

Guideline for Establishing an Embedded Network

April 2017



Scope

This publication provides a guide for setting up of an Embedded Network within the Ausgrid distribution area. Additional sources of information should be read in conjunction with this document, particularly those that cover the regulatory situation with setting up of an Embedded Network.

Document and Amendment History

Issue No.	Date	Endorsed	Approved	Summary of changes:
1	April 2017	M/Customer Service	M/Asset Investment	First instalment

To be reviewed Dec 2017 or as required.

Disclaimer

This document has been prepared by Ausgrid in good faith to provide an overview of the guidelines followed by Ausgrid in regard to embedded networks.

The information set out in this document may be subject to revision or replacement due to a range of factors including:

- The evolving electricity market and commercial experience within that market;
- Regulatory decisions by the Australian Energy Regulator;
- Changes to the National Electricity Rules; and
- Government and industry regulation.

Application of this document to particular users will be dependent upon the circumstances of that user and may vary between users.

This document should be read in conjunction with Ausgrid's Connection Policy document, AEMO's Embedded Network Guidelines, AEMC's National Energy Retail Rules Version 1

These documents are available from www.aemo.com.au, www.aemc.gov.au or www.ausgrid.com.au

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Feedback

Ausgrid invites our customers and stakeholders to provide feedback on this document by sending your comments and suggestions to:

embeddednetworks@ausgrid.com.au

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1 Overview of document

1.1 Purpose of document

This document presents important aspects associated with setting up and operating an embedded network connected to Ausgrid's area of supply.

1.2 Intended audience

This document can be used by anyone interested in setting up an embedded network connected to Ausgrid's area of supply.

1.3 Scope of document

This document is a guide and is not comprehensive. The guide refers to other additional and important information that needs to be appropriately considered.

1.4 Additional information

Additional information on embedded networks can be sourced from the following:

Available from AEMO: <https://www.aemo.com.au/>

- Embedded Network Guidelines
- National metering identifier procedure

NSW Installation and Service Rules – available from NSW Gov: <http://www.resourcesandenergy.nsw.gov.au/>

National Energy Retail Rules Version 1 – available from AEMC: <http://www.aemc.gov.au/>

1.5 Definitions

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Distribution Network	The distribution network consists of those network assets operating between the connection point to a transmission network and the connection points to Distribution Customers and Generators.
DUOS	Distribution Use of System
ENO	Embedded Network Operator (ENO) owns, operates and controls an embedded network.
FRMP	Financially Responsible Market Participant
LNSP	Local Network Service Provider
Metering point	The physical point of connection between the Consumers Mains and the electrical network. Each separate overhead or underground service is a separate connection point. Each separate busbar or direct cable supply from a single substation is a separate connection point, e.g. two busbar supplies equal two connection points.
MDP	Meter Data Provider
MP	Meter Provider
MPB	Metering Provider for the installation provision and maintenance of metering installations
MPC	Metering Provider for the data collection, processing and transfer of data
MSATS	Metering Settlement and Transfer Solution
NEM	National Electricity Market
NER	Refers to the National Electricity Rules (NER) which governs the operation of the National Electricity Market. The Rules have the force of law, and are made under the National Electricity Law.
NMI	The NMI (National Metering Identifier) is a unique ten character (plus a one digit checksum) identifier for a metering point.
NUOS	Network Use of System price, which is composed of DUOS and TUOS.
RP	Responsible Person.
TUOS	Transmission Use of System

2 Introduction to embedded networks

2.1 What is an embedded network?

An embedded network is a distribution network or customer installation which is:

- connected to Ausgrid's distribution system at a connection point
- owned, operated and maintained by an embedded network operator.

The embedded network operator can then:

- offer connection services to its own customers connected to the embedded network, and
- on-sell electrical energy to customers within the embedded network.

2.1.1 An embedded network is not a multiple installation

It's important to distinguish between an embedded network and a multiple installation (traditional installation).

In a multiple installation, there are a number of metering points for the common facilities (typically referred to as the 'houselights'), as well as separate individual metering points for each of the units. An example would be a block of strata title residential apartments.

In a multiple installation:

- each metering point is allocated a normal National Metering Identifier (NMI) as per AEMO's NMI Procedure.
- there is no facility for on-selling energy
- each of the units is considered a customer connection subject to Ausgrid's connection contract.

2.2 Who can be an embedded network operator?

Anyone who owns, operates or controls a private network that allows others to be supplied by this network can be an embedded network operator. This often is the owner of the building, developer and in some cases the Retailer of the gate/parent meter.

Note: The on-selling of electricity must be done in line with the requirements set out in the National Energy Retail Rules, and in some cases an exemption from the AER (Australian Energy Regulator) is required.

2.3 Types of embedded network

A new embedded network can be either:

- An existing or brownfield development, or
- A new or greenfield development.

Both types of development can successfully become embedded networks, but each has its own challenges.

2.3.1 Existing or brownfield development

A brownfield development is an existing site that has been operating under normal electricity supply arrangements, and is going to be converted to an embedded network. These sites may have existing Ausgrid or other metering provider owned metering in place before being converted.

2.3.2 New or greenfield development

A greenfield development is a new site under construction where the design and set up of an embedded network has been considered and adopted. The site will be ready to operate as an embedded network connected to Ausgrid's distribution system from energisation.

2.4 Typical examples

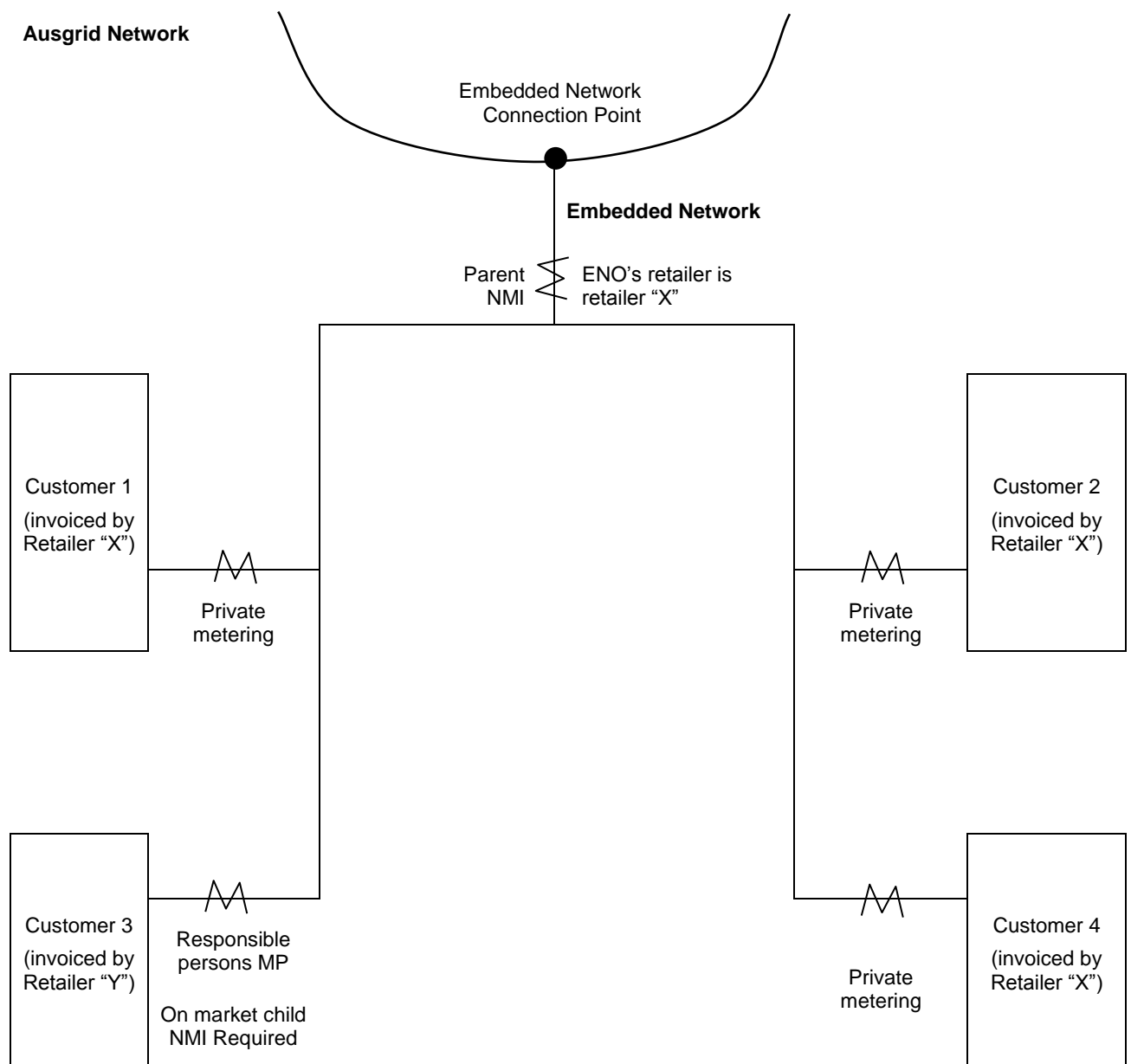
Embedded networks are typically found in places like:

- Retirement villages
- Shopping centres
- Apartment buildings
- Industrial and commercial estates.

Actual embedded networks that have been set up within Ausgrid's distribution area include:

- Sydney Airport
- Westfield Shopping Centres

This diagram shows an embedded network with 3 customers who are supplied by the embedded network operator's retailer and 1 customer who has opted to use a different retailer.



Customer 3 is an on-market child NMI that is registered in the NEM where it is installed within the EN, but has its own FRMP, RP, MPB, MPC, MDP. Customer 3's retailer is retailer "Y".

3 Issues for consideration

3.1 Introduction

If you are considering becoming an Embedded Network Operator in NSW, you should consider the following types of issues, including but not limited to Life Support customers – provisions need to be in place for instances such as planned/unplanned outages. Other points for consideration:

- Electrical wiring/ configuration
- Regulatory obligations
- Customers – the willingness to become or remain part of an embedded network.
- Pricing
- Network Tariff Code
- Metering
- Existing NMIs
- Billing
- Assets
- Administration

3.2 Administration issues

As the embedded network operator, you will be responsible for liaising with regulatory authorities, stakeholders, retailers, customers, MPs and other parties.

3.3 Contract retailers

Retailers may not want to move to an embedded network situation, so the ENO should liaise with retailers that have customers within a brownfield embedded network.

This is something the ENO must consider before setting up the embedded network

4 NMI and metering issues

4.1 Introduction

It is an important principle that any customers within the embedded network are able to choose to buy electricity from the embedded network or any other retailer.

Other factors should be considered if a customer chooses to buy electricity from an alternative retailer, particularly around metering and market settlements. The Embedded Network Operator / Manager will have a number of responsibilities, regardless of whom the customer wishes to purchase their electricity from.

This section explains these issues and your responsibilities.

4.2 Parent and child NMIs

Within its network, Ausgrid assigns each connection point with a unique identifier called a National Metering Identifier (NMI). The NMI is used to measure the total energy entering (or leaving) the connection point and this information is used for network billing and market settlement purposes.

4.2.1 Parent NMI

In an embedded network, the metering point which connects the embedded network to Ausgrid's network is referred to as the parent NMI, and it measures the total energy entering or leaving the embedded network.

It is Ausgrid's responsibility to:

- Allocate and register the Parent NMI and NMI standing data in MSATS and the attachment of the embedded network identifier.
- Bill the embedded network operator's retailer with the Ausgrid NUOS charges for the parent NMI.

4.2.2 Customer NMI requirements within the embedded network

When a customer within an embedded network buys electricity from the embedded network operator's retailer, they do not require their own NMI. Their metering installation is described as a Private Metering Point as they are buying their electricity directly from the embedded network operator and have an appropriate agreement in place.

However, when a customer buys electricity from a retailer **other** than the embedded network operator's retailer, their metering installation is described as On - Market, and must comply with the National Electricity Rules and associated procedures. Such a metering installation requires a NMI, referred to as a Child NMI, to measure electricity entering the metering installation so that the Child retailer can bill correctly; the parent retailer is not charged for the 'child's' energy usage. The 'child's' energy usage is subtracted from the parent NMI in the NEM for retail billing. Child NMIs have no effect on network billing. This is referred to as an on market Child NMI.

In summary:

When a customer buys their electricity from ...	Then the metering installation is a ...	And ...
the ENO's retailer	Private Metering Point	no NMI is required
a retailer other than the ENO's retailer	On - Market Child NMI	a child NMI is required

4.2.3 Child NMI responsibilities

As of the 01/12/17 child NMI's are to be issued by AEMO.

It is not Ausgrid's responsibility to register, activate or maintain the Child NMI or NMI Standing Data in MSATS. These responsibilities rest with the embedded network manager who will also be responsible for billing the customer with their ENM Network Use of Service charges (if applicable).

5 Connection process

5.1 Before you begin

Before you begin the process of connecting an embedded network, Ausgrid recommends that you seek further advice on the regulatory requirements that apply to an embedded network from AER or AEMO, as appropriate.

5.2 Starting the process

Once you have decided to go ahead, you will need to submit a Connection Application Form – NECF-01 for each Parent/Gate NMI required.

A NEMS consultant will be assigned the Application and will request the following:

- Scope of works i.e., address, brownfield, greenfield, size of supply, number of connections, etc.
- Submission of the NECF-03 Form.
- Single line diagrams
- CT metering request form
- Spreadsheet of meters to be removed
- Retailer agreement against parent/gate NMI
- Provide a spreadsheet for conversion of all child NMIs located downstream of proposed parent/gate NMI. Advise on NMIs where metering will not be removed.

Ausgrid will assess and respond to your application. You must not begin work on the embedded network, until Ausgrid has granted approval to the connection of the embedded network.

Regulated charges will be levied against the connection applicant for Connection Applications received for the creation of an embedded network.

5.3 Frequently Asked Questions:

How do we get the redundant existing NMI's made extinct in the NEM?

Submission of the request for Permanent disconnection form to receive a job number. Once the job number is obtained and service and/or metering works completed, the NOMW/NOSW is submitted for the meter removal the NMI's will be made extinct.

Who allocates the child NMI's?

Currently, the FRMP of the parent meter will be responsible for allocating the market registered child NMI's against the parent meter.

Who issues the child NMI's?

Ausgrid will continue to issue Child NMI's until 01/12/17 when the responsibility will then fall on the ENM via AEMO.

Who creates the embedded network NMI identifier code?

Ausgrid will continue to create and attach the identifier code to the NMI standing data.

Who is responsible for life support customers?

If any customer within the Embedded Network is registered as a life support customer then the FRMP of the parent NMI will need to ensure that this parent NMI is registered as life support.

5.4 Contact point

If you want to contact Ausgrid regarding the possibility of setting up an embedded network, please contact NEMS Consultants by email: embeddednetworks@ausgrid.com.au or on 02 9277 3528