



**ElectraNet Pty Ltd**  
**Application to Connect Form**

**Version 2.0 November 2008**

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## INTRODUCTION

This application form outlines the information ElectraNet requires to progress an application for connection to the South Australian Transmission Network and the National Electricity Market (NEM). ElectraNet recommends that the connection applicant read the “Process for Connection” and “Negotiating Framework for Negotiable Services” published on our website, [www.electranet.com.au](http://www.electranet.com.au). These documents describe the connection offer process. The website has links to other relevant documents such as the National Electricity Rules (NER), and National Electricity Market Management Company (NEMMCO).

This form is an element in ElectraNet’s process for making an offer to provide a new connection services to Network Users (Offer to Connect).

Prior to completing this form the Connection Applicant will have submitted a Connection Enquiry to ElectraNet and will have received ElectraNet’s response in accordance with clause 5.3.3 of the NER.

The Submission of this form is essential for the information required to process the Connection Applicants connection requirements, which may include a draft Offer to Connect being made by ElectraNet to the Connection Applicant.

Connection Applicants are advised that ElectraNet may seek additional information form the Connection Applicant in response to information received in the form to facilitate the processing of the form.

It is ElectraNet’s responsibility to determine the transmission connection method; if the applicant has a specific request this will be considered and examined in this process. The selected method will be based on the overall least cost technically feasible solution **unless the applicant requests otherwise or ElectraNet requires an alternative method for system reasons.**

Definitions and terms used in this form can be found in chapter 10 of the National Electricity Rules.

**When the Application Form is completed please return by email within 10 business days to:**

**Insert name and contact details of Project Manager**

**If uncertainty exists in relation to the type or accuracy of information required to please contact our Business Development Team prior to completing the form.**

**Tel:** +61 8 8404 xxxx

**Email:** **insert email address of project manager**

**PART A APPLICATION FORM****CONNECTION APPLICATION FORM**

- The Connection Applicant is required to provide all the information listed in the form below relating to the type of Connection Application being made;
- Electranet have provided explanatory notes to assist the Connection Applicant in completing the required information in the Connection Application Form.
- If uncertainty exists in relation to the type or accuracy of information required to please contact ElectraNet prior to completing the form.
- Connection Applicants are advised that ElectraNet may seek additional information from the Connection Applicant in response to information received in the form to facilitate the processing of the form.

**1. Connection Applicants Details**

The Applicant described below applies to connect to ElectraNet as the Network Service Provider

▶ Date of Connection Application	0 / mm / yyyy
▶ Connection Applicant Company Name	
▶ Connection Enquiry Reference Number <sup>1</sup>	- -
▶ Contact Person (Name)	
▶ Position	
▶ Telephone	
▶ Mobile Telephone	
▶ Email Address	
▶ Has an ElectraNet Confidentiality Agreement been executed by the Connection Applicant?	Yes <input type="checkbox"/> / No <input type="checkbox"/>

The Connection Application Form has two parts, connection requirements relating to Entry Point (Generation Asset) and connection requirements relating to Exit Point (Direct Connect Asset). Please only complete the section that relates to your type of Connection Application.

Please click on the type of Connection this application relates to:

- Entry Point (Generation Asset)
- Exit Point (Direct Connect)

<sup>1</sup> The Connection Enquiry Reference Number is the unique identification number for each Connection Enquiry and can be found at the top of all correspondence sent to the Connection Applicant.

## 2. Entry Point (Generation Asset) Connection

### 2.1 Source of Supply

	Connection Requirement	Connection Applicant Comment
▶ Voltage Level – Nominal (kV)	(kV)	
▶ Voltage Level – Dynamic Range (kV range)	(kV)	
▶ Insulation Coordination – Lightning Impulse withstand (kVp)	(kVp)	
▶ Insulation Coordination-Power Frequency withstand (kV)	(kV)	
▶ Rated MVA	(MVA)	
▶ Rated MW	(MW)	
▶ Emergency Ratings (if required)		
▶ Maximum Continuous Current Rating (Amps)	(Amps)	
▶ Maximum Short Term withstand current (kA Seconds)	(kA Seconds)	
▶ Ambient Condition Range (Degrees C)	(Degrees C)	
▶ Short Circuit – Maximum generator 3 Phase S/C infeed (symmetrical) (kA)	(kA)	
▶ Minimum Zero Sequence impedance (% on 100 MVA Base)		
▶ Minimum Negative Sequence Impedance (% on 100MVA Base)		
▶ X/R Ratio for Switchgear consideration		
▶ Earthing Method		
▶ Earth Grid Rated Current (kA seconds)	(kA Seconds)	
▶ Single Load Diagram		

Information on the requirement for each element of the **Source of Supply** [here](#)

**2.2 Circuit Breaker & Extra High Voltage (EHV) Plant Control**

	Connection Requirement	Connection Applicant Comment
▶ Auto Control Schemes		
▶ Synchronising & Synchronism Check	Manual <input type="checkbox"/> / Auto <input type="checkbox"/> / Both <input type="checkbox"/>	
▶ Point of Wave Switching	Required Yes <input type="checkbox"/> / No <input type="checkbox"/>	
▶ Interlocking Requirements	Required Yes <input type="checkbox"/> / No <input type="checkbox"/>	
▶ Local Control (From Power Station)		
▶ Control Schematics for Interfacing with the EHV Assets	AC Drawings Provided Yes <input type="checkbox"/> / No <input type="checkbox"/> DC Drawings Provided Yes <input type="checkbox"/> / No <input type="checkbox"/>	

Information on the requirement for each element of the **Circuit Breaker & EHV Plant Control** [here](#)

**2.3 Protection Systems**

	Connection Requirement	Connection Applicant Comment
▶ X Protection		
▶ Y Protection		
▶ Circuit Breaker Failure		
▶ Earth Leakage Protection	Required Yes <input type="checkbox"/> / No <input type="checkbox"/>	
▶ Protection Signalling Requirements – X Protection		
▶ Protection Signalling Requirements – Y Protection		
▶ Teleprotection Requirements		
▶ Fault Clearance Times		

Information on the requirement for each element of **Protection Systems** [here](#)

**2.4 Local Instrumentation & Metering**

	Connection Requirement	Connection Applicant Comment						
▶ Revenue Metering	<table border="1"> <tr> <td>Expected Maximum Demand (MW)</td> <td></td> </tr> <tr> <td>Expected Annual Energy Transfers (GWh)</td> <td></td> </tr> <tr> <td>NEM Metering Required?</td> <td>Yes/No</td> </tr> </table>	Expected Maximum Demand (MW)		Expected Annual Energy Transfers (GWh)		NEM Metering Required?	Yes/No	
Expected Maximum Demand (MW)								
Expected Annual Energy Transfers (GWh)								
NEM Metering Required?	Yes/No							
▶ Ammeter	<table border="1"> <tr> <td>Required</td> <td>Yes <input type="checkbox"/> / No <input type="checkbox"/></td> </tr> <tr> <td>Type of Ammeter</td> <td>Select One</td> </tr> </table>	Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>	Type of Ammeter	Select One			
Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>							
Type of Ammeter	Select One							
▶ Voltmeter	<table border="1"> <tr> <td>Required</td> <td>Yes <input type="checkbox"/> / No <input type="checkbox"/></td> </tr> <tr> <td>Type of Voltmeter</td> <td>Select One</td> </tr> </table>	Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>	Type of Voltmeter	Select One			
Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>							
Type of Voltmeter	Select One							
▶ MW	<table border="1"> <tr> <td>Required</td> <td>Yes <input type="checkbox"/> / No <input type="checkbox"/></td> </tr> <tr> <td>Specify Range (state measurement unit)</td> <td></td> </tr> </table>	Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>	Specify Range (state measurement unit)				
Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>							
Specify Range (state measurement unit)								
▶ MVAR	<table border="1"> <tr> <td>Required</td> <td>Yes <input type="checkbox"/> / No <input type="checkbox"/></td> </tr> <tr> <td>Specify Range (state measurement unit)</td> <td></td> </tr> </table>	Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>	Specify Range (state measurement unit)				
Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>							
Specify Range (state measurement unit)								
▶ Disturbance Recording or Supply Quality Monitoring	Dedicated Recording Equipment Required Yes <input type="checkbox"/> / No <input type="checkbox"/> Dedicated Quality of Supply Monitoring System Required Yes <input type="checkbox"/> / No <input type="checkbox"/>							

Information on the requirement for each element of the *Local Instrumentation & Metering* [here](#)

<b>2.5 Telemetered SCADA Points</b>	Connection Requirement	Connection Applicant Comment
▶ Control		
▶ Status		
▶ Alarms		
▶ AC Measurements		
▶ SCADA Interface		
▶ Redundancy Requirements		

Information on the requirement for each element of the *Telemetered SCADA Points* [here](#)

**2.6 Other Requirements**

▶ Please advise of any other requirements not covered above	
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### 3. Exit Point (Direct Connect) Connection

#### 3.1 Source of Supply

	Connection Requirement	Connection Applicant Comment
▶ Voltage Level – Nominal (kV)	(kV)	
▶ Exit Separation Relative to Other Circuits		
▶ Continuous Rating (Amps)	(Amps)	
▶ Type of Load	(kV)	
▶ Single Load Diagram		

Information on the requirement for each element of the **Source of Supply** [here](#)

#### 3.2 Circuit Breaker & Extra High Voltage (EHV) Plant Control

	Connection Requirement	Connection Applicant Comment
▶ Auto-Reclose		
▶ Auto Control Schemes		
▶ Synchronising Check	Manual <input type="checkbox"/> / Auto <input type="checkbox"/> / Both <input type="checkbox"/>	
▶ Point of Wave Switching	Required Yes <input type="checkbox"/> / No <input type="checkbox"/>	
▶ Interlocking Requirements	Required Yes <input type="checkbox"/> / No <input type="checkbox"/>	

Information on the requirement for each element of the **Circuit Breaker & EHV Plant Control** [here](#)

#### 3.3 Protection Systems

	Connection Requirement	Connection Applicant Comment
▶ X Protection		

▶ Y Protection		
▶ Circuit Breaker Failure		
▶ Earth Leakage Protection	Required Yes <input type="checkbox"/> / No <input type="checkbox"/>	
▶ Protection Signalling Requirements – X Protection		
▶ Protection Signalling Requirements – Y Protection		
▶ Teleprotection Requirements		
▶ Fault Clearance Times		

Information on the requirement for each element of **Protection Systems** [here](#)

### 3.4 Local Instrumentation & Metering

	Connection Requirement		Connection Applicant Comment
▶ Revenue Metering	Expected Maximum Demand (MW)		
	Expected Annual Energy Transfers (GWh)		
	NEM Metering Required?	Drop Down Options	
▶ Ammeter	Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>	
	Type of Ammeter	Select One	
▶ Voltmeter	Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>	
	Type of Voltmeter	Select One	

▶ MW	Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>
	Specify Range (state measurement unit)	
▶ MVAR	Required	Yes <input type="checkbox"/> / No <input type="checkbox"/>
	Specify Range (state measurement unit)	
▶ Disturbance Recording or Supply Quality Monitoring	Dedicated Recording Equipment Required Yes <input type="checkbox"/> / No <input type="checkbox"/> Dedicated Quality of Supply Monitoring System Required Yes <input type="checkbox"/> / No <input type="checkbox"/>	

Information on the requirement for each element of the **Local Instrumentation & Metering** [here](#)

3.5 Telemetered SCADA Points	Connection Requirement	Connection Applicant Comment
▶ Control		
▶ Status		
▶ Alarms		
▶ AC Measurements		
▶ SCADA Interface		
▶ Redundancy Requirements		

Information on the requirement for each element of the **Telemetered SCADA Points** [here](#)

**3.6 Other Requirements**

▶ Please advise of any other requirements not covered above	
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**PART B INFORMATION REQUIREMENT DETAIL (ENTRY POINT)**

This requirement document is to be used by the Connection Applicant to assist in completing the information requirements contained within the Application to Connect for an Entry Point (Generation Asset Customer).

**1. Source of Supply (Entry Point)**

Single Line Diagram	Applicant to provide a single line diagram that outlines the nature of the required connection - single switched, double switched, one and a half CBs, ROIs etc
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**2. Circuit Breaker & Extra High Voltage (EHV) Plant Control (Entry Point)**

Auto-Control Schemes	Specify any requirements for auto-control schemes such as auto-closing or opening o CBs (other than auto-reclosing), giving an overview of the required functionality.
Synchronising & Synchronism Check	Specify whether it is needed for manual, auto or for both
Point on wave switching	Specify if required.
Interlocking requirements	Is the CB control to be interlocked with any other switchgear or operational conditions?
Load Control (From Power Station)	Specify any plant control requirements from the Power Station and how they are envisaged.
Control Schematics for interfacing with the EHV Assets	Provide AC and DC Schematic drawings for the interfacing with EHV Assets. <b>(State how we want these attached (ie PDF))</b>

**3. Protection Systems (Entry Point)**

	Specify protection type (i.e. distance, current differential, pilot-wire, directional over current etc.) and preferred vendor device if applicable.
X Protection	Typically the generator and the generator transformer protection are owned by the Connection Applicant and the X and Y protection operates directly into ElectraNet's EHV Assets via an approved dedicated interface. Note that any deviation from the standard ElectraNet applied protection relays may attract additional costs.  Specify protection type (i.e. distance, current differential, pilot-wire, directional over current etc.) and preferred vendor device if applicable.
Y Protection	Typically the generator and the generator transformer protection are owned by the Connection Applicant and the X and Y protection operates directly into ElectraNet's EHV Assets via an approved dedicated interface. Note that any deviation from the standard ElectraNet applied protection relays may attract additional costs.
Circuit Breaker Failure	Specify any special requirements. Please indicate if the exit protection "zone" includes any areas where earth fault current has been limited to the extent that traditional CB Failure protection cannot be set above load current.
Earth Leakage Protection	Specify if required and note any special requirements
Protection signaling requirements - X Protection	Specify what protection signaling is required (e.g. F/C - direct connected or switched via mux, pilot wire, etc.)
Protection signaling requirements - Y Protection	Specify what protection signaling is required (e.g. F/C - direct connected or switched via mux, pilot wire, etc.)
Teleprotection requirements	Specify any Teleprotection requirements (e.g. permissive trips, remote trips, back up remote trips etc.) Specify the communications requirements associated with these. Tele protection signals (bearer, termination equipment, etc.)

**4. Local Instrumentation & Metering (Entry Point)**

Revenue Metering	Specify expected Maximum Demand and Annual Energy Transfers as well as NEM class of metering to be provided. ElectraNet is the default Revenue Metering Service Provider, please indicate if this function is to be carried out by another party.
Ammeter	Specify if this is required, whether three phase or single phase and nominate range.
Voltmeter	Specify if this is required, whether three phase or single phase and nominate range.
MW	Specify if this is required and nominate range.
MVAR	Specify if this is required and nominate range.
Disturbance Recording or Supply Quality Monitoring	Specify if any dedicated disturbance recording equipment or quality of supply monitoring systems are required. If modern digital protection is installed, ElectraNet would normally order the devices with the fault recording capability included.

**5. Telemetered SCADA Points (Entry Point)**

Control	Specify any remote control requirements (e.g. CB Open / Close Control).
Status	Specify what status points are required.
Alarms	Specify what alarms are required.
AC Measurements	Specify what AC signals are to be telemetered.
SCADA Interface	Nominate SCADA interface and protocol to be used.
Redundancy Requirements	Specify any redundancy requirements associated with the RTU telecontrol signaling (e.g. are any SCADA quantities required to be duplicated, are dual SCADA ports and communications interfaces required)

**6. Source of Supply (Entry Point)**

Exit on separation relative to other circuits	Specify if there needs to be any special treatment if the proposed exit point relative to other bays/circuits at the station.
Continuous Rating (Amps)	This will be used to determine the rating of the primary and secondary plant. If any form of short term overloads is anticipated, these should be mentioned in this section.
Type of Load	Specify the general nature of the connected load (e.g. large motor drives, controlled rectifiers etc) and identify any particular impacts on the Connection Assets.
Single Line Diagram	Applicant to provide a single line diagram that outlines the nature of the required connection - single switched, double switched, one and a half CBs, ROIs etc

**PART C INFORMATION REQUIREMENT DETAIL (EXIT POINT)**

This requirement document is to be used by the Connection Applicant to assist in completing the information requirements contained within the Application to Connect for an Exit Point (Direct Connect Customer).

**1. Source of Supply (Exit Point)**

Exit Separation Relative to Other Circuits	Specify if there needs to be any special treatment of the proposed exit point relative to other bays/circuits at the station.
Continuous Rating (Amps)	This will be used to determine the rating of the primary and secondary plant. If any form of short-term overloads are anticipated, these need to be mentioned in this section.
Type of Load	Specify the general nature of the connected load (e.g. large motor drives, controlled rectifiers, heavy mining equipment)
Single Line Diagram	Applicant to provide a single line diagram that outlines the nature of the required connection - single switched, double switched, one and a half CBs, ROIs etc

**2. Circuit Breaker & Extra High Voltage (EHV) Plant Control (Exit Point)**

Auto-Control Schemes	Specify any requirements for auto-control schemes such as auto-closing or opening o CBs (other than auto-reclosing), giving an overview of the required functionality.
Synchronism Check	Specify whether it is needed for manual, auto or for both
Point on wave switching	Specify if required.
Interlocking requirements	Is the CB control to be interlocked with any other switchgear or operational conditions?

**3. Protection Systems (Exit Point)**

X Protection	Specify protection type (i.e. distance, current differential, pilot-wire, directional over current etc.) and preferred vendor device if applicable. Note that any deviation from the standard ElectraNet applied protection relays may attract additional costs.
Y Protection	Specify protection type (i.e. distance, current differential, pilot-wire, directional over current etc.) and preferred vendor device if applicable. Note that any deviation from the standard ElectraNet applied protection relays may attract additional costs.
Circuit Breaker Failure	Specify any special requirements. Please indicate if the exit protection "zone" includes any areas where earth fault current has been limited to the extent that traditional CB Failure protection cannot be set above load current.
Earth Leakage Protection	Specify if required and note any special requirements
Protection signaling requirements - X Protection	Specify what protection signaling is required (e.g. F/C - direct connected or switched via mux, pilot wire, etc.)
Protection signaling requirements - Y Protection	Specify what protection signaling is required (e.g. F/C - direct connected or switched via mux, pilot wire, etc.)
Teleprotection requirements	Specify any Teleprotection requirements (e.g. permissive trips, remote trips, back up remote trips etc.) Specify the communications requirements associated with these. Tele protection signals (bearer, termination equipment, etc.)
Fault Clearance Times	The National Electricity Code specifies fault clearance requirements for auto access (Schedule 5.1a). If a slower fault clearance time is

	required this needs to be negotiated with ElectraNet. These requirements need to be categorised according to National Electricity Code section (schedule 5.1a.8)
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#### 4. Local Instrumentation & Metering (Exit Point)

Revenue Metering	Specify expected Maximum Demand and Annual Energy Transfers as well as NEM class of metering to be provided. ElectraNet is the default Revenue Metering Service Provider; please indicate if this function is to be carried out by another party.
Ammeter	Specify if this is required, whether three phase or single phase and nominate range.
Voltmeter	Specify if this is required, whether three phase or single phase and nominate range.
MW	Specify if this is required and nominate range.
MVAR	Specify if this is required and nominate range.
Disturbance Recording or Supply Quality Monitoring	Specify if any dedicated disturbance recording equipment or quality of supply monitoring systems are required. If modern digital protection is installed, ElectraNet would normally order the devices with the fault recording capability included.

#### 5. Telemetered SCADA Points (Exit Point)

Control	Specify any remote control requirements (e.g. CB Open / Close Control).
Status	Specify what status points are required.
Alarms	Specify what alarms are required.
AC Measurements	Specify what AC signals are to be telemetered.
SCADA Interface	Nominate SCADA interface and protocol to be used.
Redundancy Requirements	Specify any redundancy requirements associated with the RTU telecontrol signaling (e.g. are any SCADA quantities required to be duplicated, are dual SCADA ports and communications interfaces required)

#### 6. Source of Supply (Exit Point)

Exit on separation relative to other circuits	Specify if there needs to be any special treatment if the proposed exit point relative to other bays/circuits at the station.
Continuous Rating (Amps)	This will be used to determine the rating of the primary and secondary plant. If any form of short term overloads is anticipated, these should be mentioned in this section.
Type of Load	Specify the general nature of the connected load (e.g. large motor drives, controlled rectifiers etc) and identify any particular impacts on the Connection Assets.
Single Line Diagram	Applicant to provide a single line diagram that outlines the nature of the required connection - single switched, double switched, one and a half CBs, ROIs etc