



Embedded Generation Customer Connection Procedure

UE-PR-2008

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1. Introduction

This document is intended for anyone who wishes to connect embedded generation (EG) to United Energy's (UE's) distribution network.

1.1 Purpose of document

The purpose of this document is to advise anyone who wishes to connect EG to UE's distribution network (i.e. proponents) on the type of EG connection appropriate for their EG system capacity and the associated connection application process. This document outlines the following information:

- the parties involved in EG connections;
- types of EG connections;
- associated connection application processes and timelines; and
- connection application prioritisation policy.

This document is part of a suite of documents relating to EG connections and shall be read in conjunction with the following documents:

- UE's Customer Connection Policy¹
- UE-ST-2008.1 Basic Micro Embedded Generation Network Access Standard
- UE-ST-2008.2 Low Voltage Embedded Generation Network Access Standard
- UE-ST-2008.3 High Voltage Embedded Generation Network Access Standard

1.2 Scope of document

This document applies to all EG connections, both Basic and Negotiated Connections, and covers new EG connections as well as modifications to existing EG connections. Refer to:

- UE Customer Connection Policy¹ for all other connections such as load connections and charging policy
- UE-ST-2008.1, UE-ST-2008.2 and UE-ST-2008.3 for EG network access standard

1.3 Structure of document

This procedure document is structured as follows:

- Section 2 lists the definitions and abbreviations used in this document
- Section 3 describes the parties involved in the EG connection process
- Section 4 outlines the types of EG connections offered by UE
- Section 5 details the connection application process for each EG connection type
- Section 6 describes how negotiated EG applications are prioritised

¹ <https://www.unitedenergy.com.au/wp-content/uploads/2015/09/Connection-Policy.pdf>

2. Definitions and Abbreviations

2.1 Definitions²

<i>Basic micro embedded generation connection</i>	<i>A connection between a distribution network and a retail customer's premises for a micro embedded generating unit, for which a model standing offer is in place or an equivalent model offer is in place in jurisdictions not subject to Chapter 5A of the National Electricity Rules</i>
<i>Embedded generating unit</i>	<i>A generating unit connected within a distribution network and not having direct access to the transmission network</i>
Embedded generating system	A system comprising of multiple embedded generating units
Distributed Energy Resources	Power generation or storage units that are connected directly to the distribution network
<i>Generating unit</i>	<i>The plant used in the production of electricity and all related equipment essential to its functioning as a single entity.</i>
<i>Generation</i>	<i>The production of electrical power by converting another form of energy in a generating unit</i>
<i>Generator</i>	<i>A person who owns, operates or controls a generating unit</i>
Inverter energy system	A system comprising of one or more inverters together with one or more energy sources (which may include batteries for energy storage), and controls, which satisfies the requirements of AS/NZS 4777.1:2016 and AS/NZS 4777.2:2015.
Low voltage	The mains voltages as most commonly used in any given network by domestic and light industrial and commercial consumers (typically 230V)
Low voltage embedded generation connection	A connection between a distribution network and a retail proponent's premises for an embedded generating unit, for which an offer is in accordance with Chapter 5A of the National Electricity Rules
High voltage	Any voltage greater than 1kVAC
High voltage embedded generation connection	A connection between a distribution network and a retail proponent's premises for a high voltage embedded generating unit, for which an offer is in accordance with Chapter 5A or 5 of the National Electricity Rules
<i>Market generating unit</i>	<i>A generating unit whose generation is not purchased in its entirety by a retailer (and receives payment for generation through the National Electricity Market or Wholesale Electricity Market)</i>

² Definitions in italics are consistent with the definitions under the [National Electricity Rules](#)

Model standing offer A document approved by the Australian Energy Regulator as a model standing offer to provide basic micro embedded generation connection services or standard connection services which contains (amongst other things) the safety and technical requirements to be complied with by the proponent. This definition also applies to an equivalent model offer for jurisdictions not subject to Chapter 5A of the National Electricity Rules

Proponent A person proposing to become a generator (the relevant owner, operator or controller of the generating unit (or their agent))

Registered generator A person who owns, operates or controls a generating unit that is connected to, or who otherwise supplies electricity to, a transmission or distribution system and who is registered by the Australian Energy Market Operator as a Generator under Chapter 2 of the National Electricity Rules

Small registered generator A generator who elects to register a generator with the Australian Energy Market Operator as a market generating unit who would otherwise be entitled to an exemption to register based on size

Technical requirements document The document produced by each Distribution Network Service Provider setting out their requirements for proponents to enable a grid connection

2.2 Abbreviations

AEMO Australian Energy Market Operator

AS/NZS A jointly developed Australian and New Zealand Standard

DER Distributed Energy Resources

DNSP Distribution Network Service Provider

EG Embedded Generation or Embedded Generating

HV High Voltage

IES Inverter Energy System

LV Low Voltage

NEM National Electricity Market

NER National Electricity Rules

UE United Energy

3. Parties Involved in EG Connection

Table 1 details the main parties required for the safe establishment of an EG connection to the grid. These terms will be utilised in the rest of the document.

Table 1: Roles of parties involved in EG connections

Party	Role
Proponent	A person proposing to become a generator (the relevant owner, operator or controller of the generating unit (or their agent)).
Installer	A company engaged by the proponent to install, test and commission the EG.
Distribution Network Service Provider (DNSP)	The company that owns and operates the distribution network, which the EG will be connected to. The DNSP is responsible for negotiating and approving EG connections. In this case, it will be UE.
Electricity retailer	A company that sells / buys electricity used / generated by the proponent and provides the bill to the proponent.
Australian Energy Market Operator (AEMO)	The organisation that is responsible for operating the energy markets and power system across Australia except for the Northern Territory.

4. EG Connection Types

UE offers the following five EG connections types:

- Basic micro EG connection**

Basic micro EG connections are for smaller inverter energy system (IES) typically installed by most residential owners. These simple connections do not require negotiations with the DNSP. Proponents of these EG connections sell their surplus electricity through their retailer. Please refer to UE-ST-2008.1 for detailed connection requirements.
- Low Voltage (LV) EG negotiated connection**

LV EG negotiated connections are for LV connections that do not meet the basic micro EG connections requirements. These connections require negotiations with the DNSP as the EG systems are typically larger IES or non-IES (synchronous or asynchronous generators) such as diesel generators or flywheels. Proponents of these EG connections are typically commercial customers. Proponents of these EG connections sell their surplus electricity through their retailer. Please refer to UE-ST-2008.2 for detailed connection requirements.
- LV EG negotiated registered connection**

LV EG negotiated connections are for LV connections that wish to be registered to participate in the National Electricity Market (NEM). These connections require negotiations with the DNSP and registration with the AEMO to trade electricity in the NEM. Proponents of these EG connections are typically commercial and industrial customers. Please refer to UE-ST-2008.2 for detailed connection requirements.
- High Voltage (HV) EG negotiated connection**

HV EG negotiated connections are for HV connections that do not meet the basic micro EG connections requirements. These connections require negotiations with the DNSP as the EG systems are typically larger IES or non-IES systems. In accordance with Chapter 5 of the National Electricity Rules, proponents of EG systems with capacities greater than or equal to 5MVA, but less than 30MVA, are to negotiate with AEMO to obtain an exemption from registration if they wish to apply under this connection type. Proponents of these EG connections are typically commercial or industrial customers. Proponents of these EG connections sell their surplus electricity through their retailer. Please refer to UE-ST-2008.3 for detailed connection requirements.

- HV EG negotiated registered connection

HV EG negotiated connections are for HV connections that do not meet any of the other connection type requirements and are registered to participate in the NEM. These connections require negotiations with the DNSP and registration with the AEMO to trade electricity in the NEM. The EG systems are large IES or non-IES systems. Proponents of these EG connections are typically large scale commercial and industrial customers. Please refer to UE-ST-2008.3 for detailed connection requirements.

The type of EG connection applicable to the proponent depends on the size of the proponent's EG system and the network configuration, particularly the network voltage at the connection point. Figure 1 shows the typical EG system size for each available network voltage:

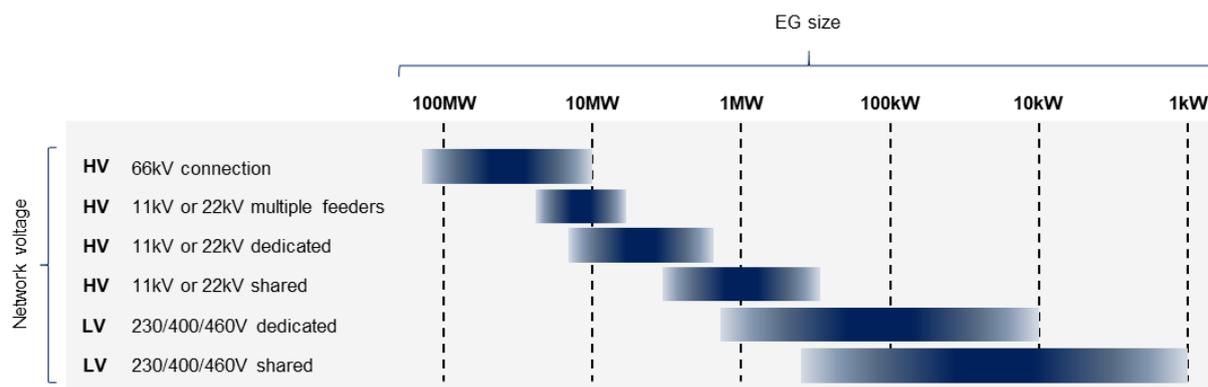


Figure 1 Typical EG system size for network voltage at the connection point

4.1 Flowchart to determine EG Connection Type



Figure 2 Type of EG Connections

5. EG Connection Application Process

The EG connection application processes have been streamlined to three types of connection application processes. Table 2 maps the five EG connection types to the three types of connection processes. These connection processes have varying degrees of complexity due to the potential impact the EG systems may have on the distribution network. The processes are consistent with the corresponding National Electricity Rules (NER).

Table 2: EG connection types mapped to application process

EG connection type	EG connection application process	NER
Basic Micro EG Connection	Basic connection application process	Chapter 5A
LV EG Negotiated Connection	Negotiated connection application process	Chapter 5A
HV EG Negotiated Connection		
LV EG Registered Negotiated Connection	Registered negotiated connection application process	Chapter 5
HV EG Registered Negotiated Connection		

5.1 Basic Micro EG Connection Application Process

The proponent can apply for a basic micro EG connection either directly from their DNSP or through their retailer. If the proponent applies for a basic micro EG connection via their electricity retailer, the electricity retailer will submit the application to the DNSP on behalf of the proponent.

As basic micro EG connections are expected to have minimal impact on the distribution network, it has less technical requirements in the connection application process than negotiated EG connections. Figure 3 shows the application process and expected timeframes. If the proponent applies for the basic micro EG connection via the retailer, UE will provide feedback to the proponent via the retailer. All completed basic micro EG applications will be approved to connect to the network.

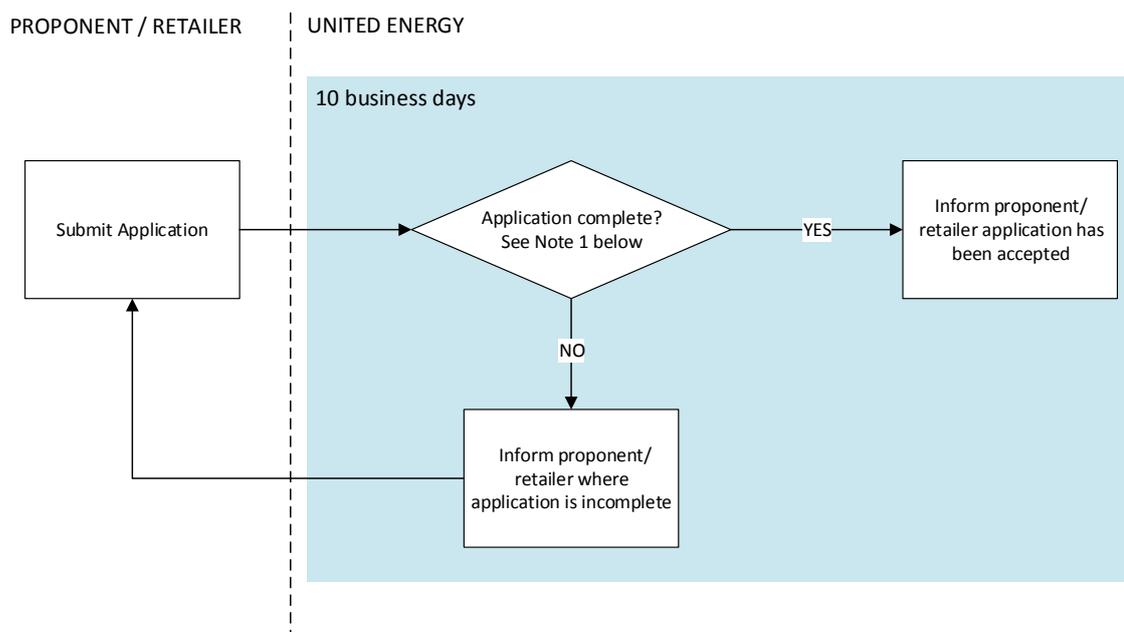


Figure 3: Basic micro EG connection application process

Note 1: The application form has been completed with all the required information, including signatures. Refer to UE-ST-2008.1 for the technical requirements and application forms.

5.2 Negotiated connection application process

The EG systems of negotiated connections have a higher potential to impact the distribution network. Hence, they require a more rigorous application process to ensure the distribution network and other customers are not adversely impacted by these EG connections. Figure 4 shows the application process and expected timeframes. Section 6 details the prioritisation policy for negotiated connections.

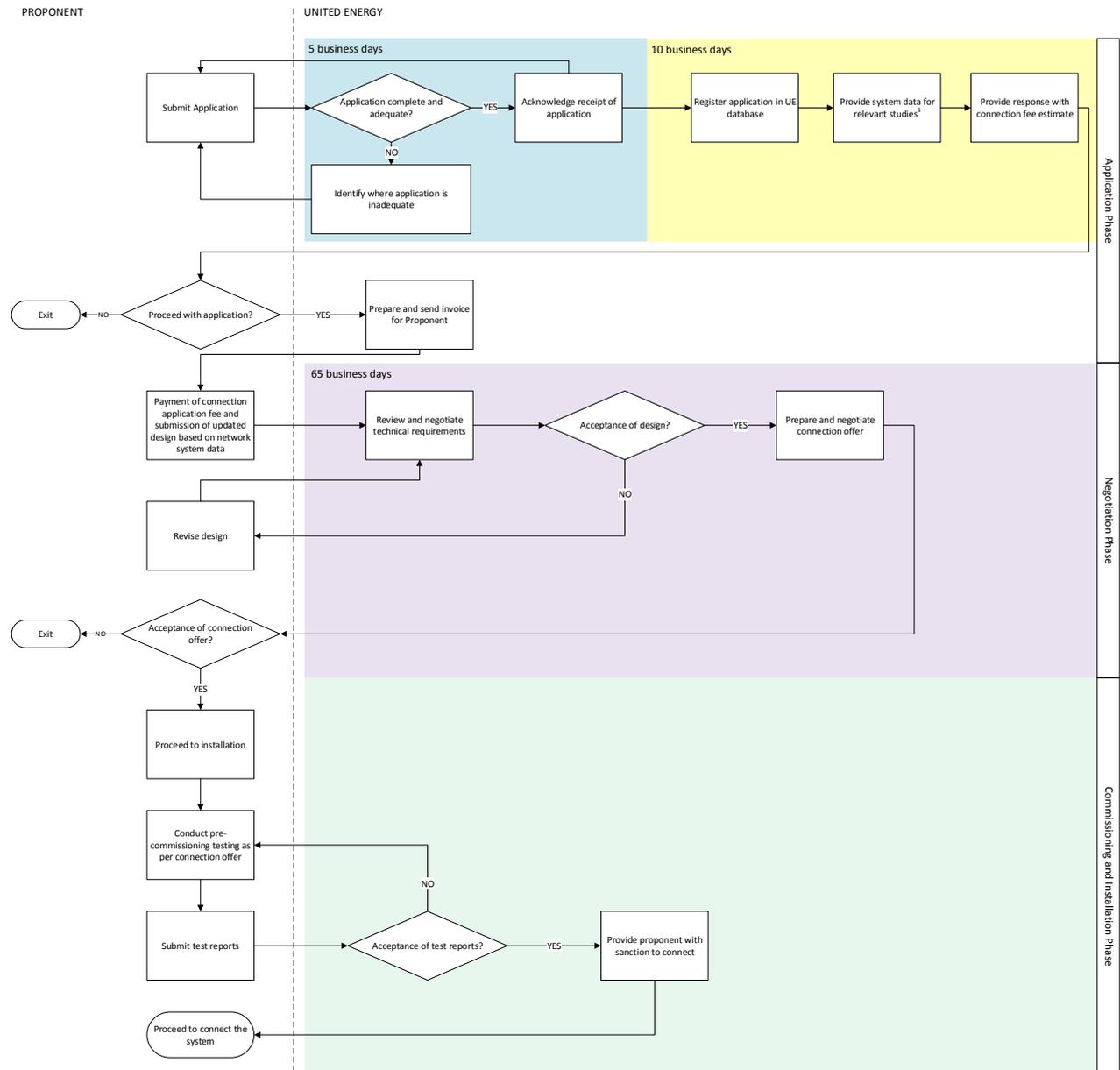


Figure 4: Negotiated connection application process

¹ Refer to UE-ST-2008.2 and UE-ST-2008.3 for the technical requirements and application forms for LV and HV EG connection respectively.

5.3 Registered negotiated connection application process

In addition to submitting the registered connection application to the DNSP, the proponent shall also engage with AEMO to ensure the EG system is suitable to participate in the NEM. Figure 5 shows the application process and expected timeframes. Section 6 details the prioritisation policy for negotiated connections. Refer to UE-ST-2008.2 for the LV EG technical requirements and application forms. Refer to UE-ST-2008.3 for the HV EG technical requirements and application forms.

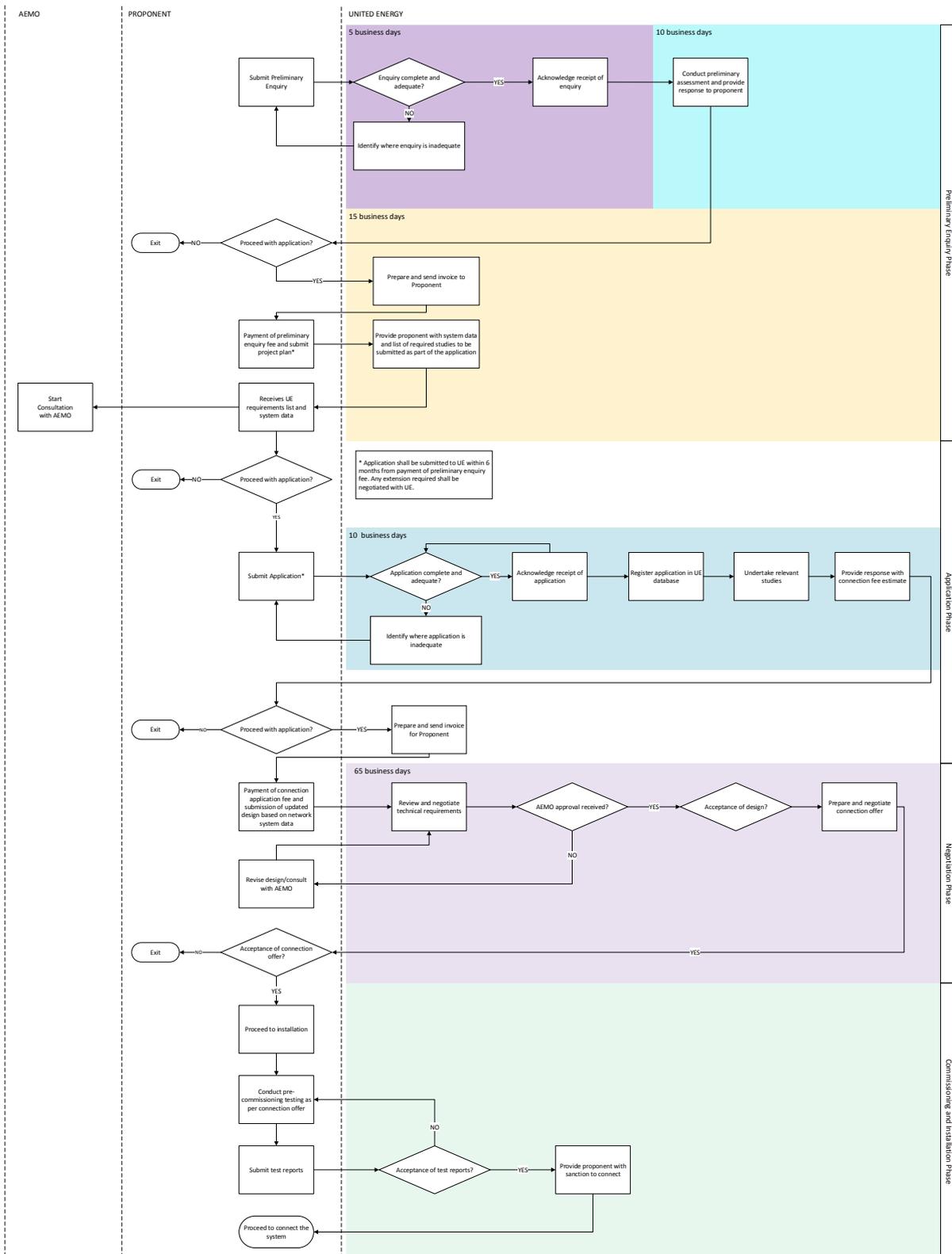


Figure 5: Registered connection application process

6. Prioritisation of EG Connection Applications

A DNSP may receive multiple **negotiated** connection applications for the same locality within the network at a given point in time. The aggregate impact of these proposed multiple EG systems may exceed the designed limits of the network in the area. Hence, a prioritisation policy is required to schedule multiple negotiated connection applications.

UE has a policy to prioritise these multiple **negotiated** connection applications. The objective of this prioritisation policy is to provide opportunity for all technically feasible and legitimate EG applications to proceed to connect to the network. It shall avoid, to the extent possible, prioritising certain applications over others due to expected economic, market and/or network benefits to be provided by the connection in order to promote the open access regime under the NER.

UE recognises the registered negotiated connection processes are longer than the negotiated connection process. Hence, all negotiated connection applications will be prioritised at the same stage in the process to provide equal opportunity to all legitimate EG applications.

UE's prioritisation policy is:

- Not applicable to basic connection applications, as all basic connections will be approved provided the application is complete.
- Negotiated connection applications will be prioritised based on the payment date of the application fee invoice.
- Registered negotiated connection applications will be prioritised based on the payment date of the preliminary enquiry fee and receipt of a project plan for the connection application. The proponent is to submit the application within 6 months of the payment of the preliminary enquiry fee. Any extension required by the proponent shall be negotiated with UE.