



NEM GENERATOR REGISTRATION GUIDE

Important Notice

Purpose

AEMO has prepared this document to provide information about the process for becoming registered as a Generator in the National Electricity Market, as at the date of publication.

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1.0	26/11/2018	Bulk update
1.1	3/06/2019	Clarification of ramp rate, metering data and operational and system readiness requirements Inclusion of generator closure date obligations

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1. Introduction

1.1 Defined terms

Terms defined in the National Electricity Rules (*Rules* or *NER*) have the same meanings in this Guide unless otherwise specified. Those terms are intended to be identified in this Guide by italicising them, but failure to italicise such a term does not affect its meaning.

1.2 Purpose of this Guide

This Guide is intended to assist applicants for registration as a *Generator* in the National Electricity Market (*NEM*) to complete the application form and supply any additional information needed for AEMO to determine your application. This Guide will not cover all circumstances. The National Electricity Law (*NEL*) and the *NER* prevail over this Guide to the extent of any inconsistency.

Before commencing your application, please also read AEMO's Guide to Generator Exemptions and Classification of Generating Units. This explains when you may be entitled to an exemption from the requirement to register as a *Generator* for a particular *generating system*. If you do need to register, it also explains the available classifications for *generating units*. Your registration application must specify an appropriate classification category.

1.3 Requirement to register as a Generator

Section 11 of the *NEL* states that:

- (1) "A person must not engage in the activity of owning, controlling or operating a generating system connected to the interconnected transmission or distribution system unless –
 - (a) The person is a Registered participant in relation to that activity; or
 - (b) The person is the subject of a derogation that exempts the person, or is otherwise exempted by AEMO, from the requirement to be a Registered participant in relation to that activity under this Law and the Rules."

If a person is required to register, penalties apply under *NEL* section 58 for failing to do so.

1.4 Special Approvals or Exemptions

1.4.1 Small Generator and intermediary exemptions

Please refer to our Guide to Generator Exemptions and Classification of Generating Units to determine:

- Whether you may be entitled to an exemption from the requirement to register - typically where your generating system is small, or where an intermediary is registering as a *Generator* on your behalf.
- What you need to do (if anything) to obtain that exemption.

1.4.2 Special Approval - Bid and Offer Aggregation

If you wish to aggregate one or more *generating units* for the purpose of *central dispatch*, you must apply to AEMO to do so. Information to support aggregation approvals is provided in Section C of the application form.

1.5 Registration as an Intending Participant

Clause 2.7 of the *Rules* allows a person to register with AEMO as an *Intending Participant* if it can reasonably satisfy AEMO that it intends to carry out an activity in respect of which it must or may be registered as a *Registered Participant*. A person who intends to act as a *Generator* may elect to register with AEMO as an *Intending Participant* if that person can satisfy AEMO that the relevant requirements have been met. Please see the Intending Participant Registration Guide if you would like to register as an *Intending Participant*.

1.6 Fees

1.6.1 Registration Fee

All applicants for registration must pay a registration fee in accordance with AEMO's current published fee schedule. AEMO will issue an invoice following receipt of a valid Application. Assessment of an Application will not be completed without confirmed payment of the registration fee.

1.6.2 Participant Fees

Clause 2.11.1(b)(2) of the *Rules* provides that *participant fees* should recover the budgeted revenue requirements for AEMO. Clause 2.11.1(b)(3) provides that the components of *Participant fees* charged to each *Registered Participant* should be reflective of the extent to which the budgeted revenue requirements for AEMO involve that *Registered Participant*. You should refer to the AEMO website for a summary of the *Participant fees* that are currently applicable to a *Generator*.

1.7 Other Documents to be submitted with the registration application

1.7.1 Bid and Offer Validation Data

If you are applying to classify a *scheduled generating unit* or a *semi-scheduled generating unit*, you must provide AEMO with the *bid and offer validation data* and related information as specified in Schedule 3.1 of the *Rules* at least six weeks before you commence participation in the market.

1.7.2 Recipient Created Tax Invoices

You must submit your registration application with a completed Agreement for AEMO to issue Recipient Created Tax Invoices, available on the AEMO website, under the "GST Information Note for New Registrations".

1.7.3 Austraclear

AEMO uses an external electronic funds transfer system provided by Austraclear. You will have to apply directly to Austraclear for membership. Membership approvals can take up to five weeks to process and charges are payable direct to Austraclear.

1.7.4 Credit Support

You should provide credit support instruments (if required) with the application. See section 3.1.2 for further information on information required regarding your financial viability.

1.7.5 Settlement Revision Liability Deed

Under clause 3.15.19 of the *Rules*, AEMO may revise or adjust a *settlement amount*. If you are to be *financially responsible* for an existing *market generating unit*, you may also accept responsibility for these revisions. You will need to provide AEMO with a NEM Settlements Revision Liability Deed, which is available from the AEMO website.

1.7.6 Wind/Solar Farm Data Supply Deed

One of the objectives of the Australian Wind Energy Forecasting System (AWEFS) and Australian Solar Energy Forecasting System (ASEFS) projects is provision for Australian public researchers to access wind and solar farm data. For further information please refer to Appendix 2 of this document. If you are registering a wind or solar farm, you should consider whether you are prepared to make your wind or solar farm data available to public researchers and if so, please execute a Wind/Solar Farm Data Supply Deed and return to AEMO with your application. The copy of the relevant Deeds are published on the AEMO website.

1.8 Application to be submitted to AEMO Registration Desk

Please submit the completed Application for Registration as a Generator, or Application for Exemption from Registration as a Generator to onboarding@aemo.com.au.

Alternatively, you may submit hard copies of documents to the following postal address:

AEMO Onboarding
Australian Energy Market Operator Ltd
Level 2, 20 Bond Street
Sydney NSW 2000

2. Registration Procedure

Chapter 2 of the *Rules* deals with the registration of a *Generator*.

Each prospective *Generator* must apply to AEMO for registration by using the relevant application form.

The registration process consists of the following steps:

Step 1 You submit either:

- an Application for Registration as a Generator or
- an Application for Exemption from Registration as a Generator.

(either referred to as 'Application').

Step 2 AEMO will review the Application and respond to you within 5 *business days* of receipt of the Application. You will also receive an invoice for the relevant registration fee(s).

Step 3 AEMO may request additional information or clarification of the information in the Application. If requested, you must supply the additional information or clarification within 15 *business days* of AEMO's request.

Step 4 Within 15 *business days* of receiving the Application, or within 15 *business days* of receiving the requested additional information or clarification, AEMO will notify you of AEMO's determination and, if AEMO rejects your Application, the reasons for rejecting it.

AEMO's notification under Step 4 will also include:

- any conditions of registration, if applicable, that AEMO considers reasonably necessary. and
- an effective date of registration. This date will be determined considering AEMO's software change management process.

3. Explanation of Application Form

The application form for registration as a *Generator* is divided into the following sections:

- Section A - Application for Registration as a Generator
- Section B – Contact Details
- Section C – Generating System
- Section D – Classification of a Connection Point as a Market Generating Unit
- Section E – Information required for AEMO's systems
- Section F – Compliance with Technical Requirements
- Section G – Local Black System Procedures
- Section H – Ancillary Services Generating Units
- Section I – Metering

Below is an explanation of how to complete Sections A to I, including a description of the attachments to the sections that are required.

3.1 Section A - Application for Registration as a Generator

3.1.1 Formal Application and Declaration

You must formally apply for registration and authorise AEMO to contact other parties, if necessary, to verify the information that you have provided.

To be eligible for registration as a *Generator*, you must either:

- own, operate or control; or
- otherwise source electricity from (e.g. as the buyer under a power purchase agreement), the *generating unit(s)* you are applying to classify as part of this registration.

These eligibility criteria apply equally to applicants intending to act in an *intermediary* capacity. If you are applying as an *intermediary*, you must also tick one or more of the preceding boxes to confirm your eligibility. You must also identify the parties who have nominated you as their *intermediary* on behalf of other parties, you must identify those parties and provide their consent to your appointment.

The form must be signed by an authorised representative of the Applicant as a declaration that the application and supporting documents are true and correct.

Please note that any parties for which you are acting as *intermediary* must submit applications for exemption from registration as a generator. They each must identify you as their *intermediary* in their application.

3.1.2 Additional material

Additional material must be attached in relation to the following:

Partnership Status

If you are applying for registration on behalf of a partnership, you must provide evidence of the legitimacy of the partnership, such as a partnership agreement.

Trust Status

Where the Applicant is acting in a trustee capacity, the Applicant must provide a copy of the Trust Deed establishing the Applicant Trust. It must also execute and return a Trustee Deed in the form specified by AEMO. No changes are to be made to the form of Deed other than the completion of details where highlighted.

AEMO must be satisfied that an applicant for registration will be able to meet its obligations under the *Rules*. (The same applies to exemption applicants who appoint an intermediary, because they remain liable for the intermediary's acts and omissions.) Trustees, however, are generally not personally liable for obligations they incur on behalf of the trust. The purpose of the Trustee Deed, therefore, is to assure AEMO that the trustee's right of recourse to the property and assets of the trust remains in place for the purpose of meeting its *Rules* obligations, on an ongoing basis.

Regulatory Compliance

You must show that you comply with requirements currently imposed by the *Jurisdictional Regulator* who has jurisdiction over your activities. You must confirm that you have either met your jurisdictional requirements, you are exempt from jurisdictional requirements, or that no jurisdictional requirements apply in your case. You should enclose the following:

- a copy of your current electricity licence or approval applicable in one or more *NEM* jurisdiction(s), or evidence of exemption, such as a letter from the relevant Jurisdictional Regulator explaining that no jurisdictional requirement exists, or copies of relevant exemptions or derogations; and
- details of any non-compliance with jurisdictional regulatory obligations.

Financial Viability

You must be able to meet your financial obligations to AEMO and satisfy the prudential requirements as set out in clause 3.3 of the *Rules*. You must include:

- copies of your most recent audited financial statements; and
- explanation of any financial links with parent or other organisations.

You might be required to provide credit support to cover the value of commissioning supplies and auxiliary supplies during plant outages or periods of infrequent generation. Further information regarding the amount of credit support is available from the document "Credit Limit Procedures" which is on the AEMO website.

Credit support instruments must conform strictly to the format for financial guarantees available on the AEMO website.

Credit support providers must meet the criteria of clause 3.3.3 of the *Rules*. Guarantees from parent or affiliated companies are unlikely to satisfy the criteria.

Organisational Capability

You must show that you are in a position to control the design, construction, maintenance, operation, business and administrative processes applicable to your generating activities and that responsible officers within your organisation are in a position to establish, or have already established, resources, processes and procedures to ensure compliance with the *Rules* applicable to your participation as a *Generator*.

Operational and System Readiness

The operation of the *power system* requires participants to have robust communication mechanisms and 24-hour operational capabilities in place prior to registration and commissioning. Among many other things, operational obligations outlined within the NER require *Generators* to:

- nominate personnel who will receive and act on operational communications;
- maintain up-to-date contact details of nominated operational personnel with AEMO;
- provide two independent telephone system numbers for each nominated operational personnel and control centre (mobile phone numbers only are not acceptable);
- maintain both independent telephone systems in good repair and investigate communication faults within 4 hours;
- establish and maintain a form of electronic mail facility as approved by AEMO;
- notify AEMO of settings or model updates, and circumstances affecting plant operation that could affect AEMO's management of power system security;
- ensure that appropriate personnel are available at all times to receive and immediately act upon instructions from AEMO (24/7 operational coverage)¹; and
- for *Semi-Scheduled Generators*, ensure that every *semi-scheduled generating unit* is at all times able to comply with its latest *dispatch offer*².

Prior to registration, *Generators*³, must provide AEMO evidence of their operational and system readiness, and demonstrate they are able to:

- participate in bidding and *central dispatch* processes; and
- ensure appropriate personnel are always available to receive and immediately act upon *dispatch instructions* and operational communications on a 24/7 basis.⁴

¹ Example 1: operational personnel are available to adjust voltage set-points on a power station – either locally or remotely – regardless of the day of the week, or the time of the day,

Example 2: appropriate systems are in-place to receive and follow dispatch instructions via bidding systems and backup by AEMO's MMS portal,

² Note that any change in the commercial availability of *semi-scheduled generating units* must be communicated to AEMO by rebidding.


³ Please note that *Non-Scheduled Generators* may also be required to provide information relating to *dispatch*. AEMO will advise if you are required to provide associated supporting information.

⁴ For both market dispatch and physical operations of plant

To demonstrate your operational readiness, you must attach to your application form:

- a diagram which shows the roles of the individuals responsible for daily bidding and physical control of your *generating system*, including details of their expertise;
- a description of how 24/7 operational coverage⁵ will be maintained, to ensure appropriate personnel are available at all times to receive and immediately act upon instructions issued by AEMO. This should include, but is not limited to:
 - details on how you intend to receive and immediately act upon *dispatch instructions* and other operational instructions for physical plant operation on a 24/7 basis;⁶
 - details on who will and how you intend to submit bids, including rebids, and comply with the latest generation offer; and
 - details of the systems in place for 24-hour access to AEMO systems, in particular AEMO's MMS portal;
- details of the two independent voice communications systems established for the generating system, to give or receive operational communications. Applicants must provide for each nominated operational person and control centre two independent telephone communication system numbers (mobile phone numbers are not acceptable); and⁷
- details of the data communication systems established for the generating system to connect to AEMO systems.

To demonstrate your system readiness you will be asked to submit evidence you can use AEMO's pre-production systems once you have been configured to do so. You will be required to submit screenshots of:

- a. The first energy offer that you are likely to submit post commissioning, and acknowledgment of successful submission [for *scheduled* and *semi-scheduled generating units*].
 - b. An MT PASA availability profile and acknowledgment of successful submission [for *scheduled generating units*].
 - c. An intermittent generator availability profile (upper MW limit and turbine/inverters unavailable) and acknowledgment of successful submission, for both energy availability (HH) and MTPASA availability (daily) [for *semi-scheduled generating units* and other *intermittent generating units* required to submit an *energy conversion model*]
 - d. Receipt of dispatch target (MW) [for *scheduled generating units*].
 - e. Receipt of semi-dispatch cap (MW and flag) [for *semi-scheduled generating units*].
-  Please clearly mark all attachments as 'Attachment to Section A' and number each page consecutively.

⁵ Please note 24/7 bidding operations is not considered the same as 24/7 physical generation operations (who can physical adjust plant).

⁶ For example: details on how operational personnel are available to adjust voltage set-points on a power station – either locally or remotely – regardless of the day of the week, or the time of the day,

⁷ Registered Participants are required to maintain both telephone communication systems in good repair and investigate communication faults within 4 hours.

3.2 Section B – Contact Details

In Section B you must provide contact details for your head office, control room, trading room and relevant personnel. It is important that AEMO is able to communicate with the correct person within your organisation, especially during operational emergencies. Please note only Australian phone numbers are acceptable and all personnel must be based in Australia. A description of each of the contact categories is provided below.

After registration, *Registered Participants* must maintain up-to-date contact details of all nominated operational personnel with AEMO on a regular basis. To update your operational contacts after registration, please contact AEMO's Support Hub at Support.Hub@aemo.com.au or call 1300 236 600.

Compulsory Contacts for all Generators	
Control Room	Group contact details of control room, for physical plant operations. Control room must be contactable 24/7. Control room phone number should not be a mobile number or desk number of an individual. It is the Applicant's responsibility to ensure the control room phone is physically staffed at all times or transfers incoming calls to rostered individuals who can receive calls at all times.
Trading Room	Group contact details of trading room or trading desk, for bidding operations. Trading room must be contactable 24/7. Trading room phone numbers should not be a mobile number or desk number of an individual. It is the Applicant's responsibility to ensure the trading room phone is physically staffed at all times or transfers incoming calls to rostered individuals who can receive calls at all times.
Emergency Messaging System Contacts	Contact who receives Whispir emergency messages. In the event of failure of the normal Market Notice message system, AEMO will communicate with registered participants using the AEMO Emergency Messaging System (Whispir). You may provide up to 5 contacts of this type.
Head of Organisation	The Managing Director or Chief Executive Officer of the Applicant organisation.
Company Secretary	Secretary or assistant to the Head of Organisation.
Local Black System Procedures Contact	Point of contact for Local Black System Procedures
Dispute Management Contact	The first point of contact for the notification of disputes under NER Clause 8.2.
Registration Contact	AEMO Onboarding's primary point of contact with the Applicant in regard to their registration. Able to liaise extensively within their organisation and with the different teams in AEMO.
SCADA Contact	Responsible for the remote monitoring and control signals exchanged with AEMO in respect of the generating system. For semi-scheduled generators, this includes signals required under the Energy Conversion Model.
Generic Email Address	Distribution list email setup on the participant side (it is not an AEMO email address). The generic email address allows the participant to manage recipients of any changes or business impact communications. Examples of messages sent to the generic email address include the AEMO Help Desk Bulletin and Change Notices.

Compulsory Contacts for Market Generators	
Metering Responsible Person	Contact representing the Applicant who is responsible for the revenue metering installation.
Metering Coordinator Contact	Contact representing the <i>Metering Coordinator</i> who has been appointed for the revenue metering installation. Metering Coordinator is as defined in clause 7.3.1 of the <i>Rules</i>
Clearing – Primary Contact	Responsible for Austraclear Trades.
Clearing – Secondary Contact	Secondary to above.
Prudentials – Primary Contact	Responsible for trading limit breaches and bank guarantees.
Prudentials - Secondary Contact	Secondary to above.
Settlements Manager	Senior person within organisation with extensive knowledge of Settlement processes. Nominated 'Registration' contact in Settlements Direct. Receives formal correspondence such as Maximum Credit Limit (MCL) Letters, and is contacted if there are Settlements queries.
Senior to Settlements Manager	For example, Chief Financial Officer or General Manager.
IT Security – Primary Contact	Primary IT contact for participant security and systems access. Will receive the MarketNet credentials needed for access to AEMOs market systems (MMS and MSATS) from AEMO's Information and Support Hub. This will occur after AEMO implements the participant in pre-production. They become the initial MSATS participant administrator.
IT Security – Secondary Contact	Secondary to above. Must be available 24/7.
IT Technical Network Contact	To setup your MarketNet connection (if requested). Provision and maintenance of the network connection to MarketNet requires a suitably qualified network specialist who is ready for contact from AEMO's network specialists. This is particularly important for the security-sensitive and time-critical nature of installation and maintenance of network connections.

Compulsory Contacts for Semi-scheduled Generators or Non-scheduled Generators requiring an Energy Conversion Model

Intermittent Generator Availability Contact	Person responsible for updating the intermittent generation availability in the MMS portal for semi and non-scheduled generators
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Compulsory Contacts for Scheduled or Semi-scheduled Generators

Operations – Trading Manager	Senior person within organisation with extensive knowledge of spot market operations.
Operations – Bidding Contact	First point of contact for clarification of bids and offers in the spot market. Must be available 24/7.

Compulsory Contacts for Generators >5MW

Operations – Manager	Person responsible for day-to-day operations at the power station. First point of contact for physical operation of plant.
Operations – Shift Supervisor	Senior on shift who manages power station controllers.

Compulsory Contacts for Generators in an *Embedded Network*

Embedded Network Manager Contact	Contact representing the <i>Embedded Network Manager</i> .
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 Please clearly mark all attachments as ‘Attachment to Section B’ and number each page consecutively

3.3 Section C – Generating System

3.3.1 System Overview

You must specify the *nameplate rating* and *maximum capacity* of the *generating system* and each dispatchable unit. *Nameplate rating* is the maximum continuous output or consumption as defined or modified by the manufacturer. *Maximum capacity* is the maximum generation to which *scheduled* or *semi-scheduled generating units* or systems (or maximum load for *scheduled loads*) may be dispatched. For *Non-Scheduled Generators*, *maximum capacity* is the maximum *sent out generation* at the *connection point*.

3.3.2 Dispatchable Units

You must nominate one or more dispatchable units for your *generating system*. Each dispatchable unit will be sent its own *dispatch instructions*. Please note that you must also assign any *non-scheduled generating units* to a dispatchable unit. This is for AEMO system configuration only. *Non-Scheduled Generators* will not be sent *dispatch Instructions*.

Where the dispatchable units you nominate contain multiple *scheduled generating units*, you are indicating to AEMO that you wish to aggregate these units for the purposes of *central dispatch* in accordance with clause 3.8.3(a) of the *Rules*.

Where the dispatchable units you nominate contain multiple *semi-scheduled generating units* (e.g. multiple wind turbines or PV inverters), you are indicating to AEMO that you wish to classify all *generating units* in the dispatchable unit as one *generating unit* in accordance with clause 2.2.7(i) of the *Rules*. Please contact AEMO if you wish to aggregate *semi-scheduled generating units* under clause 3.8.3(a) of the *Rules* or if any of your *semi-scheduled generating units* (e.g. wind turbines or PV inverters), exceed a capacity of 6MW.

Please note that due to a system limitation, wind and solar *generating units* cannot be formally aggregated into a single dispatchable unit. Please contact AEMO to discuss this matter further if this was your intention.

3.3.3 Generating Unit Sets

You must nominate one or more generating unit sets for each dispatchable unit you have nominated. A generating unit set is an individually metered section of a *generating system* which contains one or more physical units (e.g. wind turbines or PV inverters). Each physical unit within a generating unit set must be of common:

- NMI
- Connection point
- Classification
- Technology

You must identify the number of physical units in each generating unit set. Please note that for solar and battery systems, this is defined by the number of inverters.

You must classify each generating unit set as either:

- Scheduled, semi-scheduled or non-scheduled
- Market or non-market

An explanation and examples of *generating unit* classifications are provided in AEMO's Guide to Generator Exemptions and Classification of Generating Units.

Information to support exemption from *central dispatch* (that is, classification as a *non-scheduled generating unit*) is to be submitted as an attachment to this section. You must provide information on each *generating unit*, together with the evidence of the eligibility of each *generating unit* to be classified in the selected category.

3.3.4 Start-Type

You must specify whether scheduled generating unit sets are of 'Fast' or 'Slow' start-type.

Fast start generating units can synchronise and increase generation within 30 minutes of receiving an instruction from AEMO. *Slow start generating units* cannot do this.

3.3.5 Ramp Rate Targets

The registered *ramp rate* (MW/minute) sets an upper limit on the *ramp rate* that will be accepted in a generator offer. Generator offers with *ramp rates* that exceed the registered *ramp rate* will be rejected.

The targeted change in a dispatchable unit's output sent via *dispatch instruction* will never exceed the maximum capacity of that unit divided by five. Hence the registered ramp rate should not exceed the higher of 20% of the unit's maximum capacity (expressed as MW/min), or the sum of the minimum ramp rate requirements for each individual *generating unit* if the unit is aggregated, even if the plant is physically capable of a higher ramp rate. The minimum ramp rate for an individual *generating unit* is the lower of 3 MW/min, or 3% of that unit's maximum capacity, expressed as MW/min, rounded down to the nearest whole number greater than zero.

Semi-scheduled generators may classify multiple *generating units* as a single *generating unit* under clause 2.2.7(i) of the *Rules* or aggregate their *generating units* under clause 3.8.3(a) of the *Rules*.

3.3.6 Identifiers

When you first submit your application form, you must suggest Station IDs, Dispatchable Unit IDs and Generating Unit Set IDs. AEMO will advise you of the suitability of these suggestions prior to registration approval and request you to update them on the application form if necessary. Please take care in nominating these IDs as changes once IDs have been allocated are not supported. The following guidelines also apply to both *generation* and *market load* IDs:

- All IDs are a maximum of 8 characters.
- IDs containing only alphanumeric characters are preferred. Underscores are not acceptable.
- Station IDs, DUIDs and Generating Unit Set IDs must intuitively represent the full power station name or load name.
- Station ID or DUID must not contain any reference to the owner of the power station or load.
- For the DUID the final character must be a unique number which identifies the unit or load number. Even if only a single (or aggregated) unit is planned the DUID should still end in 1. For any additional units the number should increase sequentially.
- For consistency new units at an existing station should follow the existing DUIDs.
- Where there is a single Generating Unit Set under a Dispatchable Unit, it is acceptable for the Generating Unit Set ID to be the same as the Dispatchable Unit ID.
- Where there are multiple Generating Unit Sets under a Dispatchable Unit, please order the Generating Unit Sets.
- Example IDs for 'Blue Sky Power Station':

- Suppose this power station has 2 dispatchable units. Each dispatchable unit contains a single generating unit set.
 - Station ID: 'BLUESKY'
 - DUIDs: 'BLUESKY1' and 'BLUESKY2'
 - Generating Unit Set IDs: 'BLUESKY1' and 'BLUESKY2'
- Suppose this power station has two dispatchable units. The first dispatchable unit contains one generating unit set and the second dispatchable unit contains two.
 - Station ID: 'BLUSKY'
 - DUIDs: 'BLUSKY1' and 'BLUSKY2'
 - Generating Unit Set IDs: 'BLUSKY1', 'BLUSKY2A' and 'BLUSKY2B'

3.3.7 Energy Conversion Model

It is recommended that you provide AEMO with the *energy conversion model* for *semi-scheduled generating units* at least three months before you plan to commence participating in the market as a *Semi-Scheduled Generator*. This is to allow AEMO time to prepare the model for use in AEMO's wind or solar forecasting system. Guidelines for *energy conversion models* are available on the AEMO website

3.3.8 Expected Closure Year

All *Scheduled Generators* and *Semi-Scheduled Generators* are required to provide the *expected closure year* which you expect the generating system (or units within the system) to cease supplying electricity to the grid.

The *expected closure year* should be provided via AEMO's Supply Forecasting Generator Survey application, which has been created to replace the IMAGE portal and associated data collected via email.

The Generator Survey application can be accessed via AEMO's Electricity Market Management System (EMMS) portal, and will be used to:

- gather crucial information needed for AEMO's planning and forecasting publications such as the ESOO and the ISP, and
- accept standing data, including the generator *expected closure year*.

For instructions and assistance on how to log in to the portal, please contact AEMO's Support Hub at Support.Hub@aemo.com.au or call 1300 236 600.

Further, if a *Scheduled Generator* or *Semi-Scheduled Generator* is planning to terminate any of its classifications of *generating units*, it must officially notify AEMO in writing, giving details of the *closure date*, which must be no earlier than three years from the date of the notice (subject to any exemption the AER may grant).

Generators are required to comply with these provisions from 1 September 2019.

These formal notices should be sent to onboarding@aemo.com.au and will be published on the NEM Registration and Exemption list.

Once registered, you will need to update AEMO if your closure plans change. Please refer to the requirements in clauses 2.2.1(e)(2A) and 2.10.1 of the *Rules* for details of these requirements.

- 📎 Please clearly mark all attachments as 'Attachment to Section C' and number each page consecutively.

3.4 Section D – Classification as a Market Generating Unit

Clause 2.2.4(d) of the *Rules* provides:

"A Market Generator must purchase all electricity supplied through the national grid to the Market Generator at that connection point from the spot market and make payments to AEMO for such electricity supplied at the connection point as determined for each trading interval in accordance with the provisions of Chapter 3."

Appendix 1 of this Guide explains when *Market Generators* can be taken to purchase electricity under this provision.

Market Generator applicants who may need to draw electricity from the *network* (i.e. purchase through the *spot market*) must include supporting documentation to demonstrate that:

- the electricity will be used for the purpose of generating electricity; and
- all power station *connection points* are part of the overall *connection* of the *generating system* to the *network*.

If the Applicant cannot demonstrate both requirements, then those purchases must be made through a *Market Customer*. You can either register as a *Market Customer* yourself or purchase the electricity from a third party who is a *Market Customer*. Please identify the *Market Customer* who will be *financially responsible for load* that does not meet both requirements.

- 📎 Please clearly mark all attachments as 'Attachment to Section D' and number each page consecutively.

3.5 Section E – Information required for AEMO's systems

Access to AEMO's systems requires specific details, as below. For further information, including connection options and background network information, please refer to the Guide to Electricity Information Systems, available from the AEMO website.

No attachments are required for Section E.

3.5.1 Austraclear

Please provide your Austraclear Membership Number.

If the Austraclear account holder is not the Applicant entity, the Applicant will need to provide with their application a formal letter on behalf of the account holder declaring that the Applicant has permission to use this Austraclear account.

3.5.2 Participant ID

You can suggest a Participant ID for your organisation. AEMO will advise you of the suitability of this suggestion prior to the establishment of the registration record in AEMO's systems. Please take care in nominating the ID as AEMO's systems do not support changes once IDs have been allocated.

3.5.3 MarketNet Connection

AEMO has a private communication network (MarketNet). As part of processing the application for registration, AEMO sets up its end of the data network connection. The applicant is responsible for its own end, and the intermediate communications to connect to the AEMO end. When AEMO's end is ready, AEMO's network specialist advises the applicant's IT Technical Network Contact.

For your MarketNet or bandwidth options and entitlements, please refer to Chapter 4 of the Guide to Electricity Information Systems or contact AEMO Support Hub on 1300 236 600 for more details.

If the MarketNet Connection owner is not the Applicant entity, the Applicant will need to provide with their application a formal letter on behalf of the owner declaring that the Applicant has permission to use this MarketNet Connection.

3.5.4 B2B eHub Connection

The B2B e-Hub is an electronic information exchange platform that is provided, operated and maintained by AEMO to facilitate the delivery of metering data, and other B2B transactions between participants. Participants who choose to use the B2B e-Hub must be accredited and comply with the B2B Procedures.

Information about the B2B e-Hub Participant Accreditation and Revocation Process can be found in the Retail and Metering Section of the AEMO Website.

3.5.5 Dispatch Instructions

AEMO's primary interface for dispatch instructions is either AEMO's *automatic generation control system* (AGC) (for energy and regulation services only) or the Electricity Market Management System (MMS) Data Interchange.

Market Participants may choose to receive 5-minute *dispatch instructions* via SCADA, but must be aware that AEMO considers this a secondary system and cannot monitor successful transmission of SCADA signals.

AEMO seeks to provide *Market Participants* with *dispatch* (energy and FCAS) targets and *semi-dispatch* caps in a reliable and robust way. The MMS Data Interchange system has been designed for this purpose .

Although AEMO's SCADA can be used to provide dispatch targets, AEMO cannot ensure that the target is sent to and received by a *Market Participant*. Any interruptions to the SCADA signal could be in AEMO's systems or NSP systems, and may not be visible to AEMO. As such, a participant could be using an old or incorrect target and might be declared non-conforming as a result.

The AGC, which uses the SCADA communication paths, does not have this issue as the AGC recalculates the setpoints and sends the signals every 4 seconds.

- 📎 Please clearly mark all attachments as '*Attachment to Section E*' and number each page consecutively.

3.6 Section F – Compliance with Technical Requirements

In Section G you must confirm that your facility is either exempted from the technical requirements of Chapter 5 of the *Rules* or will be able to meet or exceed its *performance standards*.

The conditions for *connection* of *Generators* do not apply to your facility if you are eligible for exemption from registration in respect of the facility and the facility is *connected* or intended for use in a manner the *Network Service Provider* considers is unlikely to cause a material degradation in the quality of *supply* to other *Network Users*. The application form lists the information required if you are claiming exemption from these requirements.

If you are registering in respect of a facility that has already been classified in the *NEM*, you may use existing information to support your application. The application form lists the information that must be provided.

If you are registering in respect of a new facility then you must complete and attach:

- Generating Unit Design Data (available from the AEMO website)

Complete the relevant sections within the document entitled 'Generating Unit Design Data' as applicable to your generating system.

- Generator Performance Standards (available from the AEMO website)

Complete the document entitled 'Generator Performance Standards'. You need to complete this jointly with the relevant *Network Service Provider*. If the *connection agreement* with your *Network Service Provider* provides a level of detail equivalent to the 'Generator Performance Standards' document, you can submit a copy of the *connection agreement* instead (with commercial terms removed).

- Plant models

You must comply with the data and modelling requirements of S5.2.4 of the *Rules*. You must also provide *plant* models in accordance with clauses S5.2.4(b)(5) and (6) of the *Rules* for equipment, such as *generating units* and equipment behind the *connection point*, so that AEMO can confirm *plant* performance for the purpose of registration and for ongoing *power system security* assessment.

Please be aware that AEMO is required by the *Rules* to provide *Registered Participants* with power system data incorporating *plant* models under certain circumstances (e.g. clause 3.13.3(k) to (l7) and clause 4.6.6).

- 📎 Please clearly mark all attachments as '*Attachment to Section F*' and number each page consecutively.

3.7 Section G – Local Black System Procedures

Clause 4.8.12 of the *Rules* requires *Generators* to develop *local black system procedures* for each of their *power stations* and submit them to AEMO for approval. Guidelines for preparing *local black system procedures* are available on the AEMO website.

This information is required to allow AEMO to understand the likely condition of *generating systems* following a *black system* event and any constraints or conditions of operation that would apply during the restoration process. AEMO needs to confirm there are no inconsistencies between your *local black system procedures* and AEMO's own *system restart plan*. Accordingly, you must provide AEMO with any relevant technical information that may affect the capabilities or performance of your *generating unit(s)* in a system restart scenario.

In Section G you must declare you have submitted those procedures.

- 📎 Please clearly mark all attachments as '*Attachment to Section G*' and number each page consecutively.

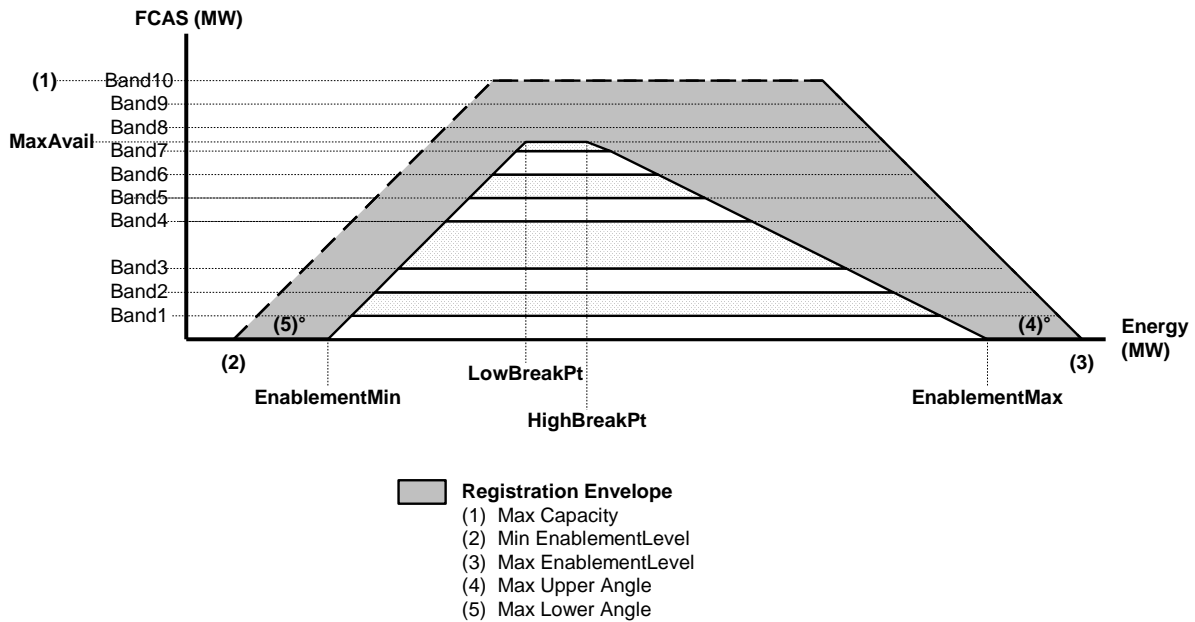
3.8 Section H – Ancillary Services Generating Units

If you are a *Market Generator* and you want to participate in one of the eight *ancillary services* markets you must indicate that you want to have your *market generating units* classified as *ancillary service generating units*.

In Section H, you must provide information for each *market generating unit* that you wish to classify as an *ancillary service generating unit*.

In Section H.2, you must identify which DUIDs contain the *market generating units* to be classified as *ancillary services generating units*.

In Section H.3, you need to indicate which of the eight Frequency Control Ancillary Services the *generating unit* can provide, and the applicable parameters for each service. AEMO will review this information to confirm whether the *generating unit* can provide the nominated *ancillary services* in accordance with the *market ancillary service specification*. The parameters that you specify, once registered in AEMO's MMS, will be used to validate your *market ancillary service offers*. The diagram below depicts how a *market ancillary service offer* can be made within the registered parameters.



Please note that for *non-scheduled generating units* providing *ancillary services* the following values are prescribed:

Field	Value
Minimum Enablement Level (MW)	0
Maximum Enablement Level (MW)	0
Maximum Lower Angle (Deg)	90
Maximum Upper Angle (Deg)	90

In Section H.4, you must describe how you determined that your *generating unit(s)* can provide the *ancillary services* you wish to offer.

In Section H.5, you must describe the *facilities* you have installed to receive *dispatch instructions* for the *enablement* of each *ancillary service*, as well as the control and monitoring facilities installed for each *ancillary service* in accordance with the *market ancillary service specification*.

Section H should be duplicated and completed as required for each *ancillary service generating unit*.

- 📌 Please clearly mark all attachments as 'Attachment to Section H' and number each page consecutively.

3.9 Section I – Metering

3.9.1 Rules Requirements

In Section I you must confirm that the proposed *metering installation* will be able to meet the requirements of Chapter 7 of the *Rules*.

Under clause 5.3.7(g) of the *Rules*, a *Network Service Provider* and the *Registered Participant* must jointly notify AEMO that a *connection agreement* has been entered and forward the relevant technical details of the proposed *plant* and *connection* which includes the *metering installation* information.

Clause 7.2.1(a) of the *Rules* requires *metering* to be installed and operational prior to participation in the *market* in respect of the relevant *connection point*.

Clause 7.2.1(b) of the *Rules* provides that AEMO may refuse to permit a *Registered Participant* to participate in the *market* if clause 7.2.1(a) has not been complied with.

3.9.2 Connection Point Checklist

The Connection Point Checklist is to be completed to satisfy the minimum requirements for the registration of Metering Connection Points as required under Chapters 5 and 7 of the *Rules*.

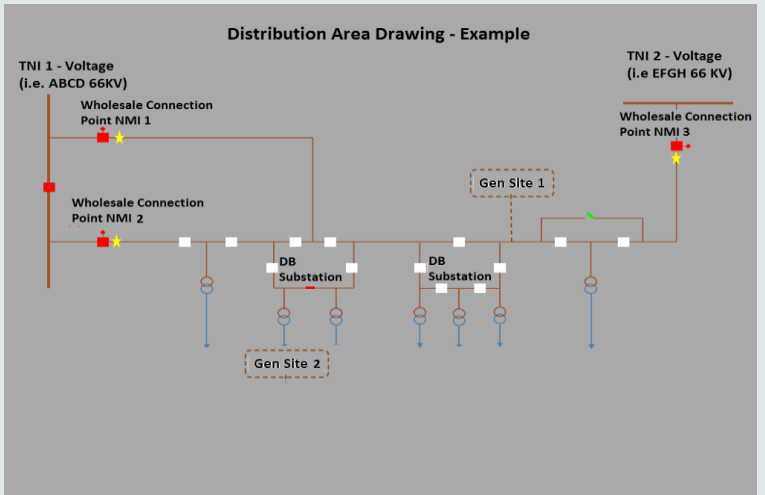
All fields must be supplied for AEMO to be able to conduct a full technical assessment (except where indicated below). Clarification of the information required for the Connection Point Checklist are provided below:

1. GENERAL AND TECHNICAL DETAIL	
1.1 Metering Coordinator Detail:	<p><i>Metering Coordinator (MC) for connection point</i></p> <p>For <i>connection points</i> that are connected to a <i>transmission network</i>, only the TNSP or the FRMP may be appointed as the MC. This party must be registered with AEMO as an MC.</p> <p>For <i>connection points</i> that are connected to a <i>distribution network</i>, only a registered contestable MC may be appointed.</p> <p>Review NER Chapter 7 Part C for all requirements relating to the appointment of an MC.</p>
1.2 Connection Point	
Connection Point NMI(s):	<p><i>National Metering Identifier (NMI)</i> as advised by the <i>Network Service Provider</i>.</p> <p>If the NMI is not already registered in MSATS, provide confirmation of the NMI from the <i>Network Service Provider</i> as an attachment to Section I.</p> <p>If <i>generating system</i> is within an <i>embedded network (EN)</i>, provide the <i>parent connection point NMI(s)</i>.</p>
If Generator is within an Embedded Network, child Connection Point NMI(s):	<p>If the <i>generating system</i> is within an EN, provide the <i>child connection point NMI(s)</i> as advised by the appointed <i>Embedded Network Manager (ENM)</i>.</p>

1. GENERAL AND TECHNICAL DETAIL

If Generator is within an Embedded Network, Embedded Network Code:	If the generating system is within an EN, provide the Embedded Network code determined by the <i>Local Network Service Provider</i> at the request of the embedded network owner (ENO) or the ENM acting on the ENO's behalf.
Transmission Node Id (TNI):	This code identifies the transmission loss factor assigned by the <i>Network Service Provider</i> .
If connected to the Distribution Network, Transmission NMI(s):	<p>If the <i>generating system</i> will be <i>connected</i> to a <i>distribution network</i>, provide the associated Transmission (Wholesale) NMI(s) of the distribution area in which it will be <i>connected</i>, for validation of metering connection arrangements.</p> <p>This information should be obtainable from the DNSP or TNSP associated with the installation.</p>
Logical NMI – Algorithm	<p>Refer to <i>Rules 7.8.12 - Special Site or Technology Related Conditions</i>.</p> <p>If there is an existing algorithm for the <i>connection point(s)</i>, provide a copy of the algorithm as an attachment to Section I.</p> <p>All new algorithms require AEMO approval, a detailed explanation why an algorithm is required is to be provided with the request for consideration.</p>
Physical Site Address:	Physical address at which the <i>generating system connection point</i> is situated including street, suburb/town and postcode.
Physical Location:	<p>A specific statement that clearly details the physical locality of the <i>connection point</i> is situated as per the Applicant's <i>connection agreement</i>.</p> <p>AEMO needs to understand where the <i>connection point</i> is in relation to the <i>metering installations</i>.</p> <p>(E.g. At 66KV Circuit Breaker 12345 on the low voltage side of Transformer 1 at Substation XYZ).</p>
Single Line (Schematic) diagram showing Connection Point and revenue Metering Installation:	<p>Single Line diagram (SLD) of the <i>connection point</i> highlighting:</p> <ul style="list-style-type: none"> • Revenue <i>metering installation</i> location details, • CT/VT location details, • relevant switching system/s that control import/export to the <i>national grid</i> • asset boundaries and asset owners • other assets and asset owners that could potentially be impacted by the installation. <p>Identify the drawing number and provide the drawing as an attachment to Section I. (Drawings need to be re-sized with clarity and accuracy).</p>

1. GENERAL AND TECHNICAL DETAIL

<p>The distance between the Connection Point and the revenue Metering Installation:</p>	<p>Rule 7.8.7 requires the metering point to be as close as practicable to the <i>connection point</i>.</p> <p>Provide the distance (in metres) between the <i>connection point</i> and the <i>metering installation</i>.</p>
<p>Detailed Wiring diagram of the Metering Installation:</p>	<p>Detailed Wiring diagram of the <i>metering installation</i> which must clearly identify:</p> <ul style="list-style-type: none"> • Revenue Metering • Check Metering (when installed and required) • Meter Class Accuracy • Meter Make and Type • CT Class • VT Class • CT Ratio • VT Ratio • CT (Burden Rating) • VT (Burden Rated) <p>Identify the drawing number and provide the drawing as an attachment to Section I. (Drawings need to be re-sized with clarity and accuracy).</p>
<p>Distribution or transmission area diagram showing the generation system's relativity to TNI:</p>	<p>Drawing showing the proposed <i>connection point</i> relative to the associated wholesale <i>connection point</i> and/or the TNI.</p> <p>Identify the drawing number and provide the drawing as an attachment to Section I. (Drawings need to be re-sized with clarity and accuracy).</p> <p>These drawings should be obtainable from the DNSP or TNSP associated with the installation.</p> <p>See example below:</p>  <p>The diagram, titled "Distribution Area Drawing - Example", illustrates a power distribution network. On the left, "TNI 1 - Voltage (i.e. ABCD 66KV)" is shown with a vertical line. Two "Wholesale Connection Point NMI 1" and "Wholesale Connection Point NMI 2" are marked on this line. A horizontal line extends from the right side of TNI 1, passing through two "DB Substation" units. Below the first DB Substation is "Gen Site 2". Above the second DB Substation is "Gen Site 1". To the right of the second DB Substation, the line continues to "TNI 2 - Voltage (i.e. EFGH 66 KV)", which has a "Wholesale Connection Point NMI 3" marked on it. Various symbols like circles and squares represent different components along the lines.</p>

1. GENERAL AND TECHNICAL DETAIL

1.3 Distribution Loss Factor

<p>If Generation >10MW, and connected to the Distribution Network, approval for site specific Distribution Loss Factor from the Australian Energy Regulator (AER).</p>	<p>If the <i>generating system</i> will be <i>connected</i> to a <i>distribution network</i>, and proposed generation is greater than 10MW, Rule 3.6.3 requires a site specific DLF to be created.</p> <p><i>Rules</i> 3.6.3(b)(2)(i)(A) and 3.6.3(i) require a site specific DLF to be derived from a methodology determined by the DNSP and approved by the AER.</p> <p>Where the <i>generating system</i> is connected to an EN, the ENO must determine the loss factor between the <i>child connection point</i> and the <i>parent connection point</i>. The DNSP is responsible for determining the loss factor between the <i>parent connection point</i> and the TNI. The site specific DLF for the <i>child connection point</i> is the product of these two loss factors.</p> <p>Provide, as an attachment, the document detailing the methodology and approval letter from the AER.</p>
DLF Code:	DLF Code provided by the DNSP.
DLF Value:	DLF value as determined in accordance with approved methodology.

1.4 Generation Capacity

Feeder Capacity:	Capacity of the feeder in MVA or Amps
Transformer Capacity:	Capacity of the transformer in MVA
Generator Capacity:	Capacity of the <i>generating system</i> . Provide MVA, MW and <i>power factor</i>
Annual Energy Generation:	Forecast energy generated in MWh per annum.

2. REVENUE METERING INSTALLATION DETAILS

2.1 Metering Installation Type (S7.2.3):	Clause S7.4.3 of the NER defines the Meter Type requirements. The <i>metering installation</i> must meet the accuracy requirements stated.
2.2 Meter Details	
Meter Serial No:	Serial Number which identifies the meter installed. (add additional rows if required).
Meter Make & Model:	Name of the manufacturer of the meter and the model of the meter installed.
Pattern Approval Cert No:	The National Measurement Institute of Australia issues a certificate of approval when an electricity meter is pattern approved. Provide the Pattern Approval Cert No.
Meter Class Accuracy:	Meter class accuracy must meet the minimum acceptable class or standard of components as outlined in S7.4.3 of the <i>Rules</i> .

2. REVENUE METERING INSTALLATION DETAILS

Is Meter Bi-Directional:	A <i>metering installation</i> must be capable of separately recording energy data for energy flows in each direction where bi-directional active energy flows occur or could occur.
Current Rating:	The operating range of the meter in Amps.
Meter Test Results:	<p>Copies of the most recent <i>meter</i> test results conducted in accordance with S7.6.2 of the <i>Rules</i>.</p> <p>These results must show compliance with the relevant Australian Standard or <i>International Standard</i> as identified in Metrology Procedure Part A and must come from either a:</p> <ul style="list-style-type: none"> • NATA laboratory or a body recognised by NATA under the International Laboratory Accreditation Corporation (ILAC); or • An accredited <i>metering provider</i> that has used NATA/ILAC traceable reference/calibration equipment as per S7.2.3(b)(6) of the <i>Rules</i>. <p>The test results must meet the minimum allowable uncertainties (\pm) as per Table S7.6.1.1 of the <i>Rules</i>.</p> <p>Provide the <i>Meter Test Results</i> as an attachment to Section I.</p>

2.3 Current Transformer (CT) Details

CT Serial No.	Serial Number which identifies the <i>current transformer</i> installed. (add additional rows if required).
CT Ratio's Available:	Provide the range of <i>current transformer</i> tap ratios available.
CT Connected Ratio:	Provide the connected ratio of the <i>current transformer</i> .
CT Burden (rated)	Provide the name plate burden rating of the <i>current transformer</i> in VA.
CT Class:	Provide the class of the CT's installed. <i>Current Transformer</i> class accuracy must meet the minimum acceptable class of components as outlined in S7.4.3 of the <i>Rules</i> .
CT Test Results	<p>Copies of the most recent <i>Current Transformer</i> test results conducted in accordance with S7.6.2 of the <i>Rules</i>.</p> <p>These results must show compliance with the relevant Australian Standard or <i>International Standard</i> as identified in Metrology Procedure Part A and must come from either a:</p> <ul style="list-style-type: none"> • NATA laboratory or a body recognised by NATA under the International Laboratory Accreditation Corporation (ILAC); or • An accredited <i>metering provider</i> that has used NATA/ILAC traceable reference/calibration equipment as per S7.2.3(b)(5) of the <i>Rules</i>.

2. REVENUE METERING INSTALLATION DETAILS

	<p>The test results must be within the maximum allowable uncertainty (\pm) as per Table S7.6.1.1 of the <i>Rules</i>.</p> <p>Provide the <i>Current Transformer</i> Test Results as an attachment to Section I.</p>
2.4 Voltage Transformer (VT) Details	
VT Arrangement:	Advise if the <i>voltage transformer</i> is a 3 x Single Phase <i>voltage transformer</i> or a Three Phase <i>voltage transformer</i> .
VT Serial No.	Serial Number/s which identifies the <i>voltage transformer</i> installed. (add additional rows if required).
VT Ratio:	Provide the ratio that the <i>voltage transformer</i> is connected at.
VT Burden (Rated):	Provide the name plate burden rating of the <i>voltage transformer</i> .
VT Class:	Provide the class of the VT's installed. <i>Voltage Transformer</i> class accuracy must meet the minimum acceptable class of components as outlined in S7.4.3 of the <i>Rules</i> .
VT Test Results	<p>Copies of the most recent VT test results conducted in accordance with S7.6.2 of the <i>Rules</i>.</p> <p>These results must show compliance with the relevant <i>Australian Standard</i> or <i>International Standard</i> as identified in Metrology Procedure Part A and must come from either a:</p> <ul style="list-style-type: none"> NATA laboratory or a body recognised by NATA under the International Laboratory Accreditation Corporation (ILAC); or An accredited <i>metering provider</i> that has used NATA/ILAC traceable reference/calibration equipment as per S7.2.3(b)(5) of the <i>Rules</i>. <p>The test results must be within the maximum allowable uncertainties (\pm) as per Table S7.6.1.1 of the <i>Rules</i>.</p> <p>Provide the VT Test Results as an attachment to Section I.</p>

3. CHECK METERING INSTALLATION DETAILS

The requirements for *check metering installations* is outlined in S7.4.4 of the *Rules*. Also refer to Chapter 10 Glossary definitions relating to *check meter*, *check metering data* and *check metering installation* to assist with determining check metering requirements.

Any proposal for partial check metering will need to be approved by AEMO.

4. Participant Relationships In MSATS

Role ID	Description
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4. Participant Relationships In MSATS

FRMP:	The <i>financially responsible Market Participant</i>
LNSP:	The <i>Local Network Service Provider</i> – either the <i>Transmission Network Service Provider</i> or the <i>Distribution Network Service Provider</i> if the <i>generating system</i> is connected to a <i>distribution network</i> .
LR:	<i>Local Retailer</i>
MDP / MPC:	<i>Accredited Metering Data Provider.</i>
MPB:	<i>Accredited Metering Provider</i>
MC:	<i>Metering Coordinator</i> (previously known as Responsible Person).
ENM (if applicable):	<i>Embedded Network Manager</i> if the <i>generating system</i> is connected to an <i>embedded network</i> .
ROLR:	Retailer of Last Resort.

3.9.3 Attachments

Provide (where required) the following attachments to Section I:

- Logical NMI – Algorithm
- Single Line (Schematic)
- Detailed Wiring diagram of the Metering Installation
- Distribution or transmission area drawing
- Distribution Loss Factor from the Australian Energy Regulator (AER).
- Meter Test Result
- Current Transformer Test Results
- Voltage Transformer Test Results

Clearly mark attachments with 'Attachment to Section I' and number each page consecutively.

A1. Appendix 1 – Generators Registering as Customers

A1.1 Policy

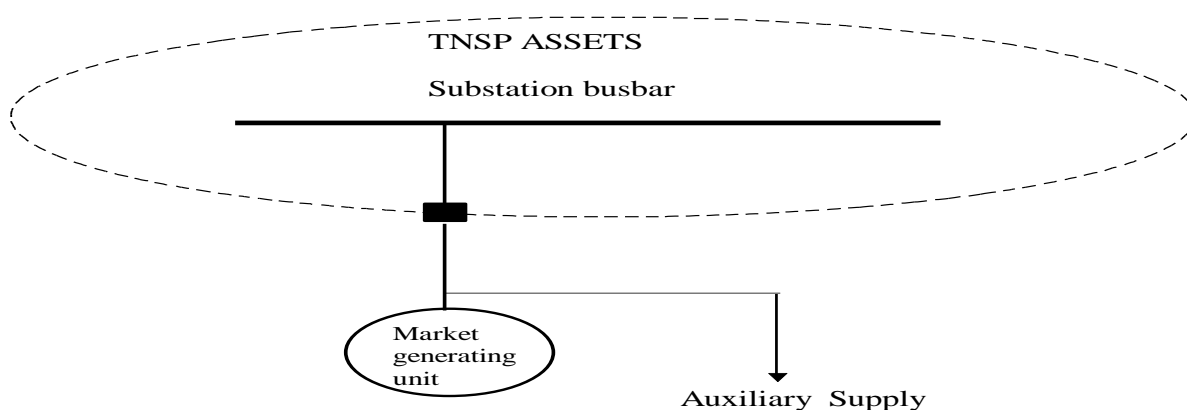
AEMO's policy is:

Based on clause 2.2.4(b) and (d) of the Rules, a *Market Generator* may only purchase electricity through the spot market if that electricity is supplied at the *connection point* for a market generating system and used for the purpose of operating that system. If the *generator* purchases electricity from the spot market in any other circumstances, it must also register as a *Market Customer*.

A1.2 Examples of the application of the Policy

There is a range of situations in which a *generator* may consume electricity. These are outlined in the following diagrams and cover the following situations:

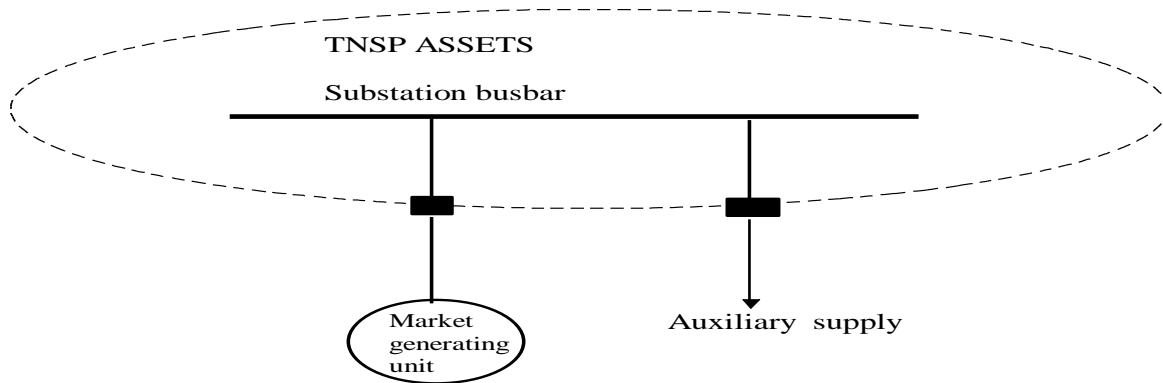
A1.2.1 Single point of connection to the network



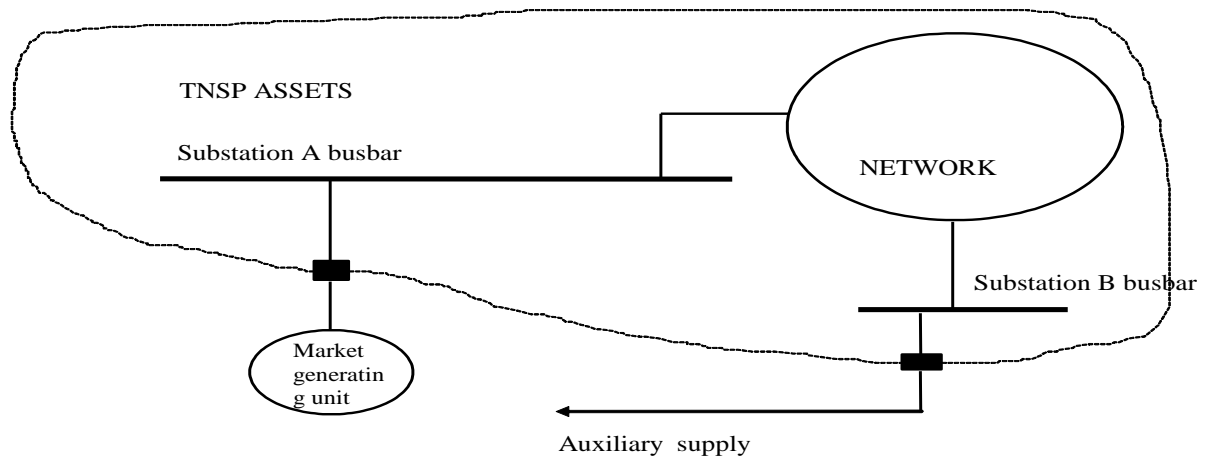
In this situation, the *Generator* is taking its auxiliary supply before the *transmission system*. Net consumption through this *connection point* would only be likely when the *generating system* is out of service, and only used to power the *generating system* at those times. In this case, the *Generator* is not required to register as a *Customer*. All purchases under this situation would be covered by clause 2.2.4(d) of the *Rules*.

A1.2.2 Multiple points of connection to the network

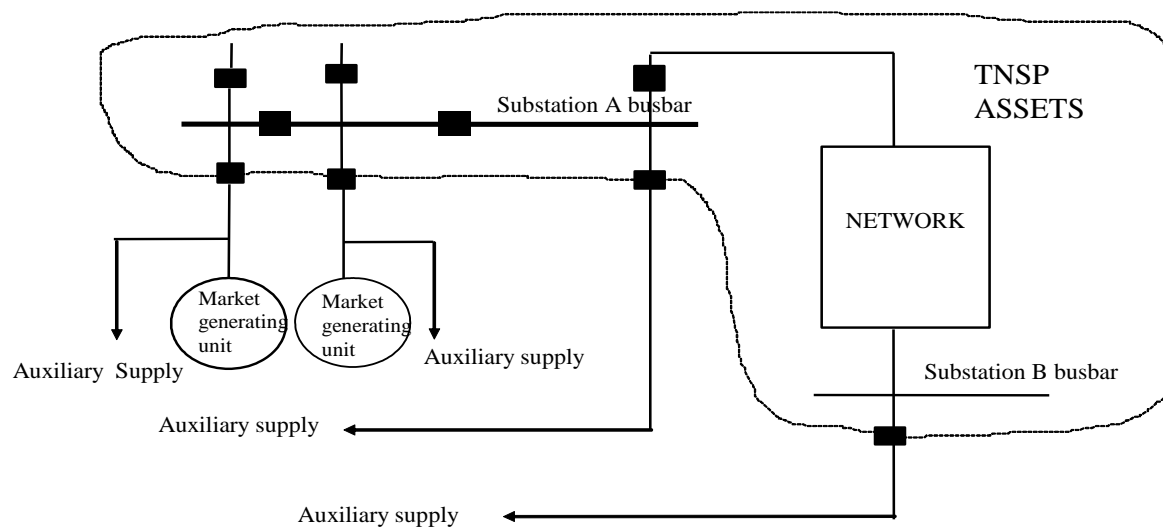
Local Connection



Remote Connection



Local and Remote Connection



In all cases above, auxiliary supply for the *market generating unit* is taken from physically separated *connection points*, either at the same substation, or another point in the *network*, or a combination of local and remote points.

As referred to in the *Rules*, a *connection point* can refer to multiple physical points. The *connection point* is defined in Chapter 10 of the *Rules* as:

“The agreed point of supply established between Network Service Provider(s) and another Registered Participant, Non-Registered Customer or franchise customer”.

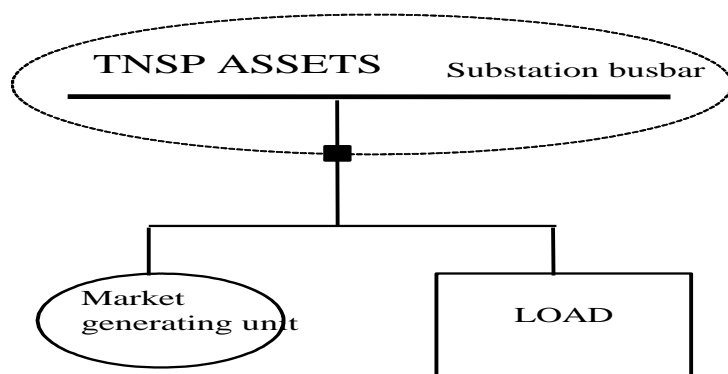
In all cases, AEMO will require the *Generator* to register as a *Customer* and classify the *connection points* that consume electricity as a *market load* unless:

- the *Generator* and the relevant *Network Service Provider* confirm that all relevant points of physical connection form the agreed *connection point* (point of *supply*) for the *market generating system*; and
- the electricity consumed through all those points is used for the activity of operating the relevant *generating system*.

The consumption of electricity in relation to operating a *generating system* would be expected to cover such facilities as on-site offices, mines owned by the *Generator*, water pumping, conveyor belts and power station auxiliaries.

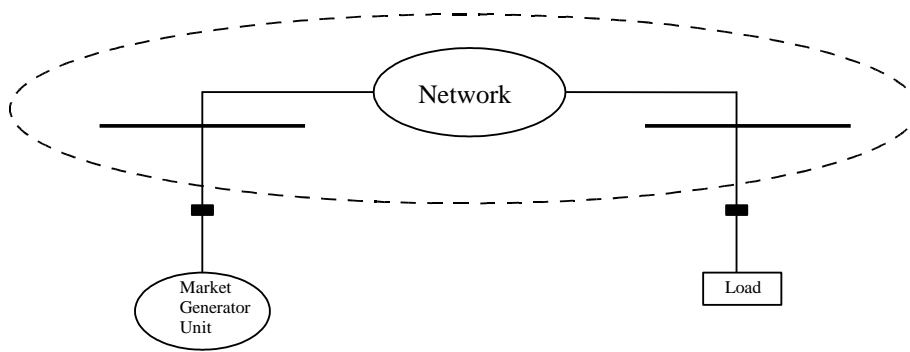
A1.2.3 Load not used for operation of the generating system

Customer Load - single connection point



Where a *market generating unit* is connected at a single connection point together with *load* that is not related to the operation of that unit, it is likely that the *Market Generator* will also be required to register as a *Market Customer*. There is a range of possible registration scenarios from this configuration. Please discuss with AEMO Registration.

Retail Supply



Where a *Generator* also has an associated retail activity, it will be required to register as a *Customer* and classify all *connection points* related to its retail activities as *market loads*.

A1.3 Impact of Classification

Classification of a *market load* or *market generating unit* directly impacts:

- prudential requirements;
- *participant fees*;
- jurisdictional charges;
- *Market and non-market ancillary service recovery*;
- *Transmission Use of System Charges (TUOS)*;
- jurisdiction contestability levels;
- intervention arrangements; and
- *administered price cap* compensation.

A *Customer* is taken to be a *Market Customer* only in so far as its activities relate to any *market load* and a *Generator* is taken to be a *Market Generator* only in so far as its activities relate to any *market generating unit*.

A1.3.1 Prudential Requirements

AEMO's prudential policies only examine the net position of a *Market Participant* and thus the classification of *market load* to a *Generator* whose predominant activity is *generation* may not require the *Generator* to provide a prudential guarantee.

If a *Generator* records a net import in a billing period, there may be a review of its prudential requirements.

Only those *Market Generators* with an expected net settlement liability to AEMO will attract a positive *Maximum Credit Limit*. This is completely independent of the classification of the Registered Participant's *generating units* or *loads*.

A1.3.2 Participant Fees

If you need to register as a *Market Customer* you will be charged relevant *Participant fees*.

A1.3.3 Jurisdictional Charges

Any jurisdictional charge for a *market load* (which is settled by AEMO) will not be applied to *market generating units*. Any jurisdictional charges that apply to *Market Customers* would be expected to be levied in relation to *market loads*.

A1.3.4 Market and Non-market Ancillary Service recovery

AEMO's Settlements Guide to Ancillary Services Payment and Recovery document explains how classifications impact ancillary service recovery calculations.

A1.3.5 TUOS

Charges for prescribed TUOS are recovered from *Customers* rather than *Generators*.

A1.3.6 Jurisdictional Contestability Levels

Clause 2.3.1(e) of the *Rules* requires that a person must satisfy the relevant *participating jurisdiction's* requirements for purchasing electricity in the *spot market* before it can classify a *load*. AEMO therefore requires any *Generator* that is also required to register as a *Customer* to provide evidence that any applicable jurisdictional requirements have been met.

A1.3.7 Intervention Arrangements

Under some circumstances *Market Participants* are entitled to compensation arising from altered *dispatch* outcomes when AEMO intervenes in the market (e.g. by issuing a *direction*). Compensation payable is recovered differently from different categories of *Market Participants* in accordance with the *Rules*.

A1.3.8 Administered Price Cap Compensation (clause 3.14 of the Rules)

Administered price cap compensation is funded by all *Market Customers* in proportion to the amount of their *metered market load*. These amounts are not recovered from *Market Generators*.

A2. Appendix 2 – Voluntary Provision of Wind and Solar Farm Confidential Data for Researchers

A2.1 Overview

Forecasting wind and solar energy is essential for maintaining power system security and an efficient market. AEMO has developed the Australian Solar Energy Forecasting System (ASEFS) and Australian Wind Energy Forecasting System (AWEFS) to produce these forecasts.

Wind and solar farm owners and developers⁸ can voluntarily provide confidential data related to their wind and solar farms (under conditions) to public researchers in Australia to facilitate the development of forecasting improvements. The process involves electronic approvals and supply of the data, and is supported by standard form agreements between wind or solar farm owners, public researchers accessing the data, and AEMO.

A2.2 Benefits

Research by Australian public researchers could assist in improving wind and solar forecasting accuracy and developing additional tools to assist in maintaining the accuracy of NEM dispatch and pricing.

The benefit of these agreements is that neither wind or solar farms who opt into the scheme, nor public researchers, have to sign multiple bilateral agreements.

The electronic approvals and supply of data reduce the amount of administration and documentation required to enable this access.

A2.3 Documents

A2.3.1 The Wind/Solar Farm Data Supply Deed:

- describes the relationship between wind or solar farms, public researchers and AEMO
- outlines the conditions under which a wind or solar farm agrees to supply the data to AEMO, and permits AEMO to release it for the purpose of research conducted by public researchers in Australia
- must be executed by each wind or solar farm owner and AEMO.

A2.3.2 The Wind/Solar Farm Confidentiality Deed Poll:

- is required if a public researcher seeks access to wind or solar farm data
- is for the benefit of all wind and solar farms

⁸ Note, an Intermediary who is not the owner of the wind farm would not be required to execute any deeds.

- must be signed before gaining access to data by the public researcher and AEMO.

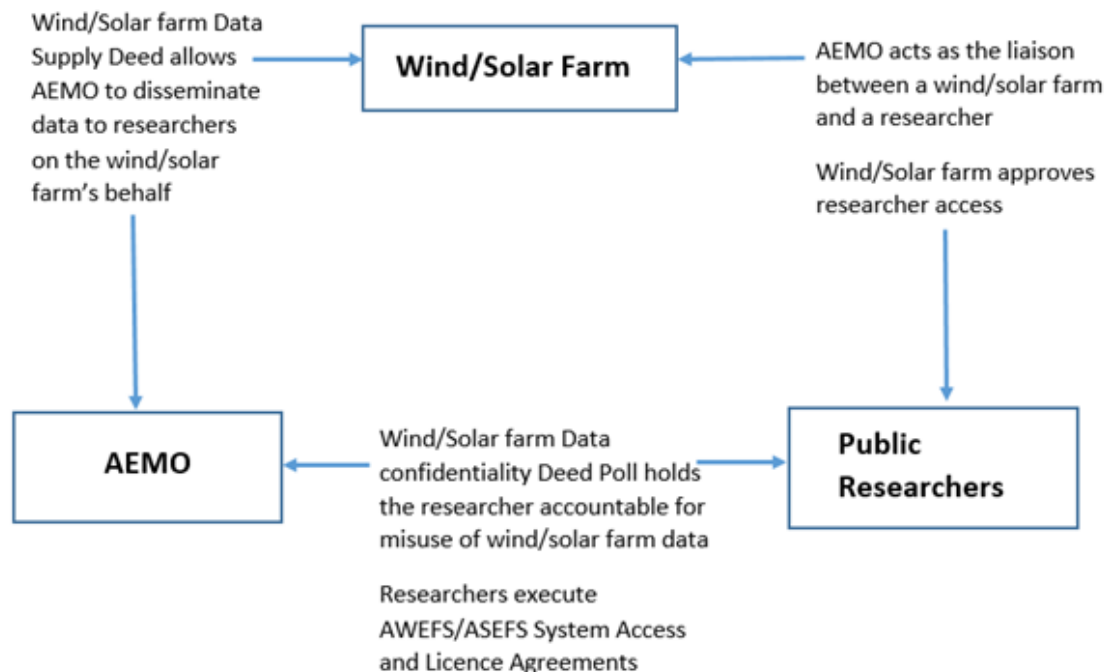
A2.3.3 Wind/Solar Farm Data list:

- provides a list of all wind and solar farm related data that could be released to public researchers on approval by the relevant wind farms.

A2.4 Process for access to data

Public researcher requests for access to wind or solar farm confidential data can only be approved by the relevant wind or solar farms. A public researcher is required to submit a proposal to a wind or solar farm owner outlining how the data being requested will be used (e.g. brief overview of the research being undertaken, expected outcomes of research). The wind or solar farm can then approve or reject the request.

If approved, the terms of the Wind/Solar Farm Data Confidentiality Deed Poll will apply, and the wind or solar farm will have authorised access to the agreed data through the AWEFS or ASEFS access control system.



A2.5 Summary

The data will be supplied only to public researchers in Australia who have signed the required agreements, and have had their submission for access approved by each affected wind or solar farm.

The relevant legal documents are published on the AEMO website in the New Participants section.

A3. Appendix 3 – Fuel Source and Technology Type

The fuel source and technology of all registered *generating units* must be submitted in Section F of the Application Form; this information will be published. A list of common fuel source and technology types is provided below:

FUEL SOURCE	
Primary Fuel Source	Descriptor
Renewable/ Biomass / Waste	Bagasse Biodiesel Biofuel - other Biogas - other (captured for combustion (not methane)) Biogas - Sludge (captured for combustion (methane only)) Biomass recycled municipal and industrial materials Dry wood Ethanol Green and air-dried wood Landfill methane / Landfill gas
Fossil	Black coal Blast furnace gas Brown coal Brown coal briquettes Charcoal Coal seam methane Coal tailings Coke oven coke Coke oven gas Crude oil and condensates Diesel Ethane Fuel Oil Gaseous fossil fuels - other Gasoline (aviation fuel used for stationary energy) - avgas Gasoline (non-aviation fuel) Heating oil Kerosene (aviation fuel used for stationary energy) – avtur

FUEL SOURCE	
	Kerosene (non-aviation fuel) Liquefied aromatic hydrocarbons Liquefied petroleum gas Naphtha Natural gas – compressed Natural gas – liquefied Natural gas – unprocessed Natural gas (pipeline) Natural gas / diesel Natural gas / fuel oil Natural gas liquids – other Petroleum based greases Petroleum based oils and lubricants Petroleum based products – other Petroleum coke Recycled fossil fuel derived industrial and municipal materials Refinery coke Refinery gas and liquids Solid fossil fuels – other Solvents if mineral turpentine or white spirits Sulphites Lyes Tar Town gas Waste coal mine gas
Hydro	Water
Geothermal	Geological heat
Solar	Solar
Wave	Water
Wind	Wind
Tidal	Water
Battery storage	Wind Solar Grid

TECHNOLOGY	
Primary Technology	Descriptor
Renewable	Hydro - Gravity Run of River Pump Storage Tidal Wave Wind - Offshore Wind - Onshore Photovoltaic Flat panel Photovoltaic Concentrator Photovoltaic Tracking Flat panel Photovoltaic Tracking Concentrator Solar Thermal Boosted Solar Thermal Solar Thermal with Storage Boosted Solar Thermal with storage Enhanced Geothermal Systems (Hot Dry Rock) / Binary cycle Enhanced Geothermal Systems (Hot Dry Rock) / Flash Enhanced Geothermal Systems (Hot Saturated Aquifer) / Binary cycle Enhanced Geothermal Systems (Hot Saturated Aquifer) / Flash
Combustion	Compression Reciprocating Engine Spark Ignition Reciprocating Engine Combined Cycle Gas Turbine (CCGT) Open Cycle Gas turbines (OCGT) IDGCC (Integrated Drying and Gasification Combined Cycle) IGCC (Integrated Gasification Combined Cycle) Integrated CTL (Coal to Liquid) Steam Sub Critical Steam Super Critical
Storage	Battery and Inverter Battery