

# ES 7

## Application of Network Use of System Charges

July 2013



## SCOPE

This publication details the conditions applicable to the various Network Use of System (NUoS) tariffs that are available to Ausgrid's Customers.

Note: Network charges are applied to Retailers who in turn recover both network and retail charges from end use business and residential customers

### Document and Amendment History

Issue No.	Date	Approved By	Summary of Changes
1	Dec 1996	M - NAP	
2	Oct 1997	M – NP&M	Title Change and Part B added
3	Feb 2002	M – NP&M	Rewrite to provide NUoS terms and conditions appropriate to the commencement of FRC, 1 January 2002
4	Sept 2002	M- NRA	Update for NUoS prices commencing from 1 August 2002 plus minor updates.
5	July 2002	M – NP&CC	Update for NUoS prices commencing from 1 July 2003 plus minor updates.
6	July 2004	M – NP&CC	Revised to reflect IPART June 2004 Determination and prices commencing from 1 July 2004. Name changed from ES7 to NCP7.
7	July 2007	Executive Manager – Network Regulation and Pricing	Revised to reflect recent tariff reform and NUoS prices commencing from 1 July 2007. Name changed from NCP7 to ES7.
8	July 2010	Executive Manager – Regulation and Pricing	<ol style="list-style-type: none"> <li>1. Revised appropriate sections to reflect: <ol style="list-style-type: none"> <li>a) the removal of the demand component</li> <li>b) structural changes to the capacity charge</li> <li>c) changes to Daylight Savings Time</li> <li>d) policy changes on network price reviews and the Big Blue Continuous Price</li> </ol> </li> <li>2. Removed the eligibility criteria for the Domestic price.</li> <li>3. Updated for 2010 price change, including tariff names and tariff allocation policy</li> </ol>
9	July 2012	Executive Manager – Regulation and Pricing	Revised to reflect recent tariff reform and new NUoS prices to apply from 1 July 2012.
10	July 2013	Manager – Regulation	Revised to reflect changes to tariff arrangements.

## **DISCLAIMER**

This document has been prepared by Ausgrid in good faith to provide an explanation of the application of our NUoS tariffs. Users of this publication should note the following:

- The pricing rules and conditions described in this document may be subject to revision or replacement due to a range of factors such as:
  - The evolving electricity market and commercial experience within that market
  - Network pricing determinations by regulators
  - 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.

Accordingly, to the extent permitted by law, Ausgrid excludes liability for all losses, damages, claims and expenses suffered or incurred by any person arising out of or in connection with any use of this document.

## **WARNING**

It is the responsibility of the user of this document to ensure that only the current version is being used. Ausgrid may amend this document at any time.

ISSN 1032-7215

Published and printed by Ausgrid.

Copyright ©, Ausgrid.

This publication may only be reproduced with the permission of Ausgrid.

All correspondence should be directed to:

Manager - Regulation  
Ausgrid  
GPO Box 4009  
SYDNEY NSW 2001

For Information on our NUoS tariffs and policies is available from [www.ausgrid.com.au](http://www.ausgrid.com.au). For more information please contact the Ausgrid Customer Call Centre on 13 15 35.

# Contents

1	GENERAL CONDITIONS APPLICABLE TO NETWORK USE OF SYSTEM TARIFFS.....	4
1.1	Introduction.....	4
1.2	Default Network Use of System Tariffs and Tariff assignments.....	4
1.2.1	Network Tariff Classes.....	5
1.2.2	Annual Review of Tariff Class Assignment.....	5
1.2.3	Default Network Use of System Tariffs.....	6
1.2.4	Assignment of Existing Customers to a Default Network.....	6
1.2.5	Assignment of New Customers to a Default Network Tariff.....	7
1.2.6	Change in Network Tariff.....	7
1.3	Primary and Secondary Network Tariffs.....	8
1.4	Network Tariff Components.....	9
1.5	Time Periods.....	10
1.6	Network Price List.....	10
1.7	Annual Tariff Review.....	10
1.8	Changing the Network Tariff.....	11
1.9	Metering.....	11
1.10	Meter Reading.....	12
1.11	Metering to be at the Supply Voltage Side of a Transformer.....	12
1.12	Connection Point Identification.....	12
1.13	Amalgamation of NUOS to a Single Network Account.....	13
1.14	Separation of Load.....	14
1.15	Cost Reflective Network Price – Above 10MW.....	14
1.16	Supply Voltage.....	14
1.17	Payment of Accounts.....	14
1.17.1	Commencement Date.....	14
1.17.2	Termination Date.....	14
1.17.3	Charges on Termination of Supply.....	14
1.17.4	Rebates or Concessions.....	15
1.17.5	Changing the Customer at a site.....	15
1.18	Customer Threshold Classification.....	15
2	EA025 RESIDENTIAL TOU NETWORK TARIFF.....	16
2.1	General Conditions.....	16
2.2	Default Network Tariff.....	16
2.2.1	New Installations.....	16
2.2.2	Upgraded Installations.....	16
2.2.3	Meter replaced due to maintenance or operational reasons.....	16
2.2.4	Existing Installations.....	16
2.3	Tariff Components.....	16
2.3.1	Network Access Charge.....	16
2.3.2	Time Periods.....	17
3	EA225 SMALL BUSINESS TOU NETWORK TARIFF.....	18
3.1	General Conditions.....	18
3.2	Default Network Tariff.....	18
3.2.1	New Installations.....	18
3.2.2	Upgraded Installations.....	18
3.2.3	Meter replaced due to maintenance or operational reasons.....	18
3.2.4	Existing Installations.....	18
3.3	Tariff Components.....	18
3.3.1	Network Access Charge.....	18
3.3.2	Time Periods.....	19
4	EA302 LOW VOLTAGE 40 – 160 MWH TARIFF.....	20
4.1	General Conditions.....	20
4.2	Default Network Tariff.....	20
4.2.1	New Installations.....	20
4.2.2	Upgraded Installations.....	20
4.2.3	Meter replaced due to maintenance or operational reasons.....	20
4.2.4	Existing Installations.....	20
4.3	Tariff Components.....	20
4.3.1	Network Access Charge.....	21
4.3.2	Time Periods.....	21
4.3.3	Peak Capacity Charge (kW).....	21
4.4	Capacity Charges.....	21
4.5	Adjustment of Capacity Charges.....	21

5	EA305 LOW VOLTAGE 160-750 MWH NETWORK TARIFF .....	22
5.1	General Conditions .....	22
5.2	Default Network Tariff .....	22
5.2.1	New Installations .....	22
5.3	Tariff Components .....	22
5.3.1	Network Access Charge .....	22
5.3.2	Time Periods .....	22
5.4	Capacity Charges .....	23
5.5	Adjustment of Capacity Charges .....	23
5.6	Metering Equipment .....	23
5.7	Network Tariff Advice .....	23
6	EA310 LOW VOLTAGE >750 MWH NETWORK TARIFF .....	24
6.1	General Conditions .....	24
6.2	Default Network Tariff .....	24
6.2.1	New Installations .....	24
6.3	Tariff Components .....	24
6.3.1	Network Access Charge .....	24
6.3.2	Time Periods .....	24
6.4	Capacity Charges .....	24
6.5	Adjustment of Capacity Charges .....	25
6.6	Metering Equipment .....	25
6.7	Network Tariff Advice .....	25
7	EA370 HIGH VOLTAGE CONNECTION NETWORK TARIFF .....	26
7.1	General Conditions .....	26
7.2	Default Network Tariff .....	26
7.2.1	New Installations .....	26
7.3	Tariff Components .....	26
7.3.1	Network Access Charge .....	26
7.3.2	Time Periods .....	26
7.4	Capacity Charges .....	27
7.5	Adjustment of Capacity Charges .....	27
7.6	Metering Equipment .....	27
7.7	Network Tariff Advice .....	27
8	EA380 HIGH VOLTAGE CONNECTION NETWORK TARIFF .....	28
8.1	General Conditions .....	28
8.2	Default Network Tariff .....	28
8.2.1	New Installations .....	28
8.3	Tariff Components .....	28
8.3.1	Network Access Charge .....	28
8.3.2	Time Periods .....	28
8.4	Capacity Charges .....	29
8.5	Adjustment of Capacity Charges .....	29
8.6	Metering Equipment .....	29
8.7	Network Tariff Advice .....	29
9	EA390 SUB-TRANSMISSION CONNECTION NETWORK TARIFF .....	30
9.1	General Conditions .....	30
9.2	Default Network Tariff .....	30
9.2.1	New Installations .....	30
9.3	Tariff Components .....	30
9.3.1	Network Access Charge .....	30
9.3.2	Time Periods .....	30
9.4	Capacity Charges .....	31
9.5	Adjustment of Capacity Charges .....	31
9.6	Metering Equipment .....	31
9.7	Network Tariff Advice .....	31
10	CONTROLLED LOAD NETWORK TARIFFS .....	32
10.1	EA030 Controlled Load 1 Tariff for Storage Water Heaters .....	32
10.2	EA040 Controlled Load 2 Tariff for Storage Water Heaters .....	32
10.3	Other Equipment .....	33
10.3.1	Requirements for other Heating Equipment .....	33
10.3.2	Battery Charging Equipment .....	33
10.3.3	Swimming Pool Heating .....	33
10.3.4	Thermal Storage Space Heaters .....	33
10.4	Other Equipment .....	33
10.5	Big Blue Continuous Price (Obsolete - Closed) .....	34
10.6	Combinations of Storage Water Heaters .....	34

10.7	Other Heating Sources .....	34
10.8	Swimming Pools, Spas and Turbo Tubs.....	34
10.8.1	Prohibition of Changeover Switching.....	35
10.8.2	Protection of Pool or Spa Heaters.....	35
10.9	Special Conditions for Retirement Villages and Similar Accommodation .....	35
10.10	Newcastle and Hunter Regions .....	35
10.11	Existing Installations .....	35
10.11.1	Existing Water Heaters .....	35
10.12	Contactor Installation .....	36
11	EA010 RESIDENTIAL INCLINING BLOCK NETWORK TARIFF .....	37
11.1	General Conditions .....	37
11.2	Tariff Components .....	37
11.3	Calculation of 1st, 2nd and 3rd Block Network Charges .....	37
12	EA050 SMALL BUSINESS INCLINING BLOCK NETWORK TARIFF (CLOSED) ...	38
12.1	General Conditions .....	38
12.2	Tariff Components .....	38
12.3	Calculation of 1st and 2nd Block Network Charges .....	38
13	COST REFLECTIVE NETWORK PRICES (CRNP) TARIFF .....	39
13.1	CRNP Assessment Criteria .....	39
13.2	Annual Review.....	39
13.3	Multiple Connection Points .....	39
13.4	Amalgamation of Connection Points.....	39
13.5	Capacity Charges .....	39
13.6	Transferring Off CRNP .....	39
13.7	New Connection Services.....	40
13.8	Time Periods.....	40
14	EA325 AND EA360 STANDBY TARIFFS (CLOSED).....	41
14.1	Availability.....	41
14.2	Use of Supply .....	41
14.3	Existing Standby Supplies .....	41
15	UNMETERED TARIFFS.....	42
16	TEMPORARY SUPPLY NETWORK TARIFFS.....	43
16.1	Application of Tariff .....	43
16.2	Customer Pays for the Cost of Supply.....	43
16.3	Temporary Supply will be separately metered .....	43
16.4	Temporary Experiments in Lighting and Industrial Processes .....	43
16.5	Temporary Connection of Permanent Installations .....	43
17	GLOSSARY .....	44
18	REFERENCES.....	47
APPENDIX A:	NETWORK TARIFF AND THRESHOLD CHANGE APPLICATION FORM .....	49
APPENDIX B:	REQUEST FOR NETWORK ACCOUNT AMALGAMATION AT CUSTOMER SITE .....	50
APPENDIX C:	DLF CODE LEGEND FOR MSATS .....	51
APPENDIX D:	CALCULATION OF NETWORK TARIFF COMPONENTS .....	52
APPENDIX E:	CALCULATION OF POWER.....	55
APPENDIX F:	CAPACITY CHARGE EXAMPLE .....	57
APPENDIX G:	DAYLIGHT SAVINGS TIME.....	59

# 1 General conditions applicable to Network use of System Tariffs

---

## 1.1 Introduction

New South Wales is part of the National Electricity Market (NEM). One of the features of the NEM is that the electricity tariff offered by electricity Retailers is comprised of two underlying components:

- a retail component to mainly cover the cost of electrical energy consumed and other retail-related services
- a network component to cover the cost of distribution and transmission network services

The network component of the bundled retail tariff is known as the Network Use of System (NUoS) tariff.

The prices that Ausgrid may charge for its transmission and distribution network services are regulated by the Australian Energy Regulator (AER). The AER makes a five yearly determination, which sets a limit on the annual increases in distribution and transmission prices (X Factors) that can be applied by Ausgrid. On 30 April 2009, the AER made a determination on the X Factors to apply to Ausgrid's distribution and transmission services for the 2009-2014 regulatory period.

In addition, Ausgrid must prepare an annual pricing proposal which sets out how Ausgrid proposes to set network tariffs and the price for those tariffs for that year, which must also be submitted to the AER for approval.

Since the introduction of Full Retail Contestability (FRC), all electricity customers have had the right to choose the Retailer from which they purchase their electricity. Network services however have been and will continue to be supplied by Ausgrid as the local Distribution Network System Provider (DNSP) for supply to Sydney's inner metropolitan area, the Central Coast and Hunter regions.

Ausgrid bills Retailers for the network services that the Retailers' customers utilise. The Retailers in turn bill their customers for both energy and network services.

More information on the methodology used to determine NUoS charges is provided in Ausgrid's Annual Network Pricing Proposal, and Appendix D of this document "Calculation of Network Price Components".

Each financial year commencing on 1 July, Ausgrid publishes a *Network Price List*, which sets out the applicable prices for each published NUoS tariff and supersedes the prices published for the previous financial year. This publication can be obtained from our website [www.ausgrid.com.au](http://www.ausgrid.com.au)

## 1.2 Default Network Use of System Tariffs and Tariff assignments

A default network tariff is the tariff Ausgrid assigns a Customer\* based on the tariff assignment and re-assignment policies. A Customer may be moved away from its assigned default tariff on 30 June each year after at least 12 months of load history has been accumulated. This can either occur due to action taken by Ausgrid, or can be achieved by the Customer or the Retailer making an application to transfer to an alternative network tariff using the Network Tariff Change Application Form available in appendix A of this document. This application must be submitted to the Manager - Network Pricing. Applications for tariff changes are usually the result of annual consumption changes. Backdating of new network prices is not permitted and Customers may only have their tariffs changed once in a 12 month period.

The procedure for assigning Customers to tariff classes is explained in sections 1.2.1 and 1.2.2 of this document.

\* An Ausgrid Customer in this document is a Network Customer as defined in the Glossary.

### 1.2.1 Network Tariff Classes

Before a Customer is assigned to a default network tariff, Ausgrid firstly assigns the Customer to a tariff class. A tariff class is defined in the National Electricity Rules as a class of Customers for one or more direct control services who are subject to a particular network tariff or particular network tariffs. In most circumstances a tariff class is a bundle of tariffs. Similar tariffs become part of a network tariff class on the basis of the extent and nature of Customer usage, and the nature of their network connection service. Ausgrid will assign Customers to a network tariff class using the following procedure:

- (1) If the supply is unmetered then the Customer is assigned to the unmetered tariff class.
- (2) If a Customer uses a demand in excess of 10 MW on average during a NEM half hour period for more than three months in a 12 month period or consumes more than 40 GWh in a 12 month period, then regardless of the connection voltage, the Customer is eligible to be assigned to the Cost Reflective Network Tariff (CRNP) tariff class.
- (3) If the voltage of the supply is either 230V (Single Phase) or 400V (Three Phase) then the Customer is assigned to the Low Voltage tariff class.
- (4) If the voltage of the supply is 5 kV, 11 kV or 22 kV then the Customer is assigned to the High Voltage tariff class (unless already assigned to the CRNP tariff class).
- (5) If the voltage of the supply is 33 kV, 66 kV or 132 kV then the Customer is assigned to the Sub- transmission tariff class (unless already assigned to the CRNP tariff class).

This procedure can also be represented by the following table.

**Table 1: Criteria for assigning Customers to network tariff classes**

Tariff class	Extent of usage	Nature of usage	Nature of connection to network	
			Metering	Voltage
Unmetered	N/A	Business	Unmetered	230V/400V
Low Voltage		Business or Residential	Metered	230V/400V
High Voltage		Business		5kV,11kV,22kV
Sub transmission				33kV,66kV,132kV
CRNP	>10MW or > 40 GWh pa			Any voltage

Once a Customer is accepted as eligible for a CRNP, a site specific price is calculated each year. If an annual review discloses that a Customer has fallen below the CRNP threshold, then Ausgrid will review the application of a CRNP and if it is no longer appropriate a default network tariff class is applied, consistent with the decision table above.

### 1.2.2 Annual Review of Tariff Class Assignment

Ausgrid is required under Appendix A of the AER 2009 Distribution Determination to ensure that existing Customers are assigned to the appropriate tariff class. If Ausgrid believes that existing customer's load characteristics or connection characteristics have changed such that it is no longer appropriate for that customer to remain in their current tariff class Ausgrid may re-assign this customer to a new tariff class as part of the annual pricing process.

To comply with our regulatory obligations, Ausgrid undertakes an annual review of the latest 12 months of volume data to assess whether our customers are currently assigned to the appropriate tariff class. If a customer changes the voltage level of their connection, Ausgrid would typically assign this customer to a new tariff class at the next annual price change. However, if the customer's annual energy consumption has changed to the extent that they satisfy the usage



criteria of a new tariff class, Ausgrid reserves the right to not re-assign the customer to a new tariff class at the next annual price change unless their network usage exceeds a  $\pm 20$  percent tolerance. For example if a customer currently on the sub-transmission network tariff (EA390) exceeds the current eligibility criteria to be assigned to the CRNP tariff class of 40 GWh pa or 10 MW, Ausgrid reserves the right to assign the customer to the CRNP tariff class at the next annual price change if their historical energy consumption or maximum demand is within a  $\pm 20$  percent tolerance of eligibility criteria for a CRNP tariff or Ausgrid has reason to believe that there is a likelihood that the customers volume may fall below the CRNP eligibility criteria in the near future.

### 1.2.3 Default Network Use of System Tariffs

A default network tariff is the tariff Ausgrid assigns a Customer<sup>1</sup> based on the tariff assignment and re-assignment policies. A Customer may be moved away from its assigned default tariff on 30 June each year after at least 12 months of load history has been accumulated. This can either occur due to action taken by Ausgrid, or can be achieved by the Customer or the Retailer making an application to transfer to an alternative network tariff using the Network Tariff Change Application Form available in appendix A of this document. This application must be submitted to the Manager - Network Pricing. Applications for tariff changes are usually the result of annual consumption changes. Backdating of new network prices is not permitted and Customers may only have their tariffs changed once in a 12 month period.

### 1.2.4 Assignment of Existing Customers to a Default Network

Ausgrid's default network tariff allocation procedure for existing Customers is shown in Table 2.<sup>2</sup>

**Table 2: Decision Table for Assigning Existing Customers to Tariffs**

Tariff Class	Network Tariff
<b>Unmetered</b>	<ul style="list-style-type: none"> <li>EA401 Public Lighting</li> <li>EA402 Constant Unmetered</li> <li>EA403 EnergyLight</li> </ul>
<b>Low Voltage</b>	<ul style="list-style-type: none"> <li>EA010 Residential Inclining Block</li> <li>EA025 Residential ToU – Type 5 Meter</li> <li>EA050 Small Business Inclining block (<i>Closed</i>) – Type 6 Meter</li> <li>EA225 Small Business ToU – Type 5 Meter</li> <li>EA302 LV 40 - 160 MWh – Type 5 Meter</li> <li>EA305 LV 160 - 750 MWh – Type 4 Meter (Large Customer)</li> <li>EA310 LV &gt;750 MWh – Type 3 Meter (Large Customer)</li> </ul>
<b>High Voltage</b>	<ul style="list-style-type: none"> <li>EA370 HV Connection</li> <li>EA380 HV Connection (Substation)</li> </ul>
<b>Sub-transmission</b>	<ul style="list-style-type: none"> <li>EA390 ST Connection</li> </ul>
<b>CRNP</b>	Not applicable, Ausgrid applies an individually calculated site-specific network tariff to CRNP Customers

It is important to note from the table above that the small business tariffs applicable to Type 6 metering installations are no longer available for new and upgraded metering installations. It is Ausgrid's policy that all new and upgraded metering installations (e.g. single phase to multiple phase metering installations) must install a Type 5 or better (Types 1 to 4) meter.

<sup>1</sup> An Ausgrid Customer in this document is a Network Customer as defined in the Glossary.

<sup>2</sup> Note that A Customer can only be allocated to a network tariff after it has been allocated to a network tariff class.

### 1.2.5 Assignment of New Customers to a Default Network Tariff

New Customers (where there is no previous load history) are assigned to a default tariff which is based on network tariff class, metering installation type and the number of supply phases. Table 3 shows the way in which new Customers are assigned to default network tariffs.

**Table 3: Assignment of New Customers to Default Tariffs (from 1 July 2013)**

Tariff Class	Metering Installation Type (minimum)	Nature of Usage	Metered Connection Point Phase	Default Network Primary Tariff	Default Network Primary Tariff Name
Low voltage	5	Residential or Business	Single phase or Three phase	EA010	Residential IBT
	3		Three phase	EA310	LV >750 MWh
	4*			EA305	LV 160-750 MWh
	5		Three phase** or Single phase	EA302	LV 40 - 160 MWh
				EA225	Small Business ToU
High Voltage	3	Business	Three phase	EA370	HV Connection
				EA380	HV Connection (Substation)
Sub-transmission Voltage				EA390	ST Connection
Unmetered	7			EA401	Public Lighting
				EA402	Constant Unmetered

\*Capable of measuring and recording 30 minute kvarh as per Appendix E section E5.

\*\*All new Business Customers with type 5 three phase meters have EA302 as their default network tariff.

### 1.2.6 Change in Network Tariff

In addition to our regulatory obligations relating to ensuring customers are in the appropriate tariff class, customers may be transferred to a new network tariff within an existing tariff class. There are two situations where a customer may be transferred to a new tariff.

- The first situation is where Ausgrid mandated a change in network tariff, such as where a small business customer currently on the Inclining Block Tariff (EA050) has their metering upgraded to a Type 5 interval meter, Ausgrid reserves the right to assign this customer to the small business Time of Use Tariff (EA225) at the next annual price change. Ausgrid will provide

Retailers with notification of any mandated tariff transfers as part of the annual price change consultation process.

- The second situation is where the customer applies to be transferred to a new tariff. This application is made by the Customer's retailer in writing with supporting documentation on a Network Tariff and Threshold Change Application Form (Appendix A) and submitted to the Ausgrid NEMS group. If approved, the network tariff change will apply from the start of the next billing period following the date of receipt of the price change application. No backdating of a change to the Customer's applicable Network tariff is permitted unless specifically approved as part of the tariff change. A Customer may apply to have their network tariff changed only once per 12 month period, and must have at least 12 months of consumption history to support the price change application made by the Customer's retailer. It is important to note that in the situation where the customer satisfies the eligibility criteria to be assigned to a new tariff but is within a +/- 20% tolerance of the criteria, Ausgrid reserves the right not to transfer the customer to the new network tariff.

### 1.3 Primary and Secondary Network Tariffs

Network tariffs are also categorised as either Primary or Secondary tariffs. This distinction is required as it is possible to have more than one network tariff applicable to an individual Customer connection.

The primary network tariff applies to the principal load of a connection service that is usually on a 24 hour, seven day a week basis. **Only one primary tariff may be applied to each connection service for the Ausgrid network.**

Secondary tariffs apply to separately metered loads on a controlled load circuit which are controlled or interrupted, such as off-peak hot water. A secondary tariff is only available to a Customer where a primary tariff is also in place. Only one controlled load secondary tariff is permitted per connection service. The consumption of electricity by equipment supplied with electricity via the controlled load circuit has no effect in determining the consumption applicable to the primary tariff. Section 8 of this document has further information on controlled load tariffs.

Thus, a connection service:

- must have a primary tariff for the primary load circuit.
- may have Controlled Load 1 or Controlled Load 2 for separately controlled equipment on dedicated circuits.

Primary Network Tariff	Permitted Secondary Network Tariff
EA010 Residential Inclining Block	A new Customer may have:  Either <ul style="list-style-type: none"> <li>EA030 Controlled Load 1</li> </ul> or <ul style="list-style-type: none"> <li>EA040 Controlled Load 2</li> </ul> (that is, only one Controlled Load Tariff is permitted for a new installation)  Customers that have more than one controlled load service are permitted to continue with more than one controlled load service.
EA025 Residential ToU	
EA225 Small Business ToU	
EA302 LV 40 - 160 MWh	
EA305 LV 160-750 MWh	
EA310 LV >750 MWh	
EA050 Small Business ToU (Closed)	
Note: Only one primary network tariff is permitted at an installation.	

Note: Low voltage secondary network tariffs are not normally permitted for a connection service with a High Voltage, Sub Transmission primary tariff or where there is a type 1 to 4 meter installation.

## 1.4 Network Tariff Components

Each network tariff is comprised of more than one component except for street lighting and some other unmetered loads which each have a single component. The components of each primary network tariff are summarised in following table.

**Table 5: Tariff Components**

Network Tariff	Network Access Charge	Non-ToU Network Variable Usage Charge	Time of Use Network Variable Usage Charge	Network Capacity Charge
EA010 Residential Inclining Block	Yes	Yes		
EA025 Residential ToU	Yes		Yes	
Controlled Loads	Yes	Yes		
EA050 Small Business Inclining Block	Yes	Yes		
EA225 Small Business ToU	Yes		Yes	
EA302 LV 40 - 160 MWh (System)	Yes		Yes	Yes
EA305 LV 160-750 MWh (System)	Yes		Yes	Yes
EA310 LV >750 MWh (System)	Yes		Yes	Yes
EA370 HV Connection (System)	Yes		Yes	Yes
EA380 HV Connection (Substation)	Yes		Yes	Yes
EA390 ST Connection	Yes		Yes	Yes

**Notes:**

**Network Tariff** The assignment of a network tariff to a Customer is determined by the supply voltage, meter type and energy usage.

**Network Access Charge** Fixed charge per day per NMI that recovers some of the fixed costs of providing network services to the Customer.

**Network Usage Charge** Based on a Customer's consumption of electricity and may be dependent on the time of day (see Section 1.5) that the energy is used.

**Capacity Charge** Based on the maximum power (in kW or kVA) over a standard NEM half hour interval measured during peak times over the previous 12 month period. For further information see Appendix E and F of this document.

## 1.5 Time Periods

**Table 6: Time Periods Used for Differential ToU energy charges and Capacity Charges excluding EA025 and EA225**

Charging Period	Time Period
Peak	From 2 pm – 8 pm on working weekdays.
Shoulder	From 7 am – 2 pm and 8 pm – 10pm on working weekdays
Off-Peak	All other times.

**Table 7: Time Periods Used for EA025 Residential ToU and EA225 Small Business ToU**

Charging Period	Time Period
Peak	From 2 pm – 8 pm on working weekdays.
Shoulder	From 7 am – 2 pm and 8 pm – 10pm on working weekdays and 7 am – 10pm on weekends and public holidays.
Off-Peak	All other times.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3 am on the first Sunday in October to 2 am on the first Sunday in April.

## 1.6 Network Price List

Network Prices are the annual prices set for each tariff, which includes the prices for each tariff component as published in the *Network Price List*. As further information, the *Network Price List* also contains the distribution loss factors used to determine energy losses. The network price for each tariff and tariff component is set in accordance with Ausgrid's annual pricing proposal which must be approved by the AER. The Network Price List is available from [www.ausgrid.com.au](http://www.ausgrid.com.au). Discounts are not available off the network prices that apply to connections services with network tariffs.

## 1.7 Annual Tariff Review

As explained in section 1.2 above, Customers are initially assigned a *default network tariff*. Default network tariffs are applied to Customers according to the Customer's expected annual energy consumption at a connection point, the supply voltage, and the type of meters installed.

Ausgrid is required under Appendix A of the AER 2009 Distribution Determination to ensure that existing Customers are assigned to the appropriate tariff class at each 1 July price change. If Ausgrid believes that existing customer's load characteristics or connection characteristics have changed such that it is no longer appropriate for that customer to remain in their current tariff class Ausgrid may re-assign this customer to a new tariff class as part of the annual pricing process.

To comply with our obligations under Appendix A of the AER 2009 Distribution Determination, Ausgrid undertakes an annual review of the volume data to assess whether our customers are currently assigned to appropriate tariff class. If a Customer changes the voltage level of their connection, Ausgrid would typically assign this customer to a new tariff class at the next annual price change. However, if the customer's energy consumption has changed to the extent that they satisfy the usage criteria of a new tariff class, Ausgrid will not re-assign the customer to the new tariff at the next annual price change unless their network usage exceeds a  $\pm 20$  percent tolerance. For example if a customer currently on the sub-transmission network tariff (EA390) exceeds 40 GWh pa or 10 MW, Ausgrid reserves the right to assign the customer to the CRNP tariff class at the next annual price change if their historical energy consumption or maximum demand exceed the eligibility criteria for a CRNP tariff by 20%.

## 1.8 Changing the Network Tariff

In addition to Ausgrid's regulatory obligations relating to ensuring customers are in the appropriate tariff class, customers may be transferred to a new network tariff within an existing tariff class. There are two situations where a customer may be transferred to a new tariff.

- The first situation is where Ausgrid mandated a change in network tariff, such as where a small business customer currently on the Inclining Block Tariff (EA050) has their metering upgraded to a Type 5 interval meter, Ausgrid reserves the right to assign this customer to the small business Time of Use Tariff (EA225) at the next annual price change.
- The second situation is where the customer applies to be transferred to a new tariff. This application is made by the Customer's retailer in writing with supporting documentation on a Network Tariff Change Application Form (Appendix A) and submitted to the Manager - Network Billing pricing. If approved, the network tariff change will apply from the start of the next billing period following the date of receipt of the price change application. No backdating of a change to the Customer's applicable Network tariff is permitted unless specifically approved as part of the tariff change. A Customer may apply to have their network tariff changed only once per 12 month period, and must have at least 12 months of consumption history to support the price change application made by the Customer's retailer in writing with supporting documentation on a Network Tariff and Threshold Change Application Form (Appendix A) and submitted to the Ausgrid NEMS group. If approved, the network tariff change will apply from the start of the next billing period following the date of receipt of the price change application. No backdating of a change to the Customer's applicable Network tariff is permitted unless specifically approved as part of the tariff change. A Customer may apply to have their network tariff changed only once per 12 month period, and must have at least 12 months of continuous consumption history to support the price change application and exceed a  $\pm 20$  percent tolerance to be eligible to be transferred to a new network tariff during the course of a financial year.

## 1.9 Metering

All new meters installed in Ausgrid's distribution area for both residential and business installations must be Type 5 or better (i.e. Types 1, 2, 3, 4 or 5, refer to Table 8 below). These include but are not limited to:

- Both single phase and multi-phase metering installations for the primary tariff (including upgraded metering installations or new metering installations).
- Metering installations for network services that include controlled load or generation. Consistent with the National Electricity Rules, Ausgrid also requires remote communications to be installed on all Type 1 to 4 metering installations that consume 160 MWh per annum or more.

The Financially Responsible Market Participant (FRMP – typically a retailer) or the Local Network Service Provider (LNSP) may apply a charge to cover their role as the *Responsible Person* (as outlined in the National Electricity Rules). For metering installation types 5 and 6 (as defined in Schedule 7.2 of the Rules), Ausgrid will recover the costs of Responsible Person Services via network charges. For Types 1-4 metering installations the charge will be applied by a Customer's Retailer as the Financially Responsible Market Participant (FRMP). Where Ausgrid has been requested by the FRMP to provide Responsible Person Services, Ausgrid will charge the FRMP directly.

The type of meter installed at premises must comply with the requirements of all of the following:

- Chapter 7 of the National Electricity Rules
- National Electricity Market Metrology Procedures
- Market Operations Rules (NSW Rules for Electricity Metering) No. 3 of 2001
- Service and Installation Rules of NSW
- Any requirements imposed under Ausgrid's Standard Form Customer Connection Contract, and
- Any relevant advice published by Ausgrid.

**Table 8: National Electricity Rules Compliant Metering**

<b>Meter Type</b>	<b>Meter Capability</b>	<b>MSATS Code</b>
<b>1 to 3</b>	Measures both real (kW) and reactive (kvar) energy on a half-hourly basis. Has a facility to enable the meter to be remotely read. Usually read monthly.	COMMS1 COMMS2 COMMS3
<b>4</b>	As for types 1 to 3 except that is not required to measure reactive (kvar) energy. Usually read monthly.	COMMS4
<b>5</b>	As for type 4 but has an optical port for manual collection of interval data as its default for reading half hour interval data from the meter. Also known as 'Manually Read Interval Meters' (MRIM) or 'Smart' meters.  Type 5 meters can be either 3-phase or single phase.  The single phase meters may have multiple measuring elements enabling them to measure multiple network tariffs such as Residential and Controlled Load.  Usually read quarterly but can be monthly. (This is dependent upon the network tariff).	MRIM
<b>6</b>	Records accumulated consumption, (no half-hour interval data), but may store consumption in pre-specified time bands. This meter is manually read. Usually read quarterly.	BASIC
<b>7</b>	Virtual meters used to assess usage on un metered connections.	UMCP

## 1.10 Meter Reading

Type 6 meters will normally be read quarterly. Manually Read Interval Meters or Type 5 Meters will normally be read quarterly except where the network tariff has a capacity component, in which case they will normally be read on a monthly basis. Customers will be billed at the same frequency that the meters are read (Ausgrid bills the FRMP for the distribution services supplied). Where the FRMP or Customer requests a Type 5 meter to be read monthly (that would otherwise be read quarterly), additional meter reading, data processing and invoicing fees may be charged for the service.

Monthly read type 5 meters will generally be read on or close to the same day each month. For example, if a site is read on 13 February, it will be read again on 13 March. This is different to Type 1 to 4 metered sites that are read remotely on a calendar month cycle, i.e. from the first day of the month to the last day of the month inclusively.

## 1.11 Metering to be at the Supply Voltage Side of a Transformer

The National Electricity Rules requires all new supply services to be metered at the closest accessible point to the connection point. All new supply services must be metered at the connection point's supply voltage. Load side metering is not permitted for new installations where the distributor does not own the transformers.

Also, to comply with the National Electricity Rules, in the event of any electrical alterations, existing supply metered on the load side of the transformer, must be modified so it is metered at the closest accessible point to the connection point and at the connection point voltage.

## 1.12 Connection Point Identification

Metering and connection point configurations are identified using a unique National Electricity Market NMI (National Metering Identifier). Generally, a NMI will be allocated to each individual connection to the electrical network, unless otherwise determined by Ausgrid.

Where an establishment has more than one connection point, the numbering and final arrangement of each supply will be determined by Ausgrid. Modification of existing connection point NMIs to align with the current AEMO NMI procedures (to increase or decrease their number) can be initiated by Ausgrid with the co-operation of a Customer's Retailer. Connection points may be allocated separate NMIs where any of the following conditions exist:

- (a) It is needed to conform to the latest version of the AEMO NMI Procedure document (available at [www.aemo.com.au](http://www.aemo.com.au))

- (b) The connection points are at different voltage levels.
- (c) The connection points are from different distribution substations.
- (d) The connection points are metered at different voltage levels.
- (e) The connection points have different distribution loss factors.
- (f) The connection points have different metering points such as standby or alternative supply points.
- (g) As otherwise determined by Ausgrid.

### 1.13 Amalgamation of NUOS to a Single Network Account

Ausgrid will consider the amalgamation of multiple NUoS accounts based on the following rules:

- (a) The Customer or their agent (usually their Retailer) requests in writing for the NUoS charges to be amalgamated for a premise.
- (b) Meters associated with different NMIs (established in accordance with AEMO's requirements) are excluded from the amalgamation assessment.
- (c) All the meters must be associated with the same connection point.
- (d) The meters must be recording the same primary meter voltage.
- (e) All metering must be of the same meter type (as defined in Schedule 7.2 of the National Electricity Rules) and metering must comply with the Service and Installation Rules of NSW. For example a request to amalgamate NMI's where the meter type is 5 and 6 will not be approved.
- (f) The same Rules compliant meter installation Type must be installed at all meter points involved in the amalgamation.
- (g) Where multiple Network Access Charges (NACs) are assigned to a National Metering Identifier (NMI), all the following criteria must be met:
  - each connection point voltage must be the same
  - each connection point network price must be the same
  - each connection point Transmission Node Identifier must be the same
  - each connection point must be metered at the same voltage level
  - each connection point must normally be supplied from the same zone substation transformer in the case of the HV network prices, or the same distribution substation cable service in the case of LV System prices.
- (h) Ausgrid's billing system must be able to implement the amalgamated arrangements.
- (i) Network charges will not be amalgamated across multiple NMIs.
- (j) All meters included in the amalgamation assessment must have their associated NMIs checked and they must comply with the current AEMO NMI Procedures document before the amalgamation will be considered.

The amalgamation of NUoS charges across different connection points will **not normally be permitted**.

Requests for amalgamation of accounts should be made using the *Request for Network Account Amalgamation at Customer Site* form (Appendix B).



## 1.14 Separation of Load

Electricity used for certain special purposes or under special conditions, such as controlled load, may be metered separately on dedicated circuits within the Customer's installation and supplied at one or more specific prices in accordance with the terms outlined in Sections 1.3 and 10. Application for a network tariff must be in writing using the Network Tariff and Threshold Change Application Form (Appendix A).

Equipment supplied with electricity using a controlled load tariff service has no effect in determining the price applicable to the remainder of the installation.

Where part of the load at an installation is supplied using a controlled load tariff service for restricted purposes, the Customer must arrange for separation of supply to dedicated circuits to allow installation of electricity meters so the electricity consumed using the controlled load tariff service can be recorded separately.

## 1.15 Cost Reflective Network Price – Above 10MW

Customers with large electricity requirements (Demand over 10MW during at least 3 monthly billing periods over a 12 month period or consumption greater than 40 GWh per annum) may either be assessed by Ausgrid or they may apply using the form in Appendix A to be considered for an individually calculated or cost reflective network price (CRNP).

The Cost Reflective Network Price is calculated and applied to a specific connection or multiple connections if they qualify under the criteria (outlined in the subsequent section on CRNPs). Each connection is serviced by assets of different values, dependent on distance, type of construction and voltage level. In addition, the CRNP price will vary in relation to the utilisation of system assets at each connection (more detail on the calculation of CRNP prices can be obtained from the latest *Network Pricing Proposal*). The CRNP may be greater than, or less than, an equivalent average price applied to smaller Customers, depending on the assets utilised by a CRNP Customer.

## 1.16 Supply Voltage

Throughout this document the following terms have these meanings:

- **low voltage** is nominally 230V single phase or 400V three phase
- **high voltage** is nominally 5kV, 11kV or 22kV
- **sub-transmission** is 33kV and above.

## 1.17 Payment of Accounts

Accounts for NUoS are normally sent to the Customer's Retailer, who then pays the NUoS bill. The Retailer then bills their Customer in accordance with their supply contract. The framework for NUoS billing is outlined in the NSW Market Operations (Network Use of Systems) Rule No. 2 of 2001.

(Download from: [www.trade.nsw.gov.au/energy/electricity/market-rules](http://www.trade.nsw.gov.au/energy/electricity/market-rules)).

### 1.17.1 Commencement Date

For new Customers that have either a negotiated or standard supply contract with a Retailer, the commencement date for NUoS charges is the date when the Customer's metering installation is energised or the date when the Customer starts to use network services.

### 1.17.2 Termination Date

Where the Customer or their Retailer gives Ausgrid at least two working days notice in writing of the date they want supply disconnected, that date will be the service termination date. The Customer's Retailer will be responsible for the settlement of network charges applicable to a connection point until the Market Settlement and Transfer System (MSATS) registers the connection service as de-energised, extinct or transfers the Customer to another Retailer. Where less than two working days notice is given, Ausgrid will determine the service termination date.

### 1.17.3 Charges on Termination of Supply

Unless otherwise approved by Ausgrid, if a Customer ceases to take supply under a particular network tariff, the meters will be read and the period between that reading and the immediately preceding reading will be used to calculate the final network charges.

Unless specifically requested by the Customer or their Retailer, the supply will not be physically disconnected at the time of termination. Physically disconnecting a supply on request by a Customer will incur charges under the miscellaneous and monopoly fee schedules as approved by the AER. The procedure for requesting a permanent disconnection is outlined in Ausgrid document *ES5 Charges for Network Miscellaneous and Monopoly Services*.

#### 1.17.4 Rebates or Concessions

Ausgrid is not responsible for applying any government or community service rebates to Customers' accounts. Electricity consumers should make any such enquiries to their Retailer. If the consumer has not signed a supply contract with a Retailer, then their default Retailer (Local Retailer) within Ausgrid's supply area is currently Energy Australia.

#### 1.17.5 Changing the Customer at a site

When a new Customer (with a new ABN company number) occupies a site with a significantly different energy consumption pattern, the new Customer may apply to be assigned to a different network tariff or for a capacity demand reset through their retailer. Should the new Customer's retailer fail to provide adequate notification to the network of their specific supply requirements, then the new Customer will have the same network tariff arrangements as the previous Customer at the site. Please note that the application change approval will not be backdated.

Ausgrid reserves the right to remove existing infrastructure and limit supply to the new Customer consistent with the new negotiated supply.

### 1.18 Customer Threshold Classification

Once Ausgrid is notified that a customer is a business customer, the customer will be classified as soon as practicable by Ausgrid as being either a small or large customer.

A Customer Threshold Code (CTC) is assigned to each business customer by Ausgrid. A business customer that is classified as large has a CTC value of High. All other business customers have a CTC value of low. Ausgrid updates the Market Settlement and Transfer Solution (MSATS) database as soon as practicable with any new CTC values or after receiving an application for a re assessment of Customer Threshold Classification by the Retailer (or Customer).

In the NECF:

- A business customer that consumes greater (or equal to) 100 MWh per annum is classified as being a large customer.
- A business customer that consumes less than 100 MWh per annum is classified as being a small customer.

The CTC is **not** used for network tariff purposes.

If there is not a complete 12 months of consumption data for a premises (i.e. a new site), then Ausgrid may estimate the expected annual consumption based upon consumption of other similar customers or other information available to Ausgrid.

## 2 EA025 Residential ToU Network Tariff

---

### 2.1 General Conditions

The EA025 Residential ToU Tariff is applicable to consumers of low voltage electricity (single or three phase) supplied for any residential purpose where the consumption is below 40 MWh per annum. A Type 5 metering installation that is capable of recording the energy consumed within specified time periods is required for this tariff (see Table 9).

### 2.2 Default Network Tariff

The default network tariff applicable to Customers is the Network Tariff for the particular network tariff group. Ausgrid will initially apply a default network tariff following the criteria outlined in Section 1.2 unless Ausgrid believes a network tariff review is required or the Customer's Retailer notifies Ausgrid via a written request of specific connection service details that could change the default network tariff for the customer.

#### 2.2.1 New Installations

New residential Customers connected to Ausgrid's network are required to have a Type 5 (or better) meter installed. By default, new residential Customers will be placed on the EA010 Residential Tariff. A Residential Customer wanting to be assigned to the EA 025 network tariff must apply through their Retailer to Ausgrid using the Network Tariff and Threshold Change Application Form (in Appendix A).

#### 2.2.2 Upgraded Installations

Residential Customers who have a Type 5 meter (or better) installed due to a Customer initiated action such as an upgrade of the switch board that requires a new meter and are assessed to consume below 40 MWh p.a. will be placed on the EA010 Residential tariff either from the date that the meter was installed or through the next annual review process described in section 1.7.

#### 2.2.3 Meter replaced due to maintenance or operational reasons

Where there are existing metering installations which have a type 6 meter installed and the meter is replaced by Ausgrid due to either meter maintenance or operational reasons, a type 5 compatible meter will be installed. However, the Customer will remain on their existing tariffs (e.g. EA010 Residential Inclining Block and EA030 Controlled Load 1). The Customer will be transferred as part of the annual review processes to another network tariff (such as EA302) if their annual consumption is greater than 40 MWh as described in section 1.7. A tariff transfer may only occur after at least 12 months has elapsed since the new meter has been installed.

#### 2.2.4 Existing Installations

Where there are metering installations which currently have a type 5 compatible meter installed, the Customer will remain on their existing tariffs (e.g. EA010 Residential Inclining Block and EA030 Controlled Load 1) until the annual review. The Customer may be transferred as part of the annual review processes to another network tariff (such as EA302) as described in section 1.7.

A Residential Customer wanting to be assigned to another network tariff (i.e. EA 010) must apply through their Retailer using the Network Tariff and Threshold Change Application Form (in Appendix A).

### 2.3 Tariff Components

The EA025 Residential ToU Tariff has four components:

- Network Access Charge comprising a fixed charge per day.
- Network Time of Use Charges comprising Peak, Shoulder and Off-Peak energy rates.

There is a general explanation of the Network Tariff Components in Section 1.4. The following sections are specific to this tariff.

#### 2.3.1 Network Access Charge

A Customer will pay a Network Access Charge (NAC) for each separate energised connection point made to the Ausgrid network. A NAC is applied on a daily basis for each tariff applicable to the Customer.

### 2.3.2 Time Periods

The time periods applicable to the E025 Residential ToU tariff is shown in Table 9.

**Table 9: The Charging Periods for the E025 Residential ToU tariff**

Charging Period	Time Period
<b>Peak</b>	From 2 pm – 8 pm on working weekdays.
<b>Shoulder</b>	From 7 am – 2 pm and 8 pm – 10pm on working weekdays and 7 am – 10pm on weekends and public holidays.
<b>Off-Peak</b>	All other times.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3am on the first Sunday in October to 2am on the first Sunday in April.

## 3 EA225 Small Business ToU Network Tariff

### 3.1 General Conditions

The Small Business ToU Tariff is applicable to consumers of low voltage electricity (single or three phase) supplied for any business purpose where the consumption is below 40 MWh per annum. A Type 5 metering installation that is capable of recording the energy consumed within specified time periods is required for this tariff (see Table 10).

### 3.2 Default Network Tariff

The default network tariff applicable to Customers is the Network Tariff for the particular network tariff group. Ausgrid will initially apply a default network tariff following the criteria outlined in Section 1.2 unless Ausgrid believes a network tariff review is required or the Customer's Retailer notifies Ausgrid via a written request of specific connection service details that could change the default network tariff for the customer.

#### 3.2.1 New Installations

New business Customers connected to Ausgrid's network are required to have a Type 5 (or better) meter installed. By default, new business Customers with a single phase supply will initially be placed on Small Business ToU tariff (EA 225) if their expected annual consumption is less than 40 MWh per annum (see Section 4 for three phase installations). A Customer wanting to be assigned to an alternative network tariff must apply through their Retailer to Ausgrid using the Network Tariff and Threshold Change Application Form (in Appendix A).

#### 3.2.2 Upgraded Installations

Business Customers who have a Type 5 meter (or better) installed due to a Customer initiated action such as an upgrade of the switch board that requires a new meter and are assessed by Ausgrid to consume below 40 MWh per annum will be placed on the EA225 Small Business ToU Tariff either from the date that the new meter was installed or through the annual review process described in section 1.7.

#### 3.2.3 Meter replaced due to maintenance or operational reasons

Where there are existing metering installations which have a type 6 meter installed and the meter is replaced by Ausgrid due to meter maintenance or operational reasons, a type 5 compatible meter will be installed. However, the Customer will remain on their existing tariffs (e.g. EA050 Small Business Inclining Block and EA030 Controlled Load 1). The Customer may be transferred as part of the annual review processes to another network tariff (such as EA225) as described in section 1.7. A network tariff transfer may only occur after at least 12 months has elapsed since the new meter installation.

#### 3.2.4 Existing Installations

Where there are metering installations which currently have a type 5 compatible meter installed, the Customer will remain on their existing tariffs (e.g. EA050 Small Business Inclining Block and EA030 Controlled Load 1). The Customer may be transferred as part of the annual review processes to another network tariff (such as EA225) as described in section 1.7.

A Business Customer wanting to be assigned to another network tariff must apply through their Retailer using the Network Tariff and Threshold Change Application Form (in Appendix A).

### 3.3 Tariff Components

The EA225 Small Business ToU tariff has four components:

- Network Access Charge comprising a fixed charge per day.
- Network Time of Use Charges comprising Peak, Shoulder and Off-Peak energy rates.

There is a general explanation of the Network Tariff Components in Section 1.4. The following sections are specific to this tariff.

#### 3.3.1 Network Access Charge

A Customer will pay a Network Access Charge (NAC) for each separate energised connection point made to the Ausgrid network. The NAC is applied on a daily basis for each tariff applicable to the Customer.

### 3.3.2 Time Periods

The time periods applicable to the EA050 Small Business ToU tariff are shown in Table 10.

**Table 10: The Charging Periods for the EA050 Small Business ToU tariff**

Charging Period	Time Period
<b>Peak</b>	From 2 pm – 8 pm on working weekdays.
<b>Shoulder</b>	From 7 am – 2 pm and 8 pm – 10pm on working weekdays and 7 am – 10pm on weekends and public holidays.
<b>Off-Peak</b>	All other times.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3am on the first Sunday in October to 2am on the first Sunday in April.

## 4 EA302 Low Voltage 40 – 160 MWh Tariff

### 4.1 General Conditions

The LV 40 - 160 MWh (System) tariff is applicable to consumers of low Voltage electricity (single or three phase) supplied for any purpose where the consumption is between 40 MWh per annum and 160 MWh per annum. A Type 5 metering installation that is capable of recording the energy consumed within specified time periods is required for this tariff (see Table 11).

### 4.2 Default Network Tariff

The default network tariff applicable to Customers is the network tariff for the particular network tariff group. Ausgrid will initially apply a default network tariff following the criteria outlined in Section 1.2 unless Ausgrid believes a network tariff review is required or the Customer's Retailer notifies Ausgrid via a written request of specific connection service details that could change the default network tariff for the customer.

#### 4.2.1 New Installations

New LV Customers connected to Ausgrid's network are required to have a Type 5 (or better) meter installed. By default, new Customers who expect to consume less than 40 MWh per annum will be placed on either the EA025 or the EA225 network tariffs unless they are a business Customer with a 3 phase metering installation which will result in them being placed on the EA302 tariff if their estimated expected annual consumption is less than 160 MWh per annum. A Customer wanting to be assigned to an alternative network tariff must apply through their Retailer to Ausgrid using the Network Tariff and Threshold Change Application Form (in Appendix A).

#### 4.2.2 Upgraded Installations

Customers who have a Type 5 meter (or better) installed due to a Customer initiated action such as an upgrade of the switch board that requires a new meter and are assessed to consume above 40 MWh per annum will be placed on the EA302 LV 40 - 160 MWh network tariff either from the date that the new meter is installed or through the annual review process described in section 1.7. If the upgraded meter is a 3 phase meter and the Customer is a business then they will also be transferred to EA302 either from the date that the new meter is installed or through the annual review process described in section 1.7.

#### 4.2.3 Meter replaced due to maintenance or operational reasons

Where there are existing metering installations which have a type 6 meter installed and the meter is replaced by Ausgrid due to meter maintenance or operational purposes, a type 5 compatible meter will be installed, however, the Customer will remain on their existing tariffs (e.g. EA050 Small Business Inclining Block and EA030 Controlled Load 1). The Customer may be transferred as part of the annual review processes to another network tariff (such as EA302) as described in section 1.7. A network tariff transfer may only occur after at least 12 months has elapsed since the new meter installation.

#### 4.2.4 Existing Installations

Where there are installations which currently have a type 5 compatible meter installed, the Customer will remain on its existing tariffs (e.g. EA050 Small Business Inclining Block and EA030 Controlled Load 1). The Customer may be transferred as part of the annual review processes to another network tariff (such as EA302) as described in section 1.7.

A Business Customer who has EA302 as their network tariff and wants to be assigned to another network tariff must apply through their Retailer using the Network Tariff and Threshold Change Application Form (in Appendix A).

A Residential Customer who has EA302 as their network tariff and wants to be assigned to the EA025 network tariff can apply through their Retailer using the Network Tariff and Threshold Change Application Form (in Appendix A) to be transferred to the EA025 tariff. This tariff re assignment will generally be granted as a matter of course.

### 4.3 Tariff Components

This Tariff has five components:

- (a) Network Access Charge comprising a fixed charge per day.

(b) Network Time of Use Charges comprising Peak, Shoulder and Off-Peak Energy rates.

(c) Peak Capacity Charge (kW)

There is a general explanation of the Network Tariff Components in Section 1.4. The following sections are specific to this tariff.

#### 4.3.1 Network Access Charge

A Customer will pay a Network Access Charge (NAC) for each separate connection point made to the Ausgrid network. The NAC is applied on a daily basis for each tariff applicable to the Customer.

#### 4.3.2 Time Periods

The time periods applicable to the LV 40 - 160 MWh tariff are shown in Table 11.

**Table 11: The Charging Periods for the EA302 Tariff**

Charging Period	Time Period
<b>Peak</b>	From 2 pm – 8 pm on working weekdays.
<b>Shoulder</b>	From 7 am – 2 pm and 8 pm – 10pm on working weekdays
<b>Off-Peak</b>	All other times.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3am on the first Sunday in October to 2am on the first Sunday in April.

#### 4.3.3 Peak Capacity Charge (kW)

The kW capacity value in each month is determined from the Type 5 (or better) meters installed at each connection point using the calculation methodology outlined in the capacity component section of Appendix D: Calculation of Network Price Components.

A separate capacity charge is applied at each individual connection point with a unique NMI as per the AEMO's National Metering Identifier Procedure (NMI).

### 4.4 Capacity Charges

Capacity charges are applied to the highest kWh reading over a standard half-hour interval that occurred at a Customer's connection point during the 12 months prior to a bill being calculated within the time bands of 2pm to 8pm on working weekdays. This half hour interval kWh value is converted into an average kW value for the specific half hour interval. The capacity charge is priced in cents per day per kW and is calculated on the price times the number of days in the billing period times the measured capacity in kW. Further information can be found in Appendix D, E and F of this document.

### 4.5 Adjustment of Capacity Charges

Ausgrid may vary the charges for capacity determined in accordance with Appendix D (section D4) if there are variations to the existing load. Such variations would be where plant or equipment is being commissioned, maintained or is undergoing tests.

A Customer must apply in writing with supporting documentation through their Retailer to Ausgrid to have any variation of charges considered.



## 5 EA305 Low Voltage 160-750 MWh Network Tariff

### 5.1 General Conditions

The LV 160-750 MWh tariff is applicable to consumers of low voltage electricity supplied for any purpose where the consumption is between 160MWh per annum and 750MWh per annum. For the

160 – 750 MWh per annum consumption band a type 4 metering installation with kvarh measuring and recording capability to the standard specified in appendix E5 that is capable of recording the energy consumed within specified time periods is required. (See Table 12 below)

The LV 160-750 MWh network tariff is also available upon written request by Customers through their Retailer to Ausgrid where the Customer has a consumption below 160 MWh per annum and also has metering capable of supporting kVA charging. Customers that have consumption below 160 MWh per annum who voluntarily move on to this tariff may revert back to their default tariff at any time, but no back billing will take place unless agreed to by Ausgrid.

### 5.2 Default Network Tariff

The default network tariff applicable to Customers is the Network Tariff for the particular network tariff group. Ausgrid will initially apply a default network tariff following the criteria outlined in Section 1.2 unless Ausgrid believes a network tariff review is required or the Customer's Retailer notifies Ausgrid via a written request of specific connection service details that could change the default network tariff for the customer.

#### 5.2.1 New Installations

New LV Customers connected to Ausgrid's network are required to have a Type 5 (or better) meter installed. By default, new Customers will be placed on the EA305 tariff if their estimated expected annual consumption is between 160 MWh and 750 MWh per annum. A Customer wanting to be assigned to an alternative network tariff must apply through their Retailer to Ausgrid using the Network Tariff and Threshold Change Application Form (in Appendix A).

### 5.3 Tariff Components

This tariff has five components:

- (a) Network Access Charge comprising a fixed charge per day.
- (b) Network Time of Use Charge comprising Peak, Shoulder and Off-Peak Energy rates.
- (c) Peak Capacity Charge (kVA).

There is a general explanation of the Network Tariff Components in Section 1.4. The following sections are specific to this tariff.

#### 5.3.1 Network Access Charge

A Customer will pay a Network Access Charge (NAC) for each separate energised connection point made to the Ausgrid network. The NAC is applied on a daily basis for each tariff applicable to the Customer.

#### 5.3.2 Time Periods

The time periods applicable to the EA305 LV 160-750 MWh (System) tariff are shown in Table 12.

**Table 12: The Charging Periods for the EA305 LV 160-750 MWh (System) tariff**

Charging Period	Time Period
<b>Peak</b>	From 2 pm – 8 pm on working weekdays.
<b>Shoulder</b>	From 7 am – 2 pm and 8 pm – 10pm on working weekdays
<b>Off-Peak</b>	All other times.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3am on the first Sunday in October to 2am on the first Sunday in April.

## 5.4 Capacity Charges

Capacity charges are applied to the highest kVAh reading over a standard half-hour interval that occurred at a Customer's connection point during the 12 months prior to a bill being calculated within the time bands of 2pm to 8pm on working weekdays. This half hour interval kVAh value is converted into an average kVA value for the specific half hour interval. The capacity charge is priced in cents per day per kVA and is calculated on the price times the number of days in the billing period times the measured capacity in kVA. Further information can be found in Appendix D, E and F of this document.

## 5.5 Adjustment of Capacity Charges

Ausgrid may vary the charges for capacity determined in accordance with Appendix D (section D4) if there are variations to the existing load. Such variations would be where plant or equipment is being commissioned, maintained or is undergoing tests.

A Customer must apply in writing using the form in Appendix A, with supporting documentation through their Retailer to Ausgrid to have any variation of charges considered.

## 5.6 Metering Equipment

A Type 4 (or better with an interval kvarh data channel) metering device must be installed before the EA305 160 - 750 MWh (System) network tariff can be applied. It must be installed by an accredited meter provider in compliance with Chapter 7 (Metering) of the National Electricity Rules, the National Electricity Market Metrology Procedure, Market Operations Rule (NSW Rules for Electricity metering) No. 3 of 2001, the Service and Installation Rules of New South Wales, Ausgrid's Local Service and Installation Rules and any requirements imposed by Ausgrid.

A Customer can minimise their capacity charge by improving the overall power factor of the installation and by shifting peak demand from peak to off-peak periods. Installing power factor correction equipment will improve the power factor and hence reduce the measured kVA demand of Customer's usage (by reducing the kvars delivered to the site).

## 5.7 Network Tariff Advice

Customers who are considering installing power factor correction equipment should contact the Ausgrid Customer Centre on telephone number 13 15 35. General information on demand management is available from [www.ausgrid.com.au](http://www.ausgrid.com.au).

## 6 EA310 Low Voltage >750 MWh Network Tariff

### 6.1 General Conditions

The LV >750 MWh network tariff is applicable to consumers of low voltage electricity supplied for any purpose where the consumption is greater than 750 MWh per annum. A Type 3 (or better) metering installation that is capable of recording the energy consumed within specified time periods is required for this tariff (see Table 13 below).

### 6.2 Default Network Tariff

The default network tariff applicable to Customers is the Network tariff for the particular network tariff group. Ausgrid will initially apply a default network tariff following the criteria outlined in Section 1.2 unless Ausgrid believes a network tariff review is required or the Customer's Retailer notifies Ausgrid via a written request of specific connection service details that could change the default network tariff for the customer.

#### 6.2.1 New Installations

New LV Customers connected to Ausgrid's network are required to have a Type 5 (or better) meter installed. By default, new Customers will be placed on the EA310 tariff if their estimated expected annual consumption is greater than 750 MWh per annum. A Customer wanting to be assigned to an alternative network tariff must apply through their Retailer to Ausgrid using the Network Tariff and Threshold Change Application Form (in Appendix A).

### 6.3 Tariff Components

This tariff has five components:

- (a) Network Access Charge comprising a fixed charge per day
- (b) Network Time of Use Charge comprising Peak, Shoulder and Off-Peak Energy rates
- (c) Daily Peak Capacity Charge (kVA)

There is a general explanation of the Network Tariff Components in Section 1.4. The following sections are specific to this tariff.

#### 6.3.1 Network Access Charge

A Customer will pay a Network Access Charge (NAC) for each separate energised connection point made to the Ausgrid network. The NAC is applied on a daily basis for each tariff applicable to the Customer.

#### 6.3.2 Time Periods

The time periods applicable to the EA310 LV >750 MWh (System) tariff are shown in Table 13.

**Table 13: The Charging Periods for EA310 LV > 750 MWh (System) tariff**

Charging Period	Time Period
Peak	From 2 pm – 8 pm on working weekdays.
Shoulder	From 7 am – 2 pm and 8 pm – 10pm on working weekdays
Off-Peak	All other times.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3am on the first Sunday in October to 2am on the first Sunday in April.

### 6.4 Capacity Charges

Capacity charges are applied to the highest kVAh reading over a standard half-hour interval that occurred at a Customer's connection point during the 12 months prior to a bill being calculated within the time bands of 2pm to 8pm on working weekdays. This half hour interval kVAh value is

converted into an average kVA value for the specific half hour interval. The capacity charge is priced in cents per day per kVA and is calculated on the price times the number of days in the billing period times the measured capacity in kVA. Further information can be found in Appendix D, E and F of this document.

## **6.5 Adjustment of Capacity Charges**

Ausgrid may vary the charges for capacity determined in accordance with Appendix D (section D4) if there are variations to the existing load. Such variations would be where plant or apparatus is being commissioned or is undergoing tests.

A Customer must apply in writing using the form in Appendix A, with supporting documentation through their Retailer to Ausgrid to have any variation of charges considered

## **6.6 Metering Equipment**

A Type 3 metering device must be installed before the EA310 LV >750 MWh (System) tariff can be applied. It must be installed by an accredited meter provider in compliance with Chapter 7 (Metering) of the National Electricity Rules, the National Electricity Market Metrology Procedure, Market Operations Rule (NSW Rules for Electricity metering) No.3 of 2001, the Service and Installation Rules of New South Wales, Ausgrid's Local Service and Installation Rules and any requirements imposed by Ausgrid.

A Customer can minimise their capacity charge by improving the overall power factor of the installation and by shifting peak demand from peak to off-peak periods. Installing power factor correction equipment will improve the power factor and hence reduce the measured kVA demand of the Customer's usage (by reducing the kvar delivered to the site).

## **6.7 Network Tariff Advice**

Customers who are considering installing power factor correction equipment should contact the Ausgrid Customer Centre on telephone number 13 15 35. General information on demand management is available from [www.ausgrid.com.au](http://www.ausgrid.com.au)

## 7 EA370 High Voltage Connection Network Tariff

### 7.1 General Conditions

The HV Connection tariff is applicable to consumers of high voltage electricity supplied at 5kV, 11kV or 22kV for any purpose. A Type 3 (or better) metering installation that is capable of recording the energy consumed within specified time periods is required for this tariff (see Table 14 below).

### 7.2 Default Network Tariff

The default network tariff applicable to Customers is the Network tariff for the particular network tariff group. Ausgrid will initially apply a default network tariff following the criteria outlined in Section 1.2 unless Ausgrid believes a network tariff review is required or the Customer's Retailer notifies Ausgrid via a written request of specific connection service details that could change the default network tariff for the customer.

#### 7.2.1 New Installations

New HV Customers connected to Ausgrid's network are required to have a Type 3 (or better) meter installed. By default, new high voltage Customers will be placed on EA370 network tariff. A Customer wanting to be assigned to an alternative network tariff must apply through their Retailer to Ausgrid using the Network Tariff and Threshold Change Application Form (in Appendix A) with supporting documentation.

### 7.3 Tariff Components

This tariff has five components:

- (a) Network Access Charge comprising a fixed charge per day
- (b) Network Time of Use Charge comprising Peak, Shoulder and Off-Peak Energy rates
- (c) Daily Peak Capacity Charge (kVA)

There is a general explanation of the Network Tariff Components in Section 1.4. The following sections are specific to this tariff.

#### 7.3.1 Network Access Charge

A Customer will pay a Network Access Charge (NAC) for each separate energised connection point made to the Ausgrid network. The NAC is applied on a daily basis for each tariff applicable to the Customer.

#### 7.3.2 Time Periods

The time periods applicable to the EA 370 HV Connection tariff are shown in Table 14.

**Table 14: The Charging Periods for the EA 370 HV connection Tariff**

Charging Period	Time Period
Peak	From 2 pm – 8 pm on working weekdays.
Shoulder	From 7 am – 2 pm and 8 pm – 10pm on working weekdays
Off-Peak	All other times.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3am on the first Sunday in October to 2am on the first Sunday in April.

## 7.4 Capacity Charges

Capacity charges are applied to the highest kVAh reading over a standard half-hour interval that occurred at a Customer's connection point during the 12 months prior to a bill being calculated within the time bands of 2pm to 8pm on working weekdays. This half hour interval kVAh value is converted into an average kVA value for the specific half hour interval. The capacity charge is priced in cents per day per kVA and is calculated on the price times the number of days in the billing period times the measured capacity in kVA. Further information can be found in Appendix D, E and F of this document.

## 7.5 Adjustment of Capacity Charges

Ausgrid may vary the charges for capacity determined in accordance with Appendix D (section D4) if there are variations to the existing load. Such variations would be where plant or apparatus is being commissioned or is undergoing tests.

A Customer must apply in writing, using the form in Appendix A, with supporting documentation through their Retailer to Ausgrid to have any variation of charges considered.

## 7.6 Metering Equipment

A Type 3 metering device must be installed before a HV connection network tariff can be applied. It must be installed by an accredited meter provider in compliance with Chapter 7 (Metering) of the National Electricity Rules, the National Electricity Market Metrology Procedure, Market Operations Rule (NSW Rules for Electricity metering) No. 3 of 2001, the Service and Installation Rules of New South Wales, Ausgrid's Local Service and Installation Rules and any requirements imposed by Ausgrid.

Installing power factor correction equipment will improve the power factor and hence reduce the measured kVA demand of the Customer's usage (by reducing the kvar delivered to the site).

## 7.7 Network Tariff Advice

Customers who are considering installing power factor correction equipment should contact Ausgrid on telephone number 13 15 35. General information on demand management is available from [www.ausgrid.com.au](http://www.ausgrid.com.au).

## 8 EA380 High Voltage Connection Network Tariff

### 8.1 General Conditions

The HV connection (Substation) tariff is applicable to consumers of high voltage electricity where the connection point is located at the Ausgrid zone substation. A Type 3 (or better) metering installation that is capable of recording the energy consumed within specified time periods is required for this tariff (see Table 15 below).

### 8.2 Default Network Tariff

The default tariff applicable to substation connection service Customers is the Substation tariff for the particular network price group. Ausgrid will initially apply a default network tariff following the criteria outlined in Section 1.2 unless Ausgrid believes a network tariff review is required or the Customer's Retailer notifies Ausgrid via a written request of specific connection service details that could change the default network tariff for the customer.

#### 8.2.1 New Installations

New HV Customers connected to an Ausgrid network substation are required to have a Type 3 (or better) meter installed. By default, new distribution substation Customers will be placed on EA380 tariff. A Customer wanting to be assigned to an alternative network tariff must apply through their Retailer to Ausgrid using the Network Tariff and Threshold Change Application Form (in Appendix A) with supporting documentation.

### 8.3 Tariff Components

This tariff has five components:

- (a) Network Access Charge comprising a fixed charge per day
- (b) Network Time of Use Charge comprising Peak, Shoulder and Off-Peak Energy rates
- (c) Daily Peak Capacity Charge (kVA)

There is a general explanation of the Network Tariff Components in Section 1.4. The following sections are specific to this tariff.

#### 8.3.1 Network Access Charge

A Customer will pay a Network Access Charge (NAC) for each separate energised connection point made to the Ausgrid network. The NAC is applied on a daily basis for each tariff applicable to the Customer.

#### 8.3.2 Time Periods

The time periods applicable to the EA380 HV Connection (Substation) tariff are shown in Figure 14.

**Table 15: The Charging Periods for the EA380 HV Connection (Substation) Tariff**

Charging Period	Time Period
Peak	From 2 pm – 8 pm on working weekdays.
Shoulder	From 7 am – 2 pm and 8 pm – 10pm on working weekdays
Off-Peak	All other times.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3am on the first Sunday in October to 2am on the first Sunday in April.

## **8.4 Capacity Charges**

Capacity charges are applied to the highest kVAh reading over a standard half-hour interval that occurred at a Customer's connection point during the 12 months prior to a bill being calculated within the time bands of 2pm to 8pm on working weekdays. This half hour interval kVAh value is converted into an average kVA value for the specific half hour interval. The capacity charge is priced in cents per day per kVA and is calculated on the price times the number of days in the billing period times the measured capacity in kVA. Further information can be found in Appendix D, E and F of this document.

## **8.5 Adjustment of Capacity Charges**

Ausgrid may vary the charges for capacity determined in accordance with Appendix D (section D4) if there are variations to the existing load. Such variations would be where plant or apparatus is being commissioned or is undergoing tests.

A Customer must apply in writing, using the form in Appendix A, with supporting documentation through their Retailer to Ausgrid to have any variation of charges considered.

## **8.6 Metering Equipment**

A Type 3 metering device must be installed before an EA380 HV connection (substation) tariff can be applied. It must be installed by an accredited meter provider in compliance with Chapter 7 (Metering) of the National Electricity Rules, the National Electricity Market Metrology Procedure, Market Operations Rule (NSW Rules for Electricity metering) No. 3 of 2001, the Service and Installation Rules of New South Wales, Ausgrid's Local Service and Installation Rules and any requirements imposed by Ausgrid.

A Customer can minimise their capacity charge by improving the overall power factor of the installation and by shifting peak demand from peak to off-peak periods. Installing power factor correction equipment will improve the power factor and hence reduce the measured kVA demand of the Customer's usage (by reducing the kvar delivered to the site).

## **8.7 Network Tariff Advice**

Customers who are considering installing power factor correction equipment should contact Ausgrid on telephone number 13 15 35. General information on demand management is available from [www.ausgrid.com.au](http://www.ausgrid.com.au).



## 9 EA390 Sub-transmission Connection Network Tariff

### 9.1 General Conditions

The Sub Transmission Connection tariff is applicable to consumers of high voltage electricity where the connection point is located at an Ausgrid Sub Transmission Substation (STS). A Type 3 (or better) metering installation that is capable of recording the energy consumed within specified time periods is required for this tariff (see Table 16).

### 9.2 Default Network Tariff

The default tariff applicable to sub transmission connection service Customers is the Sub Transmission Connection tariff for the particular network price group. Ausgrid will initially apply a default network tariff following the criteria outlined in Section 1.2 unless Ausgrid believes a network tariff review is required or the Customer's Retailer notifies Ausgrid via a written request of specific connection service details that could change the default network tariff for the customer.

#### 9.2.1 New Installations

New HV Customers connected at a Sub Transmission level are required to have a Type 3 (or better) meter installed. By default, new Sub Transmission Customers will be placed on EA390 Sub Transmission Connection tariff. A Customer wanting to be assigned to an alternative network tariff must apply through their Retailer to Ausgrid using the Network Tariff and Threshold Change Application Form (in Appendix A) with supporting documentation.

### 9.3 Tariff Components

This tariff has five components:

- (a) Network Access Charge comprising a fixed charge per day
- (b) Network Time of Use Charge comprising Peak, Shoulder and Off-Peak Energy rates
- (c) Daily Peak Capacity Charge (kVA)

There is a general explanation of the Network Tariff Components in Section 1.4. The following sections are specific to this tariff.

#### 9.3.1 Network Access Charge

A Customer will pay a Network Access Charge (NAC) for each separate energised connection point made to the Ausgrid network. The NAC is applied on a daily basis for each tariff applicable to the Customer.

#### 9.3.2 Time Periods

The time periods applicable to the EA390 Sub Transmission Connection tariff are shown in Table 16.

**Table 16: Charging Periods for the EA390 Sub Transmission Connection Tariff**

Charging Period	Time Period
<b>Peak</b>	From 2 pm – 8 pm on working weekdays.
<b>Shoulder</b>	From 7 am – 2 pm and 8 pm – 10pm on working weekdays
<b>Off-Peak</b>	All other times.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3am on the first Sunday in October to 2am on the first Sunday in April.

## 9.4 Capacity Charges

Capacity charges are applied to the highest kVAh reading over a standard half-hour interval that occurred at a Customer's connection point during the 12 months prior to a bill being calculated within the time bands of 2pm to 8pm on working weekdays. This half hour interval kVAh value is converted into an average kVA value for the specific half hour interval. The capacity charge is priced in cents per day per kVA and is calculated on the price times the number of days in the billing period times the measured capacity in kVA. Further information can be found in Appendix D, E and F of this document.

## 9.5 Adjustment of Capacity Charges

Ausgrid may vary the charges for capacity determined in accordance with Appendix D (section D4) if there are variations to the existing load. Such variations would be where plant or apparatus is being commissioned or is undergoing tests.

A Customer must apply in writing, using the form in Appendix A, with supporting documentation through their Retailer to Ausgrid to have any variation of charges considered.

## 9.6 Metering Equipment

A Type 3 (or higher) metering device must be installed before a sub transmission network tariff can be applied. It must be installed by an accredited meter provider in compliance with Chapter 7 (Metering) of the National Electricity Rules, the National Electricity Market Metrology Procedure, Market Operations Rule (NSW Rules for Electricity metering) No. 3 of 2001, the Service and Installation Rules of New South Wales, Ausgrid's Local Service and Installation Rules and any requirements imposed by Ausgrid.

A Customer can minimise their capacity charge by improving the overall power factor of the installation and by shifting peak demand from peak to off-peak periods. Installing power factor correction equipment will improve the power factor and hence reduce the measured kVA demand of Customer's usage (by reducing the kvar delivered to the site).

## 9.7 Network Tariff Advice

Customers who are considering installing power factor correction equipment should contact Ausgrid on telephone number 13 15 35. General information on demand management is available from [www.ausgrid.com.au](http://www.ausgrid.com.au).

## 10 Controlled Load Network Tariffs

Controlled Load tariffs are secondary tariffs and can only be applied at installations with one of the following 'Principal tariffs':

- EA010 Residential Inclining Block
- EA050 Small Business Inclining Block (Closed)
- EA025 Residential ToU
- EA225 Small Business ToU
- EA302 Low Voltage 40-160 MWh

Secondary tariffs apply to those separately metered loads which are controlled or interrupted by

Ausgrid. Only one controlled load secondary tariff is permitted per NMI for new installations. A secondary controlled load tariff is not permitted on installations where type 1-4 meters are installed.

These secondary tariffs apply to electricity used for operating storage water heaters, thermal storage space heaters and other approved appliances, provided that they comply with the requirements specified. The periods of use of these appliances will be determined by Ausgrid and the load will be controlled by Ausgrid's network equipment at times which may vary from day to day to meet network requirements.

The EA030 Controlled Load 1 tariff is available for supply that is usually connected for six hour duration between 10.00 pm and 7.00 am. Controlled Load 1 switching times may be varied at the discretion of Ausgrid.

EA040 Controlled Load 2 tariff is available for supply that is usually connected for sixteen hours per day including more than six hours between 8pm and 7am and more than four hours between 7am and 5pm. Controlled Load 2 switching times can be varied at the discretion of Ausgrid.

### 10.1 EA030 Controlled Load 1 Tariff for Storage Water Heaters

Unless otherwise approved by Ausgrid, supply at the Controlled Load 1 tariff is only available for use with storage water heaters with rated hot water delivery and heating element combinations that comply with the following table.

**Table 17: The Criteria for Eligibility of Controlled Load 1**

Total Rated Hot Water Delivery Litres	Main Element Rating kW	Nominal Main Element Supply Hours/Day
250	3.6	4
315	4.8	6
400	4.8	6
630	2 by 4.8	6
Above 630	Required to heat in 9 hours	9

The main element(s) will be controlled by Ausgrid's equipment so that supply is available only during hours determined by Ausgrid. Boosting and main heating elements need to be arranged so that both cannot be energised simultaneously.

### 10.2 EA040 Controlled Load 2 Tariff for Storage Water Heaters

The main heating element/s will be controlled by Ausgrid's equipment, so that supply is available only during hours determined by Ausgrid. Unless otherwise approved by Ausgrid, storage water heaters must comply with the following requirements.

- The rated hot water delivery will be 100 litres or greater.
- All heating elements will have a nominal rating of 4.8kW and will be arranged as shown in the following table.

**Table 18: Storage Water Heater Criteria**

Rated hot water delivery of heater	Number of heating elements
From 100 litres up to and including 400 litres	Minimum of one
Above 400 litres but not exceeding 630 litres	Minimum of two
Above 630 litres	Determined by Ausgrid

### 10.3 Other Equipment

The following equipment may be operated on either Controlled Load 1 or 2 in accordance with the following criteria.

#### 10.3.1 Requirements for other Heating Equipment

Unless otherwise approved by Ausgrid, other heating equipment shall comply with the following requirements.

- (a) The hours of availability of supply must suit the intended use of the appliance.
- (b) The provision of a suitable sealable contactor will be required where the total off-peak load exceeds 25 Amp, or if more than one phase of supply is switched, or motor starting current is involved.
- (c) Off-peak loads greater than 25 Amp may be connected directly to the 'uncontrolled' terminal of the new standard electronic meter (E2) provided that this is done in conjunction with the use of a sealable Customer supplied contactor controlled by the OP relay. The total loading on the meter (principal and off-peak tariff elements) is a maximum of 100 Amp.

#### 10.3.2 Battery Charging Equipment

Controlled load prices are available for permanently connected battery charging equipment. The charger will be controlled by Ausgrid's equipment so that supply is interrupted during peak periods as considered necessary by Ausgrid. The rating of the battery chargers will be not less than 3kW, either 15 Amp single phase or 5 Amp three phase.

#### 10.3.3 Swimming Pool Heating

For swimming pool heating and associated equipment refer to Section 10.8.

#### 10.3.4 Thermal Storage Space Heaters

The heating element will be controlled by Ausgrid's equipment so that supply is available during hours determined by Ausgrid.

### 10.4 Other Equipment

Heat pumps, swimming pool pumps, dishwashers, clothes dryers, washing machines, air conditioners, ice thermal storage and other appliances approved by Ausgrid may be installed as part of a controlled load installation, provided that:

- (a) The appliances are permanently connected, (connection by means of socket outlets is not acceptable). There is no minimum rating requirement for the appliance.
- (b) The Principal tariff applicable to the premise's use is one of the following.
  - i) Residential Inclining Block tariff
  - ii) Small Business Inclining Block tariff (Closed)
  - iii) Any low Voltage Time of Use (ToU) tariff
- (c) The whole of the Controlled Load installation is controlled by Ausgrid's equipment so that supply is only available during hours determined by Ausgrid.

Note: Costs may be involved in separation of wiring and switchboard alterations necessary to comply with the price conditions and that the service of an electrical contractor would be required.

Noise restrictions may prevent the use of pool pumps and heat pumps at the controlled load price due to the timing of the availability of this price. Customers should inquire with their local Council and the NSW Department of Environment and Heritage on noise restrictions before making a commitment to connect this type of equipment at a controlled load price.

## 10.5 Big Blue Continuous Price (Obsolete - Closed)

The Big Blue Continuous tariff is a product that is no longer offered by Ausgrid. For any existing hot water systems with boosting elements, Customers will be charged at the controlled load rate for both the top and bottom heating elements. The bottom element will be available during controlled load times and the top element will be available at any time.

## 10.6 Combinations of Storage Water Heaters

Controlled Load tariffs are available for combinations of storage water heaters dependent on the following conditions being met:

- (a) The combined rated hot water delivery must meet the minimum requirements for the particular price.
  - i) The rated hot water delivery of any heater must be 100 litres or greater.
  - ii) The combined total of the heating elements must be 4.8kW or greater.
  - iii) The combined rating of the heating element is to comply with the conditions of the price.

Where an additional water heater is being installed and conditions i, ii, and iii above are fulfilled, the usual number of heating hours available for the first heating element should be taken into account in selecting the rating of the additional heating element.

- (b) If the tanks are paralleled to a common hot water line, they will be considered as one. (For example, tank volume and element ratings are the sum of the individual ratings.)

## 10.7 Other Heating Sources

Controlled Load tariffs are not available to electrically boosted water heaters where gas, kerosene or other types of fuel are used as the primary source of heating.

Electrically boosted solar storage water heaters will be supplied at the Controlled Load tariff under similar conditions to other types of electric storage water heaters. The rated hot water delivery will include the electrically heated and solar sections of the unit.

Heat pump storage water heaters may be supplied by Controlled Load tariffs provided that

For connection to Controlled Load 1, a heat pump storage water heater shall be capable of recharging ( $\Delta t = 50 \text{ deg C}$ ) at least 250 litres in 6 hours.

For connection to Controlled Load 2, a heat pump storage water heater shall be capable of recharging ( $\Delta t = 50 \text{ deg C}$ ) at least 100 litres in 6 hours.

## 10.8 Swimming Pools, Spas and Turbo Tubs

An electrically heated swimming pool, spa or turbo tub is a storage water heater and is eligible for the Controlled Load tariff, dependant on the following conditions being met:

- (a) The nominal capacity of the pool or tub will be taken as the rated hot water delivery in determining eligibility for supply at the Controlled Load tariff.
- (b) The compressor and fans associated with heat pump systems used solely to transfer atmospheric heat to the pool or tub may be supplied at the Controlled Load tariff.
- (c) The device will be controlled by a Customer's contactor so that Ausgrid's time control device does not switch motor starting current.

Note: Noise restrictions may prevent the use of pool pumps and other similar equipment at the controlled load price due to the timing of the availability of this price. Customers should

enquire with their local Council and the NSW Department of Environment and Climate Change on noise restrictions before making a commitment to connect this type of equipment at a controlled load price.

### 10.8.1 Prohibition of Changeover Switching

The conditions of the Controlled Load tariffs make it clear that load supplied at the Controlled Load tariff may be given supply only within hours controlled by Ausgrid. Therefore, any arrangement, such as a change-over switch which would enable load normally supplied at the Controlled Load price to be transferred by the Customer to supply at another price is not allowed.

The above requirements do not prevent the arrangement of a domestic swimming pool heating unit (normally supplied at the Controlled Load price) from alternatively being used to heat a separate spa pool at the Domestic price by means of a change-over switch, provided that the following conditions are met:

- (a) The capacity of the main pool will meet the requirements of the Controlled Load tariffs in relation to the size of the heating elements.
- (b) The swimming pool and the spa pool must be separate. A spillway between the two pools is acceptable.
- (c) The water reticulation system associated with the swimming and spa pools will be controlled and suitably interlocked with the change-over switch and arranged so that when supply is available at the Controlled Load tariff, the heating element only heats the main pool at that tariff. When supply is not available at the Controlled Load tariff, the heating element is then available to heat the spa pool at the relevant residential tariff.

### 10.8.2 Protection of Pool or Spa Heaters

Refer to Service and Installation Rules of NSW and AS3142 for protection requirements of vented water heaters.

## 10.9 Special Conditions for Retirement Villages and Similar Accommodation

Table 19 sets out the reduced minimum rated hot water delivery levels for self contained and separately metered accommodation.

**Figure 19: Eligibility Conditions for Retirement Homes**

Maximum Number of Occupants in Premises	Minimum Rated Hot Water Delivery		
	Controlled Load 1	Controlled Load 2	Minimum Rating
<b>One</b>	80 litres	80 litres	3.6kW
<b>Two</b>	125 litres	80 litres	3.6kW

### 10.10 Newcastle and Hunter Regions

New installations in these areas may use 3.6 kW elements or those previously specified in this document.

### 10.11 Existing Installations

Storage water heaters and thermal storage space heaters, in premises previously supplied at any previous obsolete Controlled Load tariff, are eligible for supply at one of the current Controlled Load tariffs, subject to the approval of the installation by Ausgrid and the following requirements.

#### 10.11.1 Existing Water Heaters

Provided the heating elements comply with the requirements of Table 17 or Table 18, the following are permitted:

- (a) Existing water heaters formerly supplied at an obsolete price may be replaced by heaters of similar or increased capacity and supplied at the current appropriate Controlled Load tariff.

- (b) Existing water heaters that were eligible for supply at, but not necessarily connected at one of the obsolete controlled load prices at the time of installation may be supplied at the current appropriate Controlled Load tariff.

Existing units with 3.6kW elements are satisfactory. It is recommended that replacement water heaters utilise the same element rating as the previous unit provided that the volume of the unit remains the same.

Replacement with a 4.8kW unit may be done after a qualified person has inspected the existing wiring to ensure it has sufficient capacity and checked that the maximum demand of the premises does not exceed the current rating of the consumer's mains.

## **10.12 Contactor Installation**

For multiple phase controlled load installations or where the load is greater than 25A, the Customer is to comply with the requirements of the Service and Installation Rules of NSW, Section 4.11.3 'Load Control Equipment'.

# 11 EA010 Residential Inclining Block Network Tariff

## 11.1 General Conditions

The EA010 Residential Inclining Block tariff is the default tariff for private residential dwellings.

All residential Customers with new or upgraded switchboards which have a Type 5 meter (or above) are eligible for the EA010 Residential Inclining Block tariff and will be placed on the EA010 tariff as their default tariff if they are expected to consume less than 40 MWh per annum. Where meters are replaced by Ausgrid for maintenance or operational reasons the Customer's network tariff (where type 6 metering is replaced) will remain on the EA010 tariff. A residential Customer may request to be transferred to another network tariff through a request to their retailer.

## 11.2 Tariff Components

There are three components to the EA010 Residential Inclining Block tariff:

- Network Access Charge comprising a fixed charge per day;
- Network Usage Charge comprising an all time energy rate up to 1000 kWh per standard quarterly billing cycle (being 91 days);
- Network Usage Charge comprising an all time energy rate between 1000 kWh and 2000 kWh per standard quarterly billing cycle;
- Network Usage Charge comprising an all time energy rate for consumption in excess of 2000 kWh per standard quarterly billing cycle.

There is a general explanation of the Network Tariff Components in Section 1.4. The following sections are specific to this tariff.

## 11.3 Calculation of 1st, 2nd and 3rd Block Network Charges

As an example the determination of the energy volume to be charged at the 1st, 2nd and 3rd block rates is as follows:

A Customer's quarterly consumption is converted to a per day value for that period. For example, a Customer who consumed 2100 kWh over a 93 day cycle has used  $2100/93 = 22.58065$  kWh per day.

This is then compared to the 1st and 2nd block thresholds also converted to a daily volume, being  $(1000 \text{ kWh})/(91 \text{ days}) = 10.989011$  kWh per day and  $(2000 \text{ kWh})/91 \text{ days} = 21.978022$  kWh per day respectively.

Therefore the Customer has used 10.989011 kWh per day at the 1st block rate and 21.978022 kWh per day less 10.989011 kWh per day over the 93 day cycle for the 2nd block.

The 1st block volume is converted back to a total for the 93 days, being  $10.989011 \times 93 = 1021.98$  kWh in the 1st block. The 2nd block is then determined by subtracting the 2nd block total  $(21.978022 \times 93) = 2043.96$  from the 1st block total. This gives  $2043.96 - 1021.98 = 1021.98$  for the 2nd block. (Since the 2nd block is twice the 1st block, the 1st block and 2nd block volumes should be the same if the total quarterly consumption exceeds the 2nd block threshold).

Then whatever consumption is left over, being  $2100 - 2043.96 = 56.04$  kWh, is in the 3rd block.

Note that the 3rd block volume is determined by subtraction from the 1st and 2nd block volumes, rather than taking  $(22.58065 - 21.978022) \times 93$  days to determine the 3rd block volume, to avoid complex rules to deal with rounding problems while ensuring the total still comes to 2100 kWh.



## 12 EA050 Small Business Inclining Block Network Tariff (Closed)

---

### 12.1 General Conditions

The Small Business Inclining Block tariff is only available on a “grandfathered” basis for existing low voltage electricity supplied to premises for non-domestic purposes where the Customer:

- Consumes less than 40MWh per annum
- Has a cumulative register energy only meter installed (a Type 6 metering installation)

Ausgrid may transfer a Customer to another network tariff where the premise ceases to qualify for the EA050 tariff i.e. when a type 5 meter or better is installed. All non-domestic Customers with new or upgraded switchboards which have a Type 5 meter (or above) are not eligible for the Small Business Inclining Block tariff and will be placed on an appropriate Time of Use (ToU) Network tariff. Where meters are replaced by Ausgrid for maintenance or operational reasons the Customer's network tariff (where type 6 metering is replaced) will initially remain on the EA050 tariff. The Customer may be transferred after at least 12 months has elapsed to another network tariff as described in Section 1.

### 12.2 Tariff Components

There are three components to the Small Business inclining block tariff.

- Network Access Charge comprising a fixed charge per day.
- Network Usage Charge comprising an all time energy rate up to 2500 kWh per quarterly billing cycle.
- Network Usage Charge comprising an all time energy rate for consumption in excess of 2500 kWh per quarterly billing cycle.

There is a general explanation of the Network Tariff Components in Section 1.4. The following sections are specific to this tariff.

### 12.3 Calculation of 1st and 2nd Block Network Charges

As an example the determination of the energy volume to be charged at the 1st block rate and the energy to be charged at the 2nd block rate is as follows:

A Customer's quarterly consumption is converted to a per day value for that period. For example, a Customer who consumed 3000 kWh over a 92 day cycle has used  $3000/92 = 32.60870$  kWh per day.

This is then compared to the 1st block threshold also converted to a daily volume, being  $(2500 \text{ kWh})/(91 \text{ days}) = 27.47253$  kWh for each day.

Therefore the Customer has used 27.47253 kWh per day at the 1st block rate, and  $32.60870 - 27.47253 = 5.13617$  kWh per day over the 92 day cycle.

The 1st block volume is converted back to a total for the 93 days, being  $27.47253 \times 92 = 2527.47$  kWh in the 1st block. The 2nd block is then determined by whatever consumption is left over, being  $3000 - 2527.47 = 472.53$  kWh in the 2nd block.

**Note:** The 2nd block volume is determined by subtraction from the 1st block volume, rather than taking  $5.13617 \times 92$  days to determine the 2nd block volume, to avoid complex rules to deal with rounding problems while ensuring the total still comes to 3000 kWh.

## 13 Cost Reflective Network Prices (CRNP) Tariff

Ausgrid calculates a Cost Reflective Network Price (CRNP) specific to an individual large Customer's connection to the Ausgrid network. Each connection is serviced by network assets of different values dependent on voltage level, capacity and construction type. The CRNP price takes into account the Customer's annual utilisation of the network assets.

### 13.1 CRNP Assessment Criteria

To be eligible to receive a CRNP at a given connection point a Customer must be in the Ausgrid network area and meet at least one of the following criteria:

- (a) Have a monthly demand measured at the nominated connection point of 10 MW or more,
- (b) Have a recorded demand history of 10 MW or more in at least three months over the 12 month period prior to the assessment.
- (c) Have an annual consumption that exceeds 40 GWh.

On achieving eligibility, Ausgrid will take steps to re-assign the Customer to the CRNP tariff class and place the Customer on the CRNP whether the CRNP is higher or lower than the standard published NUoS Prices.

As the CRNP price relates to the specific assets used to supply a single Customer, it may be lower or higher than the averaged prices applied to smaller Customers – but in either situation the price will be as close as possible to what it costs to supply the Customer.

Once a connection point has met the eligibility requirements, the tariff re-assignment and CRNP price will not apply until a new Network Price List is applied (at the end of the financial year).

### 13.2 Annual Review

CRNP prices are assessed in January each year to allow time for submission to Ausgrid's Board and the Regulator prior to applying new prices, generally on 1 July. Once the new CRNP prices have been approved by the Australian Energy Regulator the CRNP Customers are advised of their approved prices for the following financial year.

### 13.3 Multiple Connection Points

CRNP Customers' electrical supplies must be individually metered, so as to identify the specific supply or supplies at or over 10 MW. Where a Customer has more than one connection point, the published NUoS Prices will apply to those connection points with a demand below 10 MW unless Ausgrid determines Section 13.4 applies. Therefore, it is possible for one Customer to have combinations of CRNP and published prices applying to different connection points at the one site.

### 13.4 Amalgamation of Connection Points

Where two or more connection points supplying the one Customer utilise common network assets, Ausgrid may combine the loads at each connection point in accordance with the amalgamation rules outlined in Section 1.13 and treat them as the equivalent of a single point of connection for the CRNP analysis, but applying the CRNP price to each separate connection point.

### 13.5 Capacity Charges

Capacity charges for CRNP Customers (if applicable) are applied to the maximum kVA power reading that occurred at a Customer's connection point over the 12 months prior to a bill being calculated within the time bands of 2pm to 8pm on working weekdays. Capacity charges are priced in cents per day per kVA and are calculated on the price times the number of days in the billing period times the measured capacity in kVA. Further information can be found in Appendix D, E and F of this document.

### 13.6 Transferring Off CRNP

On written application to Ausgrid or as assessed by Ausgrid, a CRNP Customer may be re-assigned to a more appropriate tariff class and to the network tariff appropriate to the connection point voltage under the following circumstances:

- The maximum demand (MW) on the CRNP connection point falls below 10MW for 6 consecutive months, or
- The annual consumption falls below 40 GWh and
- The Customer or their Retailer provides information outlining the reason for the permanent reduction of load on the connection point.

In any event, if Ausgrid determines or forecasts that the Customer's load may increase in the foreseeable future it may choose to reject the application for tariff re-assignment.

### 13.7 New Connection Services

Customers with new connection service(s) will normally be billed at published prices until the CRNP eligibility criteria have been achieved. CRNP transfers occur at the date of the next price change (usually 1 July).

### 13.8 Time Periods

The time periods applicable to CRNP tariffs are shown in the next table.

**Table 20: The Charging Periods for CRNP Tariffs**

Charging Period	Time Period
Peak	From 2 pm – 8 pm on working weekdays.
Shoulder	From 7 am – 2 pm and 8 pm – 10pm on working weekdays.
Off-Peak	All other times.

Note: All times take into account daylight saving during the period gazetted by the NSW Government, generally from 3am on the first Sunday in October to 2am on the first Sunday in April.

## 14 EA325 and EA360 Standby Tariffs (Closed)

---

### 14.1 Availability

These tariffs are now closed. Existing Customers with these tariffs may remain on these tariffs until further notice.

Standby supplies are loads not normally connected to the electrical supply system but increase the capacity requirements on the upstream system which must be capable of supplying the standby load in addition to normally supplied loads. In accordance with the current AEMO National Metering Identifier Procedure (NMI) document, the standby connection point must be assigned a separate NMI to the normal supply point.

The standby supply prices have four charging components; these consist of a fixed charge, and peak, shoulder and off-peak energy charges. The fixed charge is designed to recover the cost of the feeder, even while no capacity is being used. Whether or not the Customer uses the supply, the Customer will be charged a fixed daily charge for the provision of the supply.

The terms and conditions of a standby supply may vary according to the circumstances and such Customers may be required to enter into a connection agreement. Ausgrid reserves the right to reassess existing standby supplies at any time for their impact on the electricity system and apply revised or new standby prices according to current metering and pricing methodologies. In general standby supplies should not be used as the standard supply for a Customer.

A Capital Contribution usually applies to any connection as set out in Ausgrid's publication *ES8 Capital Contributions and Recoverable Work Guidelines*.

### 14.2 Use of Supply

Electricity supplied under this tariff may be used by the Customer for all agreed purposes for which electricity may be required to be used during outages of the normal means of supply at the Customer's premises.

### 14.3 Existing Standby Supplies

For Customers requiring standby supply from Ausgrid where agreements have already been entered into which do not comply with these requirements, the existing services are retained unless a change is specifically requested by the Customer.

## 15 Unmetered Tariffs

---

Unmetered supplies are metering installations that do not have a physical meter attached to the installation. These connections are also known as Type 7 metering installations.

Under Chapter 7 of the National Electricity Rules, a Type 7 metering installation classification applies where a metering installation does not require a meter to measure the flow of electricity in a power conductor and accordingly there is a requirement to determine by other means the energy data that is deemed to flow in the power conductor.

Type 7 installations will only be allowed for connection points where AEMO in consultation with Ausgrid determines:

- (1) the load pattern is predictable;
- (2) for the purposes of settlements, the load pattern can be reasonably calculated by a relevant method set out in the metrology procedure;
- (3) it would not be cost effective to meter the connection point taking into account:
  - the small magnitude of the load;
  - the connection arrangements; and
  - the geographical and physical location.

It is Ausgrid policy to connect unmetered supplies under these conditions if requested to the LV mains. The charges applicable are listed on the Network Price List, available on the Ausgrid website at [www.ausgrid.com.au](http://www.ausgrid.com.au).

A connection point that meets the condition for classification as an unmetered supply does not limit that connection point from being metered in the future. Where a Customer wants to transfer unmetered supplies into the contestable market according to the National Electricity Market Metrology Procedure, the 'Responsible Person' must prepare an inventory table of all the unmetered loads that are proposed for inclusion under a single NMI. To enable the inventory list to be produced the Customer will be required to provide a list of all unmetered loads, their installation location, and their estimated consumption to their Retailer.

For further Type 7 connection information see *ES1 - Customer Connection Information* which is available on the Ausgrid website.

## 16 Temporary Supply Network Tariffs

### 16.1 Application of Tariff

Temporary Supply applies to installations that are not permanently installed or do not provide a permanent supply to the areas in which they are required. The temporary supply tariff is effectively the appropriate existing tariff allocated to a Customer as per the details in table 21. A Network Tariff and Threshold Change Application Form (Appendix A) will have to be submitted for the supply to be considered at a substation price.

### 16.2 Customer Pays for the Cost of Supply

The Customer is responsible for the costs of installing and dismantling mains, meters and fittings and for the inspection, connection and disconnection of the Customer's installation as set out in Ausgrid's publication ES5 *Charges for Network Miscellaneous & Monopoly Services* and ES8 *Capital Contribution Guidelines*.

### 16.3 Temporary Supply will be separately metered

Temporary supply must be separately metered with Rules compliant meters and will have its own NMI, separate to any permanent supply and will not affect the permanent supply arrangement and its associated NMI.

Coincident demand is not permitted between permanent and temporary connection points.

**Table 21: Meters at Temporary Supplies must comply with the following table:**

Service Type	Capacity *	Meter **	Network Price
One Phase (only)	Less than 100 Amps	Type 5	LV Res <40 MWh (System)
Two or 3-phases	Less than 100 Amps	Type 5 Type 4	40 - 160 MWh (System) or LV 160-750 MWh (System)
3-phases	Greater than 100 Amps	Type 3	LV >750 MWh (System)

\* The capacity of the service is the maximum rating of the cable or busbar service as determined by Ausgrid.

\*\* There is an explanation of meter types in Section 1.9.

### 16.4 Temporary Experiments in Lighting and Industrial Processes

Where application for temporary supply for the purposes of carrying out experiments in lighting or industrial processes is made in writing and is approved by Ausgrid, supply will be made available at the network LV >750 MWh tariff.

When determining the applicable network charges to be made for , the temporary increase in the maximum power reading (as assessed by Ausgrid) caused by the connection and use of experimental apparatus will be waived, provided that:

- Supply will be made available under these conditions only if no alterations to Ausgrid's service or system are involved.
- The Customer will pay the cost of Ausgrid making only such modifications or additions to its metering equipment as may be necessary for its purposes. However the Customer may arrange for additional metering instruments to be installed, the cost of installing and removing these additional instruments to be paid by the Customer.
- The connection of apparatus under these conditions will be limited to a period of one month unless application for the extension of this period is made in writing and is approved by Ausgrid.

### 16.5 Temporary Connection of Permanent Installations

The reconnection of a permanent installation, even for a short period, does not qualify as a temporary supply.

## 17 Glossary

---

<b>*</b>	Definitions with a * are consistent with definitions given in the National Electricity Rules Chapter 10 – Glossary. (Source: <a href="http://www.aemc.gov.au">www.aemc.gov.au</a> )
<b>**</b>	Definitions with a ** are consistent with definitions given in the “Service and Installation Rules of New South Wales: Definitions”
<b>AEMC</b>	Australian Energy Market Commission
<b>AEMO</b>	Australian Energy Market Operator
<b>AER</b>	Australian Energy Regulator
<b>Amalgamation</b>	Usually refers to combining electricity accounts on to one bill. Amalgamated accounts just combine the dollar figures but the individual accounts are still calculated independently of each other.
<b>Billable Maximum Capacity</b>	The apparent power (kVA) or real power (kW) reading on which a Customer’s capacity charges are based. It is the highest recorded power reading for a connection point for the 12 months prior to a bill being calculated.
<b>Billing Period</b>	The time span that a network bill covers. The current network charges billing period is dependent on the meter type installed. Typically Type 4 or better meters will be read and billed monthly. Type 5 and 6 meters will be read and billed quarterly for non demand/capacity prices and monthly for demand/capacity prices. Each Customer’s Network bill is routinely sent to the Customer’s Retailer.
<b>Boosting Element</b>	A heating element, intended for use when supply is not available to the main heating element. Such heating elements are located near the top of the water heater in compliance with <i>AS 1056.1 Storage Water Heaters, Part 1 General Requirements</i> .
<b>Connection*</b>	To form a physical link to or through a transmission network or distribution network.
<b>Connection Service*</b>	A service provided to serve a <i>Customer</i> at a single <i>connection point</i> .
<b>Connection Point</b>	The physical point of connection between the Consumers Mains and the electrical distribution 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 equals two connection points.
<b>Connection Agreement*</b>	An agreement between a <i>Network Service Provider</i> and another person by which the other person is <i>connected</i> to the <i>Network Service Provider’s</i> transmission or distribution network and/or receives transmission services or distribution services.
<b>Consumers Mains**</b>	The Consumers Mains are the conductors between the <i>Connection Point</i> and the consumer’s main switchboard.
<b>Consolidation</b>	Refers to physically re-arranging the electrical installation or meters at a Customer’s installation. Removing two meters and replacing them with one meter is termed Meter Consolidation. Removing two services to a property and replacing them with one larger service is termed Supply Consolidation or Service Consolidation.
<b>CRNP</b>	Cost Reflective Network Price. A “customised” tariff that is available to a connection that either has a maximum demand in excess of 10 MW during a standard NEM half hour period on at least 3 occasions over a 12 month period or an annual consumption in excess of 40 GWh per annum.

<b>Customer</b>	See Network Customer
<b>Distribution Loss Factor (DLF)</b>	This factor accounts for losses in the distribution network. It is used by Retailers in the energy market settlements process and to calculate the Customer's energy consumption. The energy consumed by the Customer is increased by an average energy loss factor (DLF) for that type of Customer, which is usually expressed as a factor (e.g. 1.0516). The DLF does not include the Transmission Loss Factor, which is used in the market settlements to adjust the pool price at each connection point to the transmission network.
<b>Financially* Responsible</b>	In relation to any market <i>connection point</i> , a term which is used to describe the <i>Market Participant</i> which has either: <ol style="list-style-type: none"> <li>1. classified the <i>connection point</i> as one of its market loads;</li> <li>2. classified the generating unit connected at that <i>connection point</i> as a market generating unit; or</li> <li>3. classified the network services at that connection point as a market network service.</li> </ol>
<b>Financially Responsible Market Participant (FRMP) (For Customers, it is the Retailer of Choice)</b>	A registered participant in the National Electricity Market who is financially responsible for the settlement of energy related to a connection point. It is the Retailer selected by a contestable Customer (also known as the 'Customer's Retailer' or 'Retailer of choice').
<b>High Voltage Tariff</b>	A tariff that applies to connections that are connected at Voltages above 400 V that is neither a Sub transmission nor a CRNP tariff.
<b>Market Participant*</b>	A person who is registered by AEMO as a Market Generator, Market Customer or Market Network Service Provider under Chapter 2.
<b>MSATS</b>	Market Settlement and Transfer Solution
<b>National Electricity Market (NEM)</b>	A wholesale market for the supply and purchase of electricity combined with an open access regime for use of the transmission and distribution networks. The participating jurisdictions are the Australian Capital Territory, NSW, Queensland, South Australia, Victoria and Tasmania. The NEM arrangements are defined in the National Electricity Rules.
<b>National Metering Identifier (NMI)</b>	A unique identifier assigned to a connection point or meter configuration referenced in the National Electricity Market for all the operations of Customer registration, Customer transfer and related data transfer.
<b>Network Customer</b>	A network Customer defined as a person or entity who engages in the activity of purchasing electricity related services supplied through the distribution network (distribution Customer) or transmission network to a connection point.
<b>Network Service* Provider</b>	A person who engages in the activity of owning, controlling or operating a transmission or distribution system and who is registered by AEMO as a Network Service Provider under Chapter 2.
<b>Network Access Charge (NAC)</b>	Most Network Prices have a network access charge. It is a fixed charge applied to each connection point.
<b>Price</b>	The monetary value assigned to tariff components (i.e. cents per kVA or cents per day).
<b>Public Holidays</b>	All days normally gazetted by the NSW Government as public holidays that apply state wide including: New Year's Day, Australia Day, Good Friday, Easter Monday, Anzac Day, Queen's Birthday, Labour Day, Christmas Day and Boxing Day. Does not include non-regular or special event public holidays that apply to local areas, for example Newcastle Show Day.
<b>Retailer of Choice</b>	See Financially Responsible Market Participant.



<b>Responsible Person</b>	The responsible person is the person responsible for the provision, installation and maintenance of a metering installation in accordance with Chapter 7 of the National Electricity Rules and the AEMO Metrology Procedure.
<b>Storage Water Heater</b>	A device in which water is heated and stored and drawn off later as required. The water cannot be used within the container or within a closed circuit.
<b>Supporting Documentation</b>	<p>Information provided by the Customer or their Retailer to assist in the evaluation of a request for:</p> <ul style="list-style-type: none"> <li>• a price change from a System price to a Substation or price</li> <li>• a capacity value reset</li> <li>• standby charges</li> <li>• controlled loads.</li> </ul> <p>The supporting information may consist of:</p> <ul style="list-style-type: none"> <li>• a site sketch</li> <li>• recorded load profiles</li> <li>• detailed price analysis</li> <li>• network diagrams</li> <li>• network maps</li> <li>• details of load changes</li> <li>• conditions and arrangements letter associated with the installation of a substation.</li> </ul>
<b>System Tariff</b>	Applicable to the method of connection of a Customer's installation to Ausgrid's owned and operated distribution network.
<b>Thermal Storage Space Heater</b>	A device in which energy in the form of heat may be stored and later released to heat an airspace or building component (e.g. floor). The device may be in the form of an independent unit or it may be incorporated in the building structure, for example heating elements embedded in a concrete floor.
<b>Transition Tariff</b>	A tariff that may be available for a defined period following changes in Network pricing structures. Refer to the Network Price List for any current Transition tariffs.
<b>Tariff</b>	A pricing structure. (I.e. Time of Use tariff). A Network Access Charge is a component of a tariff. This document is only concerned with network tariffs.
<b>Tariff Class*</b>	A class of Customers for one or more direct control services who are subject to a particular tariff or particular tariffs.
<b>Transmission Node Identifier (TNI)</b>	The point in the transmission network assigned as the source of supply to a given connection point.
<b>Type 'N' or better</b>	Meters are categorised 1 to 7 according to functionality. The term 'or better' means one with a lower number e.g. Type 5 or better means 'a Type 1, 2, 3, 4 or 5'. (See Section 1.9)
<b>Working Weekday</b>	All days of a billing period other than those which are Saturdays, Sundays and public holidays.

## 18 References

---

The following documents are referenced in ES7. Ausgrid publications can be downloaded from the Ausgrid website.

<b>Network Pricing Proposal</b>	Ausgrid publication describing the pricing and services proposals and strategies. This proposal must be prepared annually for the AER approval and comply with the requirements as stipulated by the National Electricity Rules.
<b>Network Price List</b>	Ausgrid publication listing the current network access prices which apply to Ausgrid's tariffs.
<b>Standard Form Customer Connection Contract</b>	Ausgrid's Customer connection contract between Ausgrid and Customers who have applied for Customer connection services.
<b>National Electricity Rules ('Rules')</b>	Rules made under the National Electricity Law and regulate the terms of participation in the national electricity market for generators, transmission and distribution network owners and service providers, Retailers and Customers.
<b>National Electricity Metrology Procedure</b>	Procedures made by AEMO for ensuring compliance with the metering requirements of the 'Rules'.
<b>Service and Installation Rules of New South Wales</b>	NSW rules is based on an industry code recognized by NSW Industry and Investment that intended to provide requirements that an electricity distributor should apply in connecting a Customer to its distribution system. The requirements are essentially of a technical and safety nature.
<b>ES1 Premises Connection Requirements</b>	Ausgrid publication setting out requirements for the connection and upgrading the connection of private installations in Ausgrid's network area.
<b>ES4 Service Provider Authorisation</b>	Ausgrid publication describing the conditions for becoming authorized as an Accredited Services Provider working on Ausgrid's network.
<b>ES8 Connection Policy – Connection Charges</b>	Ausgrid publication setting out when a Customer is required to contribute to the cost of connecting to the network or of changing an existing connection to the network.
<b>Protection of the Environment Operations Act 1997</b>	NSW Act which may constrain the times or conditions when certain electrical equipment is used.
<b>AEMO NMI Procedure document</b>	AEMO document setting out NMI allocation rules.

## **Appendices**

### **Appendix A: Network Tariff Change Application Form**

Customers or their Retailer should submit this form to Ausgrid when the Customer wants to change to a different tariff or classification, this can also be used to have a tariff application investigated.

### **Appendix B: Request for Network Account Amalgamation at Customer Site**

Customers or their Retailer should submit this form to Ausgrid when the Customer wants to combine two or more accounts.

### **Appendix C: DLF Code Legend for MSATS**

Distribution Loss Factors (DLFs) are applied based on the Customer connection type. This section provides an explanation of how DLF codes are constructed.

### **Appendix D: Calculation of Network Price Components**

### **Appendix E: Calculation of Power**

### **Appendix F: Capacity Charge Example**

### **Appendix G: Daylight Saving Time**

# Appendix A: Network Tariff and Threshold Change Application Form

Customer / Business Name: ..... NMI .....

Signed (*customer*) ..... (*if the customer is requesting the change*)

Customer Name for Location of Supply Point:.....

Street Number ..... Street Name .....

City/Town ..... Postcode .....

**1.NMI Load:** Tick ☒ the box of the applicable load

☐ Below 40MWh p.a. ☐ Between 40 and 160 MWh p.a. ☐ Between 40 and 160 MWh p.a. ☐ Over 750MWh p.a.

Tick ☒ the box of the requested tariff

**2. ☐ LV >750 MWh Network Price**

The Customer confirms this NMI has annual energy consumption of more than 750 MWh and requests the LV >750 MWh Network Price

**3. ☐ LV 160-750 MWh Price**

The Customer confirms this NMI has annual energy consumption of between 160 MWh and 750 MWh and requests the LV 160-750 MWh network price.

**4. ☐ LV 40-160 MWh Price**

The Customer confirms this NMI has annual energy consumption of between 40 MWh and 160 MWh and requests the LV 40-160 MWh network price.

**5. ☐ Residential ToU Price**

The customer confirms this NMI has annual energy consumption below 160 MWh for residential use and requests the Residential ToU network price.

**6. ☐ Small Business ToU Price**

The customer confirms this NMI has annual energy consumption below 40 MWh for business use and requests the Small Business ToU network price.

**7. ☐ HV Connection (Substation) Price**

The Customer requests this site receive the HV Connection (Substation) Network Price. Fed from Substation No. .... Please supply with this application supporting documentation detailing eligibility for application of substation price.

**8. ☐ Co-incident Demand across multiple meters at a single connection point**

The Customer request this connection point be examined to receive Co-incident Demand and to be configured to meet the Code NMI Procedure requirements. If the request is not approved by EnergyAustralia Network the connection point will receive Arithmetic Demand

**9. ☐ Capacity Reset**

The customer requests that the Billable Maximum Capacity value be reset to a level other than the prior 12 month peak.

Reason for the capacity reset: .....

**10. ☐ Cost Reflective Network Price**

The customer requests a site specific network price. NB. The connection point demand must have exceeded 10 MW on more than three occasions over a 12 month period.

**11. NMI Re-Classification**

☐ Small

Where consumption over the last 12 months is below 160MWh

☐ Large

Where consumption over the last 12 months is 160MWh

**12. Customer Threshold Code – Business Customer Re-Classification**

☐ Low

Where consumption over the last 12 months is below 100MWh

☐ High

Where consumption over the last 12 months is above 100MWh

**The above declaration is endorsed by the customer's *Retailer of Choice*.**

Signed (*retailer*) ..... Retailer Name .....

Name (*please print*): Title: .....

Date: ...../...../..... Telephone: ..... Fax: .....

Postal Address: .....

City / Town ..... Post Code.....

NOTE: The above requested price, if approved, **will not** be backdated and will apply from the start of the next billing period.

Please return to the Ausgrid NEMS Group via EMAIL to - [nemsrpop@ausgrid.com.au](mailto:nemsrpop@ausgrid.com.au) or FAX to - 02 9277 3560

## Appendix B: Request for Network Account Amalgamation at Customer Site

To: NEMS From: \_\_\_\_\_ At: \_\_\_\_\_ Ph: \_\_\_\_\_

As the Customer's Retailer of Choice, I request that the Ausgrid accounts listed below be amalgamated into

☐ One NMI account, or ☐ Several NMI accounts as detailed in Account Group (below).

Existing meter numbers and	Supply Point Address Description	Current NMI

**Approval of this request is subject to Ausgrid's review of the network connection.**

Customer Name \_\_\_\_\_

Customer Address \_\_\_\_\_

\_\_\_\_\_ Postcode \_\_\_\_\_

Retailer's signature \_\_\_\_\_

*Ausgrid accounts use only*

Amalgamated Account No. \_\_\_\_\_

NMI description / addressing \_\_\_\_\_

Applicable Network Price \_\_\_\_\_ Number of network access charges \_\_\_\_\_

1. Use this form is to request an amalgamated Multiple Meter NMI.
2. Account amalgamation can only be considered for approval when all meters are Meter type 4 or better, and will not approved where meter types 5 or 6 are installed.
3. In general, each active Network account will have its own separate NMI and network charges.
4. Please Sign the form and fax the completed form to (02) 9277 3560 or scanned document email to nemsrpops@ausgrid.com.au
5. Any questions regarding this procedure should be directed to the Ausgrid National Electricity Market Support Group on (02) 9277 3535.

## Appendix C: DLF Code Legend for MSATS

### C1 Distribution Loss Factor

According to the AEMO Distribution Loss Factor (DLF) Codes document, the DLF codes will comprise 4 alpha-numeric characters, e.g. JHBL.

The DLF codes for Ausgrid tariffs are shown below.

Note: All CRNP Customer supplies have a specific DLF Code identified via the remaining three characters on an individual basis.

Tariff code	Network Tariff	Location	DLF CODE	Description
EA010	Residential Inclining Block	LV system	JLDL	Ausgrid - LV Domestic DLF
EA025	Residential ToU	LV system	JL40	Ausgrid - LV Domestic DLF
EA030	Controlled Load 1	LV system	JL1L	Ausgrid - LV Controlled Load 1
EA040	Controlled Load 2	LV system	JL2L	Ausgrid - LV Controlled Load 2
EA050	Small Business Inclining Block (Closed)	LV system	JLSL	Ausgrid - LV System DLF
EA225	Small Business ToU	LV system	JLSL	Ausgrid - LV System DLF
EA302	LV 160 MWh	LV system	JLSL	Ausgrid - LV System DLF
EA305	LV 160-750 MWh	LV system	JLSL	Ausgrid - LV System DLF
EA310	LV >750 MWh	LV system	JLSL	Ausgrid - LV System DLF
EA325	LV Connection (Standby Tariff) (Closed)	LV system	JLSL	Ausgrid - LV System DLF
EA360	HV Connection (Standby Tariff) (Closed)	HV system	JHSH	Ausgrid - HV System DLF
EA370	HV Connection	HV system	JHSH	Ausgrid - HV System DLF
EA380	HV Connection (Substation)	HV substation	JHBH	Ausgrid - HV Zone Substation DLF
EA390	ST Connection	ST System	JSSS	Ausgrid - ST System DLF
EA401	Public Lighting	LV system	JLSP	Ausgrid - Public Lighting DLF
EA402	Constant Un metered	LV system	JLSU	Ausgrid - Constant Unmetered DLF
EA403	EnergyLight	LV system	JLSP	Ausgrid - Public Lighting DLF

## Appendix D: Calculation of Network Tariff Components

### D1 Network Access Charge

This is applied in the form of a fixed daily charge for each energised connection point to Ausgrid's network. Application of Network Access Charge (NAC) is based on the number of connection points to a site (i.e. not on an NMI basis). For any non-standard connection or special connection arrangements, Ausgrid will assess the number of NACs applicable on a case by case basis.

### D2 Energy Usage Component

There are presently three principal tariff structures related to the use of network services. These are outlined below.

1. Inclining Block which has different prices for blocks of energy consumption over a billing period.
2. Time of use pricing which has different prices for energy consumed during specified periods of the day
3. Capacity based charging that is based upon the maximum energy demand during specified periods of the day. The cost of the maximum demand is then applied on an ongoing basis for a period of time (typically a year with Ausgrid's Tariffs) after the maximum demand event.

The energy usage component of the Residential ToU and the Small Business ToU network tariffs are charged using a three and two-block structure respectively as shown below. A pricing differential will apply between the blocks. When the price for the second block set higher than the first block, the tariff is called an Inclining Block Tariff.

Tariff Number	Tariff Name	First Block	Second Block	Third Block
EA010	Residential Inclining Block	First 1000 kWh per Quarter	Second 2000 kWh per Quarter	Consumption in excess second block
EA050	Small Business Inclining Block	First 2500 kWh per Quarter	Consumption in excess of first block	Not Applicable

A Quarter is defined as 91 Days, and bills covering periods greater or less than this amount will be pro-rated.

The energy prices for EA025 Residential ToU and EA225 Small Business ToU are applied to the energy usage in the predefined time periods to arrive at the energy usage charges.

The time periods that apply for the Residential ToU and Small Business ToU tariffs can be found in section 1.5.

### D3 Calculation of Capacity Charges

Capacity charges are applied to the maximum kW or kVA power reading that occurred at a Customer's connection point over the 12 months prior to a bill being calculated. This is known as the Billable Maximum Capacity. Metering will conform with the relevant tariff requirements. A tariff with a kVA capacity component will require that a meter is installed that can measure and record 30 minute interval kvarh use as per Ausgrid's requirements. (Refer Appendix E, section E5)

#### D3.1 Peak Times

The Billable Maximum Capacity can only occur in peak times which are from 2pm to 8pm on working weekdays.

### **D3.2 Charge in cents per day**

The capacity charge is in cents per day and the capacity charge component of the Customer's bill is calculated on the number of days in the billing period, the billable maximum capacity value and the daily capacity charge price.

### **D3.3 Arithmetic Demand**

It is Ausgrid's policy to apply arithmetic demand for capacity charging purposes. A separate power reading will be measured and applied at each connection point and its associated metering point. The maximum power in kVA or kW in the 12 month prior period shall be determined from the maximum reading of a demand meter or from the arithmetic sum of the maximum readings of all demand meters installed at each connection point. Therefore, coincident or summated demand is not permitted unless approved by Ausgrid.

The one exception to this rule is in the case of two or three phase supply at a connection point: co-incident demand is applied across the phases to determine the maximum demand for the connection.

One capacity charge is applied at each connection point. Coincident or summated capacity charges from multiple connection points are not permitted without the written approval of the Manager - Network Pricing.

## **D4 Reset of Capacity Charge**

In some instances the capacity charge may be reset, either by Ausgrid or at the request of a Customer. Customers are responsible for advising Ausgrid of their changed capacity requirements.

Where a Customer plans to permanently decrease their network capacity, the Customer should give Ausgrid written notice before the changes are due to occur. Permanent decreases are a result of the movement in demand due to either planned work to decrease the demand, such as decommissioning the plant, changing plant operations, or when load management equipment is installed. The decrease in capacity will need to be expected to last for at least twelve months before a reset of the Capacity charge will be approved by Ausgrid. A temporary reduction in capacity requirements will not result in a reset of the Capacity charge. The Customer will be required to provide relevant documentation that justifies the fall in the level of Billable Maximum Capacity. For example, in the case of a factory being converted to a warehouse, a Notice of Electrical Works (NOEW) will be required as evidence of the decrease in Billable Maximum Capacity.

The Customer will be advised by Ausgrid of the Billable Maximum Capacity level that will apply.

Ausgrid will also consider resetting the Billable Maximum Capacity in the following circumstances:

- where a Customer has implemented a demand management initiative which will permanently reduce the peak demand at the installation, such as power factor correction; or
- where an increase in the Billable Maximum Capacity has been caused by a change to the network configuration initiated by Ausgrid;

Customers that exceed their new Billable Maximum Capacity will see a ratchet up as usual. Customers may only request one reset per year.

A Customer wishing to apply for a reset of the Billable Maximum Capacity may make an application to Ausgrid's National Electricity Market Support group, by completing the application form in Appendix A and emailing it to: [nems.transfers@ausgrid.com.au](mailto:nems.transfers@ausgrid.com.au).

## **D5 Retail Transfers**

When a Customer transfers, the following historical information will be required by the new Retailer to replicate the capacity calculations:

- A full 12 months history of Peak Capacity values
- A list of NMIs which have multiple connection points

This information can be sourced from the National Electricity Market Support group of Ausgrid contactable by email: [nems.transfers@ausgrid.com.au](mailto:nems.transfers@ausgrid.com.au) or [nmi@ausgrid.com.au](mailto:nmi@ausgrid.com.au)



## D6 Price Category Changes

Where a Customer changes to or from price category EA302, the Billable Maximum Capacity may have no historical values. This is because EA302 has Billable Maximum Capacity measured in kW, not kVA.

All other transfers across price categories with kVA capacity charges will have the Billable Maximum Capacity values retained.

## D7 Daylight Saving Time

The time periods defined in Section 1.5 relate to local time. Local time is Eastern Standard Time except when Daylight Saving Time is gazetted by NSW Government for use as local time.

Where Customers have Rules compliant meters installed, half-hourly data is forwarded to Ausgrid's Meter Data Provider (MDP). The MDP stores all data in Eastern Standard Time (EST). During the period that daylight saving operates, Ausgrid's MDP converts the Customer's energy consumption to local time for the purpose of calculating consumption quantities in each period. This involves shifting the data forward by 1 hour. When daylight saving ends, the data is shifted back by one hour so that it aligns with EST.

Reference: New South Wales Government website [www.nsw.gov.au/daylight-saving](http://www.nsw.gov.au/daylight-saving)

### Example of the data shifting process during Daylight Saving Time and the effect on Customers

Eastern Standard Time	Local Time during Daylight Saving	Billing Implications
6:00 – 6:30am	7:00 – 7:30am	This half hour now falls into the Shoulder Period rather than Off-Peak Period

For more information see Appendix G.

## D8 Public Holidays

Ausgrid has defined all consumption in gazetted state-wide NSW public holidays as Off-Peak periods with the exception of Residential ToU and Small Business ToU. On public holidays, Residential ToU and Small Business ToU tariffs will have a shoulder period of 7:00 am – 10:00 pm.

Any public holidays that do not apply to the whole state of NSW are not considered as public holidays for the purpose of defining tariff time bands.

For the list of public holidays please refer the website [www.publicholidaysnsw.com.au/](http://www.publicholidaysnsw.com.au/)

## D9 Application of Distribution Loss Factor

Each network tariff category is allocated a Distribution Loss Factor (DLF). Network charges are calculated on the metered quantities and are not subject to DLF. However, it is the responsibility of Ausgrid to determine and publish DLFs.

The DLFs are used by Retailers in the energy trading and market settlement process to account for electrical losses in the distribution network. The DLF varies depending upon the location and voltage of a Customer's connection point

Similarly, Transmission Loss Factors are also used in the market settlement of energy to take account of electrical losses in the transmission network.

## Appendix E: Calculation of Power

This appendix describes the standard method of apparent power calculations that applies to the capacity component of Network tariffs contained in Ausgrid's Network Price List. It applies to all Customers billed with EA305, EA310, EA370, EA380 and EA390 network tariffs. The EA302 tariff uses real power (kW) as the capacity charge billing unit.

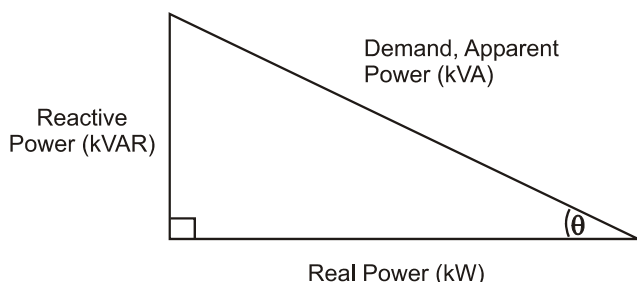
### E1 Definitions

The capacity charge is based on the Apparent Power (i.e. kVA) for the above specified tariffs. The relationship between all three types of power can be explained by the power triangle.

Component	Measurement Units
Real Power	kW
Reactive Power	kvar
Apparent Power	kVA

### E2 Power Triangle – Power Factor

This diagram shows the power triangle. It is a graphical representation of the relationship between Apparent Power, Real Power and Reactive Power. The power factor is given by the real power to apparent power 'cosine' ratio.



$$\text{Power factor} = \cos \theta = \text{Real Power} / \text{Apparent Power}$$

The real power is proportional to the work done. A low power factor means high apparent power if the real power to remain same.

### E3 Power Principle

A Customer's maximum power is a measure of the capacity that must be provided by the network. Power has two components, termed real and reactive. The real power is that which performs useful work, such as providing heating and motion. The reactive component is necessary for the flow of real power, and is part of the total demand upon the supply system. Reactive power typically results from the inductive loads such as coils in industrial AC inductive motors and transformers. It is the inductance of the coils that causes the difference between the real power and the apparent power.

Energy (kWh) is a measure of electricity consumption, or 'throughput' in terms of actual work done - Real Energy. Energy does not take into account the Customer's power factor.

The capacity charge applies to the maximum power in the Peak period since the marginal costs in providing supply are only incurred when the network is at, or close to full capacity. A Billable Maximum Capacity value measured in kVA takes into account a Customer's power factor and therefore poor power factors will see a higher billable amount for this component.

## E4 Power Calculations used for Capacity Charges

An apparent power reading (kVA used in apparent power capacity charging) is the square root of the addition of *the square of the real power* and the *square of the reactive power*, as measured over a fixed half-hour period. The reactive energy is the difference between the absolute value of lagging VARhs and the absolute value of leading VARhs.

For each half hour calculate the real (kW) and reactive (kVAR) power as follows.

$$\text{Real Power kW} = (\text{RealEnergy kWh}) * 2$$

Real Energy is measured by the meter and generally known as electricity consumption.

$$\text{Reactive Power kVAR} = (\text{Reactive Energy kVARh}) * 2$$

Reactive Energy is either measured by the meter or calculated as follows:

$$\text{Reactive Energy kVARh} = |\text{Lagging kVARh}| - |\text{Leading kVARh}|$$

For capacity charge calculations, the capacity value will be the highest apparent power reading over the previous 12 months that occurred between 2pm and 8pm on working weekdays.

$$\text{Apparent\_Power kVA} = \sqrt{\text{RealPower kW}^2 + \text{ReactivePower kVAR}^2}$$

## E5 kVARh measurement accuracy requirements

kVARh Accuracy Class 2 as per Clause 8 of AS62053.23 -2006 Electricity metering equipment (ac)  
- Particular requirements Part 23: Static meters for reactive energy (classes 2 and 3).

Leading and lagging kvarh are stored separately, and Ausgrid's MDP performs the relevant calculation.

## E6 Direct measurement of kVAh

Some meters can directly measure and record kVAh, however, since there is not yet an agreed upon standard for the direct measurement of kVAh, the historical method described above will be used to measure apparent power (kVA) for network billing purposes until further notice.

## Appendix F: Capacity Charge Example

The diagram below is an example of a Customer's Billable Maximum Capacity value, each month over five years. In this example the two features of the capacity charge are shown:

- monthly review of capacity charge (ratcheting)
- a reset of capacity where the demand has been reduced for 12 months.

The bold line shows the capacity value to be charged to the Customer to which the capacity charge would apply. During each financial year, when a monthly maximum power (in peak times) exceeds the capacity value, the line ratchets up (these are the months labeled 'ratchet up').

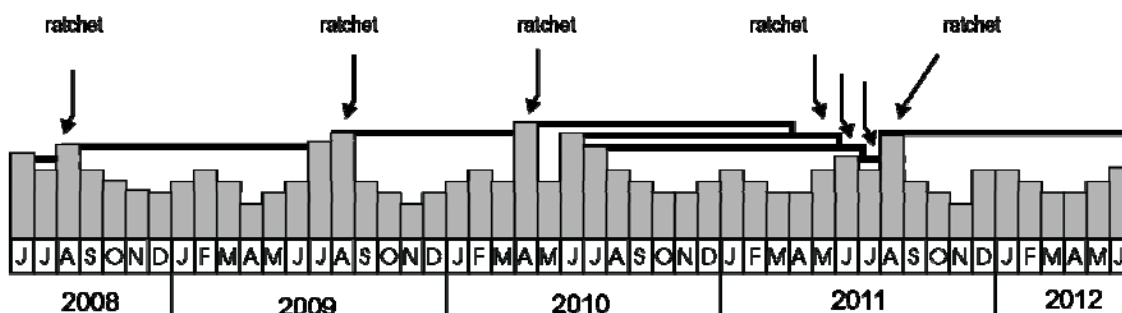
Where a peak power reduction is sustained over a 12 month period, the capacity value to be charged to the Customer is reset to the maximum power over that 12 month period (this is shown by the 'ratchet down' line).

In the example below in August 2008, the capacity value ratchets up because there is a new peak. The capacity value also ratchets up in August 2009 and April 2010 due to a new peak. The peak capacity interval can occur during any of the peak periods. For type 1-4 meters the billing period is from the start to the end of each calendar month, so for these meters the billing for a new capacity charge value starts from the beginning of the month in which the new peak capacity interval occurs. For type 5 meters the billing period for the new capacity charge value starts from the day after the meter read date just prior to when the new peak capacity interval occurred.

In April 2011 the capacity value ratchets down to the peak power reading of June 2010 since the previous value registered in April 2009 is now outside the rolling 12 month period and has not been exceeded over the previous 12 month period to April 2010. Similar reduction in the capacity value occur in June and July 2011 as the power values registered in June and July 2010 are now outside the rolling 12 month period and have not been exceeded over the previous 12 month period to June and July 2011.

In August 2011 however, the capacity value ratchets up again because there is a new peak.

The determination of what demand values fall within the 12 month rolling window is straightforward for calendar read sites with Type 1 to 4 metering. However Type 5 manually read interval metered sites can have slight variations in their read cycle, which require a definition to determine exactly what is meant by a 12 month window.



The following definition is applied in determining what monthly demand values are included in the rolling 12 month window.

1. Take the end date of the latest meter reading. Decrement the year of that date by one.
2. If this produces an invalid date (for example decrementing 29 Feb 2008 to 29 Feb 2007), then decrement the original end date by one day, and then decrement the year.
3. Add one day.
4. If the resulting day is a leap day, then add another day.

This will result in a 12 month window with a defined start date and end date. The logic is designed to account for leap years, where the same date does not exist either side of the leap year.

Any meter readings that have either a start or end date that falls within the 12 month window defined as above will be included in the rolling window calculation for determining the capacity value to be charged to that site.

Please note that where a demand meter reading period spans across the start of the one year window, the demand value is assumed to have occurred within the one year window.

**Table F1: Examples of capacity charge window for Type 5 metered Customers**

Date of Last Meter Read	Start Date of 12 month window	End Date of 12 month window
12 September 2008	13 September 2007	12 September 2008
28 February 2008	1 March 2007	28 February 2008
29 February 2008	1 March 2007	29 February 2008
28 February 2009	1 March 2008	28 February 2009

## Appendix G: Daylight Savings Time

---

The time periods defined in Ausgrid's Price list and ES7 apply to local time in New South Wales. Local time is the same as Daylight Saving Time while it is in operation, and for the rest of the year, local time is the same as Eastern Standard Time.

Ausgrid's prices are structured to follow the local time, whether that is Australian Eastern Standard or Daylight Savings time.

Customers on non-Time of Use network prices are not affected by Daylight Saving Time (DST). Customers on Time of Use network prices, but without Rules compliant meters installed, have their meters programmed to adjust automatically to DST.

Where Customers have joined the contestable market and have National Electricity Rules compliant metering, half hourly energy consumption data is forwarded to Ausgrid's Meter Data Provider (MDP). For the period that DST operates MDP converts the Customer's energy consumption to local time for the purpose of calculating consumption in each time period. The MDP stores all data in Eastern Standard Time (EST).

### G1 Start and End of Daylight Saving Time

The following convention is used in NSW:

*Start:* Daylight Saving Time (DST) normally begins at 2am Eastern Standard Time (EST) on the first Sunday in October. Therefore at 2am EST the clocks are put forward by one hour. The time then becomes 3am DST.

During Daylight Saving, Local time in New South Wales is one hour in advance of Eastern Standard Time.

*Finish:* Daylight Saving Time normally ends at 3am DST on the first Sunday in April. Therefore at 3am DST the clocks are put back by one hour. The local time then goes in line with 2am EST.

#### Example 1: The day Daylight Saving Time commences

The month of October will have 1 less hour in Local Time calculations. Where the hour is shown, for example, '1am', this is to be read as the hour ending at 1am.

**Example 1: The day Daylight Saving Time commences**

The month of October will have 1 less hour in Local Time calculations. Where the hour is shown, for example, '1am', this is to be read as the hour ending at 1am.

EST	kW	Local Time	kW
1 am	125	1 am	125
2 am	130	3 am	130
3 am	135	4 am	135
4 am	140	5 am	140
5 am	145	6 am	145
6 am	150	7 am	150
7 am	150	8 am	150
8 am	165	9 am	165
9 am	170	10 am	170
10 am	185	11 am	185
11 am	190	12 pm	190
12 pm	195	1 pm	195
1 pm	200	2 pm	200
2 pm	210	3 pm	210
3 pm	200	4 pm	200
4 pm	190	5 pm	190
5 pm	185	6 pm	185
6 pm	180	7 pm	180
7 pm	175	8 pm	175
8 pm	160	9 pm	160
9 pm	150	10 pm	150
10 pm	145	11 pm	145
11 pm	130	12 am	130
12 pm	125	1am	125

Assuming Daylight Saving Time commences. 1 hour lost (2-3am) on the day the change occurred. Only 23 hours in the day in Local Time are recorded and an hour shifted backwards until adjusted at the end of the summer.

The last hour of the day in EST becomes the first hour of the following day in Local Time (DST)

**Example 2: The day Daylight Saving Time ends**

The month of April will have one extra hour in Local Time calculations.

EST	kW	Local Time	kW
12 am	120	1 am	120
1 am	125	2 am	125
2 am	130	3 am	130
3 am	135	3 am	135
4 am	140	4 am	140
5 am	145	5 am	145
6 am	150	6 am	150
7 am	150	7 am	150
8 am	165	8 am	165
9 am	170	9 am	170
10 am	185	10 am	185
11 am	190	11 am	190
12 pm	195	12 pm	195
1 pm	200	1 pm	200
2 pm	210	2 pm	210
3 pm	200	3 pm	200
4 pm	190	4 pm	190
5 pm	185	5 pm	185
6 pm	180	6 pm	180
7 pm	175	7 pm	175
8 pm	160	8 pm	160
9 pm	150	9 pm	150
10 pm	145	10 pm	145
11 pm	130	11 pm	130
12 am	125	12 am	125

Assuming Daylight Saving Time finishes. One hour is gained.

25 hours in Local Time on the day time charged.