipment
- Any changes that may affect the existing connection and/or supply contract.

Upgrades or alterations also follow the general connection process outlined above, noting these applications require the following initial information:

- Business and contact details
- Electrician or other representative details (if known)
- Location of their premises/facilities and existing NMI and CRN (if available)
- Nature of the alteration and any associated equipment changes
- Estimated date when the alteration is required
- Estimate of any proposed change to maximum kW demand (if known)
- Estimate of any proposed change to annual MWh energy usage (if known)
- Other relevant information that might be available, such as operating times and any special electrical requirements.

General steps and detailed requirements are consistent with the WASIR, and in particular the following clauses:

- 7.18 - Process for LV distribution connections
- 7.19 - Connection process for HV supply.

3.5.7 Disconnection or Reconnection

Disconnections could be for temporary purposes or permanent. Temporary disconnections are typically required to safely undertake work in and around Customer's facilities such as repairs, excavation and constructions works or may be required under the terms of the applicable contract between the Customer and an applicable Retailer.

Permanent disconnections will typically only occur where facilities are to be demolished and follow initial termination of the electricity account with the applicable Retailer.

Temporary disconnections will fall into one of the following categories:

- Planned Non-electrical Work: involving no alterations to the connection or electrical installation
- Planned Electrical Work: involving work on the connection (e.g. POS) or electrical installation
- Un-planned Work: due to unanticipated events such as faults, emergency, fire or damage.

Relevant disconnection forms are available from the Peel Renewable Energy website and generally require the following information:

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- Contact details
- Electrician or other representative details (if known)
- Address/location details for the premises and associated CRN (if known)
- Estimated date when disconnection is required, and for how long
- Reason and category for the disconnection (refer below)
- Any other relevant information, and urgency for disconnection.

For emergency situations the Peel Microgrid Response Centre should be contacted (per details given in Section 1.7).

Requirements for reconnecting the supply following a temporary disconnection can vary depending on the category of work. The detailed steps and requirements for temporary disconnections and associated reconnection within the Peel Microgrid are consistent with the WASIR, and in particular clause 7.12 Temporary disconnections.

3.6 Temporary Supplies

Situations that might require a temporary supply typically include:

- Sites requiring interim supply for construction and WorkSafe requirements
- Temporary facilities such as sales offices
- Special events such as carnivals and the like
- Supply to heavy machinery on an interim basis.

Temporary supplies must meet all applicable safety and technical standards and not cause unacceptable impact on the WP Network and will need to be reviewed and agreed to by PRE before being arranged.

Parties considering taking temporary supply should apply using the applicable form (included in Appendix 1) providing as much of the following information as possible:

- Contact details
- Electrician or other representative details (if known)
- Location of proposed facilities
- Nature of the equipment
- Estimated date when connection is required, and for how long
- Anticipated maximum kW demand (if known)
- Other relevant information that might be available, such as operating times and any special requirements.

Associated information in PRE Service and Technical Installation Guidelines, and the WASIR also applies and in particular clause 7.7.4 Temporary supplies.

3.7 Unmetered Supplies

Unmetered supplies will only be available within road reserves for limited purposes where necessary such as for traffic signals, streetlighting and the like, and will generally be limited to government authorities/agencies and/or for specific community purposes.

Applicable forms are available from the Peel Renewable Energy website and generally require the following information:

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- Contact details
- Electrician or other representative details (if known)
- Location of proposed facilities
- Nature of the equipment
- Estimated date when connection is required, and for how long
- Anticipated maximum kW demand (if known)
- Other relevant information that might be available, such as operating times and any special requirements.

Associated information in the PRE Service and Technical Installation Guidelines, and the WASIR also applies and in particular clause 7.7.5 Unmetered supply.

3.8 Appointing an Electrical Consultant/Contractor

In large or complex situations, it may take a number of months for detailed requirements to be determined and finalised so that any necessary connection and installation work can commence. The services of suitably qualified and experienced consultants, contractors and/or personnel should be enlisted as early as practical in the process to help ensure successful and timely outcomes.

3.9 Notifications of Electrical Work

A range of statutory obligations/requirements apply to notification of electrical work, as outlined in PRE Service and Technical Installation Guidelines and Section 8 of the WASIR. These requirements equally apply to all electrical work undertaken within the PBP.

3.10 Contract Administration

The Customer has a range of obligations in the establishment and management of their electrical supply. Related works for which they are responsible shall be undertaken in accordance with the applicable design and technical requirements. Requirements for associated contract administration including, project management, timing/scheduling, warranties and documentation are consistent with the PRE Service and Technical Installation Guidelines and WASIR, and in particular clause 7.5 (Contract Administration).

4. TECHNICAL INFORMATION AND REQUIREMENTS

4.1 Overview

This Section 4 outlines applicable technical information and requirements for the various types of supply available within the Peel Microgrid, as listed earlier in Section 3.4. This information is provided principally for use by electrical contractors, consultants, designers and workers to describe the technical details/requirements that must be understood/satisfied when connecting and taking ongoing supply from the Peel Microgrid.

The applicable supply arrangement in any given situation will be determined/described by PRE, in consultation with the Customer and/or their agent, following the connection and application processes outlined in Section 3.5.

4.2 General Supply Agreements

4.2.1 Low Voltage Supply

All low voltage services within the PBP will be underground and typically via a dedicated circuit from a free-standing LV kiosk or distribution substation. Specific arrangements will depend on the Customer load requirements with the upper limits given in Table 1 typically applying for each type of supply.

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Table 1: Typical LV Supply Arrangements/Limits

Type of Supply		Typical Supply Limit
District Substation – Shared Circuit		<315A
Shared District Substation Dedicated Circuit	Single-Fuse	<400A
	Double-Fused	<630A
	Disconnecter	<1310A
Sole Use Substation	Single-Transformer	<1310A
	Dual-Transformer	<2635A

General arrangements will be based on the district substation LV supply configurations described in Section 8.1.5 of the WP Distribution Customer Connection Requirements.

4.2.2 Shared District Substations

Suitability for supply from a shared district substation will be determined by PRE subject to availability, required load/capacity as well as an assessment of applicable voltages and power quality requirements as outlined in the *Network Performance and Planning Criteria Manual - NNPC (PRE) – BMSDOC-18-2210*.

Shared District Substations within the Peel Microgrid will generally be of the Non-Modular Package Substation (Non-MPS) type as described in Clause 14.3.2 of the WASIR, and the PRE Service and Technical Installation Guidelines.

Supply from a shared district substation will usually be one of the following two alternatives:

- Shared LV circuit with Customers' main terminating at a free-standing LV kiosk
- Dedicated circuit with Customers' main terminating at the substation LV kiosk.

In both cases, the free-standing kiosk or substation will normally be located within the Customer's property and against the street boundary, to allow a direct path for the Customer's mains. Further information on the associated low-voltage and substation requirements are provided in Sections 4.3 and 4.5 respectively.

4.2.3 Sole Use Substations

Sole Use Substations are generally required in situations where the Customer's potential load requires more capacity than a Shared District substation can provide, and/or to accommodate related voltage or power quality requirements.

Sole Use Substations will be of the Non-MPS type as described in Clause 14.3.2 of the WASIR and the PRE Service and Technical Installation Guidelines.

Supply from a Sole Use Substation will generally involve Customer's' mains terminating at the substation within the Customer's property with the HV equipment located at the street boundary. Further information on the associated low-voltage and substation requirements are provided in Sections 4.3 and 4.5, respectively.

4.2.4 High Voltage Supply and Customer Substations

High voltage supply will only be considered in special cases and where necessary to cater for Customer's load or specific installation requirements. Only 22kV HV underground connections will be available within the PBP.

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Customer owned substations will generally be required for HV supply situations. A HV Ring Main Unit (RMU), and associated HV metering unit, will typically be located on the Customer's boundary with Customer's HV mains extending to their substation. Substation details will depend on the specific Customer requirements with Customer being responsible for all associated design, construction and ongoing operation.

Customers should be aware that taking supply at HV can be costly and involves a significant set of obligations/responsibilities. Further details of associated requirements are provided in Section 4.4.

4.2.5 Customer Switchboard and Protection Requirements

The Customer's main switchboard and protection, although part of the Customer's installation, form an integral part of the supply connection. Customers are responsible for ensuring their switchboards and protection details comply with relevant standards, the WAER, the WASIRs well as other applicable requirements stipulated in the PRE Service and Technical Installation Guidelines, including (but not limited to) the following aspects:

- Design and construction
- Applicable ratings and fault levels
- Location and accessibility
- Termination, isolation and earthing arrangements
- Wiring configurations
- Applicable metering arrangements
- Protection systems, devices and discrimination.

Further information related to Customer's switchboard, metering and protection requirements are provided in Sections 4.3, 4.4, and 4.7.

4.3 Low Voltage Supply Requirements

4.3.1 General

For consistency similar LV supply requirements to Western Power have been adopted within the PBP. Accordingly, the Western Power requirements as detailed in the following clauses of Section 12 of the WASIR equally apply to LV supplies within the PBP:

- 12.2.3 Connection of services
- 12.2.4 Number of connections (and associated subclauses)
- 12.2.6 Underground (point of supply) (noting residential lots don't apply)
- 12.2.7 Location
- 12.2.8 Access (noting PRE contact details given in Section 1.7),
- 12.3 Multiple points of supply (and associated subclauses)
- 12.5 Underground distribution systems (and all associated subclauses)
(noting PRE contact details given in Section 1.7)
- 12.6 Customer's mains (and associated subclauses)
- 12.7 Protection (and associated subclauses)
- 12.8 Cable ducts and conduits

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- 12.9 Labelling
- 12.11 Special LV supply arrangements (and all associated subclauses)
- 12.13 Western Power section references.

4.4 High Voltage Supply Requirements

For consistency similar HV supply requirements to Western Power have been adopted within the Peel Microgrid. Accordingly, the Western Power requirements as detailed in the following clauses of section 13 of the WASIR equally apply to HV supplies within the PBP:

- 13.1 Scope
- 13.2 Responsibilities and contractual arrangements
- 13.2 Customer expenditure
- 13.4 Supply parameters
- 13.5 Connection arrangements
 - 13.5.1 Control of incoming HV supply: noting paralleling HV feeds not permitted on the Peel Microgrid
 - 13.5.1.2 Back-feeds
 - 13.5.2 Power factor correction (including all subclauses)
- 13.6 Conversion from low voltage to high voltage supply
- 13.7 Installation design and submissions (including all subclauses)
- 13.9 Equipment (and all subclauses) (noting for clause 13.9.6 cable installations shall comply with the WP Underground Cable Installation Manual)
- 13.10 Electrical installations on public land
- 13.11 Inspection, testing and commissioning
- 13.12 Safety (and all subclauses)
- 13.13 Final connection requirements
- 13.14 Maintenance
- 13.15 Customer HV installation audits.

4.5 Substation Requirements

For consistency equivalent substation requirements to Western Power have been adopted within the Peel Microgrid. Accordingly, the Western Power requirements detailed in the following clauses of Section 14 of the WASIR equally apply to substations within the PBP:

- 14.1 General connection requirements (including subclauses) (noting the requirements of WP Distribution Substation Plant Manual also apply to the Peel Microgrid)
- 14.2 Substation types (including all subclauses)

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- 14.3 Substation arrangements
 - 14.3.1 Modular package substation,
 - 14.3.2 Non modular package substation
 - 14.3.3 Choice of MPS or Non-MPS arrangements,
 - 14.3.4 Customer-owned substation arrangements
 - 14.3.4.1 HV indoor ground mounted switchgear
 - 14.3.4.2 HV outdoor ground mounted switchgear
- 14.4 Common installation conditions for substations (including all subclauses)
- 14.5 Conditions for non-fire rated substation enclosures (including all subclauses)
- 14.6 Condition for fire rated substation enclosures (including all subclauses).

4.6 Sensitive Loads

Sensitive load provisions equivalent to Western Power have been adopted within the Peel Microgrid. Accordingly, the details given in the following clauses of the WASIR equally apply to Customers within the PBP:

- 10.12 Customer supply critical installations
 - 10.12.2 Commercial/industrial sensitive Customers (noting the PRE Sensitive Customer Application).

4.7 Metering

Suitable metering must be installed at each connection point to the Peel Microgrid (with the exception 3.8).

Customers are responsible for providing suitable facilities to accommodate the metering equipment PRE employs via its metering provider. For consistency, PRE has adopted metering requirements equivalent to Western Power within the Peel Microgrid with the exception that PRE will liaise and arrange for the meter to be fitted prior to the first energisation.

The details given in the following clauses of the WASIR equally apply to Customers within the PBP:

- 11.1 General metering arrangements (including all subclauses)
- 11.2 Tariffs and metering
- 11.3 Meter panels (including all subclauses)
- 11.4 Metering equipment/protection enclosures (including all subclauses)
- 11.5 Metering equipment location (including all subclauses)
- 11.6 Equipment (including all subclauses)
- 11.7 Fault current levels for metering equipment
- 11.8 Metering systems and arrangements (including all subclauses except 11.8.2) (noting PRE require same metering types as Western Power)
- 11.9 Direct connected metering (including all subclauses)

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- 11.10 Time of use metering (SWIS network only) (including subclause 11.10.2)
- 11.11 Multiple master metering (including all subclauses)
- 11.13 LV current transformer (CT) metering (including all subclauses)
- 11.14 Automated meter reading systems (including all subclauses)
- 11.15 HV metering (including all subclauses) (noting the requirements of WP Distribution Substation Plant Manual also apply to the Peel Microgrid)
- 11.16 Metering for inverter energy systems
- 11.17 Subsidiary metering guidelines (including all subclauses)
- 11.18 Relocation of existing metering point
- 11.19 National meter identifier (NMI)
- 11.20 Meter energisation
- 11.21 Meter distribution
- 11.24 Drawing list (including subclauses) (noting the WP Distribution Substation Plant Manual also applies to the Peel Microgrid).

Enquiries relating to PRE metering and billing, or evidence/suspicion metering equipment has been tampered with, should be referred to PRE using contact details provided in Section 1.71.7.

5. CONNECTION CHARGES AND CONTRIBUTIONS

5.1 Approach to Connection Fees and Augmentation Considerations

PRE's approach to connection fees and augmentations is that:

- PRE will recover the costs associated with its processing of enquiries and applications, acting as a Prudent Integrated Operator
- PRE will Augment the Peel Microgrid and/or the WP Network to enable PRE to provide particular supply requirements of a Customer or Customer's Agent as a Prudent Integrated Operator, and recover capital costs of Augmentation and non-capital costs associated with that Augmentation from that Customer, taking into account anticipated revenue from that Customer.

However, despite anything else to the contrary, PRE will not charge any amount for required Augmentation from any Customer with current or expected capacity requirements of no greater than 200 kVA per hectare.

5.1.1 Connection Enquiries and Applications for a New Connection

Where a Customer or a Customer's Agent submits an enquiry or application for a new connection, the fees and charges imposed by PRE for processing that enquiry or application must recover the full forecast cost that PRE, acting as a Prudent Integrated Operator, anticipates will be incurred by processing that enquiry or application.

5.1.2 Connection Application to Augment

If PRE forms the view, acting as a Prudent Integrated Operator, that an application will require an Augmentation, then it may recover from the applicable Customer: all reasonable non-capital costs associated with that Augmentation (including in relation to any engagement required with Western Power)

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- all capital costs associated with that Augmentation, less PRE's reasonable forecasts of the capital recovery components of new revenue to be recovered from the Customer under a supply contract that is associated with the Augmentation.

5.2 Capital Contribution Calculation Methodology

The Customer contribution payable in respect of any Augmentation is calculated by adopting the following methodology:

- PRE determines a technical solution to provide the service sought by the Customer or the Customer's Agent in the connection application, being the solution that PRE considers, acting as a Prudent Integrated Operator, to be the most efficient, having regard to all relevant circumstances.
- PRE determines the forecast costs of the works associated with the solution selected under section 5.3.1 below
- PRE adds any forecast costs associated with the requirement on PRE and the Customer to comply with the Microgrid Technical Rules and the requirements of Western Power.
- PRE subtracts the amount likely to be recovered in the form of new revenue gained from the Customer or the Customer's Third Party Retailer as a result of effecting the Augmentation, as calculated over a reasonable time (being the forecast commercial life of the Augmentation, up to 15 years), at a commercially reasonable rate of return.
- PRE adds any tax liability that PRE forecasts it will incur due to the receipt of the amount payable in respect of the capital contribution.

5.3 Other Fees

5.3.1 Peel Renewable Energy fees and charges

PRE have a charging structure which will apply for all new, alteration or disconnections of power supplies to customers on the Peel Business Park, based on the following charging structure:

Stage	Description	Amount (Exc GST)
1	Receipt of new or increased load application / enquiry	\$500.00
2	Application review and provide details of point of connection. Including load data, protection systems, etc to allow detailed design.	
2A	Small load (Up to 250A/180kVA)	\$750 (Excludes construction estimates)
2B	Medium load (250A/180kVA - 1300A/1000kVA) (850A/610kVA)	\$1,500.00 (Excludes construction estimates)
2c	Large (850A/610kVA to 1300A/1000kVA)	\$4,000.00 (Excludes construction estimates)
2d	XLarge (Above 1300A/1000kVA, Complex load (time intensive, e.g. Transformer upgrade - LV) and/or HV connection (22KV)	On application

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3	Construction	On application a cost estimate will be provided and include installation of metering, design acceptance, and the mandatory Inspection role of the new connection. (Minimum charge \$1500).
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Stages 1 and 2 will be communicated in the Offer Letter to assess the initial application for connection.

Stage 2d charges will be based on the complexity and size of the application and will be assessed and communicated in the Offer Letter, or separately. Any pass-through charges from Weston Power for extra large and/or HV connections will be included with no uplift or margin applied.

5.3.2 Security fee

PRE may require that a Customer or a Customer's Agent provides a financial guarantee in situations where PRE forms the view as a Prudent Integrated Operator that a quantity of new revenue assumed for the purposes substantially funds any network enhancement required for accommodating or supporting a customer's connection.

Where applicable, the proposed form, details and term for the financial guarantee will be included as part of the associated connection offer. This security may be used to make-up for any associated shortfall in revenue where the demand and/or energy usage of the customer's facilities do not meet pre-requisite conditions outlined in our connection offer. This will usually be on a yearly basis over a period of five years.

5.3.3 Metering and other fees

There are a range of other fees that may be charged by PRE as a retailer, or by a Third Party Retailer, in relation to a Connection Application, in regards to the installation of new Meters, or the modification of existing Meters. The nature of these other fees will depend on a Customer's particular circumstances.

5.4 Dispute Resolution Process

The Company's dispute resolution *Complaints Handling Policy (POL-000032)* is available from the Peel Renewable Energy Microgrid website.

Where a dispute is not resolved to the Customer's satisfaction, the Customer should contact the Western Australian Energy and Water Ombudsman as below:

Energy and Water Ombudsman WA

Level 2, Albert Facey House
469 Wellington Street
Perth WA 6000

Telephone:

08 9220 7588
1800 754 004 (free call from landlines)

Facsimile:

1800 611 279 (free fax)

Email:

energyandwater@ombudsman.wa.gov.au

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APPENDIX 1 NEW CONNECTION - PROCESS FLOW

