

# Ausgrid Network Pricing Proposal For the Financial Year Ending June 2012

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# **Ausgrid FY12 Network Pricing Proposal**

## **Part 1 Approach to Price Setting**



# 1. Introduction and Overview

## Introduction

Ausgrid's transmission and distribution services are subject to price regulation. The AER makes a five yearly determination, which sets a limit on the increase in distribution and transmission prices (X-factors) that can be applied by Ausgrid. The price limit is based on providing Ausgrid with a revenue requirement that is sufficient to recover efficient capital and operating costs.

On 30 April 2009 the Australian Energy Regulator (AER) made a determination on the X-factors to apply to Ausgrid's distribution and transmission services for the 2009-14 regulatory period.

Subsequent to this decision, Ausgrid (and the other two NSW distribution network businesses – Endeavour and Essential Energy) sought review of elements of the AER's determination. On 25 November 2009, the Australian Competition Tribunal varied the AER Determination by increasing the nominal vanilla WACC (that is, the rate of return on investments) from 8.78% to 10.02%. The Australian Competition Tribunal also increased Ausgrid's operating expenditure allowance by \$4.5 million.

The Tribunal's determination varied the X-factors to apply to Ausgrid's distribution and transmission services for the last four years of the regulatory period, from that which was published by the AER in its April 2009 determination. The amended X-factors are set out below:

**Table 1: Ausgrid's Annual X Factor – Remainder of Regulatory Period**

	FY10	FY11	FY12	FY13	FY14
<b>Forecast CPI</b>	2.47%	2.47%	2.47%	2.47%	2.47%
<b>Distribution</b>	-17.86%	-18.18%	-18.18%	-18.18%	0.77
<b>Transmission</b>	-7.77%	-18.46%	-18.46%	-18.46%	-2.02

In addition to its decision on the X-factors to apply to distribution and transmission services, the AER must also make a decision on the price control to apply to public lighting services. Ausgrid sought review of the AER's decision of April 2009. As a result of this review, the Australian Competition Tribunal remitted the decision back to the AER for re-determination. The AER's re-determination for Ausgrid's public lighting services was published on 15 April 2010, and is discussed in Chapter 7 of Part 1 and the customer bill information and proposed prices for public lighting services are provided in Attachment B and C, respectively.

As a result of the new overall X factor increases for distribution prices and transmission charges in FY12 and the contribution to the NSW State Government's Climate Change Fund, the total impact on the

overall network component of the annual electricity bill for customers on the inclining block tariffs (IBT) in FY12 is summarised below:

- a typical domestic customer<sup>1</sup> on IBT is estimated to receive a nominal bill increase of \$2.16 per week in FY12.
- a typical small business customer<sup>2</sup> on IBT is estimated to receive a nominal

<sup>1</sup> For an average domestic customer on the inclining block tariff who consumes 5,300 kWh per annum, and does not have controlled load hot water. Increase excludes GST. Retail related cost increases not included.

<sup>2</sup> For an average small business customer on the inclining block tariff who consumes 11,000 kWh per annum. Increase excludes GST. Retail related cost increases not included.

bill increase of \$4.73 per week in FY12.

### Document structure

This document is Ausgrid's Pricing Proposal for FY12.<sup>3</sup> It sets out how we propose to set network tariffs in FY12 to recover the efficient cost of owning, operating, maintaining and investing in the distribution and transmission networks.

This document also provides external stakeholders with the proposed prices for Ausgrid's alternative control (public lighting) services for FY12.

This proposal is submitted for review and approval by the AER as required by clause 6.8.2(a)(1) of the transitional chapter 6 of the National Electricity Rules (the Rules).

The proposal is split in two parts:

- Part 1 outlines Ausgrid's method and strategy in setting network prices. It is written with customers and other interested parties in mind, to assist in understanding how network tariffs are calculated.
- Part 2 is more technical in nature as it has been written specifically to demonstrate that Ausgrid's proposed network prices for FY12 comply with the obligations of the Rules. It also contains a discussion on Ausgrid's public lighting prices for FY12. Part 2 is structured to allow ready assessment of compliance by the AER.

While every attempt has been made to write Part 1 of this document in a style easily understood by external stakeholders that are not familiar with network pricing and regulatory concepts, it has been necessary to introduce the reader to some technical terms. To assist in understanding these technical terms, a comprehensive glossary section has been added to the end of Part 1.

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<sup>3</sup> Note that Ausgrid is the new brand name for the network business of EnergyAustralia. The EnergyAustralia brand was acquired by TruEnergy as part of the sale of the retail business to TruEnergy in 2010.

## 2. Background

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This section aims to provide an understanding of the historical context of Ausgrid's network prices for FY12 by discussing the progress made in reforming network tariffs over the past five years, the recent regulatory decisions by the Australian Energy Regulator (AER) for distribution and transmission network revenue and prices, and variations to this decision ordered by the Australian Competition Tribunal.

Ausgrid's distribution and transmission services are subject to price regulation by the AER under the Rules known as the 'Transitional Chapter 6 Rules'. The Rules apply for the 2009-14 regulatory period and are set out in Appendix 1 of Chapter 11 of the National Electricity Rules made under the National Electricity Law.

On a five yearly basis, the AER makes a determination which sets a limit on the price increases that we can charge customers (referred to as an X-factor for each year). The X-factors enable Ausgrid to recover an annual revenue requirement. The revenue requirement is based on the AER's appraisal of the efficient costs faced by Ausgrid for the five year period. As discussed below, distribution and transmission services are subject to different types of price control, and each have a set of X-factors.

### Weighted Average Price Cap (WAPC)

Ausgrid's distribution prices are governed by a Weighted Average Price Cap (WAPC). The WAPC is a price cap where a limit is applied to the annual movement in distribution prices. The limit applied under either a revenue or price cap is referred to as the X factor and could be positive (price or revenue reduction) or negative (price or revenue increase), refer to Section 3 of Part 1 of this document for a more detailed explanation of the WAPC constraint.

Under the WAPC, distributors need to ensure that their distribution charges are as cost reflective as possible. Otherwise, distribution prices may not generate sufficient revenue to cover the efficient cost of distribution service provision in the event of unanticipated growth in peak demand for network capacity, which drives the need for additional investment in network augmentation.

By improving the efficiency of network tariffs, customers are likely to better understand the economic cost of their network use. To the

extent that customers do not value their network use more than the economic cost, customers will respond by changing their network use to eliminate this economic waste. According to economic theory, this type of customer response promotes the optimal allocation of society's scarce resources. One consequence of the WAPC is that Ausgrid is exposed to distribution revenue risk arising from unanticipated variations in electricity consumption, which is discussed in more detail below.

### Revenue Cap

Ausgrid's transmission service prices are governed by a revenue cap. A revenue cap limits the amount of revenue that can be earned each regulatory year. This form of regulation provides Ausgrid with certainty that actual transmission costs incurred will be recovered from network customers, as any under (over) recovery of these transmission costs in a given year is allowed to be recovered in the following year (plus interest accrued) by adjusting transmission use of system charges in the subsequent period.

### Electricity consumption trends

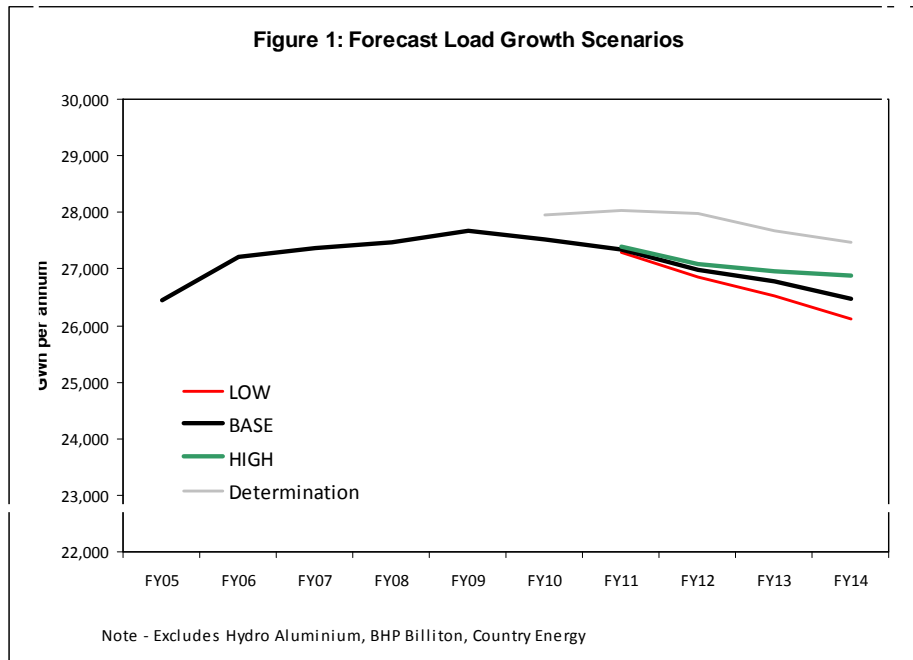
Every five years, the AER uses the distributor's forecast electricity volumes for the subsequent five year regulatory period to convert the allowable distribution revenue into a five year distribution price path. This in turn is used to calculate the cap on distribution price movements at each 1 July price reset (refer to X factors (see Table 1 above for Ausgrid's X factors and Table 2 for TransGrid's X factors). The AER approves the forecasts and therefore plays a critical role in determining the level of risk faced by Ausgrid in earning its allowable distribution revenue over the five year regulatory period in question.

Importantly, Ausgrid is not only exposed to forecast volume risk at the time the X factors are set (every five years), but volume risk also arises from annual variation in electricity consumption volume due to such factors as unexpected weather, the take up of appliances such as air conditioners, or factors such as an economic downturn.

This volume risk translates into a distribution revenue risk because network prices are set on an annual basis, using the predetermined X factors, based on the most recent complete

financial year of consumption. For example, the WAPC governing the setting of distribution tariffs in FY12 is based on the audited volumes for FY10. In simple terms, this means that if actual consumption in FY12 is lower than the audited consumption in FY10, it is likely that distribution revenue in FY12 will fall short of expectations.

A summary of the differences between the overall forecast volumes used to set the X factor in the AER determination and a feasible range of forecasts based on more recent data is shown in the following figure.



The future uncertainty in Ausgrid's volume environment reflected in Figure 1 above highlights the need for Ausgrid to continue to improve the cost reflectivity of network tariffs. It also highlights the importance of continued research into the underlying drivers of the electricity consumption behavior of households and business in Ausgrid's network area.

#### AER Final Decision (pre-Tribunal)

As discussed above, Ausgrid's distribution revenue and price paths are regulated by the AER. These are reviewed every five years. The most recent regulatory review concluded in April 2009, when the AER released its final determination for distribution and transmission. Ausgrid sought review from the Australian Competition Tribunal on elements of the AER's 2009 final determination, as set out below.

#### Tribunal Outcome

On 25 November 2009 the Australian Competition Tribunal made orders varying the AER's distribution determination for 2009–14 which included:

- determining the weighted average cost of capital (WACC) to be based on an August–September 2009 averaging period for the 10-year bond rates. This results in increasing the nominal vanilla WACC for Ausgrid to 10.02 per cent (from 8.78 per cent).
- increasing the controllable operating expenditure allowance for Ausgrid by \$4.5 million to \$2,582 million (in 2008/9 year dollars)

The Tribunal's determination varied the X factors to apply to Ausgrid's distribution and transmission services for the last four years of the regulatory period. The X factors for Ausgrid's distribution and transmission services during the 2009–14 regulatory period are set out below, in addition to the respective annual revenue requirements.

**Table 2: Australian Competition Tribunal Outcome for Ausgrid**

Ausgrid	FY10	FY11	FY12	FY13	FY14
<b>Distribution X factors</b>	-17.86%	-18.18%	-18.18%	-18.18%	0.77%
<b>Transmission X factors</b>	-7.77%	-18.46%	-18.46%	-18.46%	-2.02%
<b>Annual revenue requirement (distribution) nominal \$m</b>	1,330.5	1,519.6	1,702.8	1,903.1	2,059.3
<b>Annual revenue requirement (transmission) nominal \$m</b>	146.7	182.8	206.6	238.4	237.6

### Public Lighting Services

Ausgrid's public lighting services regulated by the AER through a price control mechanism that is separate to that for distribution services. It is reviewed every five years along side the review of the distribution price control. The most recent regulatory review concluded in April 2009, when the AER released its final determination for distribution and transmission.

On 25 November 2009 the Australian Competition Tribunal made orders varying the AER's distribution determination for public lighting charges over 2009-10 to 2013-14, which included:

- determining the appropriate cost of capital to be consistent with the that for distribution services.
- remitting the public lighting decision back to the AER for it to remake its decision in relation to the efficient public lighting operating expenditure and correct any errors it identified.
- requiring the AER to review its decision on Ausgrid's public lighting asset value.

On 15 April 2010, the AER completed its review of public lighting prices and revenues. The AER's determination is on its website and chapter 9 provides an overview of the prices and charges that will result from that determination.

### TransGrid

Ausgrid's network prices not only recover the efficient cost of operating, maintaining and augmenting Ausgrid's distribution and transmission assets, but they also include recovery for a portion of TransGrid's transmission costs.

TransGrid is the owner, operator and manager of the NSW high voltage network, connecting generators, distributors and major end users in New South Wales. TransGrid's network comprises of almost 12,500 kilometres of high voltage transmission line and underground cables up to a voltage of 500kV. It also has six interconnectors to Victoria and Queensland's transmission network. 60 percent of NSW energy is generated west of the Great Dividing Range and it must be delivered to the east coast, where most of the state's load is located. The Sydney, Wollongong and Newcastle areas consume 75 percent of the state's energy.

TransGrid also received a five-year revenue determination from the AER in April 2009. TransGrid operates under a revenue cap, which provides more revenue certainty than the price cap governing Ausgrid's distribution prices. TransGrid also sought review of elements of the AER's determination, and as a consequence the Australian Competition

Tribunal decided to vary the maximum allowed revenue (MAR) that was set out in the AER's

April 2009 determination for TransGrid. The smoothed MAR for TransGrid is set out below.

**Table 3: Australian Competition Tribunal Outcome for TransGrid**

\$ million	FY10	FY11	FY12	FY13	FY14
<b>TransGrid Maximum Allowed Revenue</b>	678.4	734.2	794.5	859.8	930.5

Some of the reasons for the recent significant increases in TransGrid's revenue recovery are as follows:

- increases in the regulated revenue caps for NSW transmission businesses for the next pricing period;
- a continuing fall in the value of National Electricity Market trading residues returned to customers as a reduction in transmission charges; and
- any pass through adjustments that have been approved by the AER.

In July 2010 TransGrid significantly rebalanced its transmission charges by removing the peak and shoulder energy prices and more than doubling the demand charge. Given the significance of this rebalancing of TransGrid's transmission charges, Ausgrid has decided to transition its transmission tariffs to cost reflective levels over a reasonable period where required to avoid imposing unacceptable price shocks on individual customers in the remaining years of the regulatory period.

### Solar Bonus Scheme

The NSW Government introduced the Solar Bonus scheme (SBS) in January 2010 to encourage small-scale generation in NSW, such as a solar photovoltaic (PV) system or wind turbine. Under the SBS, eligible participants<sup>4</sup> in this scheme are paid for the electricity generated. The tariff rebate is currently 20 per kWh for all electricity generated.<sup>5</sup> It is important to note that

participation in the SBS requires that the customer be on a network Time Of Use (TOU) tariff, as explained in Part 2 of this document.

### General Overview

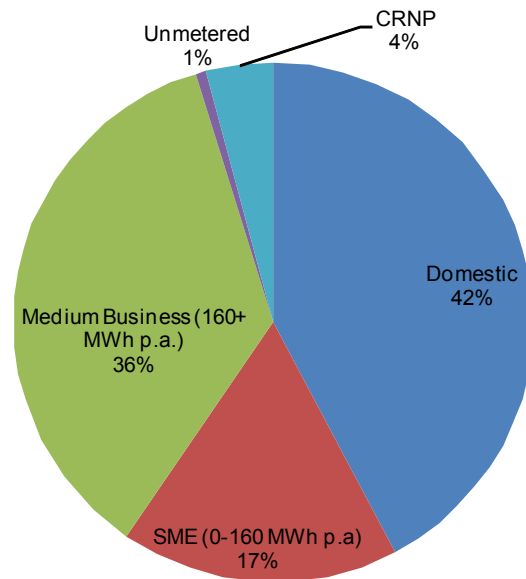
The revenue stream for the Ausgrid network business is derived from our customer base in the proportions shown in Figures 2a and 2b.

<sup>4</sup> Customers using less than 160 MWh pa with a small-scale generation unit of a maximum capacity of 10 kilowatts.

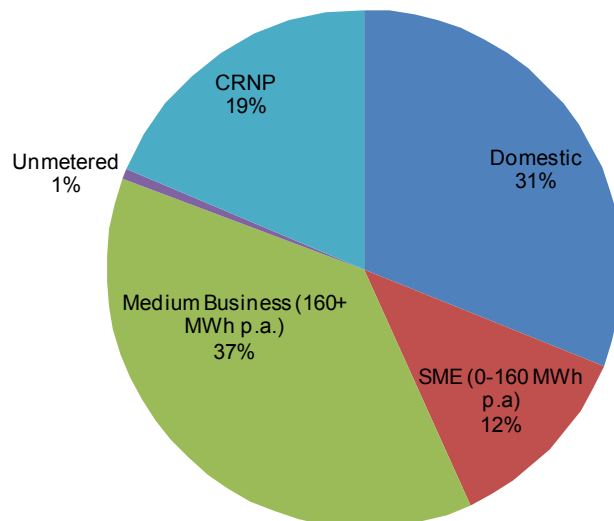
<sup>5</sup> Note that the tariff rebate was originally 60 cents per kWh, but was reduced to 20 cents per kWh for new

participants to the SBS who purchased their small-scale generation unit after 27 October 2010.

**Figure 2a: FY12 Expected Revenue by Customer Segment**



**Figure 2b: FY10 (Actual) Energy Consumption by Segment**

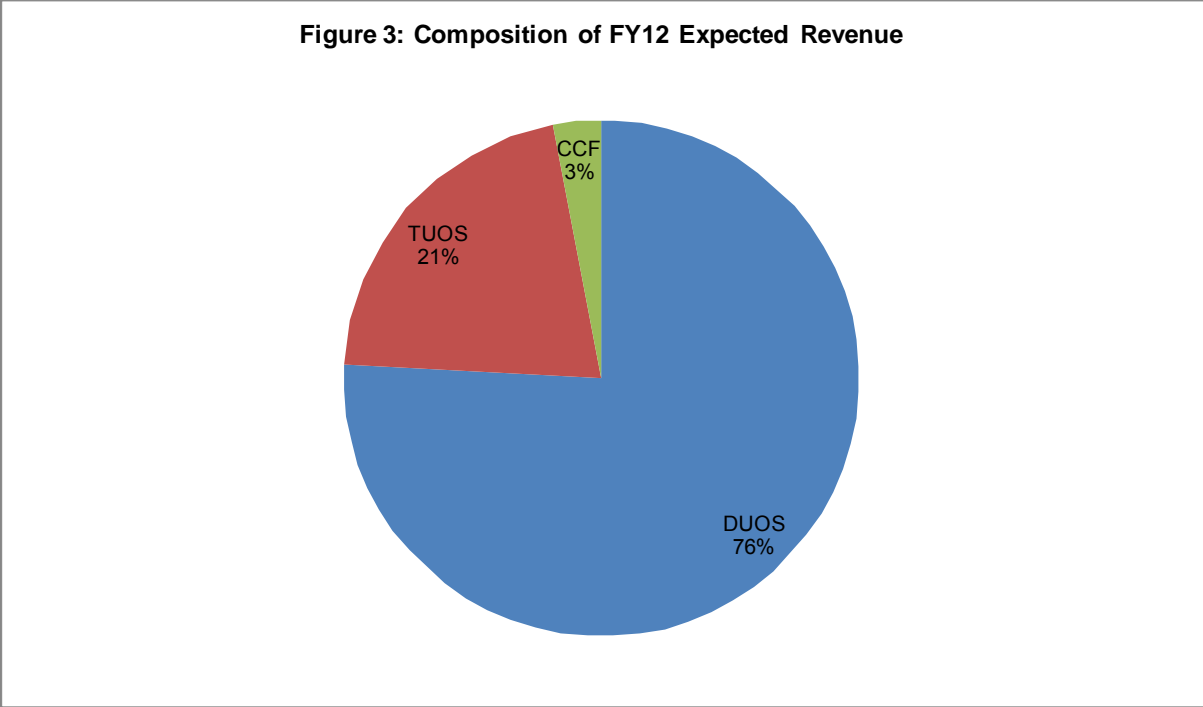


As can be seen from the above figures, Ausgrid's largest customers on a Cost Reflective Network Price (CRNP) tariff represent 19% of energy volumes but contribute only 4% of revenues. Conversely,

domestic customers consume about a third of the total energy volumes, but account for 42% of revenue. This is reflective of the amount of assets required to service these customers. For instance, large customers, though they use

large volumes, are connected high up in the distribution network, whereas smaller customers use the electricity network all the way down to their LV connection. Therefore the cost reflective price is therefore higher for low voltage connected customers, compared to the cost reflective price for customers connected at either the high voltage or sub-transmission voltage level.

Finally, Ausgrid’s network revenue is comprised of a number of components, as summarised in the following figure:



As shown above, the cost of owning, operating, maintaining and investing in the distribution network is the largest component of annual network revenue accounting for around 76%. Included in the distribution revenue are earnings derived from a range of ancillary activities, such as extra meter readings, new connections, answering conveyancing enquires etc. This accounts for approximately 1% of distribution revenue.

The second largest component is the recovery of the cost of transmission network services<sup>6</sup>, which accounts for around 21% of annual network revenue. Ausgrid is also required to make a contribution to the NSW Government Climate Change Fund, which is used to promote energy efficiency and renewable energy technology. This contribution accounts for only 3% of annual network revenue.

<sup>6</sup> The transmission network connects large generators together, and transports the energy they produce to distributors.

### 3. Pricing Methodology

The following discussion outlines how Ausgrid sets network charges, by providing an understanding of the four basic steps in setting of network tariffs, as summarised below:

- Identify a range of objectives for network tariffs to achieve.
- Develop pricing strategies that aim to achieve these objectives in a manner that strikes an appropriate balance between financial, economic and equity considerations.
- Establish an equitable amount of revenue to recover from each tariff class based on the users pay principle.

- Set network tariffs in accordance with the above steps and in compliance with price limits and the weighted average price cap imposed by AER.

#### Pricing Objectives

The network prices are set each year to achieve a range of economic and non-economic objectives, as summarised in the following table.

**Table 4: Ausgrid’s Network Pricing Objectives**

Objective		Description/Principle
<b>Achieve economic efficiency by providing customers with prices reflective of economic cost</b>		Efficient network tariffs signal to retailers the economic cost of providing network capacity to end-customers at different times.
<b>Achieve regulatory outcomes</b>		Network tariffs will be set in accordance with the National Electricity Rules and the AER Determination. This means that distribution prices should, depending on volume considerations, generate revenues that cover the efficient cost of owning, maintaining, operating and augmenting the network.
<b>Satisfy customers</b>	Comprehensible	Network tariffs should be designed to: <ul style="list-style-type: none"> <li>• Be as simple as possible so that customers are able to understand the bill implications of usage decisions.</li> <li>• Result in customers connected at the same level of the network with similar usage patterns receiving similar network charges.</li> <li>• Provide certainty of price movements, which in practice means that in some situations distribution prices need to be transitioned to desired levels to avoid imposing unacceptable price shocks on customers.</li> </ul>
	Equitable	
	Certainty	
<b>Equitable recovery of common network costs</b>		Allocate common costs of network service provision to tariff classes on the basis of user pays principle to ensure that prices lie between avoidable and standalone cost.

The pricing objectives identified in the above table are discussed in more detail below:

### ***Achieve economic efficiency***

Ausgrid believes that it is important that network tariffs provide customers with price signals reflective of the economic cost of network service provision. This approach to setting network tariffs ensures that customers make economically rational decisions about their network use.

A key strategy for achieving economic efficiency is to set prices for the use of the electricity distribution network during periods when the network is more likely to be congested reflective of marginal cost. This approach ensures that customers are informed of the economic cost of their network use and are more likely to make economically rational decisions in relation to changing their behaviour or investing in more energy efficient household appliances.

While some customers may place a high value on their peak network use and, therefore, be willing to pay the higher price of network use during peak periods, other customers are more likely to respond to these peak price signals by minimising their use of network during periods of network congestion, which is likely to contribute to a reduction in peak demand and consequently less need to invest in network peak capacity.

A full discussion on economic network pricing concepts is found in Part 2 of this document.

### ***Achieve regulatory outcomes***

To ensure the long-term viability of the network, regulators establish the annual revenue requirement of the distribution business by considering the efficient costs of owning, operating, maintaining and investing in the network over the regulatory period. This distribution revenue requirement is translated into X factors that cap the movement in weighted average price in each year of the regulatory period. This type of price control is referred to as a price cap.<sup>7</sup>

Under a price cap, the distributor is exposed to the risk that its tariffs will not generate sufficient distribution revenue to cover the efficient cost of owning, operating, maintaining and augmenting its distribution network. Therefore, an important aspect of the network price setting process is to develop strategies to

deliver regulatory outcome in a manner that does not expose the business to unacceptable levels of risk that distribution revenue will not be recovered. In an economic and volume environment of considerable uncertainty, this represents a significant challenge as it is important that revenue risk mitigation is achieved without compromising other pricing objectives, such as equity and efficiency.

### ***Make prices comprehensible***

Ideally, all customers should be able to understand how prices are determined and how their bills are calculated. Unfortunately, simplicity is not always consistent with achieving other goals. Developing prices which are as equitable as possible, which encourage economic behaviour and which ensure the right return on investment would lead to quite complex price structures. How the actual prices are calculated for each charging parameter (eg network access charge) is also similarly complicated given the competing objectives underpinning the price setting process. A major aim of this document is to provide a broad understanding of the process used to develop network prices.

More complex network prices have tended to apply to larger customers such as businesses, while domestic and small business customers – who comprise over 90% of the total customer base - have had fairly simple price structures. However, to continue to provide small customers with a highly averaged pricing signal is not desirable on economic and equity grounds. Over the remainder of the regulatory period, Ausgrid will focus on exploring a range of reform options that aim to lay the foundation for more cost reflective pricing signals for all network customers. The challenge will be to develop pricing structures that are not only more cost reflective, but are also able to be understood by retailers and their end-customers.

### ***Provide certainty over future price trends***

It is not desirable to make unexpected changes to the structure and level of network charges as this is likely to undermine the willingness of customers to make permanent changes in their network use, such as investing in more energy efficient appliances. Changes to the structure of tariffs creates uncertainty over the extent to which these changes result in lower network bills in the future.

It is for this reason that Ausgrid is committed to providing external stakeholders with as much certainty as possible over the future direction

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<sup>7</sup> Unlike distribution, the recovery of transmission costs is governed by an overs and unders account ie revenue cap.

of network prices. This commitment takes many forms, such as publishing the pricing proposal and statement of expected price trends, stakeholder engagement and consultation that aim to provide interested parties with an understanding of Ausgrid's approach to setting network tariffs and potential tariff reform options being investigated.

This commitment also directly influences the setting of network tariffs to ensure that prices are transitioned to cost reflective levels, where necessary to avoid imposing unexpected price shocks on customers. Ausgrid is confident that this approach will realise the benefits of more efficient prices without raising undue equity concerns.

#### ***Make prices equitable for all customers***

Ausgrid seeks to ensure that network prices are equitable as well as economically efficient. This concept of equity means that two customers with similar network usage patterns located next door to each other should expect to be charged on the same basis, customers whose location or consumption pattern cost the DNSP more to service should expect to pay a greater cost.

#### ***Equitable recovery of common network costs***

Ausgrid believes that the allocation of common network costs to individual tariff classes on the basis of the 'user pays' principle is the most equitable approach to establishing how much distribution revenue to recover from each tariff class. In recent years, Ausgrid has been refining its cost allocation approach so that the amount of distribution revenue recovered from a particular tariff class is as close as possible to the cost incurred by Ausgrid to provide network service to these customers. This approach will also ensure that distribution prices are likely to lie between avoidable and standalone cost, as required by the National Electricity Rules (as discussed in detail in Part 2 of this document). This is important as it means that the network tariff setting process will not result in economic subsidies between tariff classes.

While it is desirable in theory to set network tariffs that achieve perfect cost reflectivity at the tariff class level, in practice such an approach would result in unnecessary pricing uncertainty given that the cost allocation process is influenced by relative volume movements. In practice, it is preferable to balance the competing needs of price path

certainty and the user pays principle by transitioning tariffs to cost reflective levels over a reasonable time period. For example, Ausgrid has adopted transitional network pricing arrangements to avoid imposing unacceptable bill impacts on customers from directly passing through TransGrid's transmission charges in FY12.<sup>8</sup>

#### **Overview of network pricing strategies**

Ausgrid has been at the forefront of network pricing in Australia with the introduction of a wide range of tariff reforms over the past five years, such as the introduction of ToU pricing to a large number of small business and domestic customers; increases in peak energy and peak capacity charges toward economic cost, simplification of capacity charge to be on a rolling twelve month window, rather than on a fixed 24 month window with a complex reset arrangement, and the introduction of capacity charges for business customers who consume as little as 40 MWh per year.

The following table provides a high-level description of the pricing strategies that promote the achievement of one or more of the pricing objectives discussed above.

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<sup>8</sup> Note that TransGrid significantly reformed the structure of transmission charges in FY11 by removing the peak and shoulder energy charges and increasing demand charges by around 150%.

**Table 5: Summary of Ausgrid’s Network Tariff Strategy**

Objective		Strategy/Comment
<b>Achieve economic efficiency by providing customers with prices reflective of economic cost</b>		Network tariffs have been designed to reflect economic cost to the extent possible given existing tariff structures and metering constraints. Ausgrid is also committed to investigating more cost reflective forms of network pricing, such as dynamic tariffs and more innovative approaches to signalling economic cost, such as dynamic rebates and to increasing the number of customers on more cost reflective network tariffs, where it is economically and socially desirable to do so. It is for this reason that Ausgrid proposes to re-assign a significant number of customers to a more cost reflective network tariff in FY12 given their consumption and metering functionality.
<b>Achieve regulatory entitlements</b>		Network tariffs have been developed in accordance with the Weighted Average Price Cap constraint and price limits and the pricing principles set out in the National Electricity Rules (refer to Part 2 of this document). As a result of increased uncertainty about future volume movements, greater emphasis has been placed on increasing fixed and capacity charges where this is economically justified and socially desirable to do so.
<b>Satisfy customers</b>	Comprehensible	Ausgrid is committed to simplifying the network tariffs where appropriate.
	Fairness	Ausgrid is committed to developing network tariffs and assigning customers to network tariffs on a non-discriminatory basis (refer to Attachment G).
	Stable	Ausgrid is committed to provide retailers and end-customers with certainty over the direction of network prices through publishing pricing documents, the retailer’s forum and through the establishment of transitional price path arrangements to cost reflective levels.
<b>Equitable recovery of common network costs</b>		Ausgrid is committed to improving its allocation of network costs to individual tariff classes to ensure that the amount of distribution revenue recovered from customers in a particular tariff class is as close as possible to the costs that Ausgrid incurs on these customers’ behalf.

Ausgrid believes that it is important to provide external stakeholders with an understanding of not only the basis of the proposed network prices for FY12, but also the potential medium to longer term direction of Ausgrid’s network prices. In this way, retailers and other interested parties will be better aware of the potential reforms to network tariff structures and weightings between charging parameters. The following discussion provides an understanding of the key pricing initiatives that

are most likely to influence the future direction of Ausgrid’s network prices:

### Ausgrid's Time of Use (ToU) electricity pricing program

Ausgrid has been at the forefront of Time of Use (ToU) metering and pricing innovation in Australia since 2004 with its ToU program, as summarised below:

- Disc meters at the majority of medium sized customer premises (in the consumption range of 15- 160 MWh per annum) have been replaced by interval meters. This meter replacement program has reached completion;
- Most customers with interval meters have been transferred to ToU prices; and
- All new and upgraded customer connections receive an interval meter. This includes new domestic dwellings as well as businesses.

The Independent Pricing and Regulatory Tribunal (IPART), in its 2004 Determinations,

facilitated this ToU program by allowing expenditure for meter replacement and modifying the pricing side constraints to allow ToU prices to be mandated.

Ausgrid has rolled out interval meters to around 300,000 customers. By June 2014, it is anticipated that in the absence of a mandated Advanced Metering Infrastructure role-out, over 500,000 customers will have an interval meter installed in their premise, making it the largest deployment of interval meters in Australia.

### Ausgrid's strategic pricing study

Ausgrid has completed a Strategic Pricing Study (SPS) that was designed to quantify how customers would respond to tariff reform initiatives such as Seasonal ToU and Dynamic Peak Pricing.

A summary of the key results are shown in the following table.

**Table 6: Residential Response Levels to Dynamic Tariffs**

Tariff	Average across all DPP events	Extreme Temperatures		Assessment
		Winter (5°C)	Summer (31°C)	
Information Only	11%	11%	13%	Inconsistent, ranges from -1% to 24%
DPP Medium with IHD	25%	30%	36%	No difference in response between medium \$1/kWh and high \$2/kWh
DPP High with IHD	25%			
DPP High without IHD	23%			IHDs add minimal response

The key learnings from the study are:

- Domestic customers who sign up to the tariff respond well to dynamic tariffs, and are willing to reduce their air conditioning usage on hot days, despite popular belief to the contrary. The further away from the comfortable 18° to 22° Celsius range, the greater the demand response.
- Despite the apparent complexity of dynamic tariffs, customers are able to understand the concept.
- The dynamic price could probably be set at 50- 70c/kWh and still achieve comparable reductions. The demand response to prices above \$1/kWh appears to be saturated.
- 0-160MWh p.a. business customers showed no response to dynamic tariffs during the trial. It may be that they

would respond to price signals over the longer term.

While these results demonstrate that innovative network tariffs have the potential to play a role in demand management, more work is required to better understand the equity, economic, financial and regulatory implications of these tariffs.

#### Proposed new tariff trial during 2009-14 Regulatory Period

Ausgrid is planning to build on the results of the Strategic Pricing Study by launching a new tariff trial during the current regulatory period. The trial will examine a KW-based network tariff as a method of achieving demand response. As with any innovative tariff structure, an important part of this trial will be to better understand the acceptability of KW-based price signals to end-customers (and retailers).

Ausgrid is also testing a comprehensive range of innovative tariffs as part of the *Smart Grid*

*Smart City initiative* (refer to Chapter 6 of Part 1 of this document for more information on this initiative).

#### Compliance with regulatory constraints

The AER's 2009-14 Determination specifies a Weighted Average Price Cap (WAPC) control mechanism for standard (distribution) control services. The WAPC limits price movements over the regulatory period, so that the business receives revenue gains or losses depending if volumes rise or fall. The WAPC works by weighting each proposed price by its historic volumes, and dividing this result by existing prices weighted by the same historic volumes. This "weighted average" price increase is limited to a combination of CPI, X factor and D factor for that year:

#### Weighted Average Price Constraint

The weighted average price cap formula is defined below:

**Figure 4: Weighted Average Price Cap (WAPC) Formula**

$$\frac{\sum_{i=1}^m \sum_{j=1}^n p_t^{ij} \times q_{t-2}^{ij}}{\sum_{i=1}^m \sum_{j=1}^n p_{t-1}^{ij} \times q_{t-2}^{ij}} \leq (1 + \Delta\text{CPI})(1 - X_t)(1 + D_t)$$

where:

- $p_t$  = the proposed prices for the upcoming financial year
- $p_{t-1}$  = prices for the current financial year
- $q_{t-2}$  = volume quantities from the most recently completed financial year
- $X_t$  = the allowed real average price increase set by the AER from their April 2009 Determination
- $D_t$  = the AER approved adjustment to recover costs from successful demand management initiatives
- $\Delta\text{CPI}$  = the most recent historic average December to December change in CPI

For FY12, the change in CPI is 2.85%, the allowed X-factor is 18.18% and the D-factor is -0.001%. Distribution prices are therefore allowed to increase on a weighted average basis by 21.43% for 2011/12.

Refer to Part 2 of this document for a comparison of the overall WAPC constraint and the weighted average distribution price increase for FY12.

### Price Limits

In addition to the weighted average price constraint, increases to Ausgrid's distribution prices are also constrained by price limits that apply to each tariff class, rather than on an individual tariff basis. Specifically, the National Electricity Rules require that the expected weighted average distribution revenue to be raised from a tariff class must not exceed the overall CPI+X constraint plus 2%.

## 4. Summary of Proposed Network Tariffs for FY12

This section aims to provide external stakeholders with an understanding of the proposed changes to the major published network tariffs (inclusive of Climate Change Fund contribution) for FY12. Please note that the prices presented below have been rounded to two decimal places for presentation purposes.<sup>9</sup>

The following table provides a comparison of the network tariffs (inclusive of Climate Change Fund contribution) for FY11 and the proposed network tariffs for FY12 for residential customers.

**Table 7: Proposed Network Tariffs – FY12 – Residential Customers**

Charging Parameter	Actual FY11	Proposed FY12	% Variation
<b>Inclining Block Tariff (EA010)</b>			
<b>Fixed Charges (C/day)</b>	23.3146	28.2338	21.10%
<b>First Block (C/kWh)</b>	8.8922	10.6270	19.51%
<b>Second Block (C/kWh)</b>	13.7961	16.4049	18.91%
<b>Time Of Use Tariff (EA025)</b>			
<b>Fixed Charges (C/day)</b>	32.4600	39.3088	21.10%
<b>Peak (C/kWh)</b>	20.1958	22.2350	10.09%
<b>Shoulder (C/kWh)</b>	4.3206	4.4000	1.84%
<b>Off-peak (C/kWh)</b>	2.0272	2.1086	4.02%
<b>Note - Prices exclude GST</b>			

<sup>9</sup> Please refer to chapter 3 of Part 2 of this document for a complete listing of Ausgrid's proposed prices for FY12 for all of the published network tariffs.

The following table provides a comparison of the actual network tariffs for FY11 and the proposed network tariffs for FY12 for controlled load customers.

**Table 8: Proposed Network Tariffs – FY12 – Controlled Load Customers**

Charging Parameter	Actual FY11	Proposed FY12	% Variation
<b>Controlled Load 1 Tariff (EA030)</b>			
Fixed Charges (C/day)	1.5406	1.5829	2.75%
Non-TOU Charge (C/kWh)	1.5574	1.7126	9.97%
<b>Controlled Load 2 Tariff (EA040)</b>			
Fixed Charges (C/day)	5.9444	6.1077	2.75%
Non-TOU Charge (C/kWh)	3.8400	4.0997	6.76%
<b>Note –. Exclude GST.</b>			

The following table provides a comparison of the actual network tariffs for FY11 and the proposed network tariffs for FY12 for small business customers.

**Table 9: Proposed Network Tariffs – FY12 – Small Business Customers**

Charging Parameter	Actual FY11	Proposed FY12	% Variation
<b>Inclining Block Tariff (EA050)</b>			
Fixed Charges (C/day)	71.8200	91.7267	27.72%
First Block (C/kWh)	7.6448	9.0538	18.43%
Second Block (C/kWh)	11.5700	14.2635	23.28%
<b>Time Of Use Tariff (EA225)</b>			
Fixed Charges (C/day)	32.0000	63.9265	99.77%
Peak (C/kWh)	20.6486	21.9707	6.40%
Shoulder (C/kWh)	4.3483	5.3188	22.32%
Off-peak (C/kWh)	1.8858	2.0743	9.99%
<b>Note – Exclude GST.</b>			

The following table provides a comparison of the actual network tariffs for FY11 and the proposed network tariffs for FY12 for medium/large business customers connected at the low voltage level of the distribution network.

**Table 10: Proposed Network Tariffs – FY12 – Medium Businesses**

Charging Parameter	Actual FY11	Proposed FY12	% Variation
<b>Time Of Use Tariff 40MWh to 160 MWh pa (EA302)</b>			
<b>Fixed Charges (C/day)</b>	100.8112	200.0000	98.39%
<b>Peak (C/kWh)</b>	9.8264	9.3538	-4.81%
<b>Shoulder (C/kWh)</b>	6.9074	7.4156	7.36%
<b>Off-peak (C/kWh)</b>	2.4469	3.9933	63.20%
<b>Capacity (c/kW/day)</b>	13.9129	27.0000	94.06%
<b>Time Of Use Tariff 160MWh to 750 MWh pa (EA305)</b>			
<b>Fixed Charges (C/day)</b>	187.8872	350.0000	86.28%
<b>Peak (C/kWh)</b>	9.1752	8.8538	-3.50%
<b>Shoulder (C/kWh)</b>	6.7705	7.1538	5.66%
<b>Off-peak (C/kWh)</b>	2.4796	3.3541	35.26%
<b>Capacity (c/kVA/day)</b>	14.5054	27.0000	86.14%
<b>Time Of Use Tariff Above 750 MWh pa (EA310)</b>			
<b>Fixed Charges (C/day)</b>	320.8158	350.0000	9.10%
<b>Peak (C/kWh)</b>	7.7288	8.8538	14.55%
<b>Shoulder (C/kWh)</b>	6.6251	7.1538	7.98%
<b>Off-peak (C/kWh)</b>	2.4031	3.3541	39.57%
<b>Capacity (c/kVA/day)</b>	15.8629	19.4692	22.73%
<b>Note – Excludes GST.</b>			

The following table provides a comparison of the actual network tariffs for FY11 and the proposed network tariffs for FY12 for large business customers connected to the high voltage level of distribution network.

**Table 11: Proposed Network Tariffs – FY12 – High-Voltage Connected Customers**

Charging Parameter	Actual FY11	Proposed FY12	% Variation
<b>High Voltage Time Of Use Capacity Tariff (EA370)</b>			
<b>Fixed Charges (C/day)</b>	891.0610	1,294.8796	45.32%
<b>Peak (C/kWh)</b>	6.7931	7.7633	14.28%
<b>Shoulder (C/kWh)</b>	4.6000	4.9224	7.01%
<b>Off-peak (C/kWh)</b>	2.0500	2.0096	-1.97%
<b>Capacity (c/kVA/day)</b>	11.1224	12.4331	11.78%
<b>Note – Excludes GST.</b>			

The following table provides a comparison of the actual network tariffs for FY11 and the proposed network tariffs for FY12 for large business customers connected to the sub-transmission voltage level of distribution network.

**Table 12: Proposed Network Tariffs – FY12 – High-Voltage Connected Customers**

Charging Parameter	Actual FY11	Proposed FY12	% Variation
<b>Sub-transmission Voltage Time Of Use Capacity Tariff (EA390)</b>			
<b>Fixed Charges (C/day)</b>	1,025.9677	1,490.0000	45.23%
<b>Peak (C/kWh)</b>	3.2560	4.1538	27.57%
<b>Shoulder (C/kWh)</b>	2.4926	3.1038	24.52%
<b>Off-peak (C/kWh)</b>	1.0808	1.3538	25.25%
<b>Capacity (c/kVA/day)</b>	3.2500	4.8888	50.42%
<b>Note – Excludes GST.</b>			

## 5. Customer Impact Analysis

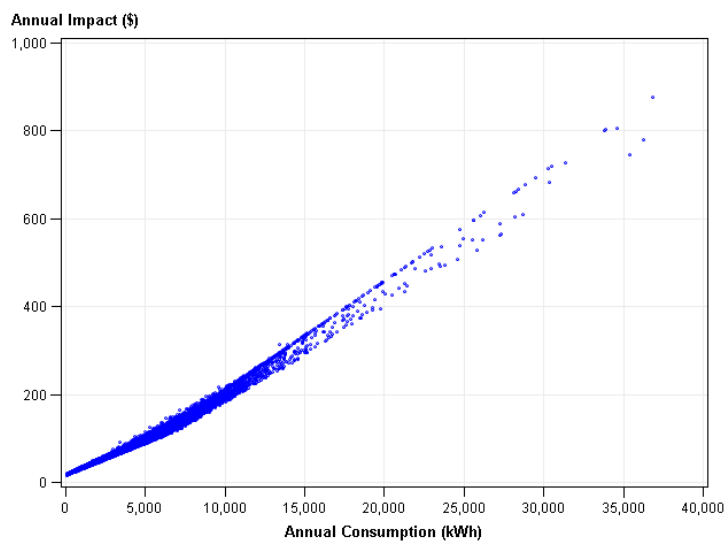
This section aims to provide external stakeholders with an understanding of the estimated annual network bill impacts of Ausgrid's major network tariffs for FY12. The estimated network bill impact associated with the proposed transfer of customers from their

existing network tariff to a more cost reflective network tariff in FY12 has been provided. In addition, the estimated impact of transferring from inclining block tariffs to time of use tariffs is also provided.

### *Inclining Block Tariff (EA10) - Residential Customers*

The following figure shows the estimated network bill impact for customers on the residential inclining block tariff.

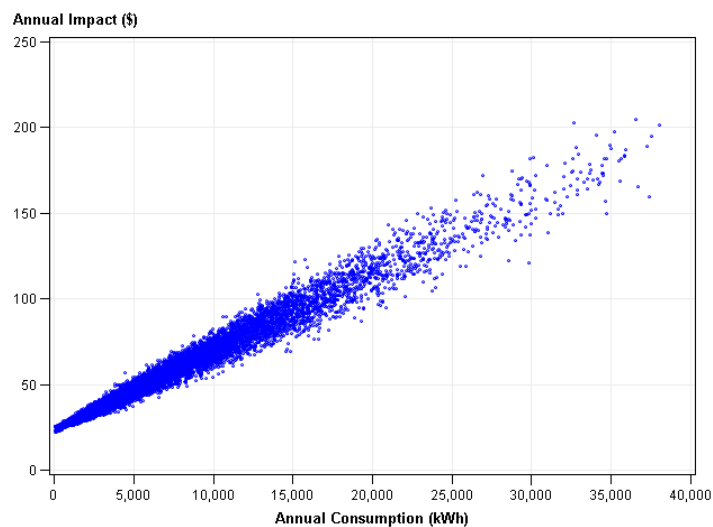
**Figure 5: Network Bill Impact – Residential IBT – FY12**



### *Time of Use Tariff (EA25) - Residential Customers*

The following figure shows the estimated network bill impact for customers on the residential time of use tariff.

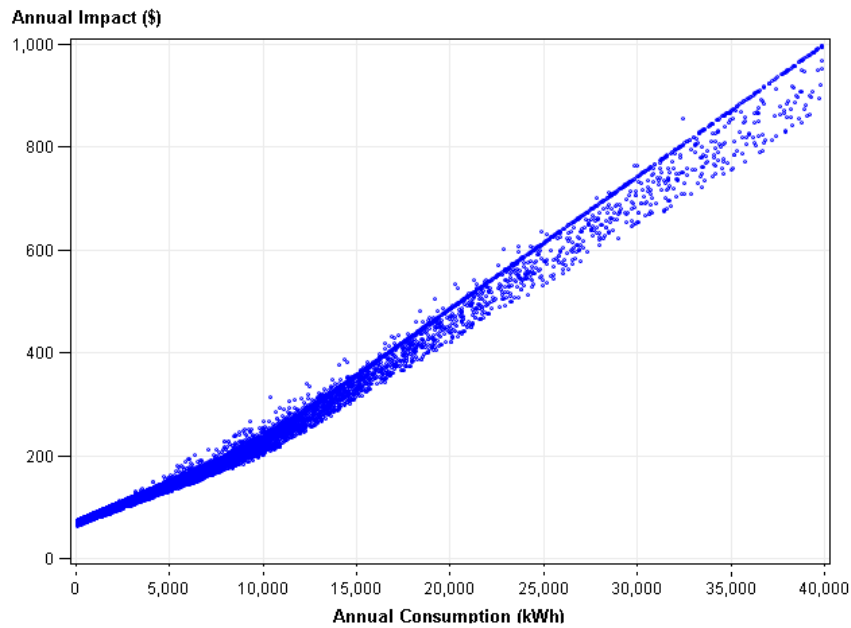
**Figure 6: Network Bill Impact – Residential TOU – FY12**



***Inclining Block Tariff (EA50) – Small Business Customers (<40 MWh pa)***

The following figure shows the estimated network bill impact for customers on the small business inclining block tariff.

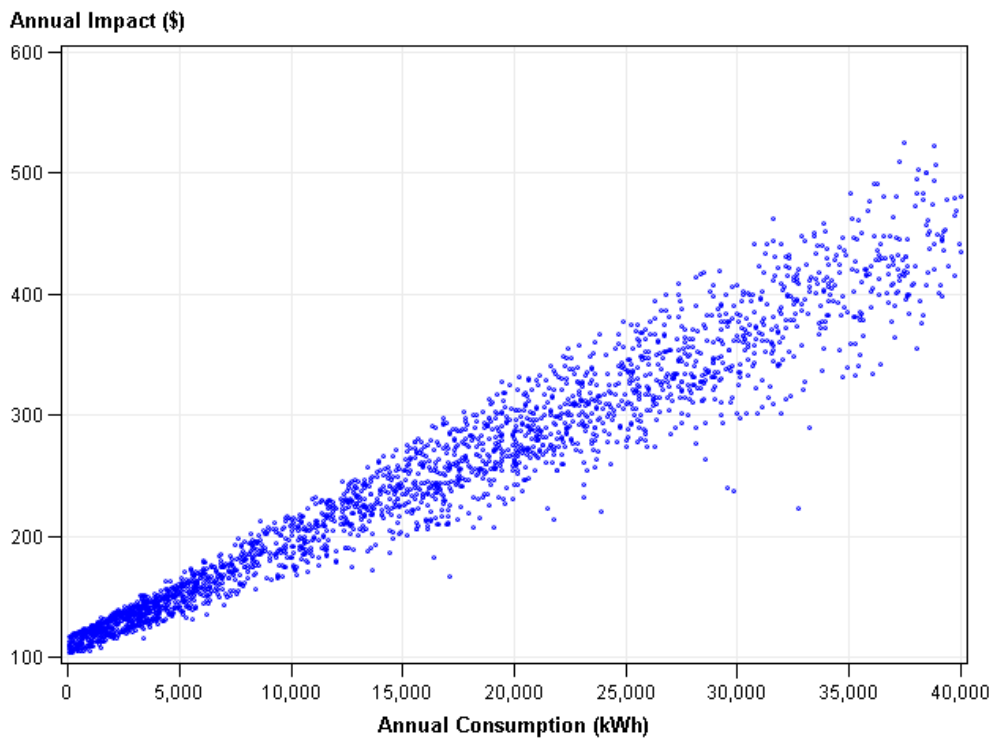
**Figure 7: Network Bill Impact – Small Business IBT – FY12**



***Time of Use Tariff (EA225) - Small Business Customers (<40 MWh pa)***

The following figure shows the estimated network bill impact for customers on the small business time of use tariff.

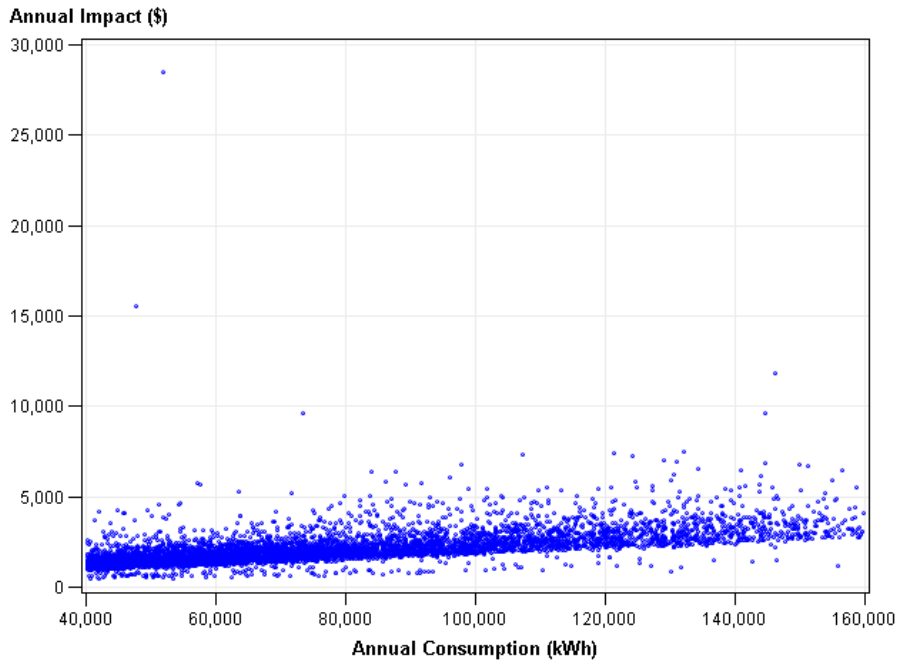
**Figure 8: Network Bill Impact – Small Business TOU – FY12**



**Time of Use Capacity Tariff (EA302) – Business Customers (40 - 160 MWh pa)**

The following figure shows the estimated network bill impact for customers on the medium-sized business time of use tariff.

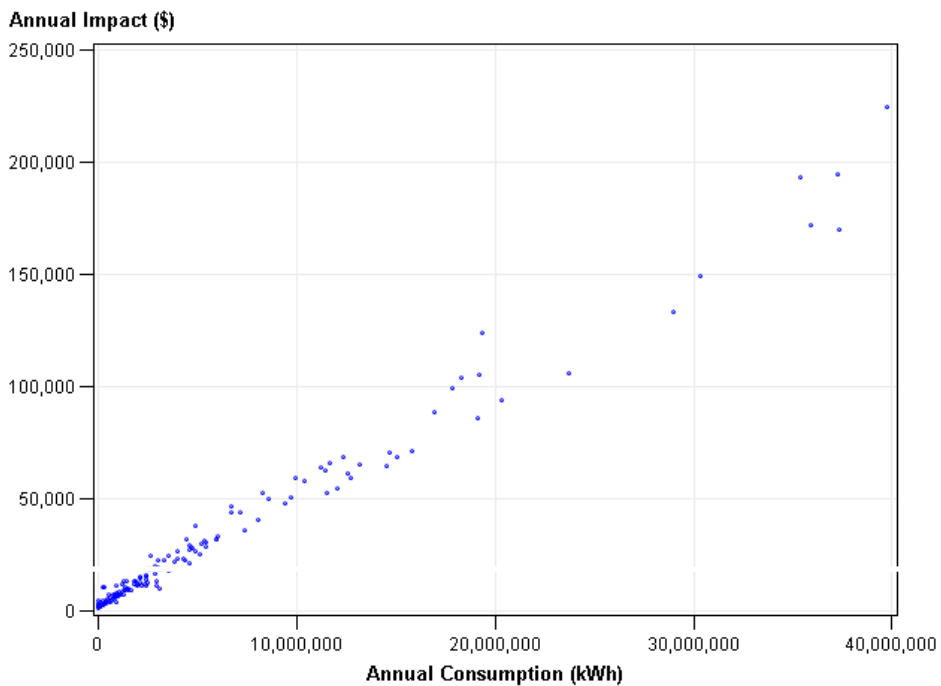
**Figure 9: Network Bill Impact – Medium Business – FY12**



**Time of Use Capacity Tariff (EA370) – High Voltage Connected Customers**

The following figure shows the estimated network bill impact for customers on the high voltage connection time of use tariff.

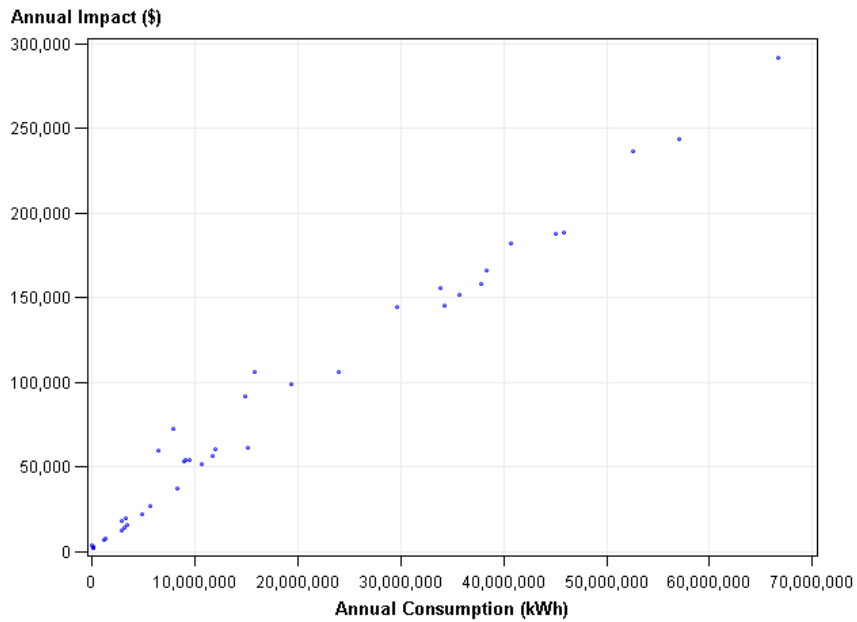
**Figure 10: Network Bill Impact – High Voltage Connection – FY12**



**Time of Use Capacity Tariff (EA390) – Sub Transmission Voltage Connected Customers**

The following figure shows the estimated network bill impact for customers on the sub-transmission voltage connection time of use tariff.

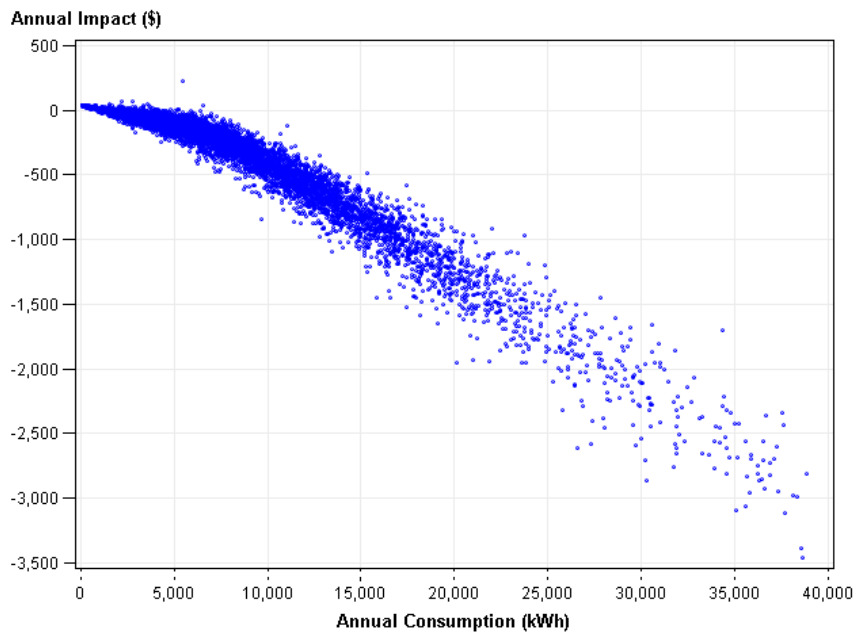
**Figure 11: Network Bill Impact – Sub-transmission Connection – FY12**



**Tariff transfer from Residential (EA010) to Residential (EA025) Time of Use Tariff**

The following figure shows the estimated network bill impact for customers who are transferred from EA010 to EA025 during the course of FY12. Both prices used for comparison are FY12. Please note that negative dollar impact represent a saving to the customer.

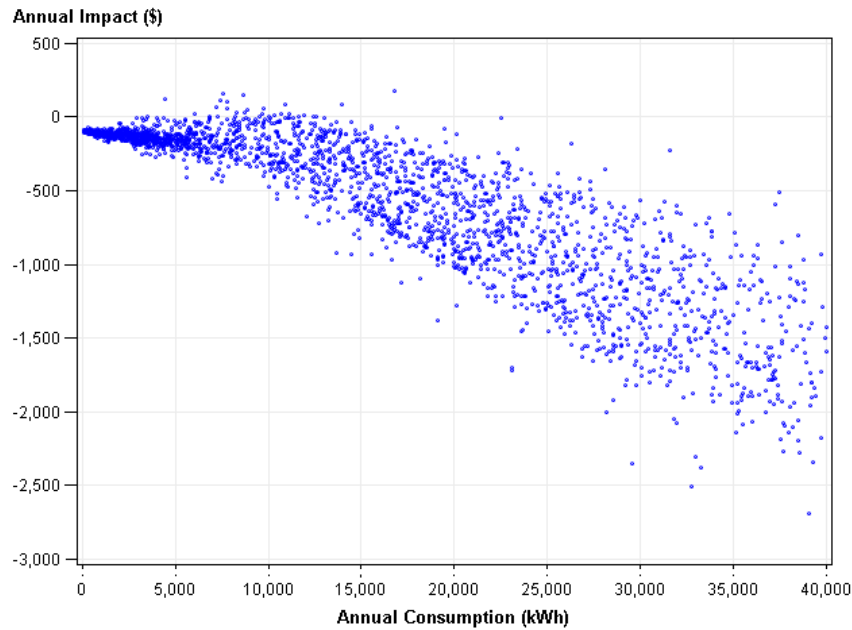
**Figure 12: Network Bill Impact – Residential ToU transfers in FY12**



**Tariff transfer from Inclining Block Tariff (EA50) – Small Business Customers to Time of Use Tariff (EA225) - Small Business Customers**

The following figure shows the estimated network bill impact for customers who are transferred from EA050 to EA225 during the course of FY12. Both prices used for comparison are FY12. Please note that negative dollar impact represent a saving to the customer.

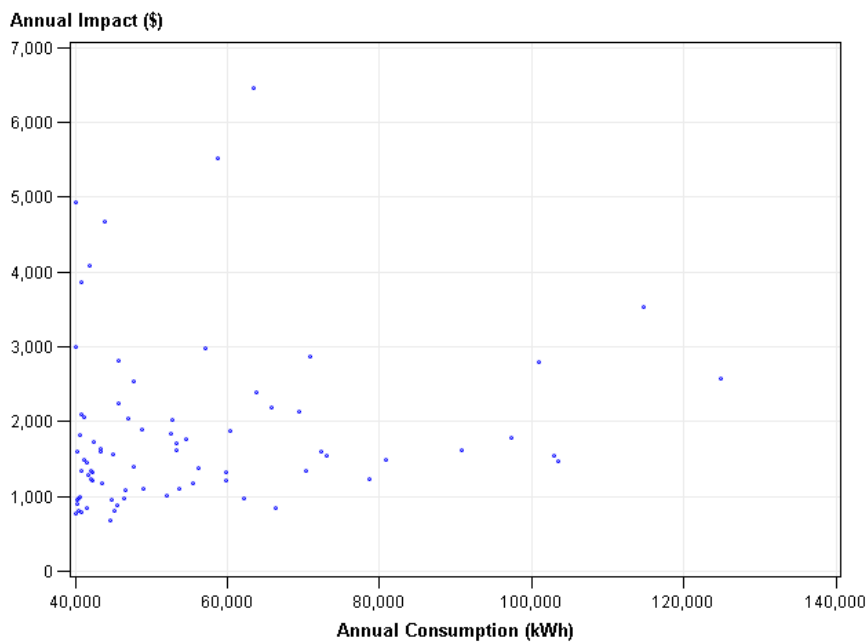
**Figure 13: Network Bill Impact – Small Business ToU transfers in FY12**



**Tariff transfer from Time of Use Energy Tariff (EA225) to Time of Use Capacity Tariff (EA302)**

The following figure shows the estimated network bill impact for customers who are transferred from EA225 to EA302 during the course of FY12. Both prices used for comparison are FY12. This figure shows that the vast majority of customers moving from the IBT to a TOU tariff will be better off.

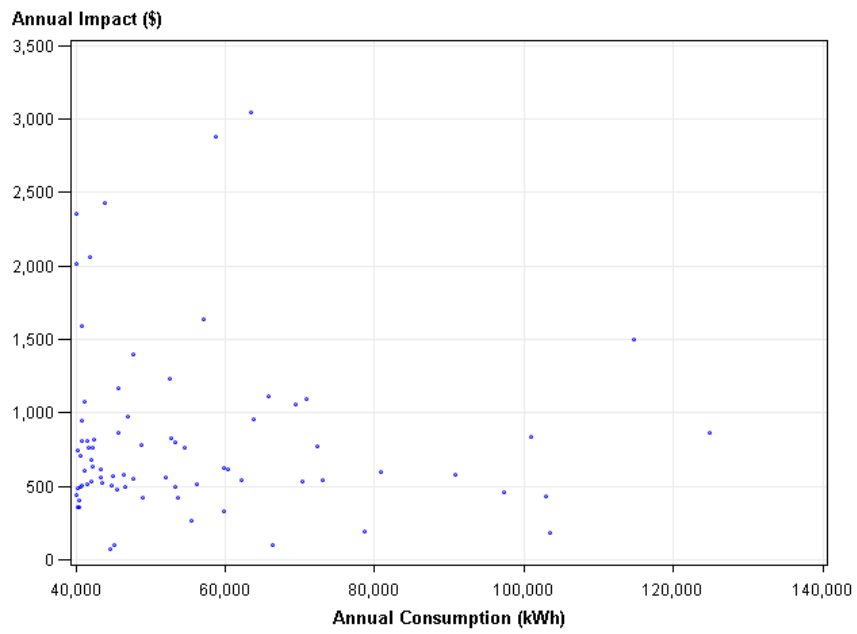
**Figure 14: Network Bill Impact – Small Business ToU transfers in FY12 (EA225 to EA302)**



**Tariff transfer from Time of Use Energy Tariff (EA225) to Transitional Time of Use Capacity Tariff (EA301)**

The following figure shows the estimated network bill impact for customers who are transferred from EA225 to EA301 during the course of FY12. Both prices used for comparison are FY12. This figure shows that the majority of customers transferring from IBT to TOU will better off in FY12

**Figure 15: Network Bill Impact – Small Business ToU transfers in FY12 (EA225 to EA301)**



## 6. Smart City Smart Grid Initiative

### Overview

Following a successful bid for the Australian Government's Smart Grid Smart City program (SGSC), Ausgrid has commenced working on the project that will keep Australia at the forefront of energy technology and lead to ground breaking changes to the country's energy industry.

The SGSC entails the development of Australia's first commercial-scale smart grid in Newcastle, New South Wales, in a demonstration project that will help identify technical and economic opportunities and challenges in implementing a new generation of innovative electricity distribution technology. Parts of the trial will also be conducted in Newington, Sydney's CBD, Ku-ring-gai and Scone. This initiative will gather robust information about the costs and benefits of smart grids to inform future decisions by government, electricity providers, technology suppliers and consumers across Australia.

A smart grid is a new type of electricity network that uses advanced communication, sensing and metering that more efficiently manages electricity supply and demand. Smart grids give households the ability to better manage their energy use by providing information about how much energy is being used and the estimated costs. Smart Grid, Smart City will also trial distributed storage which can provide extra electricity to the power supply during peak periods.

The Ausgrid consortium testing the smart grid technologies and ensuring their suitability for Australian conditions includes TruEnergy, IBM Australia, GE Energy, AGL, CSIRO, Transgrid, and Newcastle City Council.

### Customer Applications

The SGSC program involves a large trial of 'Customer Applications' - technology and tariff related products for residential consumers. The SGSC project is currently planning for commercial deployment of the following categories of Customer Applications from March 2012:

1. Information feedback devices (without tariffs).
2. Community education programs eg. Residential energy audits.

3. Enhanced Retail Bill Payment options.
4. Rebates from Networks and/or Retailers to reward demand management activities by consumers ie. energy saving/shifting efforts.
5. Engineering solutions such as Air Conditioner cycling.
6. Innovative tariffs that involve a Network and Retail component.<sup>10</sup>

In keeping with common practice in the NEM, it is expected that each retail tariff structure in item 6 will be based on the underlying network tariff structure, ie. have the same general structure. Consequently Ausgrid has been working with the SGSC's participating Retailers to devise innovative tariff structures. Each tariff aims to deliver benefits in at least one of the following categories, with no negative impacts in the others:

- Consumers – through enhanced visibility of their energy use and likely costs, and a wider range of bill savings and payment options.
- The Environment – through reduction in energy usage.
- Networks – through directing consumer's energy usage away from network peaks.
- Retailers – through directing consumers energy usage away from periods of high wholesale costs.

The development of new tariffs is also limited by available technology. For example, while Real Time Pricing (RTP) has theoretical merit, the outcome of discussions with project stakeholders prioritised tariffs which are closer to having the requisite technologies in place.

The SGSC project is mindful of the need to ensure suitable customer protection strategies are in place during the trial. Elements of the trial designed to ensure this are:

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<sup>10</sup> This item is of relevance to Ausgrid's FY12 Pricing Proposal.

- All SGSC tariffs are voluntary and Retail contracts will include without-penalty exit clauses.
- Providing a high standard of information to consumers to allow them to choose and benefit
- The SGSC program has committed to working with community groups representing the interests of customers who may experience hardship due to current or future energy costs.

### Operation of the Pricing Trial

Although the SGSC trial is still being designed, at this stage it is envisaged that:

- 1 Retailers will market innovative Retail tariffs to customers in the trial area. As the innovative tariffs require time-based metering, all customers taking up an offer will have a smart meter installed.
- 2 The Retailers will inform Ausgrid as to which customers took up which SGSC Retail tariff product. Ausgrid will from that point charge the corresponding Network Tariff and the Retailer will commence billing the new Retail tariff.
- 3 Ausgrid will return each site to a non-SGSC Network Tariff when the customer exits their SGSC Retail tariff, for example, at the end of the trial period.

As the relative weighting of tariff and non-tariff Customer Applications is still in progress, an estimate of the number of customers who voluntarily uptake new Retail tariffs that include a new Network tariff is not yet determined. The likely range is between 5,000 and 30,000.

### Draft Status of the SGSC pricing trial tariff

The SGSC Network Tariffs included in our pricing proposal are marked as 'Draft' as Ausgrid is unable to submit final versions for the AER to consider as part of the 1 July 2011 pricing compliance process. The draft status of these trial tariffs reflects that while Ausgrid and the SGSC stakeholders have made substantial progress in the planning and design of the SGSC trial, the profile, scale and complexity of the project means that changes may be required as the products are further refined.

While the draft SGSC network tariffs are appropriate for Ausgrid's purposes, it should be recognised that the SGSC project is at various stages of progression in seeking support and/or sign-off from a wide range of project stakeholders including:

- The Australian Government
- The participating Retailers
- Electricity Networks
- Public advocacy organisations

It is possible that some revisions to the draft SGSC network tariffs may be required to incorporate feedback from the SGSC stakeholders listed above. Given the importance of the SGSC goals to consumers and the electricity industry in general, Ausgrid seeks the support of the AER to manage changes to the draft SGSC network tariffs outside of this proposal process and enable final prices to be approved at some point between July 2011 and 31 March 2012.

Given the SGSC network tariffs are intended for research purposes in a limited area of Ausgrid's network area, together with the potential for these tariffs to be adjusted during the course of FY12, Ausgrid believes that it is not appropriate to publish these tariffs. An additional consideration is that publishing these tariffs may place Ausgrid in the difficult situation of effectively revealing the outcomes of commercial-in-confidence discussions with the competing Retailers involved in the SGSC.

### Tariff Design Principles

The design of the draft SGSC network tariffs has been informed by local and international thinking on efficient and cost-reflective tariff structures that have potential to deliver the previously noted benefits to customers, the environment, Networks and Retailers.

## 7.Glossary

Term	Definition
<b>AER</b>	Australian Energy Regulator
<b>Bulk Supply Point (BSP)</b>	A vital step in the transmission of electricity is decreasing the transmission line voltage using transformers. This is performed at a large substation called a Bulk Supply Point owned and operated in NSW by TransGrid
<b>Capacity Charge</b>	A capacity charge applies to the maximum half hourly kW or KVA recorded during the peak period of a working weekday over the 12 months prior to a bill being calculated
<b>Controlled load Tariff</b>	Applicable to electricity which is separately metered and controlled by Ausgrid and used for operating storage water heaters, thermal storage space heaters, and other approved fixed wired appliances
<b>Cost Reflective Network Prices (CRNP) Tariff</b>	A price calculated for customers using more than 10MW, that takes into account load flows of the specific assets the customer uses
<b>Determination</b>	2009 AER Determination for NSW Electricity Distribution Service Providers
<b>Distribution Use of System (DUOS)</b>	The revenue earned for the provision of distribution services
<b>Dynamic Peak Rebate</b>	This is a rebate offered to customers for consumption reductions during a dynamic peak event
<b>Dynamic Tariff</b>	This tariff applies a price for energy consumed during a dynamically signalled congestion period
<b>Economic Efficiency</b>	The improvement in societal welfare from providing customers with a price signal reflective of marginal, rather than average cost of distribution service provision.
<b>Equity</b>	The impact of price changes on the well being of disadvantaged groups
<b>First Block</b>	See <i>Inclining Block Tariff (IBT)</i>
<b>Fixed Charge</b>	This tariff component does not vary with electricity usage at the customer's premises and is charged on a cents/day/NMI basis
<b>Inclining Block Tariff (IBT)</b>	This tariff typically has a fixed charge and a variable energy charge component with a low price charged up to a predetermined consumption threshold (first block) and a higher price charged to customers who consume electricity above the predetermined threshold (the second block)
<b>Network Use of System (NUOS)</b>	The revenue earned for the provision of transmission and distribution services
<b>IPART</b>	Independent Pricing and Regulatory Tribunal
<b>Off-peak Consumption Charge</b>	This tariff component applies to the price charged for electricity usage during the off-peak period of the day. See also <i>Time of Day Period Definition</i>
<b>Overs &amp; Unders Account (Transmission)</b>	This account provides Ausgrid with certainty of transmission cost recovery by allowing future TUOS prices to increase (decrease) to recoup (return) an under (over)-recovery of TUOS
<b>Peak Consumption Charge</b>	This tariff component applies to the price charged for electricity usage during the peak period of the day. See also <i>Time of Day Period Definition</i>

Term	Definition
<b>Price Cap</b>	Refer to Weighted Average Price Cap
<b>Real-time Tariff</b>	This type of tariff has variable prices that vary every half-hour interval in response to change in energy purchase costs
<b>Revenue Cap</b>	A form of monopoly regulation where the regulated entity's allowed revenue from tariffs is limited by an X factor. Any over or under-recovered of actual revenue is accounted in an adjustment to tariffs in the subsequent period.
<b>Revenue Requirement</b>	The level of revenue that is adequate to fund the on-going operation of the business and provide a commercial return to the owner
<b>Reasonable Estimates</b>	A mechanism of the WAPC process that is used to adjust the historical volumes used in the formulae if customers are moved to another tariff. The intent of this reasonable estimate mechanism is to minimise gains or losses in revenue of moving customers between tariffs
<b>Second Block</b>	See <i>Inclining Block Tariff (IBT)</i>
<b>Shoulder Consumption Charge</b>	This tariff component applies to the price charged for electricity usage during the shoulder period of the day. See also <i>Time of Day Period Definition</i>
<b>Time of Day Period Definition</b>	The time periods of the day used to define when the peak, shoulder and off-peak price apply. The following is the current Time of Day Period Definitions: <ul style="list-style-type: none"> <li>➤ For Residential and Small Business up to 40 MWh per annum: <ul style="list-style-type: none"> <li>▪ Peak: 14:00 – 20:00</li> <li>▪ Shoulder: 07:00 – 14:00, 20:00-22:00 working weekdays, 07:00 – 22:00 weekends and public holidays</li> <li>▪ Off Peak: All other times</li> </ul> </li> <li>➤ For all other ToU tariffs <ul style="list-style-type: none"> <li>▪ Peak: 14:00 – 20:00</li> <li>▪ Shoulder: 07:00 – 14:00, 20:00-22:00 working weekdays</li> <li>▪ Off Peak: All other times</li> </ul> </li> </ul>
<b>Time of Use (TOU) Tariff</b>	This tariff typically has a fixed charge and a variable energy charge component with different prices applying at different time periods of the day. See also <i>Time of Day Period Definition</i>
<b>Transmission Use Of System (TUOS)</b>	The revenue earned from customers to recover the cost of transmission service provision by TransGrid and other TNSPs
<b>Weighted Average Price Cap(WAPC)</b>	A form of regulation that limits the annual increase to weighted average DUOS price to CPI+X. The weight used in the calculation of the average price is the previous year's volumes
<b>X factor</b>	The allowed rate of growth (positive or negative) in prices (under a price cap) or revenue (under a revenue cap)

# Ausgrid FY12 Network Pricing Proposal

## Part 2 Demonstrating Compliance



# 1. Overview and Outline

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This document is Ausgrid's formal Pricing Proposal for FY12 and is submitted for review and approval by the Australian Energy Regulator (AER) as required by clause 6.18.2(a)(2) of the Transitional Chapter 6 Rules. It is structured to allow ready assessment of compliance by the AER.

## Outline of compliance with Rules

Ausgrid's Pricing Proposal assesses all of the requirements set out in Rule 6.18.2 included in Chapter 11 (Transitional Rules) of the National Electricity Rules. Our pricing proposal also demonstrates compliance against the applicable distribution determination, as required under Clause 6.18.2(b)(7) of the Transitional Chapter 6 Rules.

Specifically, the proposal sets out the tariff classes, tariffs and charging parameters, and expected revenue for the second regulatory year of the new regulatory control period commencing 1 July 2011 and ending 30 June 2012.

This pricing proposal is structured as follows:

- Chapter 2 sets out the proposed tariff classes for standard control services, the basis for the proposed tariff classes, and Ausgrid's procedures for the assignment and reassignment of customers to tariff classes;
- Chapter 3 sets out the proposed tariffs and charging parameters, and the matters that Ausgrid has taken into account when determining these tariffs and charging parameters including the long run marginal costs of providing services to each tariff class, the transaction cost implications and the scope for customers to respond price signals;
- Chapter 4 sets out the weighted average revenue by tariff class and compares it to the efficient revenue boundary defined by the standalone cost and avoidable cost;
- Chapter 5 briefly discusses the variations to tariffs;
- Chapter 6 sets out the obligations on Ausgrid to provide revenue under the Climate Change Fund;
- Chapter 7 sets out the approach to passing through the cost of transmission use of system services;
- Chapter 8 sets out the changes since the previous regulatory year, as provided for in the Determination and the Rules; and provides information on how the pricing proposal complies with the requirements for pricing proposals as set out in the Rules.
- Chapter 9 sets out the tariffs and tariff class for Ausgrid's public lighting services for FY12.
- Chapter 10 sets out the proposed new network tariffs for FY12.
- Chapter 11 sets out the proposed reasonable estimates and provides information on how these estimates comply with Appendix j of the Determination.

Ausgrid notes that Attachment D to this proposal demonstrates:

- Compliance with the WAPC control mechanism and side constraint formula
- Compliance with the application of reasonable estimates.
- Compliance with the control mechanism for Ausgrid's prescribed (transmission) standard control services.
- Compliance with the AER's requirements for reporting recovery of TUOS charges to account for under and over recovery of those charges.

## 2. Network Tariff Classes

### RULE REQUIREMENT

*Clause 6.18.2(b)(1) of the NER requires that a pricing proposal must set out the tariff classes that are to apply for the relevant regulatory year*

*In addition, when assigning customers to tariff classes the AER is required to have regard to the following principles;*

*(1) customers should be assigned to tariff classes on the basis of one or more of the following factors:*

*(i) the nature and extent of their usage;*

*(ii) the nature of their connection to the network;*

*(iii) whether remotely-read interval metering or other similar metering technology has been installed at the customer's premises as a result of a regulatory obligation or requirement;*

*(2) customers with a similar connection and usage profile should be treated on an equal basis;*

*(3) however, customers with micro-generation facilities should be treated no less favourably than customers without such facilities but with a similar load profile.*

*Clause 6.18.3(d) requires that a tariff class be constituted with regard to the need to group customers together on an economically efficient basis, and the need to avoid unnecessary transactions costs.*

### Definition of a Network Tariff Classes

Under Chapter 10 of the NER, tariff classes are defined as representing 'a class of customers for one or more direct control services, who are subject to a particular tariff or particular tariffs'.

### Proposed Network Tariff Classes

As foreshadowed in the FY11 pricing proposal, Ausgrid believes that there is scope to improve its tariff classes to produce distribution pricing outcomes that better reflect the economic principles in the NER and improve the efficacy of the efficient pricing bounds test.

Interestingly, there is no common approach by Distribution Network Service Providers (DNSP) in this area, possibly reflecting the influence on

pricing decisions of traditional philosophies based on complicated historical cost of supply modelling, rather than the more economically sound approach encouraged by the NER.

It is clear from a consideration of the economic principles in the NER that the decision as to how to constitute a tariff class has important implications for the economic efficiency of network tariffs given their influence on the robustness of the estimates of Long Run Marginal Cost (LRMC), avoidable and standalone cost. It is relevant to note that a large number of tariff classes under the WAPC would result in Ausgrid and its network customers incurring transaction costs arising from the increased complexity involved in the annual tariff-setting process, particularly in the modelling of economic cost.

In light of this importance, Ausgrid has reviewed its tariff classes to ensure that customers are grouped together on an economically efficient basis without imposing unnecessary transaction costs. This review confirmed the need to merge two tariff classes to facilitate more efficient pricing outcomes and avoid creating economic subsidies for customers connected at the low voltage level of the distribution network. Ausgrid believes that these customers are competing collectively for the available network capacity at the low voltage network and, therefore, should receive the same marginal price signal, subject to metering constraints.

The existing tariff classes are problematic in that they encourage differences to exist in the marginal price signal to low-voltage connected customers. In theory, these price distortions result in inefficient network usage and investment. The cost of this inefficient investment is borne by all customers. This is referred to in the economic literature as an economic deadweight loss.<sup>11</sup>

As a result, Ausgrid proposes to merge the two tariff classes into one class which will mean that customers are assigned to tariff classes on the following basis:

- the voltage connection required by the customer, namely low voltage (ie, 415V or 240V), high voltage (ie, 11kV

<sup>11</sup> This concept is also referred to as an inherent cross subsidy. Refer to: <http://www.archive.ipart.nsw.gov.au/papers/IE-%20CRA%20Air%20Con%20Pres%20PICG%2018%>

or 33 kV) or sub-transmission voltage (ie 132/66/33kV);

- the usage of the customer (ie, maximum demand exceeding 10MW or total usage of 40 GWh per annum); and
- the metering installed in the customer's premise (ie metered or unmetered).

Table 1 defines Ausgrid's proposed tariff classes for direct control services in FY12.<sup>12</sup>

It should be noted that the proposed tariff classes to apply in FY12 encompass all customers that are provided with direct control services by Ausgrid, and are therefore required to be assigned to at least one of the specified tariff classes in accordance with the requirements of Clause 6.18.3(b) of the Transitional Rules.

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<sup>12</sup> Please note that the tariff classes for Miscellaneous & Monopoly Services are set out in Attachment E. Tariff classes for public lighting services are set out in Chapter 9.

**Table 1: Ausgrid's Proposed Tariff Class Descriptions - FY12**

<b>Tariff Class</b>	<b>Network Tariff</b>	<b>Definition</b>
<b>Low Voltage</b>	EA010 – Residential Non-TOU Tariff EA025– Residential Time of Use Tariff EA030 – Controlled load 1 EA040 – Controlled load 2 EA050– Business Non-TOU Tariff EA325 – LV Connection (Standby) EA050– Business Non-TOU Tariff EA225– Business Time of Use Tariff EA302 – LV 40-160 MWh (System) EA301 – LV Transitional Tariff EA305– LV 160-750 MWh (System) EA310 – LV > 750 MWh (System)	Applicable to separately metered low voltage (415V or 240V) connections.
<b>High Voltage</b>	EA360 – HV Connection (Standby) EA370 HV Connection (System)	Applicable to any connection at high voltage (11kV) that is not otherwise eligible for a CRNP as defined below.
<b>Sub-transmission</b>	EA380 HV Connection (Substation)	Applicable to any connection at a sub-transmission voltage (132/66/33kV) that is not otherwise eligible for a CRNP price, as defined below.
<b>Cost Reflective Network Prices (CRNP)</b>	Customer Specific Prices	Applicable to connections at any voltage that use more than 10 MW of electricity demand on at least three occasions over a 12 month period or consume more than 40 GWh over a 12 month period.
<b>Unmetered</b>	EA401 Public Lighting EA402 Constant Unmetered EA403 Energylight	Applicable to any LV connection that is defined as an unmetered supply by Ausgrid in consultation with AEMO as per clause S7.2.3(Item 5) of the NER.

### Procedures for the assignment and re-assignment of customers to tariff classes

Ausgrid will assign customers to tariff classes by applying the following criteria:

1. a customer's site has a demand in excess of 10 MW on more than three occasions over a consecutive 12 month period, or uses more than 40 GWh per annum, then regardless of the connection voltage, the customer is assigned to the CRNP tariff class for the purpose of demonstrating compliance with the NER at each annual price reset.
2. If the voltage of the supply is 33 kV, 66 kV or 132 kV then the customer is assigned to the Subtransmission Voltage Capacity tariff class (unless already assigned to the CRNP tariff class).
3. If the voltage of the supply is 11 kV then the customer is assigned to the

High Voltage Capacity tariff class (unless already assigned to the CRNP tariff class).

4. If the voltage of the supply is 415V or 240 V and the customer's annual consumption is below 40 MWh, the customer is assigned to Low Voltage tariff class.
5. If the supply is unmetered then the customer is assigned to the Unmetered tariff class.

The proposed new criteria for assigning customers to tariff classes is summarised in the following table.

**Table 2: New Criteria for Customer Assignment to Tariff Class**

Tariff class	Nature of Network Connection	
	Voltage	Metering
Unmetered	415V/240V	Unmetered
Low Voltage <sup>13</sup>		Metered
High Voltage	5kV, 11kV, 22kV	Metered
Sub-transmission Voltage	33kV, 66kV, 132kV	
CRNP (> 10 MW or 40 GWh)	Any voltage	

<sup>13</sup> Please note that the low voltage tariff class applies to all residential and business connections connected to the low voltage distribution network, excluding unmetered connections.

If a customer's connection load or characteristics change, the customer will be re-assigned to the appropriate tariff class. This will be carried out annually consistent with the annual review of customers' assignment to network tariffs (as discussed in Attachment G).

The annual review undertaken for this year has identified the need to re-assign a small number of customer sites from the Cost Reflective Network Price (CRNP) tariff class to either the Subtransmission or high voltage tariff class due to their maximum demand falling permanently below the 10 MW and 40 GWh pa to be eligible to remain on a CRNP tariff.

There are also a small number of customer sites that consume more than 40 GWh pa (but less than 10 MW) that will be assigned from a published tariff to a CRNP tariff in FY12. These customer sites were not eligible to be on a CRNP tariff under the previous criteria due to their maximum demand not exceeding 10 MW.

It should be noted that Ausgrid intends to use reasonable estimates to account for customer transfers within a tariff class in FY12 under the WAPC, as summarised below:

- Around 63,000 residential and small business customers with type 5 meter installed in their premise from inclining block tariff to the appropriate TOU tariff;
- Around 90 customers with historical consumption of more than 40 MWh pa from the Low Voltage Business TOU Tariff (EA225) to the LV TOU Capacity (Transitional) Tariff (EA301);
- Around 11 customers from the sub-transmission (EA390) or high voltage

TOU Capacity tariff (EA370) to a Cost Reflective Network Price (CRNP) tariff; and

- Around 10 customers from a Cost Reflective Network Price (CRNP) tariff to an appropriate published network tariff, according to the voltage level of their distribution connection.

#### Customers with micro-generation facilities

It is Ausgrid policy to treat customers with micro-generation facilities no less favourably than customers without these facilities but with a similar consumption profile. Allocation of an embedded generation customer to a tariff class will be made on the same basis as other customers; this being the extent and nature of usage, and the nature of the connection to the network. The network tariff will include fixed and variable components and if the customer's demand were to be met entirely by the micro-generator then the levied charge will only be the fixed connection component.

Ausgrid's compliance with this requirement can be demonstrated by the proposed network pricing arrangements for customers participating in the NSW Government Solar Bonus Scheme, which ensures that these customers are treated no less favourably than other customers as the billed consumption of these customers will be unaffected by their participation in the scheme. However, customers will be required to be a network TOU tariff to participate in the NSW Government Solar Bonus Scheme. Ausgrid has included in our pricing proposal for FY12 a reasonable estimate of the number of customers (and their consumption) that have been re-assigned to the network TOU tariff as a consequence of their participation in the Scheme.

### 3. Proposed Tariffs and Charging Parameters

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#### RULE REQUIREMENT

*Clause 6.18.2(b)(2) requires that the pricing proposal set out the proposed tariffs for each tariff class; and*

*Clause 6.18.2(b)(3) requires that the pricing proposal set out the charging parameters and the elements of service to which each charging parameter relates,*

*Rule 6.18.5 sets out the pricing principles that are relevant when determining tariffs and charging parameters.*

*Rule 6.18.5 further provides that:*

*(b) A tariff, and if it consists of 2 or more charging parameters, each charging parameter for a tariff class:*

*(1) must take into account the long run marginal cost for the service or, in the case of a charging parameter, for the element of the service to which the charging parameter relates; and*

*(2) must be determined having regard to:*

*(i) transaction costs associated with the tariff or each charging parameter; and*

*(ii) whether customers of the relevant tariff class are able or likely to respond to price signals.*

*(c) If, however, as a result of the operation of paragraph (b), the Distribution Network Service Provider may not recover the expected revenue, the provider must adjust its tariffs so as to ensure recovery of expected revenue with minimum distortion to efficient patterns of consumption.*

This chapter sets out the proposed tariffs and charging parameters for direct control services for each tariff class for the period of 1 July 2011 to 30 June 2012, and explains the elements of service to which each charging parameter relates. The charging parameters for alternative control services (public lighting services) are discussed in Chapter 9 and set out in Attachments B and C. The charging parameters for Miscellaneous and Monopoly Services are in Attachment E.

The proposed tariffs and charging parameters are set out for each tariff class in Table 3. This chapter also explains how Ausgrid has applied the pricing principles set out in clause 6.18.5 of the NER. In developing the charging parameters, Ausgrid has taken account of a range of estimates of long run marginal cost, and has had regard to transactions costs and the scope for customers to respond to price signals. In addition, Ausgrid has ensured that its network tariffs are designed to recover the difference between marginal and average cost with the minimum of distortion to efficient patterns of consumption.

**Table 3: Ausgrid's Proposed FY12 Network Tariffs by Charging Parameter (Exclusive of GST)**

Tariff Class	Tariff Code	Tariff Name	Network Access Charge c/day	Non-TOU c/kWh	Network Energy Prices					Daily Capacity Prices	
					Peak c/kWh	Shoulder c/kWh	Off-peak c/kWh	Block 1	Block 2	Peak c/kW/day	Peak c/kW/day
<b>Low Voltage</b>	EA10	LV Res non-TOU(Closed)	28.2338	-	-	-	-	10.6270	16.4049	-	-
	EA025	LV Res < 40 MWh (System)	39.3088	-	22.2350	4.4000	2.1086	-	-	-	-
	EA030	Controlled load 1	1.5829	1.7126	-	-	-	-	-	-	-
	EA040	Controlled load 2	6.1077	4.0997	-	-	-	-	-	-	-
	EA050	LV Business non-TOU(Closed)	91.7267	-	-	-	-	9.0538	14.2635	-	-
	EA225	LV Business TOU	63.9265	-	21.9707	5.3188	2.0743	-	-	-	-
	EA301	LV Business TOU (Transition)	200.0000	-	9.3538	7.4156	3.9933	-	-	13.5000	-
	EA302	LV 40-160 MWh (System)	200.0000	-	9.3538	7.4156	3.9933	-	-	27.0000	-
	EA305	LV 160-750 MWh (System)	350.0000	-	8.8538	7.1538	3.3541	-	-	-	27.0000
	EA310	LV > 750 MWh (System)	350.0000	-	8.8538	7.1538	3.3541	-	-	-	19.4692
	EA325	LV Connection (Standby)	486.0984	-	6.3538	4.8538	1.8538	-	-	-	-
<b>High Voltage</b>	EA360	HV Connection (Standby)	1,352.9646	-	7.7633	4.9224	2.0096	-	-	-	-
	EA370	HV Connection (System)	1,294.8796	-	7.7633	4.9224	2.0096	-	-	-	12.4331
	EA380	HV Connection (Substation)	1,294.8796	-	7.1991	4.9653	1.2028	-	-	-	7.8574
<b>Sub-transmission</b>	EA390	ST Connection	1,490.0000	-	4.1538	3.1038	1.3538	-	-	-	4.8888
<b>Unmetered</b>	EA401	Public lighting	-	7.1533	-	-	-	-	-	-	-
	EA402	Constant unmetered	-	8.7553	-	-	-	-	-	-	-
	EA403	EnergyLight	-	6.4486	-	-	-	-	-	-	-

There are three elements of service for which charging parameters are defined, namely:

- network access charge per day per connection ( $\text{¢}/\text{connection}/\text{day}$ ) – this is a flat charge per connection, charged on the basis of the number of days of access to the network for that connection. A connection is defined as any connection to the network requiring a unique National Metering Identifier (NMI) as defined by the AEMO National Metering Identifier Procedure;
- electricity usage charge ( $\text{¢}/\text{kWh}$ ) – this is a charge per unit of electricity supplied to a connection point, through a primary tariff or also through an additional secondary tariff (usually controlled load hot water as seen from the Non-ToU charging parameter); and
- capacity charge per kilowatt or kiloVoltAmp, per day ( $\text{¢}/\text{kW}/\text{day}$  or  $\text{¢}/\text{kVA}/\text{day}$ ) – this is a charge based on a customer’s maximum demand recorded in any half-hour period between 2pm and 8pm over the twelve

months preceding the end of the current billing month. It also only applies to working weekdays. Maximum demand is recorded in either kW or kVA according to the customer’s metering functionality.

In addition, there are a number of alternative components for the electricity usage charge including:

- an inclining block charge – this charge which is triggered once a threshold amount of electricity use has been used in each billing quarter. All electricity used after this point is charged at a higher rate based on ( $\text{¢}/\text{kWh}$ ). The threshold is 1,750kWh for domestic customers and 2,500 kWh for business customers.
- time of use consumption charges vary according to the time of day of consumption and whether it is a weekday, or weekend/public holiday, as summarised in Table 4.

**Table 4: Time of Use periods for Tariffs**

Customer Type	Annual consumption	Time of Use period definition
<b>Residential and Small Business</b>	< 40 MWh per annum	Peak period: 2.00 pm – 8.00 pm on working weekdays. Shoulder period: 7.00 am – 2.00 pm and 8.00 pm – 10.00 pm on working weekdays and from 7.00 pm – 10.00 pm on weekends and public holidays Off-Peak period : All other times
<b>Medium and Large Business</b>	> 40 MWh per annum	Peak period: 2.00 pm – 8.00 pm on working weekdays. Shoulder period: 7.00 am – 2.00 pm and 8.00 pm – 10.00 pm on working weekdays Off-Peak period : All other times

Ausgrid uses the Inclining Block Tariff (IBT) structure for customers with Type 6 metering installations. The inclining block pricing structure is designed to encourage energy conservation, particularly for customers with air-conditioners who use significantly more energy (and contribute more to summer peak

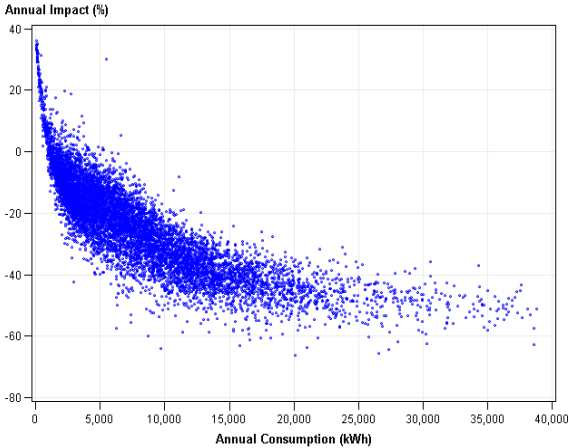
network congestion) than other customers. The structure of the IBT also provides a financial incentive for customers with larger energy consumption to switch to a more cost reflective time of use tariff.

The price differential between the first and second block consumption under the IBT

structure has been set based on an assessment of customers' capacity to respond to the price signal. Currently the second block price is significantly higher (at the NUOS level) than the price charged for first block consumption.

The IBT is designed to provide a strong financial incentive (ie higher network bills) to customers with significant second block consumption to change their consumption behaviour. Interestingly, the IBT also provides larger users with the financial incentive to voluntarily switch to the more cost reflective TOU tariff. The following Figure demonstrates that the majority of customers, and certainly all large energy users will be financially better off from moving to the TOU tariff. This approach is consistent with Ausgrid commitment to pursuing network tariff reform in a socially responsible manner by striking an appropriate balance between economic and equity objectives.

**Figure 1: Inherent Residential ToU Incentive in FY12**



It is important to note that Ausgrid proposes to investigate the potential economic efficiency benefits of further reform to the inclining block tariffs to ensure that customers on these tariffs continue to receive appropriate incentives to change their consumption behaviour or to voluntarily switch over to the TOU tariff.

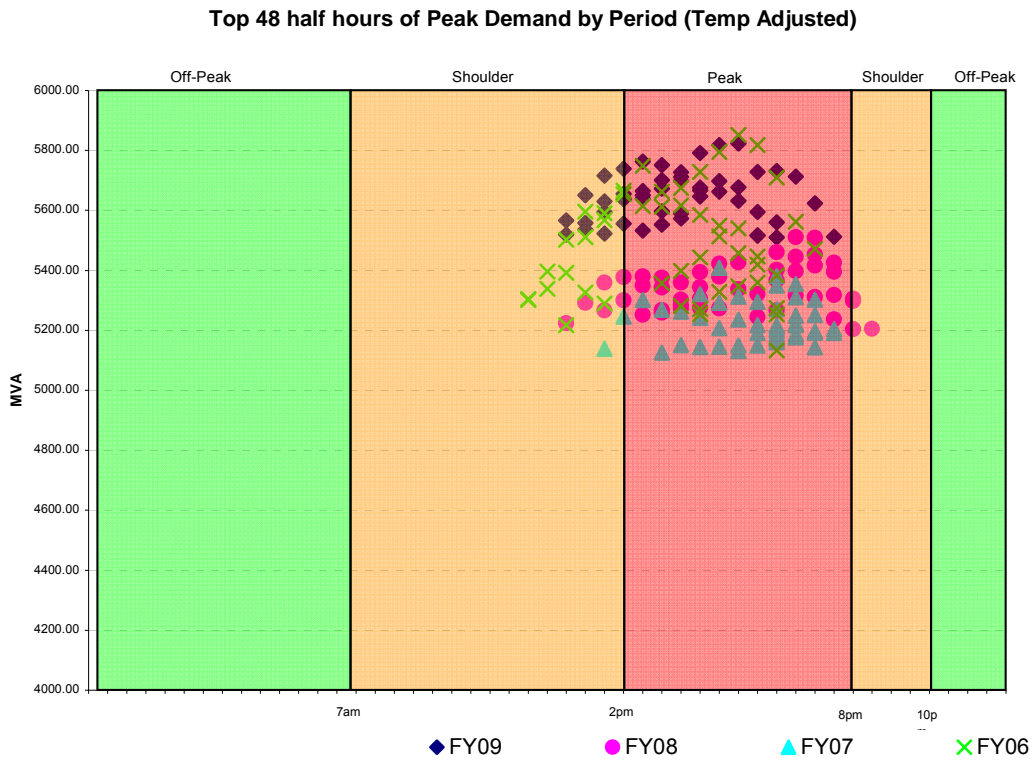
Ausgrid remains aware that any change to the price differential and consumption thresholds under the IBT structure has the potential to create material adjustment costs for some customers. Therefore the economic benefits of reform will need to be considered in the context of other considerations, such as equity and the preference of customers for simple tariffs. It is also important that external stakeholders are given adequate advance notice of reforms in this area and that reforms are implemented, if possible, in a transitional manner to give customers more time to adjust their consumption patterns to mitigate any adverse bill impacts arising from the reform process.

The current period definition for time of use (peak, shoulder and off-peak) is designed to cover both the evening winter and summer peak across the whole network. Ausgrid believes that the broad definition of the peak period which covers all business days throughout the year has the potential to undermine economic efficiency even if peak energy charges are set reflective of LRMC because the network is not congested on all business days.

As with the potential IBT reforms, Ausgrid will keep external stakeholders informed of developments relating to the TOU tariff structure. Ausgrid's intention for reform is to maximise economic benefits without imposing material adjustment costs on affected customers. Ausgrid believes that this approach to tariff reform, together with a good communication strategy, will encourage permanent changes in consumption behaviour by providing customers (and their retailers) with greater certainty over the long-term direction of prices and pricing structures.

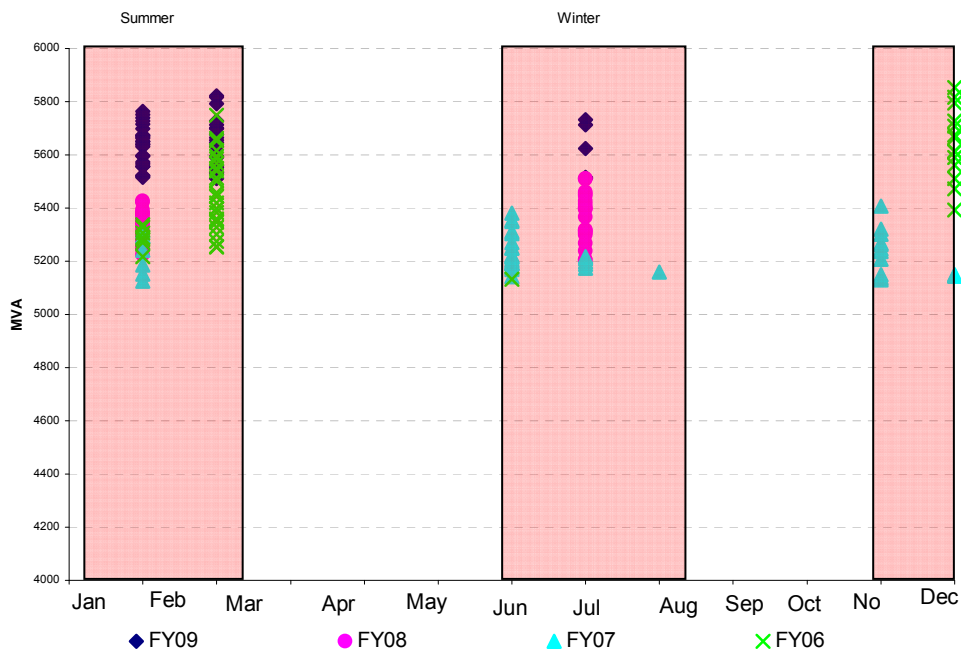
An analysis of the timing of the top 48 half hourly peak consumption intervals over recent years indicates that there are likely to be economic benefits to be realised from further reform to the peak period to ensure that peak price signals better reflect emerging patterns of network congestion.

**Figure 2: Historical Pattern of Peak Demand – Half Hour Intervals**



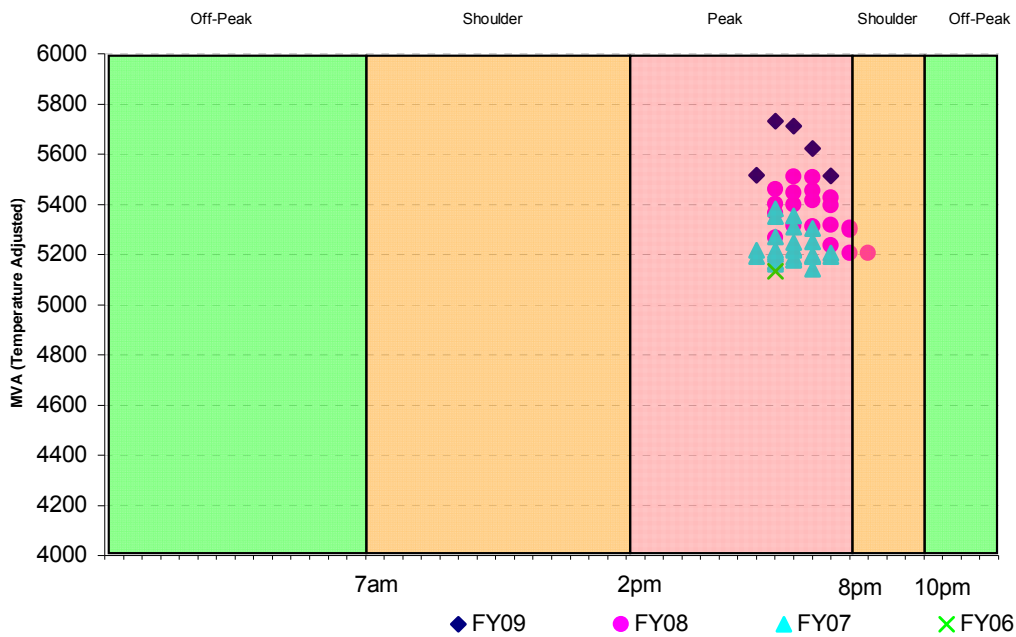
The following figure shows that the peak demand intervals occur in the warmer and cooler months of the year.

**Figure 3: Top 48 half hours of Peak Demand by Month (Temp Adjusted)**



Further analysis indicates that the nature of peak network congestion is different in winter and summer, and is presented in Figure 3 and Figure 4 respectively.

**Figure 4: Winter Peak Demand by Time Period (Temp Adjusted)**



### Long run marginal costs

The concept of marginal costs is important in economics because of the general principle that setting prices equal to marginal costs presents consumers with the opportunity costs of their consumption decisions, and results in an efficient allocation of society's resources.

The timeframe over which marginal costs are considered to vary with consumption is the distinguishing difference between the concepts of short-run marginal cost (SRMC) and long-run marginal cost (LRMC). In the short-run only costs that directly vary with demand can be avoided (such as the need for some repairs and maintenance, or call centre costs), while in the long-run capital costs can be avoided particularly if anticipated demand growth does not eventuate. The LRMC is equal to the SRMC plus the marginal capital costs.

The use of LRMC as a basis for determining usage charges is common in network businesses to provide customers with signals about the incremental capital and operating costs associated with use of the network. The use of LRMC is preferred over SRMC because of a desire to minimise the scope for network constraints to ration use of the

network. In principle, the use of LRMC ensures that sufficient network capacity is made

available such that demand is always able to be met by supply capacity.

Importantly, LRMC is a forward looking concept and should be estimated taking into account future expectations of the growth in costs to meet expected increases in demand. There are a number of methods commonly used to estimate the LRMC for network businesses including the Average Incremental Cost (AIC) approach and the Turvey methodology.

These two approaches differ in the methodology used to estimate the incremental impact of changes in demand on capacity related expenditure. The AIC approach calculates the average of expected capacity related expenditure over the period that output is expected to change. In contrast the Turvey approach directly estimates the change in expenditure resulting from an increment or decrement in forecast demand.

While there are strong theoretical underpinnings in support of the Turvey approach, Ausgrid has instead estimated the LRMC for each of the proposed tariff classes using the AIC approach. That said it intends to investigate the appropriateness of alternative approaches to estimating LRMC for tariff classes for future pricing proposals.

The AIC approach can be expressed algebraically as follows:

$$LRMC (AIC) = \frac{PV (capex) + PV (opex)}{PV (incremental \ demand)}$$

where the optimal capital costs are the annualised capital expenditure required to meet the additional demand forecast over the period and the operating costs are those required to serve additional demand over the forecast period. The additional demand served is the forecast change in demand compared to a base year. Ausgrid considers that incremental demand (rather than energy consumption) is the most appropriate volume cost driver for the LRMC analysis.

The Determination sets out Ausgrid’s optimal capital expenditure program to meet its overall demand forecasts. This information has been used as the basis for determining the optimal capital costs to be allocated to each individual network tariff. Similarly the additional demand served has also been allocated to these network tariffs. The resulting estimates of the LRMC were aggregated by proposed network tariff class as set out in the following table.

**Table 5: Ausgrid’s Long Run Marginal Cost**

Tariff Class	LRMC Estimate
Low Voltage <sup>14</sup>	\$138.8
High Voltage	\$79.6
Sub-transmission Voltage	\$40.4
CRNP	\$70.9
Unmetered	\$160.9

Ausgrid LRMC model is extremely sensitive to key assumptions and inputs. Ausgrid believes that there is further scope to improve its estimates of LRMC and remains committed to undertaking a major review of recent economic literature in this area of the price setting function during the current regulatory period.

The application of LRMC to the setting of efficient network tariffs is a two step process, as summarised below:

<sup>14</sup> Please note that the low voltage tariff class applies to all residential and business connections connected to the low voltage distribution network, excluding unmetered connections.

- To select the charging parameter to use to signal LRMC to customers.
- To convert the LRMC estimate from a \$ per kVA basis to a cents per kWh basis, if required.

Ausgrid believes it is efficient (and appropriate) that LRMC estimates be reflected only in the setting of charging parameter(s) that cover the period when there is a material likelihood of system-wide network congestion, which are a key driver of network augmentation costs. A review of Ausgrid’s existing charging parameters indicates that there are strong economic grounds to reflecting LRMC in the setting of peak energy charges given that there is a reasonable probability that usage during peak periods will be correlated with network driving augmentation costs.<sup>15</sup> It is important to note that future network tariff reforms could result in the capacity charge, rather than peak energy charges, being the most efficient charging parameter to reflect LRMC. The potential reform options for the capacity charging parameter will focus on improving the economic efficiency of the peak price signal by recognising that marginal costs of peak network capacity vary by the following dimensions:

- Time of year – the network is generally constrained during high peak demand periods of summer and winter
- Time of day – peak demand during the day tends to reflect temperature conditions and their impact on heating and cooling loads; and
- Location in the network – the balance between peak demand and network capacity tends to vary within the network area.

In recognition of the importance of LRMC based pricing to customers and other external stakeholders, Ausgrid intends to review the methodology and modelling of LRMC in the near future to ensure that this important basis to the setting of peak charges is consistent with best practice. As with other areas of potential reform, Ausgrid will ensure that external stakeholders are informed of any changes to the calculation of LRMC over the remainder of the current regulatory period and the methodological and/or modelling basis of these changes.

<sup>15</sup> This correlation is likely to strengthen if the peak period definition is reformed to more accurately reflect summer and winter patterns of network congestion.

Given the decision to reflect LRMC in the peak energy charges, it is necessary to convert the LRMC estimates for each tariff class from a \$ per kVA basis to a cents per kWh basis. The formula used by Ausgrid to make this conversion is shown below:

$$LRMC = \frac{LRMC\ Estimate(\$ / kVA)}{peak\ hours\ per\ annum \times power\ factor}$$

Applying this formula results in the conversion of the LRMC estimate from a \$ per kVA to a cents per kWh basis, at each voltage level, as summarised in the table below:

**Table 6: Ausgrid’s Long Run Marginal Cost Estimate**

Tariff Class	Annual Hours of Peak Period	Assumed Power Factor	Range of LRMC Estimate Cents per KWh		
			Lower Bound	Point Estimate	Upper Bound
Low Voltage	1506	0.85	6.6	10.8	24.6
High Voltage	1506	0.90	3.5	5.9	16.0
Sub-transmission Voltage	1506	0.95	1.7	2.8	7.6
CRNP	1506	0.95	2.4	5.0	∞
Unmetered	1506	0.85	7.4	12.6	34.4

As required by the NER, Ausgrid has taken into account the estimated range of LRMC shown in the above table when setting the peak energy charging parameter of network tariffs for FY12. To achieve an efficient pricing outcome, the peak charge in DUOS terms has been set consistent with this LRMC range in FY12. This has meant that for some network tariffs, where the current peak charge is above or close to the upper range of LRMC, the increase to the peak charge has been minimised in DUOS terms in FY12. This has resulted in a larger DUOS increase being applied to the other charging parameters than would otherwise have been the case. As required under clause 6.18.5(c), this rebalancing of DUOS tariffs has been undertaken in a manner that minimises the distortion to efficient consumption patterns.

It is also important to note that Ausgrid has undertaken considerable rebalancing of TUOS tariffs in FY 2012 to ensure that the pursuit of more efficient DUOS pricing does not create unacceptable NUOS price trend uncertainty for network customers. Ausgrid strongly believes that this is a reasonable approach to adopt considering the need to balance economic objectives with the need to provide customers

with a reasonable degree of pricing certainty at the NUOS level.

**Transactions costs**

In developing the tariffs and charging parameters, Ausgrid has been mindful of minimising the transactions costs associated with levying charges. The decision to charge on the basis of a combination of fixed, usage and capacity charges reflects the trade off between applying a complex set of charges (eg, introducing a power factor charge or additional inclining block rates) and ensuring that charges can be closely aligned to the underlying marginal costs of providing direct control services.

Introducing a greater number of tariff and charging parameters increases pricing complexity and will inevitably increase the transactions costs involved in charging for network services, both to Ausgrid through the need for more complex (and expensive) customer management and billing systems, and to customers, through additional effort required to understand the basis upon which charges are calculated and determine the appropriate response.

Ausgrid believes that its network tariffs and charging parameters strike the right balance between transactions costs and ensuring that appropriate signals are provided to customers to facilitate the efficient use of network services.

### Scope to respond to price signals

Ausgrid's network tariffs and charging parameters provide both short term and long term incentives to customers to modify consumption patterns in line with efficient use of network services. These price signals are conveyed to consumers of network services through the use of energy and/or capacity charges, depending on metering constraints, and have been designed with the principal aim of ensuring that network customers make efficient decisions about their use of the distribution and transmission network. To the extent that retailers pass through Ausgrid's network price signal, it is possible that end-customers may respond to these efficient price signals by changing their consumption behaviour by moving electricity usage out of the time-of-use peak periods. Over the long term efficient prices could encourage the installation of more effective insulation for housing, more energy efficient plant and equipment, or the installation of power factor correction devices e.g. capacitor banks.

Ausgrid has undertaken a trial to test residential and business customer demand response to new tariff initiatives. The Strategic Pricing Study (SPS) was a two year study that was completed in August 2008, and has been reviewed in previous pricing proposals.

The results of the trial were encouraging. Over the 13 events that were called during the two year period, domestic customers showed energy reductions of up to 30% (winter) and 36% (summer), when compared to the control group.

Ausgrid is continuing to explore the potential of innovative tariffs during the current regulatory period with our involvement in the Smart Grid Smart City project (refer to Chapter 6 of Part 1 of this document).

## 4. Weighted Average Revenue

### RULE REQUIREMENT

*Clause 6.18.2(b)(4) of the NER requires that a pricing proposal set out, for each tariff class related to standard control services, the expected weighted average revenue for the relevant regulatory year and also for the current regulatory year.*

This chapter sets out the expected weighted average revenue from tariffs within each tariff

class for standard control services. In addition, it compares these revenues with the standalone costs and avoidable costs by tariff class to demonstrate that the proposed tariffs comply with the principles set out in the NER.

The weighted average revenue for FY11 and FY12, both including and excluding government levies, is set out in the following table.

**Table 7: Expected DUOS Revenue by Tariff Class (\$ million excluding GST)**

Tariff Class	Expected Revenue	
	FY11(\$m)	FY12(\$m)
<b>Low Voltage</b>	\$1,408.64	\$1,692.37
<b>High Voltage</b>	\$39.83	\$39.12
<b>Sub-transmission Voltage</b>	\$5.66	\$4.75
<b>CRNP</b>	\$32.17	\$46.31
<b>Unmetered</b>	\$9.84	\$11.91

### Estimating standalone costs

The standalone costs represent the costs that would be incurred to replicate or bypass the infrastructure used to provide a service. It represents an upper bound of costs that should be recovered from customers. If customers were paying above the standalone costs then it follows that it would be economically beneficial for customers to switch to an alternative provider, and similarly if entry was economically feasible it would result in new suppliers entering to provide services. This creates the possibility of inefficient bypass of the infrastructure.

To estimate the standalone costs for a tariff class, Ausgrid has used the construct of a hypothetical new entrant distribution network service provider that is seeking to supply

services to each tariff class separately. Ausgrid has then asked what infrastructure and operating costs would be incurred to supply the tariff class alone, without the benefit of any economies of scale and scope arising from the supply of services to all other tariff classes. To assist with estimating the cost of the hypothetical new entrant, Ausgrid has drawn upon information from its own costs as follows:

- Identification of the segments of the network that would be required to provide services to each tariff class. For example, for HV Business customers we identified the cost of replicating the network from the point of customer connection to the high voltage network to the connection with the TransGrid transmission network.

- Develop an estimate of the annual capital charge for the relevant network by applying the same return to capital and depreciation parameters as set out in the Determination.
- Develop an estimate of the operating costs that would be incurred in order to provide services to the tariff class by identifying those operating costs that are necessarily incurred by Ausgrid for the provision of network services to that tariff class.

The associated summation of the annual estimated capital costs and operating costs for each tariff class are therefore estimated to represent the standalone costs that would be incurred by a hypothetical new entrant. The estimated standalone costs for each tariff class are set out in the following table.

**Table 8: Comparison of Standalone Costs Vs FY12 DUOS Tariffs**

Tariff Class	Total Standalone Cost	Expected Revenue	Weighted Average Revenue as a proportion of Standalone Cost
	FY12 (\$m)	FY12 (\$m)	FY12 (%)
<b>Low Voltage</b>	\$1,694.6	\$1,692.4	99.87%
<b>High Voltage</b>	\$1,029.6	\$ 39.1	3.80%
<b>Sub-transmission Voltage</b>	\$638.9	\$4.8	0.74%
<b>Unmetered</b>	\$1,542.5	\$11.9	0.77%
<b>CRNP</b>	\$1,267.9	\$46.3	3.65%

It can be seen that costs need to establish and maintain a standalone service for each tariff class is higher than the weighted average revenue to be recovered in FY12.

#### Estimating avoidable costs

The avoidable costs represent those costs that could be avoided by a business if it was not supplying goods or services to its customers. It represents the lower bound of costs that should be recovered from customers. If customers were charged below the avoidable costs it would be economically beneficial for the business to stop supplying the customer and thereby avoid the associated costs which would exceed the revenue expected to be obtained from the customer.

To estimate the avoidable costs for each proposed tariff class, Ausgrid has:

- identified those categories of costs that would be avoided if a tariff class was no longer served;

- allocated the cost of each avoidable cost category to each tariff class based on either volume or customer numbers, according to the nature of the cost category, to determine those costs that would be reduced if a particular tariff class was no longer served;
- summed the allocated avoidable cost for all avoidable cost categories for each tariff class to estimate the total avoidable cost for each tariff class.

The cost categories that were identified as being avoidable included:

- repairs and maintenance – this was identified as a partially avoidable cost given that use of the network impacts on its deterioration and the need for repairs and maintenance;
- customer service – these costs relate to managing billing and customer

- service enquiries which are related to the number of customers served;
- metering costs – these costs relate to meter reading and meter replacement and are related to the number of customers served;
- corporate and divisional support costs – costs relating to media, marketing and legal expenses can be considered to be driven by the number of customers served; and
- customer connections and installation inspections – these costs can be considered to be proportional to customers numbers, the voltage and capacity of the connection.

The following table sets out the avoidable costs for each of the tariff classes.

**Table 9: Comparison of Avoidable Costs Vs FY12 DUOS Tariffs**

Tariff Class	Total Avoidable Costs	Expected Revenue	Avoidable Cost a proportion of expected revenue
	FY12 (\$m)	FY12 (\$m)	FY12 (%)
<b>Low Voltage</b>	\$244.7	\$1,692.4	14.5%
<b>High Voltage</b>	\$5.6	\$39.1	14.3%
<b>Sub-transmission Voltage</b>	\$3.8	\$4.8	80.0%
<b>Unmetered</b>	\$0.8	\$11.9	6.7%
<b>CRNP</b>	\$14.4	\$46.3	31.1%

It can be seen that in most cases the distribution revenue to be recovered for each tariff class is well above the avoidable cost for each tariff class. The avoidable cost accounts for a higher share of weighted average revenue for the sub-transmission and CRNP tariff classes, reflecting the greater influence of customer-specific network assets.

As required under clause 6.18.2 of the NER, the following table provides a comparison of weighted average distribution revenue in FY12 with the estimates of standalone and avoidable costs for each tariff class. As required under the NER, the weighted average distribution revenue lies within the bounds of the upper limit (standalone cost) and the lower limit (avoidable cost).

**Table 10: Efficient Pricing Bounds Test**

Tariff Class	Total Avoidable Costs	Expected Revenue	Total Standalone Cost
	FY12 (\$m)	FY12 (\$m)	FY12 (\$m)
Low Voltage	\$244.7	\$1,692.37	\$1,694.6
High Voltage	\$5.6	\$39.12	\$1,029.6
Sub-transmission Voltage	\$3.8	\$4.75	\$638.9
Unmetered	\$0.8	\$11.91	\$1,542.5
CRNP	\$14.4	\$46.31	\$1,267.9

### Recovery of Total Regulated Revenues

This section briefly describes the WAPC formula and the approach adopted to estimate consumption to be used in the formula when new tariffs are introduced, or customers move between tariffs.

The Weighted Average Price Cap (WAPC) formula governing Ausgrid's DUOS pricing is defined below:

$$\frac{\sum_{i=1}^n \sum_{j=1}^m p_{ij}^t * q_{ij}^{t-2}}{\sum_{i=1}^n \sum_{j=1}^m p_{ij}^{t-1} * q_{ij}^{t-2}} \leq (1 + \Delta CPI) * (1 - X_t) * (1 + D_t)$$

i=1,...,n and j=1,...,m

where:

n is the number of distribution tariffs

m is the number of distribution tariff components

$p_{ij}^t$  is the proposed price for component j of the distribution tariff i for Year t

$p_{ij}^{t-1}$  is the price charged by the DNSP for aggregate component j of the distribution tariff i in Year t-1 (ie the Year immediately preceding Year t)

$q_{ij}^{t-2}$  is the audited quantity of aggregate component j of the distribution tariff i charged by the DNSP in Year t-2 (ie the Year immediately prior to Year t-1)

$X_t$  is the value of "X" specified for the DNSP (for the Year t) by the AER

$\Delta CPI$  is the December to December change in the Consumer Price Index from Year t-2 to Year t-1

An important feature of the WAPC formula is the use of lagged electricity consumption data to demonstrate compliance. Lagged data is used because of the delays in this data being audited and made available, and the uncertainty associated with the use of forecast volume data within the formula.

The use of lagged consumption data impacts on Ausgrid's ability to recover its revenue requirement in circumstances when actual consumption in a year varies considerably from lagged consumption. This can occur when new tariffs or charging parameters are introduced, or when customers move between tariffs.

In these circumstances, Ausgrid applies a 'reasonable estimates' methodology to calculate the volume to be included in the WAPC formula. This ensures that revenue is maintained despite the tariff changes. For each year of the 2009 to 2014 distribution determination, Ausgrid will submit reasonable estimates of consumption to the AER for use in the WAPC formula if appropriate.

These estimates are based on the quantities that would have been sold in year t-2 if the new tariffs or tariff components had been introduced in that same year, or if Ausgrid mandated the transfer of customers from one tariff to another. Voluntary tariff transfers are not included in reasonable estimates.

**Table 11: WAPC Notional Revenues (\$m)**

Tariff Class	Weighted Average Revenue	Expected Revenue	% Variation
	FY11 (\$m)	FY12 (\$m)	
<b>Low Voltage</b>	\$1,408.64	\$1,692.37	18.1%
<b>High Voltage</b>	\$39.83	\$39.12	13.4%
<b>Sub-transmission Voltage</b>	\$5.66	\$4.75	30.5%
<b>Unmetered</b>	\$9.84	\$11.91	23.2%
<b>CRNP</b>	\$32.17	\$46.31	27.4%

## 5. Variations to Tariffs

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### RULE REQUIREMENT

*Clause 6.18.2(b)(5) of the NER requires that a pricing proposal set out the nature of any variation or adjustment to the tariff that could occur during the course of the regulatory year and the basis on which it could occur*

In general, Ausgrid does not propose to make any variation or adjustment to published network tariffs, such as adding a new charging parameter in FY12. However, Ausgrid has included draft pricing trial network tariffs in the pricing proposal for FY12. It is possible that Ausgrid will need to vary or adjust these pricing trial tariffs during the course of the regulatory year. Importantly, the variation or adjustment could relate to both the level and structure of the pricing trial network tariffs for FY12.

Ausgrid intends to submit the final network pricing trial tariffs to the AER during the course of FY12. This is not expected to create any compliance issues because these trial network tariffs have been included in the pricing proposal for FY12 on the following basis:

- no reasonable estimate of the quantities assigned to these tariffs has been made for period t.<sup>16</sup>
- no forecast quantities have been assigned to these tariffs in period t.<sup>17</sup>

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<sup>16</sup> Reasonable estimates are not permitted for voluntary tariff re-assignments, as per Appendix J of the Determination.

<sup>17</sup> Excluded from the forecast due to uncertainty over the voluntarily take-up rate for these new trial tariffs.

## 6. Climate Change Fund

### RULE REQUIREMENT

Clause 6.18.2(b)(5A) of the NER requires that a pricing proposal must set out the amount paid to the Climate Change Fund in or in respect of the relevant regulatory year and any adjustments to tariffs resulting from an over or under recovery of these amounts in any previous regulatory year. The proposal must also show the amount attributed to the recovery of the Climate Change Fund in terms of expected revenue for the relevant regulatory year

For the year ending June 2012, Ausgrid will pay \$71,012,219 to the Climate Change Fund. Ausgrid expects to recover \$71,914,923 for this purpose from network charges, as shown in the following table.

Attachment F is the correspondence received from the Department of Environment and Climate Change on Ausgrid's contribution to the Climate Change Fund for FY12.

**Table 12: Overs and Unders Account Forecast Closing Balance – Climate Change Fund**

Financial Year Ending	Units	Period t-2	Period t-1	Period t
		Audited FY10	Expected FY11	Forecast FY12
<b>Interest rate applicable to balance</b>	%	10.02	10.02	10.02
<b>Opening balance</b>	\$'000	400	(120)	(861)
<b>Interest on opening balance (365 days)</b>	\$'000	40	(12)	(86)
<b>Forecast over/under recover for financial year</b>	\$'000	(533)	(695)	903
<b>Interest charged on over/under recovery for financial year</b>	\$'000	(27)	(34)	44
<b>Closing balance of CCF overs/unders account</b>	\$'000	120)	(861)	(0.0)

## 7. Transmission Use of System Services

### RULE REQUIREMENT

*Clause 6.18.2(b)(6) of the NER requires that a pricing proposal must set out how charges for transmission use of system services are to be passed on to customers and any adjustments to tariffs resulting from over or under recovery of those charges in the previous regulatory year. In addition, clause 6.18.7 states that recovery of transmission revenue should not exceed the estimated amount of these charges for the relevant regulatory year, once the overs and unders account has been taken into account.*

Ausgrid's Transmission Use of System (TUOS) tariffs are designed to recover the allowed revenue for our transmission network, pass through the TransGrid transmission cost to customers and to recover (return) an under (over) recovery of transmission revenues in the previous period. The process used by Ausgrid to achieve these TUOS pricing outcomes is summarised below:

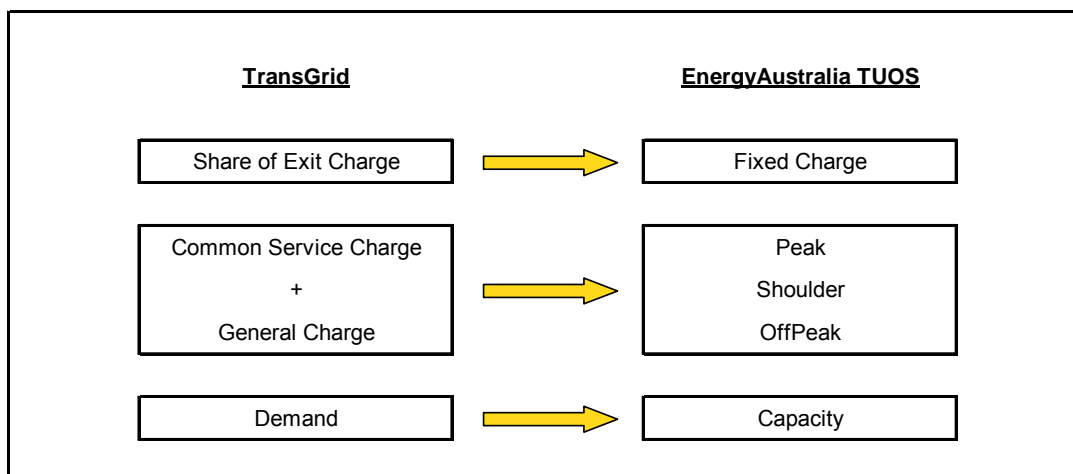
- Step 1: To calculate the annual amount of allowed revenue to recover for Ausgrid transmission assets;
- Step 2: Ausgrid to provide this annual revenue requirement to TransGrid for inclusion in their modelling of transmission charges for the coming year;

- Step 3: TransGrid to provide Ausgrid with the final transmission charges for the coming year in early April, as per the Memorandum of Understanding between the two organisations.
- Step 4: Ausgrid to set TUOS tariffs for the coming year to recover the forecast transmission cost plus the opening balance (positive or negative) of the transmission overs and unders account.

Ausgrid's approach to setting Transmission Use Of System (TUOS) prices is based on the fundamental principle of preserving the TransGrid transmission price signal, where it is desirable to do so from an economic and equity perspective. Given the location-basis of TransGrid's transmission charges, it is only possible to preserve the transmission price signal in the TUOS component of network tariffs for Cost Reflective Network Price (CRNP) customers given the site-specific nature of these network tariffs.

As illustrated in the following figure, Ausgrid's approach to setting TUOS tariffs for CRNP customers preserves the TransGrid transmission price signal, in spite of the structural differences between the two price signals.

**Figure 5: Ausgrid's TUOS Pricing Methodology for CRNP Customers**



While it is not possible to provide individual customers on a published network tariff with

cost reflective TUOS prices due to “postage stamp” basis of these tariffs, it is possible,

however, to allocate annual TUOS cost (net of CRNP TUOS recovery) to each tariff class on an equitable basis using cost allocation principles. As with any cost allocation process, this approach requires a significant degree of averaging of costs and assumptions to be made in relation to the time of use consumption and demand characteristics of tariff classes where interval consumption data does not exist.

While Ausgrid endeavours to set TUOS tariffs consistent with the cost reflectivity principle, this may not always be possible in practice given the following considerations:

- It is not possible to preserve the TransGrid<sup>18</sup> transmission price signal for customers on published network tariffs;
- The likelihood of forecast volume error;
- The NER requirement to set TUOS tariffs to achieve a zero forecast balance of the transmission overs and unders account by the end of the year that the new prices apply; and
- Ausgrid's commitment to transitioning TUOS prices to cost reflective levels, where necessary to avoid imposing unacceptable price shocks on individual customers, as discussed below.

While it is important from an economic perspective to preserve the TransGrid price signal to these customers, Ausgrid believes that it is unfair to burden any individual customer with unacceptable price shocks arising from unexpected changes in the structure of prices. It is for this reason that Ausgrid has decided to transition TUOS tariffs to cost reflective levels over a reasonable period for a number of CRNP customers.

### **Unders and overs account**

The over and unders transmission account is a mechanism to ensure that if transmission revenue recovery is too high or too low in a given regulatory year, Distribution Network Service Providers, such as Ausgrid can recover the difference between actual transmission revenue and transmission payments by adjusting TUOS prices in the

subsequent year. Fluctuations in revenue recovery are most likely to be caused by the impact of weather on electricity consumption and demand forecasts.

As required under the NER, Ausgrid have set TUOS tariffs to achieve a forecast zero balance of the overs and unders account for transmission by the end of FY12, as shown in the following table:

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<sup>18</sup> Note that TransGrid is the co-ordinating TNSP for the setting of Transmission charges in NSW

**Table 13: Overs and Unders Account Forecast Closing Balance – Transmission-Related**

Financial Year Ending	Units	Period t-2	Period t-1	Period t
		Audited FY10	Expected FY11	Forecast FY12
<b>Interest rate applicable to balance</b>	%	10.02	10.02	10.02
<b>Opening balance</b>	\$'000	(12,210)	(1,555)	1,914
<b>Interest on opening balance (365 days)</b>	\$'000	(1,223)	(156)	192
<b>Forecast over/under recover for financial year</b>	\$'000	11,312	3,456	(2,008)
<b>Interest charged on over/under recovery for financial year</b>	\$'000	567	169	(98)
<b>Closing balance of transmission overs/unders account</b>	\$'000	(1,555)	1,914	(0.0)

## 8. Changes from the Previous Regulatory Year

### RULE REQUIREMENT

*Clause 6.18.2(b)(8) of the NER requires that a pricing proposal must describe the nature and extent of change from the previous regulatory year and demonstrate that the changes comply with the Rules and any applicable distribution determination*

This chapter sets out the principal changes since the previous regulatory year, and demonstrates that these changes comply with the Rules and the AER's distribution and transmission determinations released on 30 April 2009.

### Description of the nature and extent of change from previous regulatory year

Ausgrid does not propose to make any major changes to the structure of network tariffs in FY12, but does propose to undertake the following network tariff reforms:

- Change the tariff code pertaining to the High voltage standby network tariff from EA350 to EA360 to lower our internal administration costs. This proposed change will impact only a small number of customers on this tariff.
- Introduce a new transitional tariff to ensure that customers with consumption above 40 MWh pa that are currently on the TOU tariff receive a more cost reflective network price signal, but without imposing an unacceptable bill shock in a single year. This proposal will impact only a small number of customers.
- Introduce a number of new network tariffs for the purposes of undertaking research, as part of our the Smart Grid Smart City initiative or Ausgrid's customer research program, as discussed in Chapter 10 of this document. This proposal will impact customers that voluntarily participate in our research program.
- Merge the tariff class for residential and low voltage business customers.<sup>19</sup>

### Demonstration of compliance with the Rules and Determination

The proposed new network tariffs comply with the NER, as discussed in more detail in Chapter 3 of part 2 of this document. The proposed new network tariffs relating to the pricing trials have been submitted in draft form and may require adjustment during the course of FY12, as discussed in Chapter 5 of part 2 of this document.

In general terms, the pricing proposal demonstrates compliance with the X factor and Price limit under the WAPC by providing the AER with a compliance spreadsheet that sets out the detailed assumptions used to apply the weighted average price cap (WAPC). These assumptions include:

- Audited usage volumes and customer numbers for the year ending June 2009
- adjustments to usage volumes and customer numbers for reasonable estimates
- Distribution use of system (DUOS), transmission use of system (TUOS) and Climate Change Fund rates by tariff for the year ending June 2012
- network use of system (NUOS) rates by tariff for the year ending June 2012
- revenues by tariff and tariff class for the years ending June 2011 and 2012

As required, Ausgrid engaged PriceWaterhouseCoopers to undertake an independent review of the WAPC variables included in the Schedules. The statement from PriceWaterhouse Coopers is provided in Attachment I.

<sup>19</sup> Please note that unmetered will remain a separate tariff class in FY12.

## 9. Public Lighting Services

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Ausgrid's regulated services are known as "direct control services" meaning that they are subject to a distribution determination. Direct control services are further classified as "standard" control services and "alternative control services". Public lighting services are classified as alternative control services and are subject to a different control mechanism to general network services which are classified as standard control services.

The AER made its final decision for Ausgrid's public lighting services on 15 April 2010. That decision applies a control mechanism from which the prices or tariffs to be applied to each of Ausgrid's public lighting customer are derived. Whilst Clause 6.18 of the Transitional Chapter 6 Rules, applies to Ausgrid's public lighting services the application is limited given that the tariffs can be derived directly from the AER's decision. This section explains the application of these pricing rules to Ausgrid's public lighting services in the context of the decision which has been made by the AER.

### Tariffs and tariff classes

All public lighting customers are subject to the tariffs in the AER April 2010 determination and therefore are defined to be a single tariff class.<sup>20</sup> The tariffs that apply to these customers are:

- A fixed capital charge for installed public lighting assets. The fixed capital charges have been provided in confidential Attachment B because they are individual customer charges. This tariff only relates to the capital charges for public lighting assets constructed before 1 July 2009.
- An annuity price per asset type for all new assets. These tariffs and charging parameters are contained in Attachment C. This price relates to the capital charge for new public lighting assets constructed after 30 June 2009, but does not apply to assets where the customer has funded the original construction cost.
- A maintenance price per asset. This tariff relates to the maintenance of

each of Ausgrid's public lights. These tariffs and charging parameters are contained in Attachment C.

### Adjustments to prices

The AER April 2010 public lighting decision and clause 6.18.2(b)(5) of the transitional Rules require Ausgrid to explain any adjustment to prices that could occur during the regulatory year. The prices to be levied in the 2011/12 year will not change during the financial year.

In preparation of the 2011/12 prices, Ausgrid has adjusted the fixed capital charges as in 2010/11 some customers paid residual values for assets that they elected to have replaced before the end of their economic life. As a result Ausgrid has deducted this amount from the closing RAB value as of 30 June 2011. The total amount of the residual values accrued in 2010/11 is small (\$271,000), therefore the adjustment is a minor reduction in the fixed capital charge for the relevant customers.

All FY12 public lighting prices were adjusted for CPI (for the four quarters to December 2010), as per page 43 of the AER's determination.

### Other requirements of the determination

The AER's final determination for public lighting states that Ausgrid should provide actual public lighting charges for the current year in the pricing proposal.<sup>21</sup> FY11 charges are not yet known and can be provided after the year has ended. Attachments B and C show the public lighting charges proposed for FY12.

### National Electricity Rule requirements

The transitional National Electricity Rules require Ausgrid to demonstrate that the expected revenue for each tariff class be between the standalone and avoidable cost of providing the service. The Rules also require Ausgrid to take into account the long run marginal cost for each charging parameter, and have regard for transaction costs and whether relevant tariff class is able to respond

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<sup>20</sup> Tariff class: A class of customers for one or more *direct control services* who are subject to a particular tariff or particular tariffs.

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<sup>21</sup> AER, EnergyAustralia distribution determination 2009-10 to 2013-14, Alternative control (public lighting) services, 13 April 2010, page 54.

to price signals. These Rule requirements should be considered satisfied for public lighting since Ausgrid follows the requirements of the determination, which was based on the AER's view of efficient cost.

Another transitional Rule that is applicable to direct control services is the assignment of customers to tariff classes (clause 6.18.4). As public lighting is its own tariff class and there have been no-assignment of customers, this Rule obligation has been met for public lighting services. Since all public lighting customers are subject to the same three public lighting tariffs, Ausgrid is satisfied that the criterion in transitional Rule 6.18.4 has been met.

**Table 14: Maximum public lighting price increases**

Public lighting charging component	Maximum component increase %
<b>Assets installed before July 2009</b>	6.95%
<b>Assets installed post June 2009</b>	2.85%
<b>Maintenance</b>	3.87%

## 10. Proposed New Network Tariffs

### Proposed transitional network tariff

As discussed in chapter 2 of this proposal, Ausgrid proposes to transfer around 90 customers with consumption above 40 MWh pa from their existing Time of Use network tariff to a more appropriate network tariff.<sup>22</sup> Given that immediately assigning these customers to the published LV TOU capacity network tariff will result in unacceptable NUOS price shocks, Ausgrid proposes to introduce a new transitional network tariff. To avoid unacceptable customer impact outcomes, Ausgrid proposes to assign these customers to the transitional tariff, rather than the published LV TOU capacity tariff, in FY12. The following table provides a comparison of the published and transitional network tariff in FY12.

**Table 15: Proposed Transitional NUOS Tariff**

Tariff Component	LV TOU Capacity Tariff	Transitional TOU Capacity Tariff	% variation
Fixed Charge	200.0000	200.0000	0%
Peak Energy Charge	9.3538	9.3538	0%
Shoulder Energy Charge	7.4156	7.4156	0%
Off-peak Energy Charge	3.9933	3.9933	0%
Capacity Charge	27.0000	13.5000	-50%

Ausgrid believes that this is a reasonable approach that will deliver more efficient pricing outcomes over time and provide affected

<sup>22</sup> Please note the time of use network tariff for both residential and small business customers is only eligible to customers with electricity consumption below 40 MWh pa.

customers with sufficient time to respond to the kW-based price signal.

### Proposed draft pricing trial network tariffs

Ausgrid will commence a pricing trial program during the course of FY12 as part of the Australian Government's Smart Grid Smart City initiative. It is important to note that these trials will be on based on the voluntary participation of customers with participation in the trial capped at around 50,000 customers.

Ausgrid have included in our FY 12 pricing proposal a number of new network tariffs that will be used in the pricing trial program of the Smart Grid Smart City initiative.<sup>23</sup>

While Ausgrid and project stakeholders have made substantial progress in planning and designing the Smart Grid Smart City trials, the complexity and size of this research means there is a possibility that tariff changes may be required prior to implementation in FY12. It should also be recognised that this project is at various stages of progression in seeking support or sign-off from a wide range of project stakeholders including:

- The Australian Government
- The participating Retailers
- Electricity Networks
- Public advocacy organisations

It is likely that some revisions to the draft pricing trial network tariffs will be needed to incorporate feedback from the above project stakeholders. Given the importance of this research to consumers and the electricity industry in general, Ausgrid seeks the support of the AER to review any changes to the pricing trial network tariffs and approve them as part of a process separate from this pricing proposal. Approval for a change to the proposed pricing trial network tariffs may occur sometime between July 2011 and March 2012.

Given the pricing trial network tariffs are intended for research purposes<sup>24</sup> in a limited

<sup>23</sup> Please refer to Chapter 6 of part 1 of this document for more information of the Smart Grid Smart City initiative.

<sup>24</sup> In contrast to the published network tariffs, the trial network tariffs will only be offered to customers eligible to participate in these research programs.

area, together with the potential for these tariffs to be adjusted during the course of FY12, Ausgrid believes that it is not appropriate to publish these tariffs.

In addition to the Smart Grid Smart City initiative, Ausgrid intends to undertake its own pricing trial in FY12 involving up to 1,000 small customers. Recruitment for this trial will be drawn from the customers that were involved in our advanced metering trial. As with the Smart Grid Smart City trial, draft pricing trial network tariffs have been included in the pricing proposal for FY12. However, there is a possibility that Ausgrid will seek the approval of the AER to vary these network tariffs prior to implementation due to feedback from

stakeholders and as a consequence of the findings from our tariff design research.

#### **Compliance with the NER**

Ausgrid intends to provide the AER with any change within FY12 to the DUOS and TUOS component of these network tariffs proposed for FY12, for consideration from a compliance perspective, prior to their implementation. This is not expected to be a burdensome process as the trial network tariffs have been excluded from reasonable estimates for DUOS compliance purposes and have not been reflected in the forecast volume in FY12, so do not influence the TUOS and CCF calculations for FY12.

## 11. Reasonable Estimates

### DETERMINATION REQUIREMENT

*Appendix J of the AER Determination states that when assessing the reasonableness of the quantity estimates provided by a NSW DNSP, the AER will take the following information into account:*

*(1) the actual audited quantities sold in relevant units under the origin tariff in previous years;*

*(2) a forecast of the number of distribution customers that the DNSP states will move to the new tariff/tariff components, and the reasons for the move;*

*(3) a forecast of the number of distribution customers that the DNSP expects will remain on the origin tariff;*

*(4) a forecast of the quantities that the DNSP expects will be sold, in relevant units, to those distribution customers that are moved to the new tariff/tariff component;*

*(5) a forecast of the quantities that the DNSP expects will be sold, in relevant units, to those distribution customers that will remain on the origin tariff;*

*(6) a forecast of the distribution tariff, and associate revenue, the DNSP expects will be payable by those distribution customers that will be moved to the new tariff/tariff components;*

*(7) a forecast of the distribution tariff, and associate revenue, the DNSP expects will be payable by those distribution customers that will remain on the origin tariff;*

*(8) the approach the DNSP used to determine its forecast (for 2-7 above)*

*(9) the materiality of the reasonable estimates; and*

*(10) further information as required by the AER.*

The purpose of this chapter is to provide a high-level understanding of the concept of reasonable estimates under the WAPC and the Ausgrid approach to calculating reasonable estimates in accordance with the requirements of Appendix J of the Determination. It is important to note that Ausgrid's compliance with Appendix J is demonstrated by the provision of a compliance spreadsheet to the AER, rather than the information provided below.

### The concept of a Reasonable Estimate

As explained in Appendix J of the Determination, a DNSP may adopt a pricing strategy that involves:

- The introduction of a new tariff or tariff component.
- The adjustment to an existing tariff component, such as changing the peak period definition.
- The transfer of customers between network tariffs.

Given that both the WAPC and side constraint are based on the audited historical quantities, the new tariffs/tariff components and customer transfers will not be reflected in the historical quantities for two years. Therefore, the historical audited quantities will need to be adjusted to take account of these changes.

### Methodology for Calculation of reasonable Estimates

As explained in Appendix J of the Determination, Ausgrid is required for compliance purposes to calculate reasonable estimates under the WAPC on the following basis:

- To exclude voluntary customer transfers arising from the actions of the customer (or the retailer).
- To ensure that the quantity adjustments made due to reasonable estimates relating to tariff changes in period t and period t-1 do not result in the total annual quantities being different to the total audited quantities in period t-2.<sup>25</sup>
- To use the origin tariff for period t-1, where both the origin and new tariff are measured in the same units of measure. If there is no origin tariff/tariff component with the same units of measure, the tariff for period t-1 will be set to zero.

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<sup>25</sup> Note - the reasonable estimate of the consumption applying to the new tariff or tariff component is not adjusted for the price elasticity effect.

The reasonable estimates included in the pricing proposal for FY12 comply with the above requirements given that the quantity adjustments under reasonable estimate are based on the historical consumption interval data at the customer level in period t-2. If no historical interval data is available, (ie where only basic metering is installed in the customer's premise), the reasonable estimate of the quantity adjustment will be based on a representative sample of similar customers with historical interval consumption available in period t-2.

### Customer transfers in the FY12 Pricing Proposal

The assignment or re-assignment of customers is an important part of our network pricing strategy because it ensures that our customers are on the most appropriate network tariff given the level of their energy consumption and their metering functionality. The net customer transfers included in the reasonable estimates under the WAPC for FY 12 is shown below:

**Table 16: Ausgrid's Customers Transfers for FY12**

Tariff Class	Origin Tariff	Destination Tariff	Net Customer transfers	
			Period (T-1)	Period (T)
Low Voltage	Residential Inclining Block Tariff (EA10)	Residential TOU Tariff (EA25)	9,636	55,195
	Small Business Inclining Block Tariff (EA50)	Small Business TOU Tariff (EA225)	78	8,267
	Low Voltage TOU Capacity (EA302)	Small Business TOU Tariff (EA225)	599	3,507
		Low Voltage TOU Capacity (EA305)	137	248
		Low Voltage TOU Capacity (EA310)	14	52
	Low Voltage TOU Capacity (EA305)	Small Business TOU Tariff (EA225)	10	77
	Low Voltage TOU Capacity (EA310)	Small Business TOU Tariff (EA225)	6	51
		Low Voltage TOU Capacity (EA305)	430	670
High Voltage	Published HV TOU Capacity (EA370)	CRNP	-	4
Sub-transmission	Published STV TOU Capacity (EA390)	CRNP	-	7
Cost Reflective Network Price	Individually-calculated Cost Reflective Network Prices (CRNP) Tariff	Published HV TOU Capacity (EA370)	3	3
		Published HV TOU Capacity (EA390)	7	11

**New tariffs in the FY12 Pricing Proposal**

Ausgrid has introduced a large number of new tariffs in FY12, mainly as a result of our involvement in the *Smart Grid Smart City* initiative (refer to Part 1 of this document). Importantly, the only new tariff requiring a reasonable estimate of the quantities and customer numbers under the WAPC is the proposed new transitional network tariff (EA301).<sup>26</sup> The number of customers to be transferred to the proposed transitional capacity tariff in FY 12 is shown in the following table.

**Table 17: Ausgrid’s proposed new tariff in FY12**

Tariff Class	Origin Tariff	Destination Tariff	Customer transfers
Low Voltage	Small Business TOU Tariff (EA225)	Transitional Capacity Tariff (EA301)	90

Ausgrid has included a reasonable estimate of the capacity quantity under the new transitional tariff in FY12, even though no capacity quantity for these customers is reflected in the audited quantities. This approach has been adopted because a capacity charge will apply to these customers in FY12 and therefore, should be encompassed in the WAPC compliance framework. As noted in Appendix J of the Determination, where the origin and new tariff involve different units of measure, the network tariff to apply in period t-1 in reasonable estimates must be set to zero. It is for this reason that we have not applied a capacity-based price to these customers in period t-1.

**Tariff Structure Changes in the FY12 Pricing Proposal**

There are no proposed changes to the structure of network tariffs for FY12.

**Forecast DUOS revenue associated with customer transfers and new transitional tariff**

Appendix J of the Determination also requires that the DNSP provides details of the forecast DUOS revenue to be earned by customers

under the new tariff compared with the revenue earned under the origin tariff. A summary of the forecast DUOS revenue impact of customer transfers has been provided in Appendix H of this document.

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<sup>26</sup> Please note that Ausgrid cannot provide a reasonable estimate for the quantities that relate to the *Smart Grid Smart City* pricing trial tariffs in FY12 as Appendix J of the Determination explicitly prohibits reasonable estimates to be made in the case of voluntary customer transfers.

## 12. Attachments

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Attachments have been included with this pricing proposal as follows:

Attachment	Disclosure	Description
<b>A</b>	CONFIDENTIAL	Price and Tariff Class Information for Cost Reflective Network Price (CRNP) Customers
<b>B</b>	CONFIDENTIAL	Customer Bill Information for Public Lighting Customers
<b>C</b>		Price Information for Public Lighting Tariffs
<b>D</b>	CONFIDENTIAL	Completed Compliance Spreadsheet
<b>E</b>		Price and Tariff Class Information for Miscellaneous & Monopoly Charges and Emergency Recoverable Works
<b>F</b>		Notification of Climate Change Fund Contribution
<b>G</b>		Procedure on Assignment and Re-assignment of customers to tariffs
<b>H</b>	CONFIDENTIAL	Reasonable Estimates Under the WAPC
<b>I</b>	CONFIDENTIAL	Statement from PriceWaterhouseCoopers Australia
<b>J</b>		TransGrid's transmission prices for FY12
<b>K</b>	CONFIDENTIAL	Economic Cost Model
<b>L</b>	CONFIDENTIAL	Summary of Draft Pricing Trial Network Tariffs in FY12

