Ergon Energy Network
Embedded Generator Information Pack
> 30 kW to > 5 MW
2018-19
"With a focus on energising our diverse QLD communities, we are committed to providing flexible and tailored opportunities to our customers. By remaining committed to partnering with our customers and improving the connection experience, we can move to achieving a sustainable renewable energy future"

Carly Irving
General Manager Customer & Market Operations
Introduction to Embedded Generation

Renewable and other new technologies are continuing to expand and influence the operation of our distribution network and the energy market in Queensland. Ergon Energy has traditionally partnered with its customers in supporting the connection of solar, diesel and other renewable generation projects, and continues this partnership by advancing new technologies and industrial changes within Queensland’s energy communities.

What is Embedded Generation?

Embedded generating units are generating units that are embedded within, and distributed along, the distribution network (rather than connected to the high-voltage transmission network). An “embedded generating system” (EG system) comprises one or more embedded generating units. Typically, EG systems are located at a home or business and are capable of generating electricity for that home or business’s own use.

Technologies used in EG systems

EG systems use a variety of technologies to produce electricity, as set out below. Some EG systems use inverters, while others are based on rotating machines and do not use inverters. EG systems also vary in size, from (for example), a typical 1 kW domestic solar photovoltaic system to a 50 MW solar or wind farm.

- Solar photovoltaic cells
- Solar thermal
- Wind turbines
- Biogas
- Bagasse (the fibrous material left over from crushed sugar cane)
- Hydro
- Landfill generation
- Standby diesel generation

Technical configuration of EG systems

EG systems may be configured as the following (and may include storage solutions such as battery technology):

- Non-export, which means that they do not export electricity back into our distribution network
- Partial-export, which means that they do export electricity back into our distribution network, but not to the full rated capacity of the EG system; or
- Full export, which means that they can export up to the full rated capacity of the EG system back into our distribution network

Purpose of this Information Pack

Different connection processes apply depending upon the size and regulatory classification of the EG system – regardless of the technology used in the EG system and whether or not the electricity will be exported back into our distribution network. This Information Pack sets out some things that you’ll need to know if you’re planning on connecting an EG system to our distribution network, such as:

- the relevant connection process and requirements
- information on the services offered to support the connection of an EG system (including whether such services are contestable)
- examples of relevant costs
- technical requirements relevant to assessing the proposed connection of an EG system
- how to access more information via a Connection Enquiry or Connection Application
- commercial and contractual requirements

Please note that the connection of EG systems up to and including 30 kW is not covered by this Information Pack – please refer to Ergon Energy’s Solar Power webpage for more information on this.
Introduction to the Major Customer Group

We understand that the connection of larger EG systems to the distribution network can be a complex process.

We have a dedicated Major Customer Group within our Connections Solutions team, who are here to guide and assist you through connecting your EG system over 30 kW to our distribution network, from early inception right through to construction and energisation.

The Major Customer Group has two distinct teams to assist you in facilitating your connection – the Project Sponsors and the Business Intelligence team.

The Business Intelligence Team focuses on maintaining effective relationships with our Major Customers, and can help with pre-feasibility enquiries and ongoing customer support.

The Project Sponsor Team is dedicated to managing the connection of your EG system from the Connection Enquiry stage through to construction and finally the commissioning of your EG system connection. Your allocated Project Sponsor will be your single point of contact throughout this time, and will maintain contact with you regularly to ensure your needs are met.

The Major Customer Group can help you understand the connection processes and support services that are available to you, and ensure that you are making an informed decision about connecting your proposed EG system.

For more information about the Major Customer Group or EG systems over 30 kW, please contact:

Manager Major Customers

Phone: (07) 4616 2531
Email: majorconnections@ergon.com.au
www.ergon.com.au
Ergon Energy, like other network providers, is operating in a period of rapid change, especially in relation to the choices our customers are making in meeting their energy needs. The way our customers are using the electricity network is undergoing unprecedented change.

With the ongoing popularity of commercial EG systems such as solar PV systems, and innovations in energy storage, Ergon Energy is working collaboratively with the industry to manage impacts to customers and Ergon Energy’s network.
Overview of EG System Connection
Classifications & Process

The National Electricity Rules (NER) set out different connection process for EG systems depending on the size and registration status of the particular EG system. Ergon Energy’s connection processes comply with the NER, and provide for transparency and detailed information to help you through the process of connecting an EG system to our distribution network.

These processes also set out certain requirements for the exchange of information between you and us, and clarify the requirements in regard to the process, timeframes and provision of information before and during the connection process, to assist you in understanding all stages of connecting an EG system to our distribution network.

Our Major Customer Group has two main connection processes, which are set out in Part A and Part B of this Information Pack.

Classifying your EG system under the NER

Micro EG Connections

- **Via an Inverter Energy System (IES) up to and including 30 kVA**

  The connection of inverter-based EG systems up to and including 30 kVA to a distribution network is classified as a Micro EG under the NER, and is subject to the relevant connection process outlined in Chapter 5A of the NER.

  Please refer to Ergon Energy’s Solar Power webpage for more information on the connection of these Micro EG systems, including the steps involved in buying and installing your EG system, as our Customer Connection Group manages the connection of these EG systems and they are not covered in this Information Pack.

- **Via an Inverter Energy System (IES) between 30-200 kW**

  An inverter-based EG system larger than 30 kW, but less than or equal to 200 kW, is also classified as a Micro EG connection under the NER, and as such, the relevant connection process is aligned with Chapter 5A of the NER.

  However, due to the nature and complexity of these EG connections, relevant connection applications and enquiries are managed by the Major Customer Group. As such, please see Part A of this Information Pack for information on the connection process.

Non-Micro EG Connections (Registered or Non-Registered EG systems)

If your EG system is not a Micro EG, the connection process, as well as some other obligations, will differ depending upon the default registration status with the Australian Energy Market Operator (AEMO).

The default position under the NER is that all EG systems connected to our distribution network must be registered with AEMO, unless they have the benefit of an exemption, being either:

- a standing exemption – which is an exemption that automatically applies, usually where the EG system is smaller than 5 MW; or
- an individual exemption – which requires the proponent of the EG system to make an application to AEMO – this may be sought where the standing exemption doesn't apply.
You will need to refer to AEMO’s NEM Generator Registration Guide and other relevant AEMO information (available at www.aemo.com.au) to determine whether:

- your particular EG system will meet the conditions for the standing exemption;
- you may be able to obtain an individual exemption; or
- your EG system will need to be registered.

**Default Non-Registered EG systems**
By default, connections of EG systems that have the benefit of the standing exemption are covered in Chapter 5A of the NER (although note that these EG systems can elect, early in the process, to use the connection process below instead).

*Part A* of this Information Pack sets out the connection process for these EG systems.

**Default Registered EG systems**
Connections of EG systems that don’t benefit from the standing exemption (i.e. those that will be registered with AEMO or need to apply for a specific exemption) are covered in Chapter 5 of the NER, specifically under Rule 5.3A.

*Part B* of this Information Pack sets out the connection process for these EG systems.

Please note that for the purposes of our connection processes, we have assumed that 5 MW represents the relevant boundary between the two connection processes, although of course this will depend upon your particular situation.

**Relevant Technical Standards**

Ergon Energy also has certain Technical Standards (which can be found in the documents section of Ergon Energy’s Large Generation website). These Technical Standards apply based on the EG system’s size and voltage of connection rather than whether or not it is registered, so you will need to consider this when determining which standard applies to you.

The Technical Standards set out relevant technical information relevant to your connection, including:

- relevant single line diagrams (rule 5.3A.3(b)(2));
- protection and control system schematics (rule 5.3A.3(b)(3));
- relevant minimum access standards and plant access standards (rule 5.3A.3(b)(5)); and
- various other technical details that the EG system must comply with (rule 5.3A.3(b)(6)).

Please note that you may need to refer to more than one Technical Standard, as the Technical Standards for larger EG systems tend to contain more detail than the ones for smaller EG systems.

**Technical Standards for connecting EG systems to the distribution network**

<table>
<thead>
<tr>
<th>Low Voltage (LV) Connected EG</th>
<th>High Voltage (HV) Connected EG</th>
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</thead>
<tbody>
<tr>
<td>&gt; 30 kW to 1,500 kW</td>
<td>&gt; 30 kW and &gt; 5 MW</td>
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</tbody>
</table>

If you wish to submit an application to connect an EG system between 30 kW and 1,500 kW to our LV Network, please review the **Standard for Connection of Embedded Generating Systems (>30 kW to 1,500 kW) to a Distributor’s LV Network (STNW1174)**.

If you wish to submit an enquiry to connect an EG system where your connection point is on our HV network, please review the **Standard for Connection of Embedded Generating Systems to a Distributor’s HV Network (STNW1175)**.
Choosing your Connection Process - Decision Flow Diagram

We understand that the above information can be quite complicated to understand and, for simplicity, we have summarised the relevant processes below.

I would like to connect an Embedded Generating system to the Ergon Energy Distribution Network ...

1. **Is my EG system inverter-based and ≤ 30 kVA?**
   - **YES**
     - MICRO EG via IES ≤ 30 kVA
     - Refer to our Solar Support Team and the Solar Power webpage for connection and other useful information.
   - **NO**
     - **Is my EG system inverter-based and > 30 kW to ≤ 200 kW?**
       - **YES**
         - MICRO EG via IES > 30 to ≤ 200 kW
         - You are required to follow the process outlined in Part A of this EG Information Pack.
       - **NO**
         - **Does my EG system benefit from the Standing Exemption from Registration?**
           - **YES**
             - DEFAULT NON-REGISTERED EG SYSTEM
             - You are required to follow the process outlined in Part A of this EG Information Pack unless you notify us that you elect to follow Part B.
           - **NO**
             - **Am I applying to AEMO for an Exemption from Registering my EG System?**
               - **YES**
                 - DEFAULT REGISTERED EG SYSTEM
                 - You are required to follow the process outlined in Part B of this EG Information Pack
               - **NO**
                 - **Am I applying for Registration or is my EG System Registered with AEMO?**
                   - **YES**
                     - DEFAULT REGISTERED EG SYSTEM
                     - You are required to follow the process outlined in Part B of this EG Information Pack
                   - **NO**
The following information is an overview of the steps involved in the connection process applicable to:

- Micro EG connections > 30 kW (up to the maximum 200 kW)
- EG systems who have the benefit of the standing exemption (typically those < 5 MW) and who haven’t elected to use the Part B process

Please refer to AEMO’s NEM Generator Registration Guide and Chapter 5A of the NER if you require additional information.
Part A – Connection Process for EG Systems > 30 kW to 5 MW

Overview

The below information is an overview of the steps involved in connecting an EG system > 30 kW to (typically) 5 MW to Ergon Energy’s distribution network. As mentioned above, this includes those Micro EG systems > 30 kW to 200 kW and those EG systems that benefit from the standing exemption (typically up to 5 MW).

Chapter 5A (Electricity Connection for Retail Customers) of the NER sets out a prescribed connection process for the connection of both Micro and (by default) Non-Registered EG systems and details a multistage process which provides for timeframes, actions and information exchanges between parties.

This process is designed to assist you by providing a more flexible approach to the proposed connection of an EG system > 30 kW to 5 MW, while providing agreed timeframes, thereby supporting the relationship between you and Ergon Energy.

A high level summary of the connection process is outlined below.

The purpose of this stage is for you or your consultant to submit a Preliminary Enquiry and provide Ergon Energy with information about your proposed connection. Ergon Energy will respond to your Preliminary Enquiry within 5 business days to acknowledge the receipt of your enquiry.

Depending on the size, configuration, and network location of your proposed EG system, you may be required to complete one or more selected pre-application services to progress to an Application to Connect.

Note that some pre-connection services offered by Ergon Energy attract a fee, which will be quoted for acceptance prior to commencing any work. For more information, see the Connection Costs and Charges section on page 24.

The purpose of this stage is to assess your proposed Application to Connect to:

• identify any impacts on the safety and security of Ergon Energy’s distribution network
• ensure that your EG system is fully compliant with relevant technical and operational requirements
• provide you with a negotiated offer to connect your embedded generator to Ergon Energy’s distribution network with 65 business days.

The purpose of this stage is to complete the installation of your EG system and facilitate the connection and energisation of your EG system.

You will need to provide evidence that your EG system complies with all of the relevant technical and operational conditions outlined in your Connection Offer (Connection/Consent Agreement) and the relevant Technical Standard applicable to the size and connection voltage of your EG system.

Please note that for EG systems connected to Ergon Energy’s HV network, additional audit requirements may apply.
Assessing your > 30 kW to 5 MW EG Connection

When assessing the proposed connection of your EG system, Ergon Energy considers the following factors (at both the Connection Enquiry and Application to Connect stage):

- The type and nature of the EG system (e.g. inverter energy system or rotating machine such as a diesel generator), and whether the EG system will export to our distribution network, or will operate in a non-export configuration;

- The location and available capacity of the nearest power system infrastructure capable of facilitating the connection at the requested voltage levels and export levels;

- Whether that infrastructure is owned by Ergon Energy or Powerlink (if it is owned by Powerlink, then the response to the enquiry may be that you seek connection via Powerlink);

- Compliance with the relevant Technical Standard;

- The impact of the proposed operation, both short term and into the future, of the EG system on our distribution network (and nearby customers);

- Any new or augmented infrastructure that is likely to be required to facilitate the connection of the EG system and the ownership model under which any construction will occur, including the classification of services provided and their costs;

- The ability to obtain necessary approvals (easements etc.);

- The ability to connect in the requested timeframes; and

- The legal structure and financial stability of the EG system proponent and any entity that proposes to issue any securities under the contracts executed with Ergon Energy.
**Part A: Connection Process – A Detailed View**

**Enquiry**

Should you wish to make a preliminary enquiry regarding your proposed EG system, you can do so at any time and Ergon Energy will respond to you within 5 business days (or such other period as we agree with you) with the relevant information set out rule 5A.D.2 of the NER.

Your Enquiry should be submitted to the Major Customer Group via our direct email address: majorconnections@ergon.com.au.

A copy of the Major Customer Preliminary Enquiry Form for Embedded Generators > 30 kW can be downloaded from Ergon Energy’s [Large Scale Renewables and Generation webpage](#).

**Pre-Application Services**

To ensure that your proposed EG system will not adversely impact on the safety and security of Ergon Energy’s distribution network, an assessment must be performed to confirm that the proposed configuration and operational conditions comply with our relevant Technical Standards. These technical assessments are part of the pre-connection services offered in Ergon Energy’s Alternative Control Services (ACS) price list. The type of pre-connection service applicable to your EG system will depend on the scale, location and complexity of the particular installation.

At a minimum, a valid, basic planning study (known as a technical assessment) will be required to process an Application to Connect. For more complex projects, including those EG systems interconnected with our HV network, or those where a technical assessment has been conducted and further studies are necessary, a more detailed planning study is generally required (typically where network constraints are identified or an augmentation to our distribution network is required). In some cases, a specific and detailed scope and estimate of works for the connection of your proposed EG system will also be required.

This will likely result in further costs - please refer to the [Connection Costs and Charges](#) section for further detail on other pre-connection services that we offer to support you in applying to connect to our distribution network.

Your Project Sponsor will advise which services are required and what fee may be charged. The fees for pre-connection services are generally either fee-based or quoted. Your Project Sponsor will provide you with a quote for acceptance before any work commences.

These pre-connection services are designed to ensure that you understand the technical requirements for the connection of your proposed EG system so that you can ensure that this connection will not adversely impact on the safety and security of our distribution network. If you have any questions regarding these services, please contact our team.
Application to Connect

Your Application to Connect should be submitted to the Major Customer Group via our direct email address: majorconnections@ergon.com.au

A copy of the Major Customer Application Form > 30 kW to 5 MW can be downloaded from Ergon Energy’s Large Scale Renewables and Generation webpage. This form details the information you are required to submit as part of the application, including:

- a valid technical assessment or planning report for your proposed EG system
- details of your proposed EG system, including information on product technical specifications, configuration (i.e. non-export, partial-export or full export) and relevant protection devices
- System design information including single line diagrams and protection system details will need to be certified by a Registered Professional Engineer of Queensland (REPQ).

We will advise you within 10 business days if your Application to Connect is considered to be incomplete in a material respect, and advise you of what details are needed to complete your Application. We may require you to provide the outstanding information before your Application can be progressed.

Once we consider that your Application to Connect is complete (from a material perspective), you may be charged an Application Fee. This quoted fee covers our services associated with assessing your application and the costs associated with negotiating and preparing a negotiated Connection Offer.

If, at any stage, you decide not to proceed, you must notify us as soon as possible, as you will be charged for the work that has been completed up until the time you notify us to discontinue the process.

Connection Offer

In accordance with our obligations under Chapter 5A of the NER, we will use our best endeavours to make a Connection Offer to you within 65 business days.

The Connection Offer will include, among other things, charges for the requested works (see construction and network tariffs below), commercial terms, technical requirements, details of any augmentation/extensions, and a guideline for construction times. Further information, and a sample of the model terms and conditions, can be found on the Ergon Energy website: https://www.ergon.com.au/network/connections/major-business-connections/large-scale-renewables-and-generation

Our Connection Offer will remain valid for 20 business days from the date of issue. However, this period of acceptance can be extended by mutual agreement. To accept the Connection Offer, you are required to sign and return the contracts to us. If you fail to return the signed contracts within the relevant period, our Connection Offer will lapse. If this occurs and you still wish to proceed, you would be required to recommence the process and submit a new Application to Connect.
Construction to Commissioning

Regardless of the size of your proposed EG system, this stage of the connection process requires the construction and/or installation of the approved electrical infrastructure, or your system, and relevant testing and commissioning (which may be both of the connection point and the EG system).

Once constructed, you, or your chosen consultant, are required to provide confirmation that your EG system is compliant with the technical and operating conditions specified in your planning assessment (either basic or detailed) and your connection contract or consent agreement (as relevant to your EG system).

For EG systems connected to our LV network, this generally involves your engaging a competent person who is approved as a Registered Professional Engineer of Queensland (RPEQ) to complete an RPEQ Compliance Report to confirm that the chosen RPEQ has completed relevant testing and certifies the outcomes of the testing. This report must be submitted to Ergon Energy via our email address majorconnections@ergon.com.au.

Following our endorsement of the RPEQ Compliance Report, you, or your chosen consultant, will be requested to submit an Electrical Work Request (EWR) via Ergon Energy’s online service portal. This will signal that your proposed EG system is ready to interconnect with our distribution network, so that we can carry out a final inspection. If no changes to the meters or the EG system are required, Ergon Energy will switch the EG system on.

For those EG systems connected to our HV network, Single Wire Earth Return (SWER) lines or more complex configurations involving the addition or alteration of connection assets, the use of an RPEQ to endorse your connection may not be sufficient, and additional witness testing may be required. Such additional testing and confirmation may include a HV Audit or additional witness testing by Ergon Energy. These requirements will be discussed with you prior to commissioning to ensure that you are aware of all obligations and any associated costs.

Energisation (for eligible Exporting EG systems)

Before your connection is energised you may, depending on the size of your EG system, also need to ensure you have arrangements in place for the sale and purchase of electricity.

Most customers have two options:

1. You can choose to negotiate with any authorised electricity retailer. A list of electricity retailers can be found at https://www.aer.gov.au/consumers/useful-contacts-for-customers/energy-retailer-contact-details

2. You can choose Ergon Energy Queensland as your retailer. Ergon Energy Queensland may only charge customers notified prices set by the Queensland Competition Authority
Ergon Energy understands that the connection of an EG system > 5 MW to our distribution network can be complex, as there is generally more than one network service provider involved in the connection process.

The following information is an overview of the steps involved in the connection process for connecting the following to our distribution network:

- Registered EG systems (generally > 5 MW); and
- certain Non-Registered EG systems (being those that don’t have the benefit of the standing exemption and those that have elected to use the Part B process).
Part B - Connection Process for EG Systems > 5 MW

Overview

The below information is an overview of the steps involved in connecting a Registered (or to-be-Registered) EG system, or a Non-Registered EG that either doesn’t have the benefit of the standing exemption or which has elected under rule 5A.A.2(c) of the NER to use this Part B process, to connect to Ergon Energy’s distribution network. As mentioned above, these EG systems are typically larger than 5 MW, although this varies depending upon the particular EG system.

Rule 5.3A under Chapter 5 of the NER sets out the connection process for the connection of such EG systems and details a multistage process which provides for timeframes, actions and information exchanges between parties. This process is designed to assist you by providing a more flexible approach to the proposed connection of your EG system, while providing agreed timeframes, thereby supporting the relationship between you and Ergon Energy.

A high level summary of the connection process is outlined below:

1. **Preliminary Connection Enquiry**
   - **Inform** | **Assess** | **Advise**
   - The preliminary enquiry process includes providing general, high level information and any project specific information that we have at hand that may help you understand your connection options and enable you to progress towards a detailed enquiry stage.
   - A Preliminary Enquiry Response will be provided by Ergon Energy within 15 business days, or as otherwise agreed. Please note that there is no charge for this service.

2. **Detailed Enquiry Response**
   - **Review** | **Analyse** | **Advice**
   - The purpose of this stage is to build on information provided in the Preliminary Enquiry Response and provide you with detailed, in-depth analysis and considerations of your proposed project and enable you to move towards submitting an Application to Connect.
   - A Detailed Enquiry Response will be provided by Ergon Energy within 30 business days, or as otherwise agreed, following the receipt of the enquiry fee relevant to this service.

3. **Submit Application to Connect**
   - **Apply** | **Negotiate** | **Offer**
   - The purpose of this stage is for you, or your consultant, to submit an Application to Connect your EG system to Ergon Energy’s distribution network. Ergon Energy will acknowledge your Application to Connect and advise of any deficiencies within 10 business days of receiving your Application to Connect.

4. **Finalise Your Connection**
   - **Register** | **Build** | **Operate**
   - As part of the Application to Offer stage, your proposed generator performance standards (GPS), including your proposed access standards, will be forwarded to AEMO and any NSP as required for review and approval. Note that this review may result in further changes to your Detailed Enquiry Response, which may incur an additional fee if rework is required.

As per Ergon Energy’s obligations under Rule 5.3A, Ergon Energy will issue you with a Connection Offer within 4 months (or other date as agreed with you or your authorised representative) of receiving your completed Application to Connect.

The purpose of the Construction and Commissioning stage is to build, test and facilitate the energisation of your EG system.

Ergon Energy will work with your chosen consultants to audit your construction and provide all required acceptance testing and commissioning requirements for both Ergon Energy and AEMO (where required).
Assessing your > 5 MW EG Connection

When assessing the proposed connection of your EG system, Ergon Energy considers the following factors (at both the Connection Enquiry and Application to Connect stage):

- The type and nature of the EG system (e.g. inverter energy system or rotating machine such as a diesel generator), and whether the EG system will export to our distribution network, or will operate in a non-export configuration;

- The details of your intended Registration category (such as whether your EG system will be scheduled, semi-scheduled or non-scheduled) or applicable exemption

- The location and available capacity of the nearest power system infrastructure capable of facilitating the connection at the requested voltage levels and export levels;

- Whether that infrastructure is owned by Ergon Energy or Powerlink (if it is owned by Powerlink, then the response to the enquiry may be that you seek connection via Powerlink);

- Compliance with the relevant Technical Standard;

- Compliance with AEMO’s System Strength Impact Assessment Guidelines;

- The impact of the proposed operation, both short term and into the future, of the EG system on our distribution network (and nearby customers);

- Any new or augmented infrastructure that is likely to be required to facilitate the connection of the EG system, and the ownership model under which any construction will occur, including the classification of services provided and their costs;

- The ability to obtain necessary approvals (easements etc.);

- The ability to connect in the requested timeframes; and

- The legal structure and financial stability of the EG system proponent and any entity that proposes to issue any securities under the contracts executed with Ergon Energy.
Part B: Connection Process – A Detailed View

**Preliminary Enquiry Response**

To begin the Connection Enquiry process for an EG system > 5 MW, you will need to complete a Major Customer Embedded Generation Preliminary Enquiry Form. Note that you can elect to bypass the Preliminary Enquiry Response stage in certain circumstances and go straight to the Detailed Enquiry Response.

Your Enquiry should be submitted to the Major Customer Group via our direct email address: majorconnections@ergon.com.au.

A copy of the Major Customer Preliminary Enquiry Form for Embedded Generators > 30 kW can be downloaded from Ergon Energy’s Large Scale Renewables and Generation webpage.

Provided that your Enquiry is complete, we will acknowledge receipt of your Enquiry within 5 business days. Within 15 business days, or as otherwise agreed, we will (unless you are going directly to a Detailed Enquiry Response) provide you with a Preliminary Enquiry Response which will include:

- All items listed in Schedule 5.4A of the NER;
- Information regarding your right to negotiate the terms of a connection contract and the relevant process;
- Any additional information reasonably required by you to progress to a Detailed Enquiry Response.

**Detailed Enquiry Response**

Following the Preliminary Enquiry Response, you may request a Detailed Enquiry Response by submitting the information requested in the Preliminary Enquiry Response, and paying the required Detailed Enquiry Response fee. This stage builds on the information provided in the Preliminary Enquiry Response, providing you with more in-depth analysis and the technical considerations you will need to contemplate to ensure the viability of your project, especially for those proponents who are not familiar with the technical and security impacts of proposed connections to distribution networks.

We must respond to you with the information outlined in with Schedule 5.4B of the NER after receiving your request and the nominated connection enquiry fee.

**Preparing for the Detailed Response**

The Preliminary Enquiry Response outlines the technical options for connection to our distribution network. The Detailed Enquiry Response will focus on the selected connection option, and will outline relevant default technical access standards for your EG system.

If you can’t meet these requirements you will need to submit your proposed access standards with your Application to Connect. We’ll negotiate these standards with you after receiving a complete Application to Connect. However, if you submit proposed access standards during the Detailed Enquiry Response stage, we may base our investigations on these proposed access standards.
Requesting the Detailed Enquiry Response

To request a Detailed Enquiry Response, you may submit your request to your Project Sponsor after receiving your Preliminary Enquiry Response or, if you have our agreement to bypass the Preliminary Enquiry Response stage, you can choose to go straight to the Detailed Enquiry Response stage when you lodge the Enquiry form.

Detailed Enquiry Response Fee

There is a fee payable to Ergon Energy for the provision of a Detailed Enquiry Response.

If you have received a Preliminary Enquiry Response, an indicative estimate of the Detailed Enquiry Response Fee, including third party providers’ engagement costs, will have been provided for your review. Once your formal request for a Detailed Enquiry Response is received, we will provide you with a specific quote for your project, and you will be required to accept the quote and pay the required funds before work commences.

Estimates of Costs in the Detailed Enquiry Response

Estimates provided in the Detailed Enquiry Response for works associated with your proposed project represent our best estimate of the construction charges and are based on current information available at the time the report is compiled. As a result, the figures provided are estimates only, and actual (final) figures will vary due to a number of factors.

If the proposed project proceeds through to construction, then, upon completion of the Ergon Energy activities, if we reasonably believe that there is a material discrepancy between the amounts received and the construction charges, we must carry out a reconciliation of these amounts as soon as reasonably practical after such completion, and notify you of the outcome of this reconciliation.

Please note that if a reconciliation shows a discrepancy of more than $250 between the amounts received and the construction charges, the parties must, as soon as reasonably practicable after that reconciliation, arrange of the issue of tax involves with a due date of no less than 30 days from the date of those invoices, where such tax invoices are designed to remove the discrepancy and put the parties in the position so that the amounts received equal the construction charges.

Worked examples of connection charges are provided in the Connection Costs and Charges section. These are based on the example connection diagrams and may differ in complexity from your proposed project. As such, they are indicative only.

A Detailed Enquiry Response will be provided within 30 business days unless otherwise agreed.
Lodging the Application to Connect

After receiving your Detailed Enquiry Response, you may wish to proceed to make an Application to Connect to our distribution network.

To make an Application to Connect, you will need to submit a completed Major Customer Connection Application Form > 5 MW, which can be downloaded from www.ergon.com.au, and ensure that you have included all information listed therein, and any further information identified in the Detailed Enquiry Response.

For Embedded Generators ≥ 10 MW, we must consult with the applicable Transmission Network Service Provider (TNSP). Please note that under the NER, it will be a condition of the connection offer that remote monitoring equipment and data costs are paid by you.

The Application Fee

Once your Application to Connect is considered to be complete, you will be charged an Application Fee. This charge is to cover the expenses directly incurred by us in assessing your Application to Connect and providing you with an Offer to Connect.

As these expenses commence from the time you lodge your Application to Connect, if, at any stage you decide not to proceed, you must notify us as soon as possible, as you will be charged for the work that has been completed up until the time you notify us to stop the process.

Access Standards

Schedule 5.2.5 of the NER outlines the technical requirements for the connection of Generators to a Network Service Provider’s (NSP) network. The technical requirements are referred to as access standards, namely, automatic, minimum and negotiated access standards. The access standards define the acceptable level of performance which a Generator must achieve for connection to a NSPs’ network. Information about relevant access standards can be found in section 5.3 of the Technical Standard for EG systems ≥ 5 MW.

A negotiated access standard falls between the automatic and minimum access standards. It is an agreed standard of performance for the relevant technical requirement that will be accepted to gain access to the network. This standard should be as close as possible to the automatic standard.

Negotiating Access Standards and Generator Performance Standards

Your Preliminary Enquiry Response will outline our access standards in relation to each technical requirement. If you are unable to meet the requirements, you may wish to submit, with your request for a Detailed Enquiry Response, proposed negotiated access standards for consideration.

Your Detailed Enquiry Response is then based on these proposed negotiated access standards; however final approval cannot be given until the formal Application to Offer stage.
Negotiating Access Standards and Generator Performance Standards cont.

The factors Ergon Energy takes into account when considering your proposed negotiated access standards generally include ensuring that the proposed access standards:

- are no less onerous than the corresponding minimum access standard;
- are set at a level that would not adversely affect the quality of supply of other customers; and
- are able to be approved by AEMO.

As per Rule 5.3A.3(b)(5), Information relating to Access Standards can be found in section 5.7 of STNW1175 Connection Standard for HV Connected Generating Systems (PDF 1.1 mb). This information details the automatic, minimum and negotiated access standards.

AEMO Advisory Matters

AEMO’s role in Queensland, for the connection of EG systems, includes negotiating performance standards.

Following your Application to Connect, we must consult with AEMO in relation to AEMO Advisory Matters for each of the proposed negotiated standards, and will liaise with AEMO on your behalf to seek AEMO’s assessment and approval of the proposed performance standards.

Please note that any cost associated with an AEMO assessment or involvement will be your sole responsibility.

Indicative estimates of AEMO’s fees are available in AEMO’s Schedule of Fees on their website (www.aemo.com.au) and will also be provided to you in your Detailed Enquiry Response.

The Connection Offer

Once your Application to Connect has been submitted and accepted as complete we will provide you with a Connection Offer (containing agreements in a form capable of execution to facilitate the works and the ongoing connection).

The Connection Offer will be made within 4 months of the date on which we received both the Application to Connect (and all subsequent required information) and the payment of the associated application fee (unless another date has been agreed).

Your Project Sponsor will maintain contact with you throughout the process and provide you with a draft copy of the applicable Connection Contract/s allowing you time to negotiate.
The Connection Offer cont ...

If you seek to negotiate the relevant terms, we will work closely with you to reach an informed understanding of the proposed Connection Offer. The Connection Offer will, among other things, outline charges and rates for the requested works (see construction and network tariffs below), commercial terms, technical specifications and guideline for construction times. When we have prepared your Connection Offer, it will be provided to you for review and acceptance.

Further information, and a sample of the model terms and conditions, can be found on our website:

A Connection Offer will remain valid for 20 business days (or as otherwise agreed) from the date of issue. To accept this, you will need to sign and return the contracts to us within that timeframe.

Unless otherwise agreed, failure to return the accepted Connection Offer within the 20 business days will mean that the Connection Offer will lapse. If this occurs and you still wish to proceed, you would be required to recommence the process and submit a new Application to Connect.

As per Rule 5.3A(b)(7), draft copies of Ergon Energy’s connection agreements applicable to Embedded Generators can be found on our website: https://www.ergon.com.au/network/connections/major-business-connections/large-scale-renewables-and-generation -
Commissioning & Energisation

Before connecting your EG system to our distribution network, we are entitled to inspect and, where necessary, require you to test, those parts of the EG system that have a direct effect on our distribution network.

Additionally, AEMO’s role as the National Electricity Market and Systems Operator means that they will also be involved in assessing simulation models of power system plant and associated control systems, and commissioning and post commissioning activities. With any Generator Performance Standard (GPS), a generator commissioning plan is required, which will incorporate a GPS compliance test program agreed between you, us, AEMO and any other relevant Network Service Providers.

Please note that any costs associated with the compliance test program will be your sole responsibility.

Your Project Sponsor will advise your requirements following the technical assessment of your project.

Registering with AEMO

AEMO and Market Participants must adhere to the requirements set out in the NER. New applicants must be well informed about the NER, the National Electricity Market (NEM), and their obligations as a Registered Participant.

We encourage you to review all the participant information on the AEMO website regarding registration procedures, exemption and classification guides and what is required for an application to become a registered embedded generator (or if you are applying for an exemption).

Please refer to the AEMO website for more information – www.aemo.com.au
Connection Costs & Charges

Delivering value, delivering choice
Connection Costs & Charges

Australian Energy Regulator (AER) Pricing Information

We charge customers for regulated distribution services. The AER classifies the services we provide as either:

Standard Control Services, which reflect core distribution services associated with the access and supply of electricity to customers, including network services (e.g. construction, maintenance and repair of the network), some connection services (e.g. small customer connections) and Type 7 metering services. Ergon Energy recovers our costs in providing Standard Control Services through network tariffs which are billed to retailers.

Alternative Control Services are activities undertaken by Ergon Energy which relate to a specific request from an identifiable customer, retailer or appropriate third party which are in addition to Ergon Energy’s Standard Control Services. The charges for Alternative Control Services can be directly attributed to the customer requesting the service.

Price lists for both Standard Control Services and Alternative Control Services are approved by the AER every year. For more information on our distribution pricing principles and methodologies, please go to our website via the following link: [https://www.ergon.com.au/network/network-management/network-pricing](https://www.ergon.com.au/network/network-management/network-pricing)

Services available

A full list of services is available in the current ACS Price List available on our website. A selection of those services typically applying to EG system connections (large customer connections) is outlined overleaf.

These services can be tailored to meet your individual project needs, and your Project Sponsor will be able to assist you with any enquiries you have.

Contestability of Services

Some services are contestable, meaning you have the option of engaging Ergon Energy or a suitably qualified and experienced consultant to perform the service.

If we are providing a chargeable service, we will provide you with a quote tailored to your needs. Upon acceptance of this quote, we will issue you with an invoice which will be payable prior to the commencement of work.

Example Services & Indicative Charges

Your proposed project may require several pre-connection services to enable us to determine the impact of the EG system connection on the safety and security of our distribution network prior to an Application to Connect.

The services required to be performed in relation to your connection can vary, and, as the cost of those services are tailored to your project’s specific requirements, it is difficult to provide indicative costs outside of an itemised quote.

Additional Costs

There may also be ongoing charges associated with your proposed EG system, including, but not limited to:

- additional network tariffs associated with EG systems
- security (contract or construction) costs (where applicable)
- costs regarding third party involvement (e.g. AEMO), where required, such as registration of generator performance standards (GPS)

Your Project Sponsor will advise if any of these costs are applicable to your proposed project.

As your connection arrangements may differ significantly, you must understand that your connection costs will be determined in line with your connection agreements and the applicable regulatory arrangements. However, worked examples of connection costs associated with the connection of EG systems, based on preferred and possible connection arrangements, are noted below.
### Worked examples of pre connection and connection costs

#### EMBEDDED GENERATORS >30 kW – 5 MW

<table>
<thead>
<tr>
<th>EG Size &amp; Configuration</th>
<th>Indicative Service(s) required</th>
<th>Indicative Cost (Inc. GST)</th>
<th>Connection Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 kW to 1 MW (LV Network) Non Export</td>
<td>Service 96 (Assessment of Parallel Non Export Generation Application – e.g. IES Solar PV)</td>
<td>$3,500</td>
<td></td>
</tr>
<tr>
<td>30 kW to 1 MW (LV Network) Exporting</td>
<td>Service 44 (Feasibility and concept scoping, including planning &amp; design, for major customer connections)</td>
<td>$2,900</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service 42 (Application Fee Negotiated – Major Customer Connection – e.g. IES Solar PV)</td>
<td>$1,035</td>
<td></td>
</tr>
<tr>
<td>1 to 5 MW (LV Network) Non Export</td>
<td>Service 96 (Assessment of Parallel Non Export Generation Application)</td>
<td>$5,600</td>
<td></td>
</tr>
<tr>
<td>1 to 5 MW (HV Network) Exporting</td>
<td>Service 44 (Feasibility and concept scoping, including planning &amp; design, for major customer connections)</td>
<td>$15,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service 48 (Initial specification and design outline for major customer connections)</td>
<td>$33,000</td>
<td></td>
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<tr>
<td></td>
<td>Service 42 (Application Fee Negotiated – Major Customer Connection)</td>
<td>$22,000</td>
<td></td>
</tr>
<tr>
<td>Network Charges* (Per Annum, Inc. GST)</td>
<td></td>
<td>$29,000</td>
<td></td>
</tr>
</tbody>
</table>

#### REGISTERED EMBEDDED GENERATORS > 5 MW

<table>
<thead>
<tr>
<th>EG Size &amp; Configuration</th>
<th>Indicative Service(s) required</th>
<th>Indicative Cost (Inc. GST)</th>
<th>Connection Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 MW to 30 MW (HV Network) Non-Market EG</td>
<td>Service 50 (Detailed Enquiry Response Fee)</td>
<td>$77,000</td>
<td>Connection SLD Reference C – Direct Connection of a high voltage generator see page 30</td>
</tr>
<tr>
<td></td>
<td>Service 42 (Application Fee Negotiated – Major Customer Connection)</td>
<td>$59,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Network Charges* (Per Annum, Inc. GST)</td>
<td>$159,000</td>
<td></td>
</tr>
<tr>
<td>&gt; 30 MW (HV Network) Market EG</td>
<td>Service 47 (Site Specific Connection Advice - cost will be dependent on the services provided)</td>
<td>$10,000 - $60,000</td>
<td>Connection SLD Reference C – Direct Connection of a high voltage generator see page 30</td>
</tr>
<tr>
<td></td>
<td>Service 50 (Detailed Enquiry Response Fee)</td>
<td>$86,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Service 42 (Application Fee Negotiated – Major Customer Connection)</td>
<td>$92,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Network Charges* (Per Annum, Inc. GST)</td>
<td>$300,000</td>
<td></td>
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</tbody>
</table>
Sample Connection Diagrams

As per the requirement under Rule 5.3A.3(b)(2) of the NER, please find below single line diagrams of our preferred connection arrangements and other possible connection arrangements for integrating an EG system, showing the connection point, the point of common coupling, the embedded generating unit(s), load(s), meter(s), circuit breaker(s) and isolator(s).

Additional information & diagrams can be found in the Major Customer Connection Manual, which documents Ergon Energy’s standard connection arrangements, in Appendix 5, Standard Connection Arrangements.

Sample schematic diagrams outlining protection and control system requirements can be found in the relevant Technical Standard for your particular EG system. Please refer to our Relevant Technical Standards Section for more information on this.
A - Connection of a Generator through a transformer (LV)

B - Connection of a Generator through a transformer (HV)

C- Direct Connection of a High Voltage Generator
**LIST OF SERVICES RELEVANT TO THE CONNECTION OF EG SYSTEMS**  
From the Ergon Energy Price List for Alternative Control Services 1 July 2018 – 1 July 2019

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
<th>Performed by</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre Connection Services</strong></td>
<td></td>
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</tbody>
</table>
| **Provision of general Information** | Provision of standard information and general information during a connection enquiry. Includes but not limited to:  
  • Provision of advice on Supply Availability  
  • Provision of advice on process related issues  
  • Initial Assessment of Enquiry and response / acknowledgement | Ergon Energy | No - service provided at no cost |
| **Pre-Connection Site Inspection** | Site inspection in order to determine nature of the connection being sought | Ergon Energy | Yes - fee to be quoted |
| **Provision of site-specific connection advice for Major Customers** | Provision of site-specific advice, data and/or information on request for small or major customer connections (during the connection enquiry and/or connection application stage only). For example:  
  • advice on project feasibility  
  • advice on whether augmentation would likely be required  
  • capacity information, including specific network capacity  
  • load profiles for load flow studies  
  • requests to review reports and designs prepared by external consultants, prior to lodgement of connection application  
  • additional or more detailed specification and design options.  
  Excludes information provided in planning reports/studies and project scopes. | Ergon Energy | Yes - fee to be quoted |
| **Assessment for Non-Exporting embedded generator applications** | Services associated with assessing a generator on a customer’s installation which will not be exporting into the distribution system. | Ergon Energy | Yes - fee to be quoted |
| **Provision of a Planning Report** |  
  • General evaluation and advice on asset options - Build-own-operate ~ build-own-transfer ~ Ergon Energy build  
  • Design of up to three connection options that Ergon Energy would see as feasible. These can be standard connection options – tailored to individual circumstances. e.g. load, distances, network conditions  
  • The advantages, disadvantages, likely costs and timing of each option  
  • A clear recommendation from Ergon Energy on the most suitable option  
  (These are indicative and non-binding estimates, and subject to formal design & pricing via the Application Stage) | Ergon Energy | Yes - fee to be quoted |
### Provision of a Project

**Scope**

Design and advice on one (1) connection configuration option from the Planning Report; including information as follows

- Prepare indicative estimates for this connection configuration option
- Technical connection configuration design
- Secondary Systems Assessment and Design including Communications, Protection
- Property Aspects Advice - including guidance on land owner agreements, the consultation process and easement requirements or land acquisitions that remain outstanding.
- Environment and Cultural Heritage Advice - includes guidance on all documents required to support the application for such approvals

(Whilst more refined than the Connection Planning report, - these remain indicative and non-binding estimates, and are subject to formal design & pricing via the Application Stage)

(Equivalent to external consultant estimates - to be formalised in Application to Connect).

**Ergon Energy or a suitably qualified and experienced external consultant**

Yes - fee to be quoted

<table>
<thead>
<tr>
<th>Connection Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Removal of a network constraint for embedded generator</strong></td>
</tr>
<tr>
<td><strong>Witness Testing</strong></td>
</tr>
</tbody>
</table>

### Post Connection Services

**Re-arrange connection assets at the request of the customer**

Removal, relocation or rearrangement of connection assets at customer’s request.

Ergon Energy

Yes - fee to be quoted