

SA Power Networks



Pricing Proposal 2016/17

10 June 2016 (including final TUoS prices)



Executive Summary

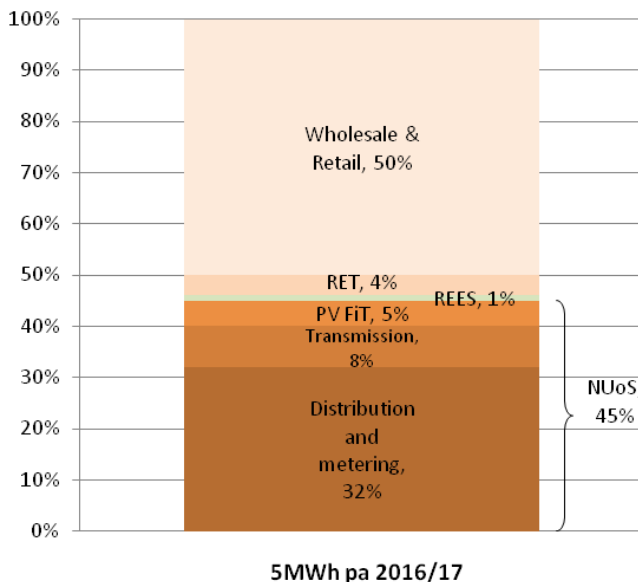
This Annual Pricing Proposal (APP) has been prepared by SA Power Networks under the requirements of the National Electricity Rules¹ (NER, or the Rules). It provides details of our proposed network prices for 2016/17 and comprehensive information on the price changes for each type and size of customer.

Each electricity customer's retail bill comprises the following components, the first four of which are included in this Network Pricing Proposal:

1. SA Power Networks' distribution network charges;
2. Transmission network charges, by ElectraNet and MurrayLink;
3. Jurisdictional Scheme Amount charges, required to fund the South Australian Government's Feed-in Tariff (FiT) credits to the owners of qualifying solar photo-voltaic (PV) electricity generators;
4. Metering charges (by SA Power Networks or another metering provider); and
5. Retail charges, including the cost of energy generation, and obligations under the national Renewable Energy Target (RET) and the state's Retailer Energy Efficiency Scheme (REES).

The first three components are collectively referred to as 'Network Use of System' or 'NUoS' charges and usually sum to just under half the final bill paid by consumers. The distribution and transmission charges reflect the cost of transporting electricity across the State's electricity grid from where it is produced to where it is consumed. The fourth charge generally applies to small customers for their type 6 metering provided by SA Power Networks.

Figure 1 – Supply chain cost components for a typical customer



Electricity retailers tend to pass through these NUoS charges as separate items on the bills of large customers. For households and small business customers, retailers tend to bundle these charges with the cost of buying electricity in the wholesale market and with other fees and charges. Figure 1 represents a typical 2-3 person household consuming 5,000 kWh (5 MWh) across the year.

Under the National Electricity Market (NEM) regulatory approach for Distribution Network Service Providers (DNSPs) like SA Power Networks, our total revenue is set by the Australian Energy Regulator (AER) each five years².

¹ National Electricity Rules 6.18.2(a)(2) Ver 65 (Note, the former Rules apply on account on Rule 11.73.1(b) Ver 79)

² The AER released its final determination for the 2015-20 regulatory period in October 2015

With our total revenue capped, our tariffs represent the way that we allocate these total costs to our diverse customer base.

The way we allocate these costs to customers is changing. The National Electricity Rules (NER, or the Rules) changed in late 2014 and require us to develop what can be referred to as a more ‘user pays’ approach to the way we price use of the network³. Network pricing needs to become more ‘cost-reflective’ over time. Changes are required to our pricing from July 2017, but we have endeavoured to ensure any interim period price changes are aligned with the direction of the new pricing rules.

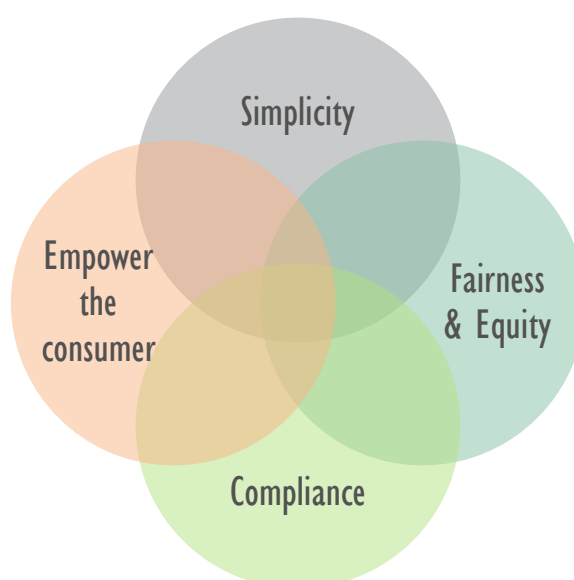
This reform program will involve numerous decisions along the way and requires SA Power Networks to balance sometimes competing objectives. We have been refining a set of Customer Impact Principles as a complement to the Pricing Principles established under the Rules⁴.

An Electricity Advisory Panel was convened in February 2016⁵ and asked to participate in a deliberative process facilitated by independent consultancy democracyCo. The Panel was posed the

question: “*when we make decisions about network charges, what are the impacts on customers we need to consider?*”

The Panel developed three main Principles of ‘**Simplicity**’ (to inform decision making), ‘**Fairness & equity**’ and ‘**Empower the consumer**’ to sit alongside a fourth, ‘**Compliance**’. These are represented in Figure 2. The Panel agreed that there is potential for conflicts between the three Principles but that there is a ‘sweet spot’ represented by the middle of the diagram where all four Principles overlap. This should be the aim when making decisions.

Figure 2 – Pricing principles



Our longer term approach to implementing these nation-wide pricing reforms is encapsulated in our initial 2017-20 Tariff Structure Statement (TSS) lodged with the Australian Energy Regulator in December 2015⁶. Going forward, the APP is complementary to our TSS. Under the changes, the TSS

³ Distribution Network Pricing Arrangements Rule Change ERC0161 www.aemc.gov.au/Rule-Changes/Distribution-Network-Pricing-Arrangements

⁴ In our initial TSS (December 2015), we proposed some draft Customer Impact Principles based on responses to questions in our Consultation Paper and other parts of our engagement up to that point, and Principles developed by peer businesses in other states.

⁵ The panel consisted of a representative consumer group selected from our ‘Talking Power’ database, key business and community peak bodies as well as electricity retailers, government and decision makers within SA Power Networks.

⁶ www.aer.gov.au/networks-pipelines/determinations-access-arrangements/pricing-proposals-tariffs/sa-power-networks-tariff-structure-statement-2015 Further information is also available on our Talking Power website: <http://talkingpower.com.au/your-views/tariff-structure-statement-consultation/>

outlines our proposed changes over a five year Regulatory Period⁷, and the APP documents the subset of those changes proposed in any given year.

For our 2016/17 APP we have placed particular emphasis on the the principles of Simplicity and Fairness & Equity as we move towards more cost-reflective pricing.

What's changing in 2016/17?

Our 2015/16 APP is available from the AER website⁸. What follows is a summary of the changes proposed in our 2016/17 APP.

Revenue – Effects of 2015/16 on 2016/17 prices

Due to higher than expected electricity demand over summer, we expect to collect more distribution revenue in 2015/16 than we initially forecast. Consistent with the AER's final determination, we will return this surplus revenue to customers through lower prices than planned, in 2016/17. Note that this issue applies to our distribution charges, our transmission charges and our recovery of PV FiT charges under the SA Government's Jurisdictional Scheme (ie the network component of the bill). We have estimated the 2015/16 network charge recoveries (distribution plus transmission plus PV FiT) at \$1,100.5 million, which is around \$38 million above the forecast in last year's APP.

Revenue – 2016/17 Allowances

Our allowed distribution revenue rises from \$682 million for (2015/16) to \$760 million due to the AER's final decision of October 2015. This increase also includes CPI of 1.7% and the performance incentive scheme outcomes (arising from 2013/14 and 2014/15 performance) of 2.2%. We forecast to recover \$734 million from customers after allowing for the estimated 2015/16 over-recovery of distribution charges.

Our transmission charges for 2016/17 have now been finalised. There has been a reduction of 5% in ElectraNet charges due to higher proceeds from inter-regional settlements on the interconnection. These proceeds are used to discount transmission prices. Combining the reduction in transmission charges with the estimated over-recovery of such charges in 2015/16 means that our 2016/17 transmission prices to customers will fall by 12% on average. Major business customers receive a locational price based on ElectraNet's price list, so their prices will fall on average by 5% (ie the major business prices are not affected by our over/under-recovery).

The revenue collected for the State Government's Solar Feed-in Tariff (FiT) will be less in 2016/17 due to the expiry, on 30 September 2016, of what is known as the '16 cent' scheme⁹. This reduction of \$32 million will be passed on principally to business customers. As the principal customers that are using the '44 cent' PV schemes are residential, we will maintain the ongoing PV FiT allocation to residential customers rather than business customers is consistent with the 'Fairness and Equity'

⁷ In this case, due to the timing of the introduction of the changes, our first TSS covers the final three years of our current regulatory period and this APP is required to be prepared in accordance with version 65 of the Rules (preceding the changes). However we are seeking to provide a consistent approach wherever possible.

⁸ www.aer.gov.au/networks-pipelines/determinations-access-arrangements/pricing-proposals-tariffs/sa-power-networks-annual-pricing-proposal-2015-16

⁹ More information is available by searching on 'solar feed in' at www.sa.gov.au

Customer Impact Principle. Residential customers will receive a \$6 million reduction and business customers will see a \$26 million reduction in PV FiT charges.

Tariff Changes for Large Business Customers

The approximately 5,500 customers classified as 'large market customers' (consuming more than 160MWh per annum and hence having retail bills of around \$40,000 per annum) have all been assigned to a cost-reflective network tariff. The final tranche of this occurred on 1 July 2015. We are not proposing any major changes for these customers.

Approximately 250 customers were assigned to a 'transition' tariff in order to manage the impacts of the change to cost-reflective tariffs. Demand charges were applied at 30% of their final value for 2015/16. This will increase to 50% in 2016/17 with the other 50% balance based proportionately on business 2-rate prices.

We are not proposing any changes to the structure of tariffs for this group in 2016/17 and they can expect to see reductions in prices due to our lower overall revenue and lower contributions to PV FiT recovery. Price reductions of 6% are expected.

For Small Business Customers

We supply around 95,000 small businesses. These include a range of businesses, State and Local Government sites and properties operated by community sector organisations.

We have split the LV business tariff class into a 'large LV business' tariff class and a 'small business' tariff class. LV businesses who consume greater than 160MWh per annum will be reassigned to the large LV business tariff class with the small businesses will remain on the small business tariff class. The purpose of this change is to better reflect the existing tariff options for these customers. Customers will not be reassigned to a differently priced tariff in 2016/17 as a result of this tariff class change.

We are proposing a number of tariff changes for these customers. The average 2016/17 network price reduction for these small business customers is forecast at 6%. No small business customer tariffs increase in 2016/17 although some customers may receive smaller price reductions than the average. This will particularly be the case for those single-rate business customers with usage up to 10 MWh pa and for those business 2-rate customers with predominantly off-peak usage.

Business Single Rate

Approximately 62,000 sites are assigned to our now closed Business Single Rate tariff (closed to new applicants in 2010). This tariff had a slightly higher rate for the consumption block above 10MWh pa (a difference of approximately 1.3c/kWh in 2015/16). In the pursuit of simplicity we will be eliminating this difference for 2016/17 by providing a larger price-reduction to block 2 than to block 1. All business single-rate customers will get a price reduction.

Business 2 Rate

Approximately 32,000 sites are assigned to our Business 2 Rate tariff. This tariff has separate charges for Peak and Off-peak consumption. In the pursuit of simplicity and alignment with our more cost-

reflective tariffs we will be reducing the difference between peak and off-peak rates for 2016/17 by reducing the peak-rate but holding the off-peak rate at 2015/16 prices.

Other changes for business

A number of small business customers have been transferred to our (monthly) Actual Demand tariff as a result of alterations to their supply (such as upgrades or installing solar PV). We will introduce a small business version of the transition tariff that is available to our large business customers. This transition tariff will be suitable for some of those small business customers who are/have been required (because of new connections or alterations to their existing connection) to take up cost-reflective demand-based tariffs. The transition tariff does not have as large a demand component however it has a larger usage (energy) component. Any small business customer can opt-in to using this tariff, but we anticipate its use primarily by those new connections/alterations customers with less favourable load characteristics.

In the interests of simplicity we will be closing the Agreed Demand tariff to new small business applicants from 1 July 2016. This option is rarely a cost-effective or simple option for new small business customers so we will limit the tariff's use to those currently using it.

We have proposed an initiative in our initial 2017-20 TSS that allows customers with multiple sites to move to cost-reflective tariffs on a 'no lose' guarantee. We intend to trial this during 2016/17 with approximately 20 customers that have more than 10 sites each. These customers will pay no more for network charges than they would have on the business single/business 2-rate tariffs but are likely to make savings in total over their multiple sites from using cost-reflective demand-based tariffs. In the event that a customer does lose across the sites, we will directly refund the customer the difference between the new and the old tariff outcomes. We will not require the retailer to rebill the year's accounts at the old tariff rates.

For Residential customers

Households are generally assigned to our residential single rate tariff and are able to access our controlled load tariff (for storage hot water and a limited number of other applications). We introduced a 'cost-reflective' (monthly) Actual Demand tariff in 2014/15 for those customers willing to install an interval meter and able to find a retailer willing to offer a matching retail tariff.

We are proposing a number of minor changes to residential tariffs for 2016/17.

Residential Single Rate

The 2016/17 Residential single rate prices for the supply charge and block 1 usage (up to 4,000 kWh pa) have been held at 2015/16 prices, with block 2 usage having a small price reduction. The composition of this price has altered in particular for transmission. This tariff charges a slightly higher rate for consumption above 4,000 kWh (there is a difference of approximately 3.5c/kWh in 2015/16). In the pursuit of simplicity and eventual alignment with the settings of our cost-reflective tariff we are reducing this difference for 2016/17 to 2.9 c/kWh. In order to remain revenue neutral overall, we will achieve this via a smaller reduction in the transmission price for consumption up to 4,000 kWh and a decrease in the price for consumption above 4,000 kWh.

Residential (monthly) Actual Demand

Consistent with feedback received during our TSS consultation, the monthly minimum demand will reduce from 1.5 kW to 1.0 kW for 2016/17. Consumption charges (cents per kWh) will also reduce by a greater proportion than other residential tariffs, increasing the attractiveness of this cost-reflective tariff. The TSS consultation wanted the risk taken by cost-reflective tariff users to be recognised so.

Controlled Load

In the pursuit of eventual alignment with the consumption charge settings of our cost-reflective tariff we will be holding the controlled load usage rate at 2015/16 price levels.

We have also received feedback on the desired use of controlled load for charging electric vehicles (EVs) overnight. We have investigated the suitability of such devices and the direction of our TSS tariff strategy, and have decided to include hard-wired electric vehicle chargers not exceeding 25 amps in size as equipment permitted to be used on controlled load. Such chargers are typically provided with hybrid electric vehicles, and will operate for several hours each night at a level of demand similar to hot water systems to provide energy for the following day's car usage.

For those customers who wish to install fast chargers, or those who do not wish to hard-wire a small EV charger into controlled load, the residential single-rate tariff or the residential monthly demand tariff is available. The latter option can provide low network prices for battery charging if the charger is not used at times of that house's peak demand between 4pm and 9pm each month.

Summary

Table 1 below provides a comparison of the annual cost for a typical 2-3 person household (5,000 kWh). The retail prices for 2016/17 have not been announced, so 2015/16 energy/retail prices are used. The slight savings for such customers from standard control network charges (distribution, transmission and PV FiT recovery) are offset by the small increase in the metering fee to most residential customers, resulting in no change in overall charges covered by this Pricing Proposal.

Table 1 – Average residential customer bill for 2016/17

Component of price (a)	2015/16	2016/17	Decrease / Increase	Impact on retail bill
Average Residential Customer				
Using 5,000 kWh pa	\$ per annum	\$ per annum	\$ per annum	
1. SA Power Networks DUoS charge	\$ 540	\$ 560	+\$ 20	+4%
2. Transmission charge(c)	\$ 172	\$ 154	-\$ 18	-10%
3. Jurisdictional Scheme Amount (PV)	\$ 94	\$ 85	-\$ 9	-9%
Total Networks charges	\$ 805	\$ 800	-\$ 6	-1%
4. Metering (Alternative control)	\$ 23	\$ 29	+\$ 7	+29%
Total Regulated charges	\$ 828	\$ 829	+\$ 1	0%
5. Retail (b)	\$ 1,006			
Total Retail Bill includes GST	\$ 1,834			

Notes:

- (a) All amounts are nominal and contain GST.
- (b) Using AGL Standard Retail Contract prices for July 2015.
- (c) Using ElectraNet 16 May 2016 final advice of 2016/17 prices.

The AER has used a 10 MWh small Business single-rate customer to illustrate typical small customer outcomes. The outcomes are shown below in Table 2, and result in a 1% reduction to the retail bill.

Table 2 – Average business single rate customer bill for 2016/17

Component of price (a)	2015/16	2016/17	Decrease / Increase	Impact on retail bill
Average Business Customer				
Using 10,000 kWh pa	\$ per annum	\$ per annum	\$ per annum	
1. SA Power Networks DUoS charge	\$ 1,100	\$ 1,176	+\$ 77	+7%
2. Transmission charge (c)	\$ 337	\$ 314	-\$ 23	-7%
3. Jurisdictional Scheme Amount (PV)	\$ 185	\$ 107	-\$ 78	-42%
Total Networks charges	\$ 1,621	\$ 1,597	-\$ 24	-1%
4. Metering (Alternative control)	\$ 23	\$ 29	+\$ 7	+29%
Total Regulated charges	\$ 1,644	\$ 1,626	-\$ 18	-1%
5. Retail (b)	\$ 2,077			
Total Retail Bill includes GST	\$ 3,721			

Notes:

- (a) All amounts are nominal and contain GST.
- (b) Using AGL Standard Retail Contract price for July 2015.
- (c) Using ElectraNet 16 May 2016 final advice of 2016/17 prices.

For large business, we have concluded a period of tariff reform that has operated over the last 16 years. We have reassigned the remaining 1,000 customers to cost-reflective tariffs from July 2015. We have less than 100 customers who are transitioning to fully cost-reflective tariffs, with all other large customers now being on cost-reflective tariffs.

Shortened forms

Abbreviation	Definition or description
AER	Australian Energy Regulator.
Augmentation	Investment in new network assets to meet increased demand.
Capacity, capability	The amount of energy that a part of the network is able to carry.
Capital Contributed Works	Works for which the customer(s) contribute towards the cost of supplying assets, typically because they are the sole users.
COAG	Council of Australian Governments.
Contestability	Customer choice of electricity supplier.
Controlled Load	The DNSP controls the hours in which the supply is made available.
Cost of Supply Model	Theoretical and algorithmic model used to calculate prices, which conform to the pricing goals.
Cross subsidy	Where the price to a tariff class falls outside the range between the avoidable incremental cost of supply and the cost of stand-alone supply, an economic cross subsidy from or to other customers is said to exist.
Decision	The Australian Energy Regulator's Final Decision on South Australia - distribution determination 2015–16 to 2019–20, October 2015
Demand	Energy consumption at a point in time.
Demand Management	Attempt to modify demand behaviour so as to constrain demand at critical times.
Distribution Network	The assets and service which links energy customers to the transmission network.
Distributor, DNSP	Distribution Network Service Provider.
DUoS	Distribution Use of System. The utilisation of the distribution network in the provision of electricity to consumers (a component of NUoS).
EDPD	Electricity Distribution Price Determination (South Australian).
ESCoSA	Essential Services Commission of South Australia, the South Australian Regulator of energy and other infrastructure.
FiT	Feed-in Tariff, paid to customers that have solar PV generators.
FRC	Full Retail Competition (sometimes called Full Retail Contestability).

Abbreviation	Definition or description
High Voltage	Equipment or supplies at voltages of 22 or 11 kV.
IBT, Inclining Block Tariff	A network tariff energy rate in which the rate increases above specific consumption thresholds.
JSA	Jurisdictional Scheme Amount, a component of the Network Use of System charge to fund Feed-in Tariff payments to customers that have solar PV generators.
kVA, MVA	Kilo-volt amps and Mega-volt amps, units of instantaneous total electrical power demand. Usually the peak demand is referenced. See also PF for the relationship between power demand quantities.
kVAr, MVAR	Kilo-volt amps (reactive) and Mega-volt amps (reactive) units of instantaneous reactive electrical power demand. Usually the peak demand is referenced. See also PF for the relationship between power demand quantities.
kW, MW	Kilo-watts and Mega-watts, units of instantaneous real electrical power demand. Usually the peak demand is referenced. See also PF for the relationship between power demand quantities.
kWh, MWh	Kilo-watt hours and Mega-watt hours, units of electrical energy consumption.
Low Voltage	Equipment or supply at a voltage of 230 V single phase or 415 V, three phase.
Marginal Cost	The cost of providing a small increment of service. The Long Run Marginal Cost (LRMC) includes future investment, Short Run Marginal Cost (SRMC) considers only the costs involved without extra investment.
Market Participant	Businesses involved in the electricity industry are referred to as Market or Code Participants.
Supply Rate	The fixed daily cost component of a Network price.
NEL	National Electricity Law.
NEM	National Electricity Market.
NUoS	Network Use of System. The utilisation of the total electricity network in the provision of electricity to consumers (NUoS = DUoS + TUoS).
PV	Photo-Voltaic
PF	Power Factor, a measure of the ratio of real power to total power of a load. The relationship between real, reactive and total power is as follows: Power Factor = Real Power (kW) / Total Power (kVA)

Abbreviation	Definition or description
	Total Power (kVA) = $\sqrt{\text{Real Power (kW)}^2 + \text{Reactive Power (kVAr)}^2}$
Price Signal	Prices set to convey a desired behaviour because of the costs associated with supplying the service.
Price Structure	The components that make up a Price available to customers.
Proposal	SA Power Networks' Initial Pricing Proposal, submitted in accordance with the Rules (this document).
Retailer	An FRC market participant (business) supplying electricity to customers.
Rules	National Electricity Rules.
Sub-transmission	Equipment or supplies at voltage levels of 66 or 33 kV.
Tariff	A grouping of customers who are subject to the same network price components and conditions of supply.
Tariff class	A class of customers for one or more direct control services who are subject to a particular tariff or particular tariffs.
ToU	Time of Use, a system of pricing where energy or demand charges are higher in periods of peak utilisation of the network.
Transmission Network	The assets and service that enable generators to transmit their electrical energy to population centres. Operating voltage of equipment is 275 and 132 kV with some at 66 kV.
TUoS	Transmission Use of System charges for the utilisation of the transmission network.
Unmetered supply	A connection to the distribution system which is not equipped with a meter and has estimated consumption. Connections to public lights, phone boxes, traffic lights and the like are not normally metered.
WAPC	Weighted Average Price Cap, a form of regulatory price control, where the allowable price change is based on the weighted historic consumption of each price.

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1 Introduction

SA Power Networks is submitting this Annual Pricing Proposal (APP or Proposal or Pricing Proposal) for 2016/17 to the Australian Energy Regulator (AER). The Proposal has been prepared in accordance with the requirements of the National Electricity Rules (NER or Rules) Version 65¹⁰ and the AER's 2015-20 Final Determination for SA Power Networks, made in October 2015.

The Pricing Proposal covers all of SA Power Networks' standard control services (DUoS) and alternative control services (metering). In its Final Determination, the AER confirmed a change in regulatory control mechanism for SA Power Networks for 2015-20, with a revenue cap replacing the previous weighted average price cap (WAPC) for standard control services and a price cap replacing the alternative control services' WAPC.

1.1 National Electricity Rules

Clause 6.1.1 of the Rules confers responsibility on the AER for the economic regulation of distribution services provided by means of, or in connection with, distribution systems that form part of the national grid.

1.1.1 Classification of distribution services

In accordance with clause 6.2.1 and 6.2.2 of the Rules, the AER has classified SA Power Networks' distribution services into the following three classes:

1. Direct control services;
2. Negotiated distribution services; and
3. Unregulated distribution services.

Direct control services have been further divided into the following two subclasses:

1. Standard control services; and
2. Alternative control services.

This Pricing Proposal applies to all of the direct control services provided by SA Power Networks.

1.2 Scope of SA Power Networks' Pricing Proposal

SA Power Networks' Pricing Proposal sets out the proposed prices required to comply with the revenue cap (direct control) and price cap (alternative control) approved by the AER.

This Pricing Proposal is submitted in accordance with, and complies with, the requirements of:

1. The National Electricity Law;
2. The National Electricity Rules Ver 65, including the Transitional Rules for South Australia; and

¹⁰ Rule 11.73.1(b) states the former Chapter 6 Ver 65 applies in relation to an affected DNSP's *pricing proposals* for the first and second *regulatory years* of the initial regulatory control period of the affected DNSP.

SA Power Networks

3. The AER's 2015-20 SA Power Networks Final Decision of October 2015.

1.3 Structure of SA Power Networks' Pricing Proposal

In Part I of the Rules, clause 6.18 (Distribution Pricing Rules) sets out the requirements concerning Distribution Pricing that SA Power Networks' Pricing Proposal must include. These requirements include:

- The Pricing Principles which must be followed;
- The requirement for this Pricing Proposal; and
- The matters that the Pricing Proposal must address.

The AER's Final Decision has been made pursuant to clause 6.11.1 of the Rules. Several aspects of that determination impose requirements concerning distribution pricing, including:

- Classification of services;
- The pricing control mechanism(s), X factors and side constraints;
- Assigning and reassigning customers to tariff classes;
- Recovery of transmission charges; and
- The pass through of costs, in specified circumstances. This includes the PV Jurisdictional Scheme Amount.

This Pricing Proposal has been structured so as to allow compliance with the specific requirements of the Rules and the AER's Final Decision to be readily ascertained. The substantive Sections of this Pricing Proposal are set out in Table 3.

Table 3 - Structure of SA Power Networks' Pricing Proposal

Section	Purpose
1 Introduction	Introduces the APP, its regulatory framework and the purpose of the statement.
2 Our context	Summarises the characteristics of SA Power Networks' network that provide the context for SA Power Networks' network tariff strategy.
3 Regulatory Requirements	Summarises the regulatory requirements as they relate to SA Power Networks' Pricing Proposal including the relevant requirements of the Rules and the AER's 2015 Final Decision. It also describes the requirements concerning the recovery of the Jurisdictional Scheme Amount, to fund Feed-in Tariff payments made to customers with solar PV generators.
4 Network Tariff Strategy	Outlines SA Power Networks' Network Tariff Strategy and indicates how tariff charging parameters are expected to

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Section		Purpose
		vary.
5	Tariff Classes	Defines the tariffs and tariff classes into which SA Power Networks' customers for direct control services are divided and their charging parameters.
6	Standard Control Services Tariffs (NUoS)	Describes the nature and extent of the change in SA Power Networks' NUoS tariffs between 2015/16 and 2016/17 including the effects of distribution, transmission and PV FiT recovery combined.
7	Customer Impacts (NUoS)	Outlines the expected customer impacts of Network Use of System (NUoS) prices in 2016/17 and the system of reviewing those impacts throughout the regulatory control period.
8	Pricing of Standard Control Services (DUoS component)	Demonstrates that SA Power Networks' 2016/17 DUoS prices comply with the revenue X factors, side constraints and the NER Pricing Principles.
9	Recovery of Distribution Costs	Sets out SA Power Networks' Distribution cost recovery tariff setting methodology and demonstrates adjustments made to the tariffs resulting from the actual, estimated and forecast recovery of these charges in 2015/16 and 2016/17.
10	Recovery of Transmission Costs	Sets out SA Power Networks' Transmission cost recovery tariff setting methodology and demonstrates adjustments made to the tariffs resulting from the actual, estimated and forecast recovery of these charges in 2014/15, 2015/16 and 2016/17.
11	Recovery of the PV FiT Jurisdictional Scheme Amount	Sets out SA Power Networks' approach to the recovery of the Jurisdictional Scheme Amount for the recovery of SA Government Feed-in Tariff payments made by SA Power Networks to customers with qualifying solar PV generators. Covers the actual, estimated and forecast outcomes for 2014/15, 2015/16 and 2016/17.
12	Customer Assignment and Reassignment	Sets out SA Power Networks' tariff assignment and reassignment strategy, in line with the AER's requirements from the Final Decision (Attachment 14).
13	Alternative Control Services	Sets out SA Power Networks' tariffs for alternative control metering services, in line with the AER's requirements from the Final Decision.

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Section	Purpose
Appendices	Separately provided.

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1.4 Confidential information

Clause 6.19.2 of the Rules classifies as confidential all network pricing information about a Distribution Network User used by a DNSP for the purposes of network pricing. SA Power Networks has nominated Attachments B and G which constitute part of this Pricing Proposal, as confidential.

SA Power Networks requests that the AER does not disclose the information contained in these confidential attachments to any person outside of the AER.

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2 Our Context

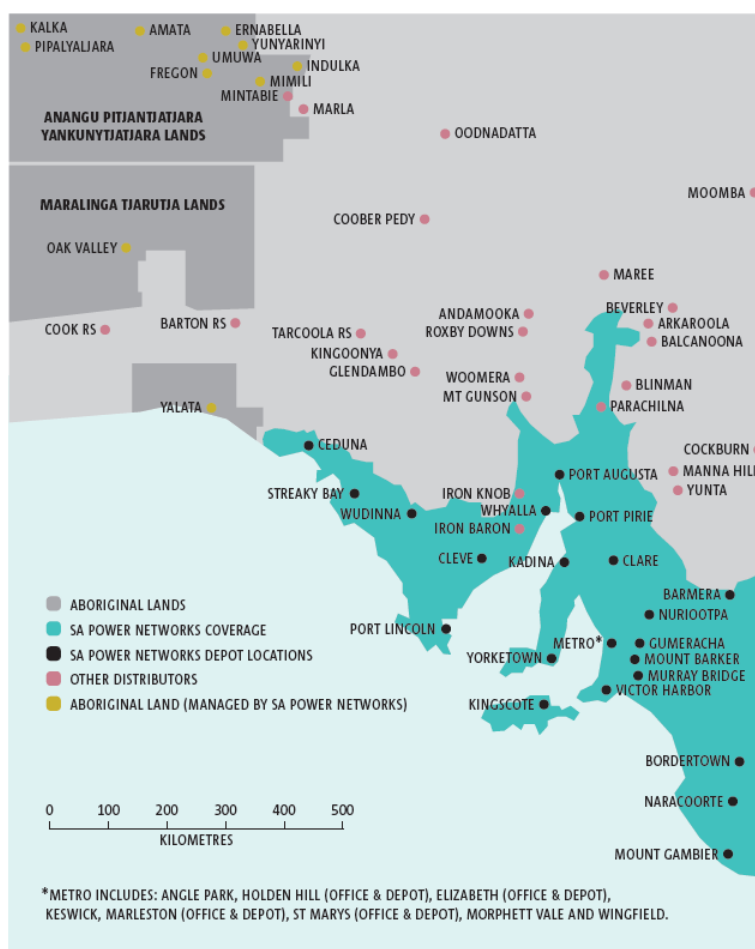
This Section of the Pricing Proposal provides contextual information on SA Power Networks’ business circumstances. This provides context both to SA Power Networks’ existing network tariffs and pricing and the rationale for the changes to tariffs that are proposed during the 2015-20 regulatory control period and beyond.

2.1 SA Power Networks’ business

SA Power Networks’ distribution network covers the State of South Australia, a vast territory of about 178,200 square kilometres (km), with a coastline of over 5,000 km. The network’s route length extends to more than 87,000 km, with approximately 19% of that length underground. The network includes 403 zone substations, 72,600 distribution transformers, approximately 723,000 poles and 1.1 million meters.

The extent of SA Power Networks’ operations in South Australia is shown in Figure 3.

Figure 3 - SA Power Networks’ service area



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The South Australian distribution network is predominantly three-phase, with a single-phase system used mostly in rural and remote areas. A sub-transmission network supplies and links zone substations, operating at 66 kilovolts (kV) and 33 kV. In rural and remote areas the single-phase system operates at 19 kV. Overall, some 30% of the network is comprised of these long 'single wire earth return' (SWER) lines. In higher density rural and urban locations, the three-phase feeder system operates at 11 kV. The standard low voltage customer supply is 230V at 50Hz.

With the exception of much of the coastal area and the hinterland, South Australia is very sparsely settled. Approximately 70% of customers reside in Adelaide, including the great majority of business and commercial customers. However, the extensive area serviced by distribution means that 70% of the network infrastructure is required to deliver energy to the remaining 30% of customers. Compared with other states, there are relatively few regional centres, and they are generally small and located widely across the territory.

As a result, the average customer density across the State is very low. This discussed further in Section 2.5 below.

2.2 Climatic conditions

Adelaide and much of South Australia has a dry climate featuring greater extremes of summer temperature than most other Australian capitals. Extended periods of heatwave conditions can occur in summer (November 2009 and January 2014 are recent examples of extended heatwaves).

During these heatwave periods, summer daytime temperatures can exceed 40°C for several days in a row and overnight minimums can remain above 30°C for some of those days.

2.3 SA Power Networks' customer and demand profile

The South Australian climate has led to an extraordinary demand for air conditioning. Over 90% of homes are air conditioned with the air-conditioned floor space of these homes increasing each year. The consequent high peak network demand occurs for only a small part of the year. At other times in summer, milder weather often occurs which requires no air conditioning in most homes.

Extremely 'peaky' conditions such as these heatwaves require network assets and capacity that is under-utilised during much of the year, driving distribution costs higher on a per unit of energy served basis than comparable interstate networks.

A more recent development has been the customer uptake of PV systems by small customers. About 25% of residential customers now have PV systems operating, reducing their use of energy when the sun is shining. The incentives of the solar PV feed-in tariff schemes have been popular, and customers have responded to the incentives provided.

Figure 4 and Figure 5 show the demand profile for SA Power Networks from the residential and business customers (it excludes the major business). Figure 4 shows the extreme outcome from the January 2014 heatwave and Figure 5 from the 2009 heatwave. The charts show that gross demand has not changed significantly over the intervening years but the output of solar PV has made an impact. We have used the metered loads as the basis for our network pricing calculations and the sharing of network costs between customer segments (tariff classes). However, we also have regard

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to the change in daily peak profile that has occurred post-PV, with the co-incident system peak now occurring late afternoon and early evening. We still have business networks peaking at noon through mid-afternoon and residential networks peaking in the evening but the co-incident peak has shifted to later in the day after adjusting for PV export. We have incorporated these time issues into our cost-reflective demand charging periods. We also note the impact that solar PV has in reducing load during sunny periods to levels lower than overnight minimums, leading to our 'Solar Sponge' initiatives that were implemented in July 2015 to encourage additional load during the 10am-3pm period (11am to 4pm during daylight saving).

Figure 4 - Customer Segment MW Demands on 16 January 2014

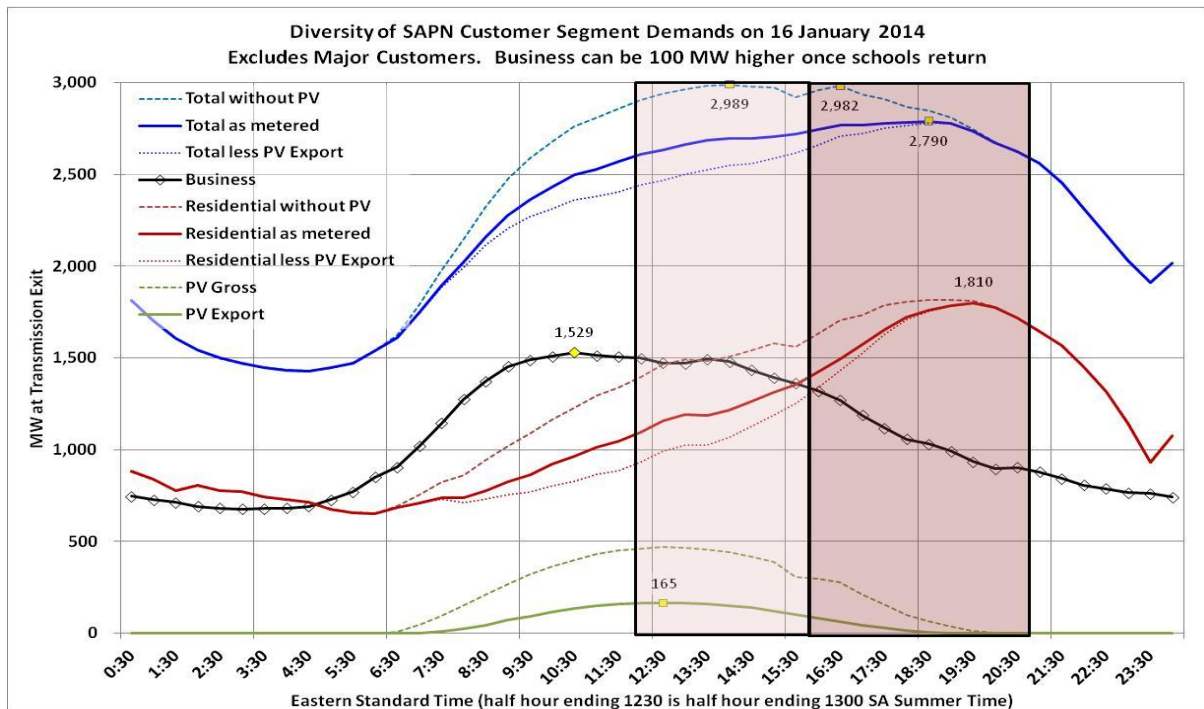
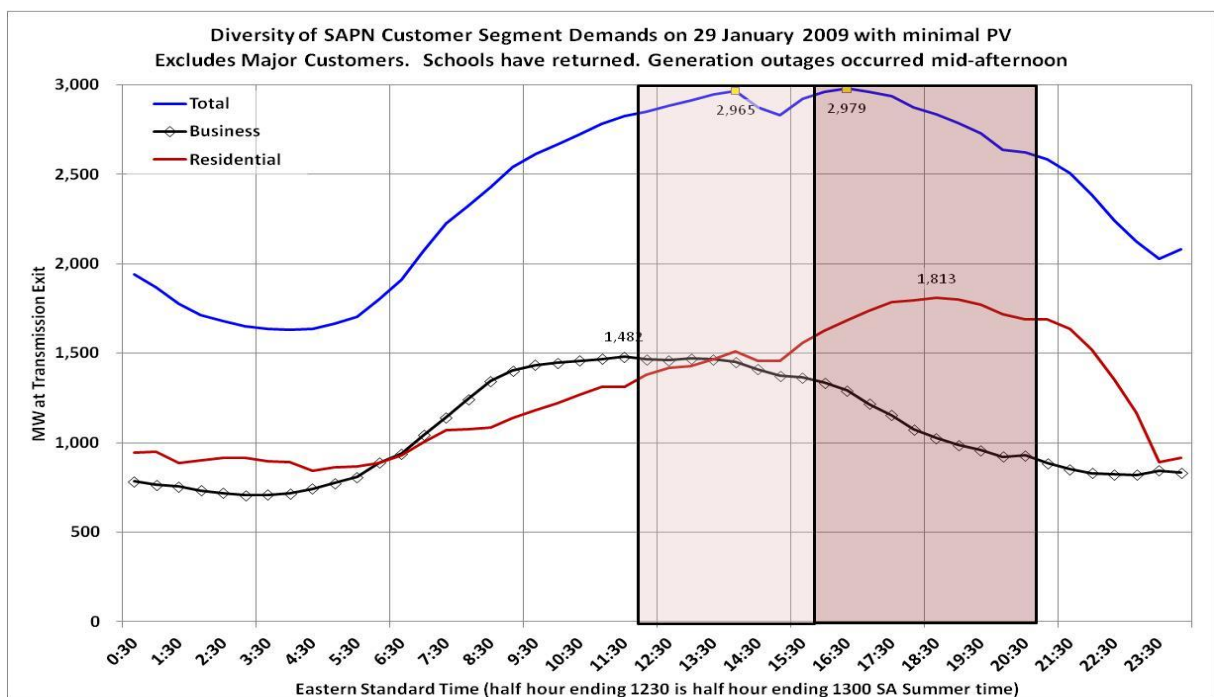


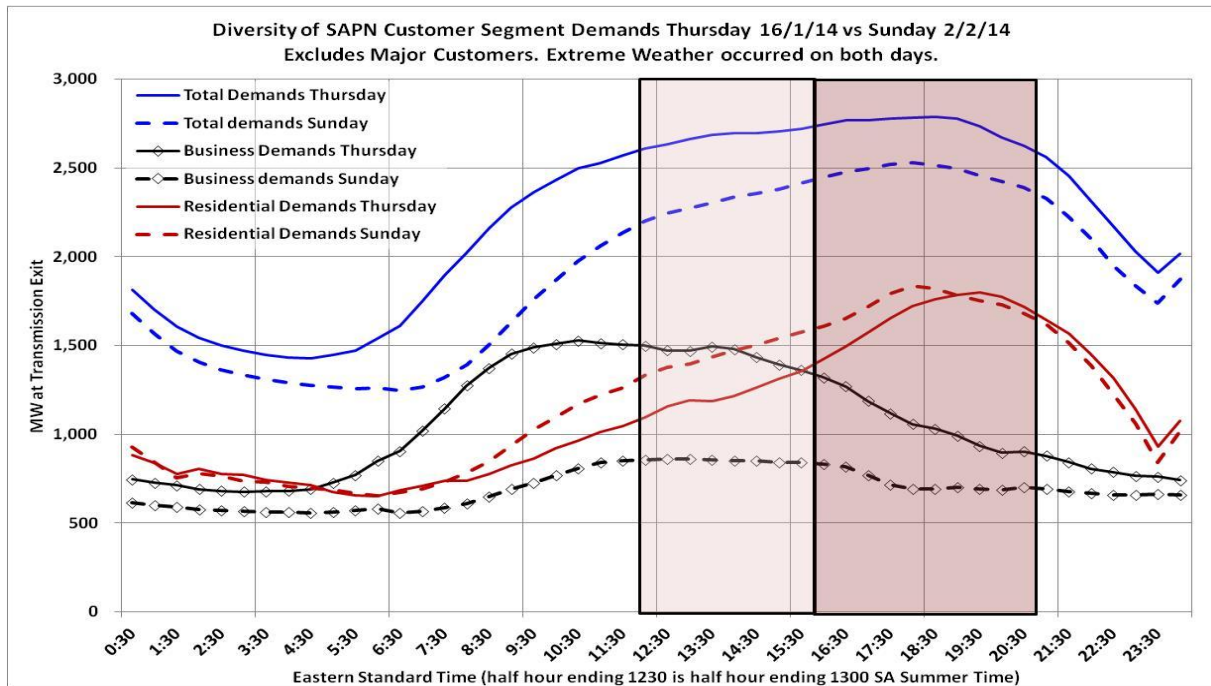
Figure 5 - Customer Segment MW Demands on 29 January 2009



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Figure 6 compares the extreme outcome during the January 2014 heatwave on a workday to a similarly extreme day a fortnight later on a Sunday in February. Because South Australia has such a high proportion of demand serving air-conditioning, peak demands on a Sunday can reach over 90% of the maximum demand reached on a workday. There are locations on the network such as coastal areas, the southern suburbs and the eastern suburbs (excluding the CBD) which can have demand as high on a Sunday as on a workday with similar weather. Consequently, we have adjusted the residential peak demand charging periods to include non-work-days whereas business peak demand is measured solely on work-days.

Figure 6 - Customer Segment MW Demands in 2014 Heatwave – 16 January workday versus 2 February Sunday

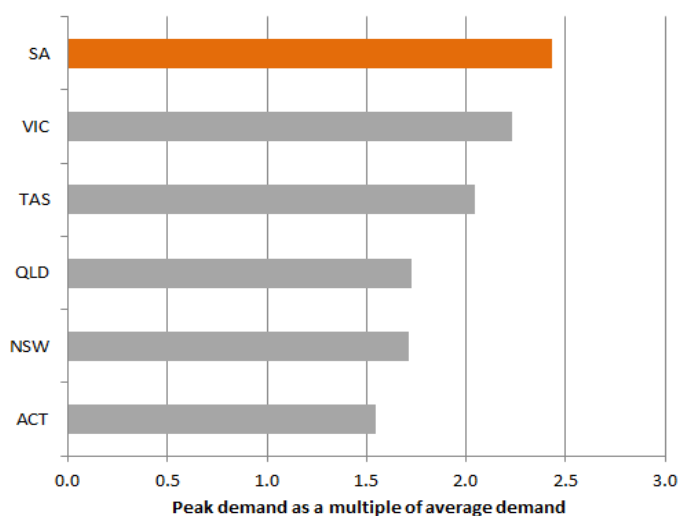


2.4 Coincident Demand

The South Australian distribution network has the highest ratio of peak to average demand across the NEM distribution businesses as shown in Figure 7¹¹.

As discussed in our *Electricity Tariff Reform in South Australia Consultation Paper* released in October 2015, a change to more cost-reflective pricing means that we need to incorporate a price based on 'peak demand'. The analysis of customer loads that we presented in the Consultation Paper illustrated the diversity in 'peak demand' for customers

Figure 7 - Peakiness of State Distribution Systems' Demand



¹¹ Figure 7 data is taken from data published by the AER and shows that on a state by state basis, SA has the most pronounced 'peak demand'.

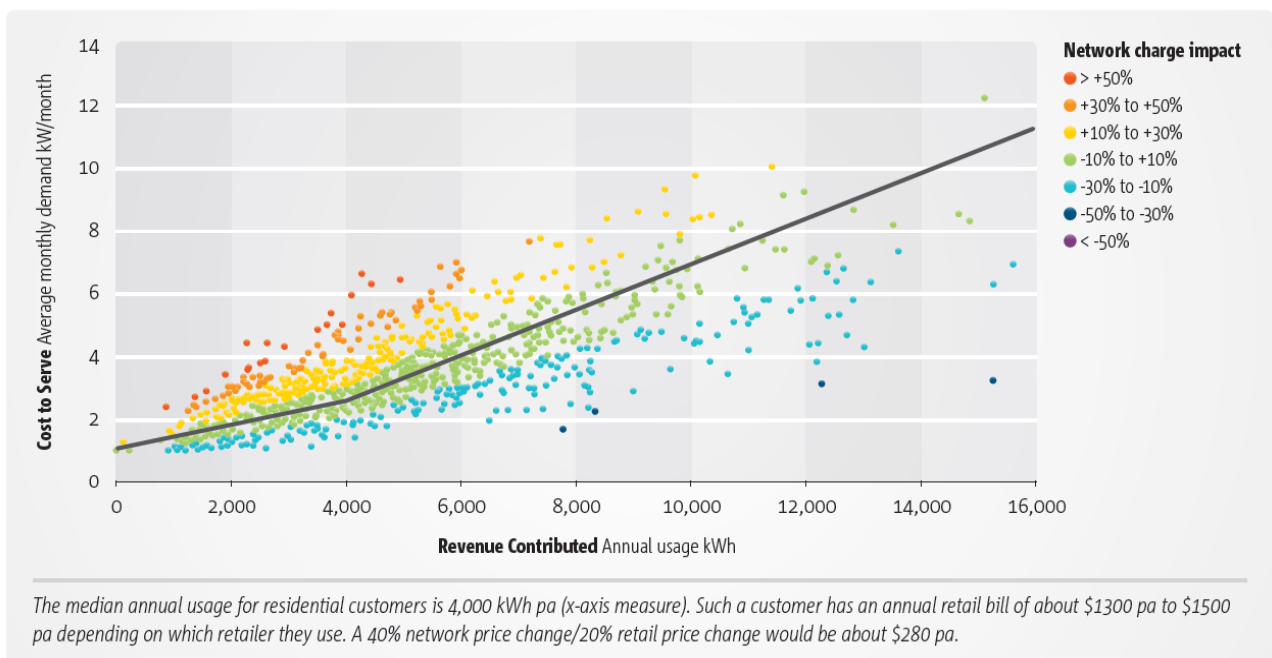
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with the same annual consumption. With such a difference between peak demand and average demand (the pricing basis for our current tariffs) it is inevitable that reforming tariffs to one involving peak demand will have a significant customer impact on the distribution of energy costs.

In Figure 8 below, the vertical axis shows the summer peak demand recorded for these customers - it is labelled as 'cost to serve' to reflect that peak demand is the underlying cost driver of the network. The horizontal axis shows the total annual consumption of these same households. Since our current prices are based on consumption and not demand, this axis reflects 'revenue contributed'.

For example, customers consuming the median 4,000kWh per annum (and therefore paying the median network bill of \$638 inc GST in 2015/16) have peak demands from around 2kW to around 6 kW.

Figure 8 - Residential Customers' (without PV) Annual usage vs Summer Peak Demand showing cost-reflective pricing impacts. Network costs are approximately 50% of the retail bill. Break even line shown in black.



With such a diverse range of peak demands it is inevitable that the impacts on customers will be similarly wide-ranging. Analysis for Business Customers using the actual kVA demand tariff revealed more variation in cost-reflective impacts as the peak demand variation is more severe. We will be reviewing the effect of the proposed Business actual kW demand tariff (including the transition option) to see if the likely variations are not as severe, in particular the proportion of customers with large price increases and whether such increases are underpinned by sound LRMC cost signals.

2.5 Customer Density

We supply electricity to around 850,000 customers ranging from isolated farms in rural areas to industry precincts, regional and metropolitan residential homes, businesses and city centres.

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Around 70% of the network is required to serve the 30% of customers who live outside the Adelaide Metropolitan area.

As a result, the average customer density per kilometre of distribution line in SA is the lowest in the National Electricity Market (NEM) as shown in Figure 9¹². Put another way, we provide more network per customer than the other regions. The only distributors with lower customer densities are the largely rural networks operated by Ergon in Queensland and Essential in NSW. We are the only mainland NEM state to have a single distribution business for the entire state.

The South Australian government has imposed a requirement on SA Power Networks to maintain State-wide pricing for small customers (with annual consumption not exceeding 160 MWh)¹³. As a consequence, all of SA Power Networks' distribution tariffs are averaged¹⁴. Without this 'country equalisation scheme', cost-reflective network charges would mean a doubling of network costs for many rural customers.

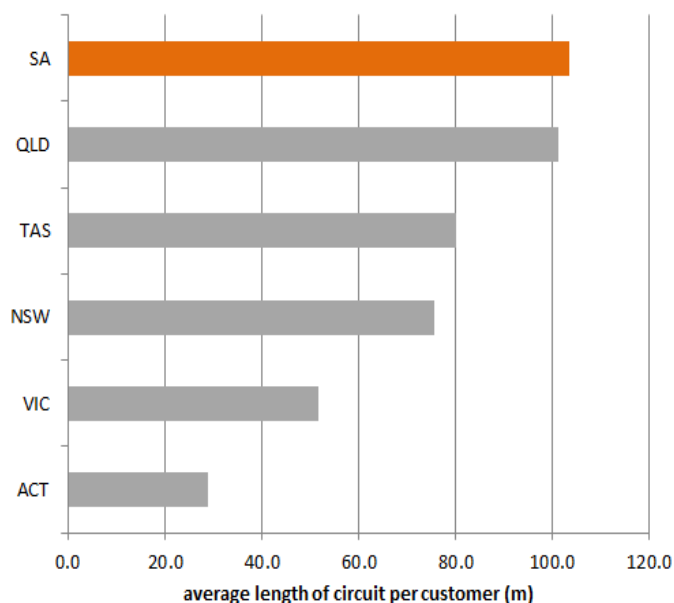
This long-standing policy commitment from government effectively precludes us incorporating locational price signals into our general tariffs and so pricing reform in SA can only practically be in relation to peak demand.

2.6 Metering

Since demand for electricity from our network varies across the year and across the day, if we are to change the way we price we will need to be able to measure more precisely when each customer uses electricity and how much at any particular point in time. An advanced interval meter is required to do this. Currently in SA 1% to 2% of customers have this type of meter, with most customers having a traditional meter that simply measures accumulated energy use. Unlike the approach taken by the Government in Victoria for their smart meter roll-out, at this point in time there will not be a compulsory roll-out of advanced interval meters to all customers in South Australia. Some retailers are pursuing the roll-out of these interval meters with their customers today.

These advanced interval meters will increasingly appear in SA under a new competitive framework for metering announced on 26 November 2015 by the AEMC¹⁵. The new Rules aim to facilitate a

Figure 9 - Customer density of Different State Distribution Systems



¹² The following chart is taken from data provided by the distribution businesses and published by the AER.

¹³ South Australian Treasurer, Electricity Act 1996 Section 35B Electricity Pricing Order, 11 October 1999. CI 7.3 (f)-(h)

¹⁴ For larger business customers with energy consumption in excess of 40 GWh or a demand greater than 10 MW, locational transmission use of system (TUoS) charges apply.

¹⁵ AEMC, Expanding competition in metering and related services, Rule Determination, 26 November 2015, Sydney

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market-led (retailer-led) approach to the deployment of advanced interval meters. The changes to the Rules also include provisions to ensure customers can have free access to their interval data.

From 1 December 2017, retailers will be responsible for arranging metering services for all small customers (< 160MWh), not SA Power Networks. All new and replacement meters must also be advanced interval meters that meet the 'minimum services specification' included in the new Rules. Note that all customers can choose to have an advanced interval meter provided competitively today if they so choose, not just the large business customers.

3 Regulatory requirements

This Section summarises the regulatory requirements pertaining to SA Power Networks' Pricing Proposal, including the relevant requirements of the Rules and those of the AER's 2015-20 Final Decision.

Transitional Rule 11.73.1(b) of the current NER (Ver 79) provides that pricing proposals for the 2015/16 and 2016/17 regulatory years are to be governed by Chapter 6 of version 65 of the Rules. The latest AEMC Rule determination will apply from 2017/18 onwards.

3.1 Rules requirements

3.1.1 Required elements of a Pricing Proposal

To comply with clause 6.18.2 of the Rules¹⁶, SA Power Networks' 2016/17 Pricing Proposal must include the elements below:

6.18.2 Pricing proposals

(a) *A Distribution Network Service Provider* must:

- (1) submit to the *AER*, as soon as practicable, and in any case within 15 *business days*, after *publication* of the distribution determination, a *pricing proposal* (the initial *pricing proposal*) for the first *regulatory year* of the *regulatory control period*; and
- (2) submit to the *AER*, at least 2 months before the commencement of the second and each subsequent *regulatory year* of the *regulatory control period*, a further *pricing proposal* (an annual *pricing proposal*) for the relevant *regulatory year*.

(b) *A pricing proposal* must:

- (1) set out the *tariff classes* that are to apply for the relevant *regulatory year*; and
- (2) set out the proposed tariffs for each *tariff class*; and
- (3) set out, for each proposed tariff, the *charging parameters* and the elements of service to which each *charging parameter* relates; and
- (4) 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*; and
- (5) 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; and
- (6) set out how *designated pricing proposal charges* 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*; and

¹⁶ National Electricity Rules, version 65, 1 October 2014.

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- (6A) set out how *jurisdictional scheme amounts* for each *approved jurisdictional scheme* are to be passed on to customers and any adjustments to tariffs resulting from over or under recovery of those amounts; and
- (6B) describe how each *approved jurisdictional scheme* that has been amended since the *last jurisdictional scheme approval date* meets the *jurisdictional scheme eligibility criteria*; and
- (7) demonstrate compliance with the *Rules* and any applicable distribution determination; and
- (8) 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 Pricing Proposal has been prepared by SA Power Networks in such a way as to demonstrate in a logical sequence that it complies with all of the requirements of clause 6.18.2(b) of the Rules above.

The other relevant Sections of the Rules that have been addressed in formulating this Pricing Proposal are as follows:

- 6.18.3 Tariff classes
- 6.18.5 Pricing principles
- 6.18.6 Side constraints on tariffs for standard control services
- 6.18.7 Recovery of designated pricing proposal changes
- 6.18.8 Approval of pricing proposal
- 6.18.9 Publication of information about tariffs and tariff classes

Reference to these clauses has been made in the appropriate Sections of this Pricing Proposal, to demonstrate how SA Power Networks has complied with each applicable Rules provision.

3.2 Requirements of the AER's 2015 Final Decision

The AER's October 2015 Final Decision for South Australia has been made pursuant to the provisions of clause 6.11.1 of the Rules and imposes a number of requirements that are relevant to a Pricing Proposal. The relevant requirements are as follows:

- Attachment 1 Annual revenue requirement
- Attachment 11 Service target performance incentive scheme
- Attachment 12 DMIS arrangements
- Attachment 13 Classification of services
- Attachment 14 Control mechanism
 - Application of the revenue cap, and under/over recovery mechanism for DUoS

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- Under/over recovery for transmission (TUoS)
- Under/over-recovery of jurisdictional schemes (PV FIT)
- Revenue control and Pricing side constraint formulae
- Assigning retail customers to tariff classes

Attachment 15 Pass through events

Attachment 16 Alternative control services

Where it is necessary to demonstrate that SA Power Networks has complied with a requirement of the AER's Decision, reference to the relevant component of the Decision has been made in the appropriate Section of this Pricing Proposal.

3.3 Principal elements of the AER's 2015 Final Decision

The principal elements of the AER's Decision pertaining to direct control services (comprising standard and alternative control services) are outlined in this section.

3.3.1 Revenue Cap for standard control services

SA Power Networks' Pricing Proposal must submit to the AER our proposed tariffs and charging parameters. SA Power Networks' revenues must be consistent with the total annual revenue formula set out below¹⁷ plus any unders and overs adjustment needed to move the balance of its DUoS unders and overs account to zero¹⁸.

Revenue cap formula

1. $TAR_t \geq \sum_{i=1}^n \sum_{j=1}^m p_t^{ij} q_t^{ij}$ $i=1,\dots,n$ and $j=1,\dots,m$ and $t=1,\dots,5$
2. $TAR_t = AR_t \pm I_t \pm B_t \pm C_t$
3. $AR_t = AR_{t-1}(1 + \Delta CPI_t)(1 - X_t)(1 + S_t)$

Where:

TAR_t is total annual revenue in year t.

p_t^{ij} is the price of component i of tariff j in year t.

q_t^{ij} is the forecast quantity of component i of tariff j in year t.

AR_t is the annual smoothed expected revenue for year t. For the first year of the 2015–20 regulatory control period, this amount will be equal to the smoothed revenue requirement for 2016/17 set out in the PTRM.

I_t is the final carryover amount from the application of the DMIS from the 2010–15 distribution determination. This amount will be deducted from/added to allowed revenue in the 2016-17 pricing proposal.

C_t is the approved pass through amounts (positive or negative) with respect to regulatory year t, as determined by the AER.

¹⁷ AER, Final Decision, October 2015, Attachment 14 pp.11-12.

¹⁸ AER, Final Decision, October 2015, Attachment 14 pp.16.

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- B_t any under or over recovery of actual revenue collected through DUoS charges as calculated using the method in appendix A.¹⁹
- ΔCPI_t is the annual percentage change in the Australian Bureau of Statistics (ABS) Consumer Price Index All Groups, Weighted Average of Eight Capital Cities from December in year t-2 to December in year t-1. For example, for the 2015/16 year, t-2 is December 2013 and t-1 is December 2014 and in the 2016/17 year, t-2 is December 2014 and t-1 is December 2015 and so on.
- X_t the smoothing factor determined in accordance with the PTRM as approved in the AER's final decision, and annually revised for the return on debt update in accordance with the formula specified in the return on debt appendix I calculated for the relevant year.
- S_t is the STPIS factor sum of the raw s-factors for all reliability of supply and customer service parameters (as applicable) to be applied in year t.²⁰

3.3.2 Side constraint for standard control services

SA Power Networks must demonstrate in its pricing proposal that proposed DUoS prices for the next year (t) will meet the side constraints formula for each tariff class²¹.

Side constraints

$$\frac{\left(\sum_{i=1}^n \sum_{j=1}^m d_t^{ij} q_t^{ij}\right)}{\left(\sum_{i=1}^n \sum_{j=1}^m d_{t-1}^{ij} q_t^{ij}\right)} \leq (1 + \Delta CPI_t) \times (1 - X_t) \times (1 + 2\%) \times (1 + S_t) + I_t' + B_t' + C_t'$$

where each tariff class has up to 'm' components, and where:

- d_t^j is the proposed price for component 'j' of the tariff class for year t
- d_{t-1}^j is the price charged by SA Power Networks for component 'j' of the tariff class in year t-1
- q_t^j is the forecast quantity of component 'j' of the tariff class in year t
- ΔCPI_t is the annual percentage change in the Australian Bureau of Statistics (ABS) CPI All Groups, Weighted Average of Eight Capital Cities from December in year t-2 to December in year t-1.
- X_t is the smoothing factor determined in accordance with the PTRM as approved in the AER's final decision, and annually revised for the return on debt update in accordance with the formula specified in the return on debt appendix I calculated for the relevant year. If $X > 0$, then X will be set equal to zero for the purposes of the side constraint formula
- S_t is the STPIS factor sum of the raw s-factors for all reliability of supply and customer service parameters (as applicable) to be applied in year t.²²

¹⁹ AER, Final Decision, October 2015, Attachment 14, appendix A.

²⁰ In the formulas in the STPIS attachment, the AR_{t+1} is equivalent to AR_t in this formula. Calculations of the S factor adjustment are to be made accordingly.

²¹ AER, Final Decision, October 2015, Attachment 14 pp.13.

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I_t is the final carryover amount from the application of the DMIS from the 2010–15 distribution determination. This amount will be deducted from/added to allowed revenue in the 2016/17 pricing proposal.

B_t any under or over recovery of actual revenue collected through DUoS charges as calculated using the method in appendix A.²³

C_t is the sum of adjustments relating to pass through events.

$DUoS_t$ is an annual adjustment factor related to the balance of the DUoS unders and overs account with respect to regulatory year t

With the exception of the CPI and X factors, the percentage for each of the other factors above can be calculated by dividing the incremental revenues (as used in the total annual revenue formula) for each factor by the expected revenues for regulatory year t–1 (based on the prices in year t–1 multiplied by the forecast quantities for year t).

3.3.3 Revenue requirement and pricing X factors for standard control services

Attachment 1 of the Decision contains SA Power Networks' standard control service 2015/16 smoothed revenue requirements of \$682 M and revenue X factors for subsequent years. Attachment 16 contains alternative control metering services prices for 2015/16 and price X factors for subsequent years.

3.3.4 Price Cap for alternative control services

The AER's Final Decision has set the annual metering charges for 2016/17 as shown in Tables 4 to 8.

- Most small customers will incur the non-capital and capital charges, typically for a type 5-6 Whole Current (WC) manually read meter with quarterly readings. There are other charges for Current Transformer (CT) meters and Exceptional meters supplied by SA Power Networks.
- Customers who do not use SA Power Networks' meters at June 2015 continue to not get a charge.
- Customers who switch to another meter provider from July 2015 will still incur the capital-related charge.
- New customers from July 2016 electing to use an SA Power Networks' meter will incur the upfront capital charge, as well as the ongoing non-capital charge.

Metering charges are discussed further later in this Pricing Proposal.

²² In the formulas in the STPIS attachment, the AR_{t+1} is equivalent to AR_t in this formula. Calculations of the S factor adjustment are to be made accordingly.

²³ AER, Final Decision, October 2015, Attachment 14, appendix A.

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Table 4 - AER Final Decision on annual metering charge (\$ nominal)

Tariff Class	Cost	2015/16	2016/17	2017/18	2018/19	2019/20
Type 1-4	Non-capital	135.07	186.64	181.74	176.97	172.32
'Exceptional' remotely read interval meter	Capital	176.18	217.55	256.44	249.71	243.15
Type 5-6 CT connected manually read meter	Non-capital	73.52	101.60	98.93	96.33	93.80
	Capital	95.90	118.42	139.59	135.93	132.36
Type 5-6 WC manually read meter	Non-capital	8.98	12.41	12.08	11.77	11.46
	Capital	11.71	14.46	17.05	16.60	16.17

Source - AER, Final Decision, October 2015, Attachment 16 pp.41

Table 5 - AER Final Decision X factors for annual metering charges: non-capital component (per cent)

	2016/17	2017/18	2018/19	2019/20
X factor	-34.81	5.00	5.00	5.00

Source - AER, Final Decision, October 2015, Attachment 16 pp.41.

Table 6 - AER Final Decision X factors for annual metering charges: capital component (per cent)

	2016/17	2017/18	2018/19	2019/20
X factor	-20.47	-15.00	-15.00	-15.00

Source - AER, Final Decision, October 2015, Attachment 16 pp.41

Table 7 - Final Decision on upfront capital charge

Meter	Upfront charge (\$ Dec 2015)
Type 5	
Single element	163.92
Two element	235.02
Three phase	404.13
Type 6	
Single element	102.00
Two element	259.44
Three phase	304.19

Source - AER, Final Decision, October 2015, Attachment 16 pp.42.

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Table 8 - AER Final Decision X factors for upfront capital charge (per cent)

	2016/17	2017/18	2018/19	2019/20
Type 5				
Single element	-17.43	-0.60	-0.75	-0.87
Two element	-17.65	-0.60	-0.75	-0.87
Three phase	-17.39	-0.60	-0.75	-0.87
Type 6				
Single element	-7.64	-0.60	-0.75	-0.87
Two element	-6.57	-0.60	-0.75	-0.87
Three phase	-7.27	-0.60	-0.75	-0.87

Source - AER, Final Decision, October 2015, Attachment 16 pp.42

3.4 Publication of information about tariffs and tariff classes

Clause 6.18.9 of the Rules requires SA Power Networks to publish the following information on its tariffs and tariff classes.

6.18.9 Publication of information about tariffs and tariff classes

(a) A *Distribution Network Service Provider* must maintain on its website:

- (1) a statement of the provider's *tariff classes* and the tariffs applicable to each class; and
- (2) for each tariff – the *charging parameters* and the elements of the service to which each *charging parameter* relates; and
- (3) a statement of expected price trends (to be updated for each *regulatory year*) giving an indication of how the *Distribution Network Service Provider* expects prices to change over the *regulatory control period* and the reasons for the expected changes.

(b) The information for a particular *regulatory year* must, if practicable, be posted on the website *20 business days* before the commencement of the relevant *regulatory year* and, if that is not practicable, as soon as practicable thereafter.

The information on tariffs and tariff classes contained in this Pricing Proposal has been prepared and published in conformity with the requirements of this clause.

4 Network tariff strategy

This Section contains the objectives that SA Power Networks applies to the development of its network tariffs. It goes on to outline the strategies SA Power Networks proposes to pursue in developing tariffs during the 2015-20 regulatory control period.

In order to drive improved efficiency, the NER have changed and require us to develop what can be referred to as a more 'user pays' approach to the way we price our network. Under the changes to the rules, our pricing needs to become more cost-reflective to better signal the cost of building and maintaining a network to meet the infrequent peaks in demand.

The changes to the Rules apply in SA from 1 July 2017 and SA Power Networks submitted its initial Tariff Structure Statement (2017-20) to the AER in December 2015.

The impact of the Rule change will be mainly felt by households and small businesses but as determined largely by the availability of interval meters. As discussed below, the transition to cost-reflective pricing for our largest customers is well underway.

4.1 Regulatory Requirements

The information in this Section concerning potential future network tariff developments is provided pursuant to clause 6.18.9 of the Rules.

6.18.9 Publication of information about tariffs and tariff classes

- (a) A *Distribution Network Service Provider* must maintain on its website:
- (3) a statement of expected price trends (to be updated for each *regulatory year*) giving an indication of how the *Distribution Network Service Provider* expects prices to change over the *regulatory control period* and the reasons for the expected changes.

4.2 Network tariff objectives

This Section presents the high level framework that SA Power Networks applies to the development of its network tariff strategy. They are as follows:

- **Revenue sufficiency** - prices are formulated to recover permitted revenue under the determination.
- **Revenue volatility** - to the extent possible, tariffs will be structured to minimise monthly and annual variations in revenue.
- **Pricing efficiency** - through their variable components, prices will signal the economic cost of providing network service. Residual costs will be recovered in a manner which least distorts customers' consumption decisions.
- **Customer equity** - customers should pay a reasonable allocated share of costs and moves towards pricing cost reflectivity need to be tempered to limit their impact on some customers.

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- **Pricing stability** - to the extent possible undue variation in price levels should be avoided. Side constraints must be complied with
- **Pricing simplicity** - price structures should be understandable, simple and transparent.

The tariff reform program will involve numerous decisions along the way and requires SA Power Networks to balance sometimes competing objectives. We have been refining a set of Customer Impact Principles as a complement to the above objectives and the Pricing Principles established under the National Electricity Rules²⁴, for further details refer to Section 7.

Our longer term approach to implementing these nation-wide pricing reforms is encapsulated in our initial TSS 2017-20 lodged with the Australian Energy Regulator in December 2015²⁵. From 2017 the APP (i.e. this document) will be complementary to our TSS. Under the changes, the TSS will outline our proposed changes over a five year regulatory period²⁶, while the APP documents the subset of those changes proposed in any given year.

For our 2016/17 APP we have placed particular emphasis on the the principles of Simplicity and Fairness and Equity as we move towards more cost-reflective pricing.

4.3 The need for tariff reform

As explained in Section 2, to a greater extent than any other Australian distributor, SA Power Networks' summer demand is sensitive to the effect of air conditioning demand. High summer peak demands occur during heat wave conditions, which correspond with periods when the elements of the system have least capacity and the power factor of loads is poor.

Over the last five years, the new development has been solar PV systems, especially within the residential networks. We now have about 25% penetration of these systems and there can be in excess of 500 MW of generation occurring near midday for over half of the year when the sun is shining. The network challenges are different today, with problems of low load during days with mild but sunny weather. In summer, the peaks that used to occur between 2pm and 5pm have moved to become slightly lower peaks between 5pm and 8pm. There are still business network peaks during the day but residential systems and co-incident systems²⁷ are now peaking later.

The next development coming is battery storage, and perhaps electric vehicles. The battery storage has the potential to soak up a lot of the excess energy being generated during sunshine and shift that to later in the day when the network peaks. How this will develop in summer is unclear, but network tariffs that give good signals for economic peak-opping will assist in the development of a more efficient and economic network. If electric vehicles do take off, we will again need clear signals to customers that enable them to recharge their car with convenience but without creating new

²⁴ In our initial TSS (December 2015), we proposed some draft Customer Impact Principles based on responses to questions in our Consultation Paper and other parts of our engagement up to that point, and Principles developed by peer businesses in other states.

²⁵ www.aer.gov.au/networks-pipelines/determinations-access-arrangements/pricing-proposals-tariffs/sa-power-networks-tariff-structure-statement-2015 Further information is also available on our *Talking Power* website: <http://talkingpower.com.au/your-views/tariff-structure-statement-consultation/>

²⁶ In this case, due to the timing of the introduction of the changes, our first TSS covers the final three years of our current regulatory period and this APP is required to be prepared in accordance with version 65 of the Rules (preceding the changes). However we are seeking to provide a consistent approach wherever possible.

²⁷ Network peak ie the residential system and the whole of network system, are peaking at the same time.

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peaks on the network. Technologies over the next five years will create quite strong pathways and opportunities for the future development of the network.

As a consequence, the management of summer demand has a high priority in SA Power Networks' tariff reform strategies. This leads to an emphasis on providing network price signals that will encourage both residential and business customers to manage their demand by the following means:

- The price levels of existing tariff structures;
- The development of more cost-reflective tariff structures; and
- The development of innovative new tariff structures.

4.4 Network tariff strategy

SA Power Networks has a pricing strategy that will, within the limitations of metering arrangements and efficient tariff structures, signal the costs associated with increased demand placed on the network, including the use of air conditioning. Where metering arrangements don't allow efficient pricing structures to be used (eg with type 6 meters) then we will endeavour to ensure that a fair level of cost-recovery occurs with those customers.

Consistent with the network tariff objectives outlined in Section 4.2, SA Power Networks' network tariff strategy aims to:

- Attain revenue sufficiency under the Revenue Cap;
- Signal the long run marginal cost of supply through its network tariffs;
- Improve cost-reflectivity and reduce revenue variability by reducing the reliance on usage based tariff components where appropriate;
- Pass on the cost of ElectraNet's transmission services to customers; and
- Explore tariff based demand management opportunities, including voluntary capacity based tariffs. Sections 4.6 through 4.7 outline future tariff reform options under consideration and development.

4.5 Tariff reform 2005 to 2015

Over the last two regulatory control periods (2005-10 and 2010-15), SA Power Networks undertook a number of tariff reforms, including the following:

- Large businesses have been encouraged to adopt kVA demand price structures where favourable, and have been mandatorily applied to customers using more than 250 kVA, and since July 2010 for new customers (and alterations to supply) requiring more than 70 kVA. Some medium-sized businesses have also opted-in to the kVA demand prices;
- Power factor correction for businesses has been facilitated through the use of an excluded/negotiated service charge for excess reactive power requirements;
- Simplifying the small customer tariffs used by residential and business customers to reduce the number of steps. Prices in higher usage blocks have also been reduced relative to the

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first block, reflecting better understanding of actual costs of supply to these customers; and

- A residential actual demand tariff (optional) was established in 2014/15, although its adoption to date is limited. It plays an important role in indicating to customers and the electricity industry the sort of tariff structures and incentives around which new housing and new technology considerations should be made.

4.6 Cost-Reflective Tariffs for large businesses July 2015

In South Australia, there were some 4,500 large businesses and/or medium businesses on cost-reflective tariffs prior to July 2015. A further 1,000 large businesses were not yet on cost-reflective tariffs. There were about 250 of these large customers who still had type 6 metering which limits tariff options. The other 750 customers had either only recently acquired interval metering or had load profiles which meant that energy only tariffs were more advantageous than agreed demand tariffs.

SA Power Networks proposed that assigning all large customers to cost-reflective tariffs in July 2015 as a critical step in the general implementation of such tariffs. With the large distribution price reductions (and PV FiT recovery reductions), such transfers were easier to achieve whilst still giving price reductions. To enable this tariff reform program to occur, we created two new tariffs to complement the agreed demand tariff. We also simplified the current agreed demand tariff and removed the constraints of minimum quantities.

The key steps undertaken to progress this initiative by July 2015 involved:

- Transferring 500 customers from energy tariffs to agreed demand;
- Offering 1200 customers currently on agreed demand a lower agreed demand;
- Advising those 1200 customers and a further 2,000 customers that the agreed demand period now includes November, and extends to 9pm;
- Transferring 900 customers from agreed demand to actual demand (typically monthly);
- Transferring 350 customers from energy to actual demand;
- Transferring 64 customers from energy to a transition actual demand tariff;
- Transferring the 250 large business customers still with type 6 meters to legacy tariffs for business single and business 2-rate. These customers will receive price reductions when they have interval metering installed and switch to a cost-reflective tariff;
- Review the 200 High Voltage customers for the best tariff option and offer a lower agreed demand where suitable; and
- Review the 20 Major Businesses, ensuring proper determination of locational TUoS charges and agreed demands.

We liaised with retailers on these arrangements, trying to ensure a smooth transition for customers to the July 2015 pricing.

After these initiatives have been completed, we will look at the optimal cost-reflective arrangements for the medium businesses (<160 MWh) that have interval metering. This will take effect from July 2016, noting that any such tariff assignment will be optional for these customers.

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4.7 Future tariff reform options

SA Power Networks proposes to explore any benefits capable of being realised from continuing the network tariff reform process. Within the limitations of the AER's DMIA provisions, SA Power Networks may obtain more first-hand information on customers' usage of the network through trials and associated customer research.

The following network tariff reforms may be pursued by SA Power Networks during the 2015-20 regulatory control period. They are discussed in more detail in our initial TSS proposal submitted to the AER in December 2015:

- Improving the design of demand tariffs, to enhance their cost reflectivity;
- Continuing to assign more small business customers to network demand tariffs where it is economically efficient to do so;
- Exploring tariff based demand management opportunities at specific locations where network constraints are developing; and
- Encouraging more consumption from the residential network during sunny periods as loads can be negative because of solar PV production.

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5 Tariff Classes

This Section describes SA Power Networks' standard control service tariff classes and the way in which they have been constituted to comply with the requirements of the Rules and the AER's Determination.

In Attachment 13 of the AER's Final Decision, the AER has classified the following distribution services provided by SA Power Networks as standard control services²⁸:

A.1 Standard network services

- a. All network services except:
 - i. network services provided at the request of a distribution network user:
 - (i) with higher quality or reliability standards, or lower quality or reliability standards (where permissible), than are required by the rules or any other applicable regulatory instruments, or
 - (ii) in excess of levels of service or plant ratings required to be provided by SA Power Networks' assets, or
 - ii. extension or augmentation of the distribution network associated with the provision of a new connection point or upgrading of the capability of a connection point to the extent that a distribution network user is required to make a financial contribution in accordance with the rules, or
 - iii. other network services that are classified as negotiated distribution services in sections A.6 to A.15 of this appendix A.

A.2 Standard connection services

- a. All connection services except:
 - i. connection services provided at the request of a distribution network user:
 - (i) with higher quality or reliability standards, or lower quality or reliability standards (where permissible), than are required by the rules or any other applicable regulatory instruments, or
 - (ii) in excess of levels of service or plant ratings required to be provided by SA Power Networks' assets, or
 - ii. the provision of a new connection point or upgrading of the capability of a connection point to the extent that a distribution network user is required to make a financial contribution in accordance with the rules, or
 - iii. other connection services that are classified as negotiated distribution services in sections A.6 to A.15 of this appendix A.

²⁸ AER, Final Decision, October 2015, Attachment 13, pp. 15.

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A.3 Unmetered metering services

- a. The provision of metering services in respect of meters meeting the requirements of a metering installation type 7.

5.1 Regulatory requirements

5.1.1 Rule requirements

SA Power Networks' Pricing Proposal must contain the information on tariffs, tariff classes and charging parameters as set out in clause 6.18.2 of the Rules.

6.18.2 Pricing proposals

- (b) *A pricing proposal must:*
 - (1) set out the *tariff classes* that are to apply for the relevant *regulatory year*; and
 - (2) set out the proposed tariffs for each *tariff class*; and
 - (3) set out, for each proposed tariff, the *charging parameters* and the elements of service to which each *charging parameter* relates.

SA Power Networks is also required to comply with the following requirements of clause 6.18.3 of the Rules with respect to tariff classes.

6.18.3 Tariff classes

- (a) *A pricing proposal must define the tariff classes into which customers for direct control services are divided.*
- (b) *Each customer for direct control services must be a member of 1 or more tariff classes.*
- (c) *Separate tariff classes must be constituted for customers to whom standard control services are supplied and customers to whom alternative control services are supplied (but a customer for both standard control services and alternative control services may be a member of 2 or more tariff classes).*
- (d) *A tariff class must be constituted with regard to:*
 - (1) the need to group customers together on an economically efficient basis; and
 - (2) the need to avoid unnecessary transaction costs.

5.1.2 Requirements of the AER's Decision

The AER has established procedures for assigning or reassigning customers to tariff classes in Attachment 14 of its Final Decision. At the commencement of the regulatory control period, SA Power Networks' retail customers will be taken to be "assigned" to the tariff class which SA Power Networks was charging that retail customer immediately prior to 1 July 2015²⁹.

Attachment 14 Section D of the Final Decision contains procedures for the reassigning of customers to tariff classes, with which SA Power Networks must comply during the 2015-20 regulatory control

²⁹ AER, Final Decision, October 2015, Attachment 14, p. 21.

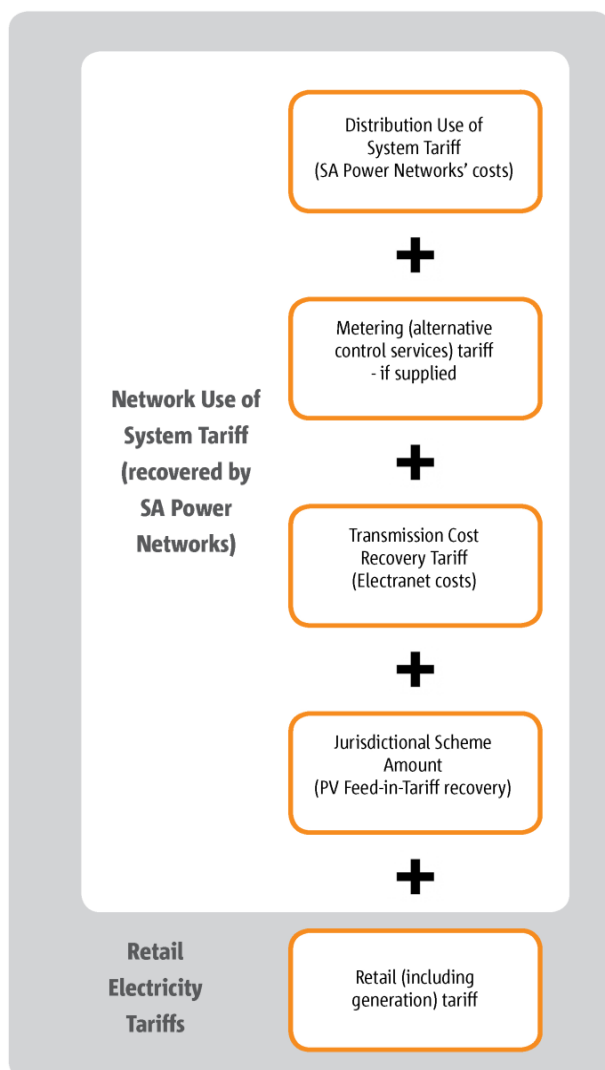
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period. These procedures are set out in Appendix J of this Proposal.

5.2 Standard control service tariffs and tariff classes

SA Power Networks' network use of system tariffs are an aggregation of distribution use of system tariffs, metering service tariffs and transmission cost recovery tariffs. The components of these tariffs are illustrated in Figure 10, which also indicates their relationship to retail and tariffs.

Figure 10 - Components of SA Power Networks' network tariffs



Retailers may pass through the components of SA Power Networks' network tariffs to customers directly, or modify their structure by bundling with the retail component, which includes the cost of purchasing generated energy from the NEM and retail costs.

This Section outlines the distribution tariff arrangements, which are designed to recover the cost of providing prescribed control services to customers. These services are segregated into tariffs and tariff classes, which cover all of the direct control services that SA Power Networks provides, as required by clause 6.18.3(b).

Section 13 of this Pricing Proposal outlines the arrangements for SA Power Networks' alternative control metering service tariffs, which in accordance with clause 6.18.3(c) of the Rules has been constituted as a separate tariff class with separate charging parameters.

The transmission cost recovery Section (Section 10) describes how the transmission costs incurred by SA Power Networks are recovered from customers, again with separate charging parameters.

The process by which SA Power Networks recovers the SA Government Solar PV FiT payments through the PV Jurisdictional Scheme Amount (JSA) is described in Section 11. This is applied as a percentage uplift to the DUoS charge.

The grouping of customers into standard control service tariffs has historically distinguished between customers on the basis of the following factors:

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- The nature and extent of usage of different types of customer;
- For business customers, nature of connection to the network, including the capacity and location or voltage of connection;
- Whether the customer also receives a controlled load service; and
- The type of meter installed at the premises, with a distinction between Types 1-4 metering and Types 5-6 metering.

Clearly, in establishing tariff classes that are to be used for the purpose of monitoring pricing compliance, it is desirable and appropriate that similar individual tariffs should be grouped together. This is particularly the case for some business tariffs, where one or a few large customers would dominate the class and the side constraint would not apply to a tariff class but for those large customers.

SA Power Networks' network tariffs and tariff classes for 2016/17 are shown in Figure 11 below. The tariff classes have been constituted with regard to the provisions of clause 6.18.3(d) of the Rules concerning economic efficiency and transaction costs.

Figure 11 - SA Power Networks' existing network tariffs

Type 1-4 meter	Type 5-6 meter		Type 7 (Unmetered)
Monthly billing	Monthly billing	Quarterly billing	Monthly billing
Major business (11, 33, 66 kV)			
kVA demand (locational TUoS) STN			
kVA demand (loc'l TUoS) ZSN			
kVA demand Zone ZSN			
HV business			
kVA demand HVI			
kVA demand HVI400 (<400 kVA)			
kVA actual demand HBDI			
Large business			
kVA demand LVI			
kVA actual demand BDI			
kVA transitional actual demand BDIT			
	2 rate LBMB2R / OPCL	2 rate LBQB2R / OPCL	
	LBMSBR / OPCL	LBQSBR / OPCL	
Small business			
kVA demand SBLVI			
kVA actual demand SBDI			
kVA transitional actual demand SBDIT			
2 rate SBB2R124 / OPCL	2 rate SBMB2R / OPCL	2 rate SBQB2R / OPCL	LVUU
SBBSR124 / OPCL	SBMSBR / OPCL	SBQSBR / OPCL	LVUU24
LV residential			
MRSR1	MRSR	QRSR	
With cont. load MRSRCLI	With cont. load MRSROPCL	With cont. load QRSROPCL	

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5.2.1 Standard control services tariffs

The tariffs in Figure 11 cover a diverse range of customer requirements.

Residential customer tariffs have a fixed daily charge (termed the Supply Rate) and an inclining block energy component, in common with the tariff structures of many utilities. In 2009/10, the inclining block energy charge was modified to include four block levels. In 2014/15 the tariff reverted to two blocks. A separate energy rate applies to the energy consumption within each block level. A residential actual demand tariff was introduced in 2014/15.

Business customer tariffs cover the range of:

- single rate energy tariffs for small Low Voltage connected customers;
- Two rate Time of Use (peak and off peak) for medium Low Voltage connected customers;
- kVA agreed demand tariffs for large customers at all voltage levels, with individually calculated (locational) transmission prices for those customers with a demand in excess of 10 MW. The demand charge is stepped according to the customer's size, to reflect the cost of providing network capacity at the particular voltage level and location; and
- An actual kVA demand tariff suitable for large customers, for seasonal large customers whose load varies across the year and also those large customers with very flexible load. Medium business customers can also opt-in for this tariff.

5.2.2 Standard control services tariff classes

The five tariff classes that SA Power Networks has established are as follows:

- Major business (11 kV substation connection through to 66 kV);
- High Voltage business (typically at 11 kV)
- Large LV business
- Small business including unmetered supplies; and
- Residential.

SA Power Networks has illustrated the grouping of its individual tariffs into tariff classes shown in Figure 11 using a dashed outline. Note that the split of LV business into two tariff classes has occurred this year, although it has been flagged in our TSS submission. The separate tariff class based on customer size (large vs small) also reflects the degree to which the customer uses the LV network. Most large LV business customers will use negligible amounts of the LV mains, taking supply close to a transformer. We will be able to better reflect the costs of these separate tariff classes in the respective tariffs going forward. Today, we will be using some duplicate tariffs in each of the two tariff classes, as small and large businesses have utilised the same tariff until now.

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A description of the tariffs in each of the tariff classes and their charging parameters follows. More detailed information on the application of the tariffs is available from SA Power Networks' website³⁰. This Section does not describe the range of obsolete tariffs.

Note that, for completeness, those components of charging parameters associated with transmission recovery tariffs and alternative control services have been included where relevant.

5.3 Low voltage residential tariff class

This tariff class includes the residential single rate and controlled load tariffs.

5.3.1 Low voltage residential single rate tariff

The low voltage residential single rate tariff is available to eligible residential customers taking supply at less than 1 kV. These customers ordinarily use a Type 1-6 NEM compliant meter and metered energy consumption is charged in two blocks. The low voltage residential single rate tariff incorporates the charging parameters set out in Table 8.

Table 8 - Low voltage residential tariff single rate charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply Rate	\$/day	✓	-	✓	-	Fixed daily charge
Block 1 Usage Rate	\$/kWh	✓	✓	✓	-	For consumption up to and including 333.3 kWh/ Month
Block 2 Usage Rate	\$/kWh	✓	✓	✓	-	For the balance of consumption

Metering is charged where applicable as a separate alternative control charge, not within the standard control tariff. Metering charges are discussed in detail in Section 13.

³⁰ http://www.sapowernetworks.com.au/centric/industry/our_network/network_tariffs.jsp

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5.3.2 Controlled load tariff

The low voltage controlled load tariff is available for permanently installed storage water heaters with a rated delivery of not less than 125 litres, storage space heaters and other approved applications including electric vehicle chargers (hard-wired) up to 25 amps. A time switch for the control of the appliances and separate metering is required to access this tariff. The controlled load tariff incorporates the charging parameters set out in Table 9.

Table 9 - Controlled load tariff charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control	Transmission recovery	Jurisdictional Scheme amount pass through	Alternative Control	
Usage Rate	\$/kWh	✓	✓	✓	-	For all consumption

This tariff is available only to residential customers and to those business customers that were previously taking supply under the controlled load tariff. This tariff is invoiced at the same frequency as the primary tariff. For more information on when controlled load is used, refer to Section 4.

5.3.3 Low voltage residential monthly demand tariff

The low voltage residential monthly demand tariff is available to eligible residential customers taking supply at less than 1 kV. This is an optional tariff that commenced on 1 July 2014. These customers will require a Type 1-5 NEM compliant meter read at least monthly. Metered energy consumption is charged at a single rate. The maximum kW demand (measured as the average of a half hour interval) between 4pm and 9pm on any day in the month is used to bill the monthly demand. A higher price applies for the five summer months (November to March) than the seven winter months (April to October). Currently, there is no charge for demand that is higher outside of the peak 4pm to 9pm time period.

The low voltage residential monthly demand tariff incorporates the charging parameters set out in Table 10. There is a minimum quantity of 1.0 KW for peak or shoulder demand in any month.

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Table 10 – Low voltage residential monthly demand tariff charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply rate	\$/day	-	-	-	Type 4 or 5 monthly meter required	Fixed daily charge
Usage Rate	\$/kWh	✓	✓	✓		For all consumption
Summer Demand Peak Rate	\$/kW/mth	✓	✓	✓		For Nov-March demand, 16:00-21:00 local time
Winter Demand Shoulder Rate	\$/kW/mth	✓	✓	✓		For Apr-Oct demand, 16:00-21:00 local time
Demand Off-peak Rate	\$/kW/mth	-	-	-		For anytime demand each month.

There is a variation of this tariff where it has the same structure and demand measurement, but bills the actual kW recorded for the number of days between the meter-read dates rather than for a month. Its purpose is to assist retailers with their billing where type 5 meters are used, as these are read during the month (or quarter) as opposed to the month-end associated with a type 4 meter. It has also enabled the AER's requirement for metering charges to be implemented on a 'per day' basis.

Metering is charged where applicable as a separate alternative control charge, not within the standard control tariff. Metering charges are discussed in detail in Section 13.

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5.4 Low voltage business tariff class

The low voltage business tariffs cover a broad range of customer sizes and types of metering installations. This tariff class is the most diverse in terms of its consumption range and the variety of end uses.

5.4.1 Business low voltage single rate tariff (obsolete)

The low voltage business single rate tariff was available for use at a Type 1-6 meter installation. As with the residential tariff, consumption is charged on an inclining scale in two consumption blocks. The low voltage business single rate tariff incorporates the charging parameters set out in Table 11. This tariff was closed to new applicants on 30 June 2010.

Table 11 - Low voltage business single rate tariff charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply Rate	\$/day	✓	-	✓	-	Fixed daily charge
Block 1 Usage Rate	\$/kWh	✓	✓	✓	-	For consumption up to and including 833.3 kWh/ Month
Block 2 Usage Rate	\$/kWh	✓	✓	✓	-	For the balance of consumption

Metering is charged where applicable as a separate alternative control charge, not within the standard control tariff. Metering charges are discussed in detail in Section 13.

5.4.2 Business low voltage 2-rate tariff

The low voltage business 2-rate tariff has a Time of Use (ToU) structure with peak and off-peak consumption charges, using a Type 1-6 meter. The customer's peak period energy consumption is charged in four consumption blocks. The low voltage business 2-rate tariff incorporates the charging parameters set out in Table 12. The pricing of Block 1 through Block 4 is identical, effectively converting Business 2-rate into a single block tariff

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Table 12 - Low voltage business 2-rate tariff charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply Rate	\$/day	✓	-	✓	-	Fixed daily charge
Peak Usage Rate	\$/kWh	✓	✓	✓	-	For all peak period consumption
Off Peak Usage Rate	\$/kWh	✓	✓	✓	-	For all off-peak period consumption

Metering is charged where applicable as a separate alternative control charge, not within the standard control tariff. Metering charges are discussed in detail in Section 13.

5.4.3 Business low voltage kVA agreed demand tariff

The low voltage kVA agreed demand tariff generally applies to large business customers taking supply directly from a distribution transformer. This tariff requires a minimum of a type 5 (interval) meter capable of measuring both active and reactive power. The minimum demand of 70 kVA that previously applied was in July 2015, although the tariff now includes a significant supply charge.

The peak demand is measured on work days between 12 noon and 9pm local time during the summer months of November to March. This was a slight change in 2015/16 as previously the peak demand was measured on workdays from December to March between 12 noon and 8pm local time. The expansion to 9pm and inclusion of November has been required because of significant co-incident network demands at these times when extreme weather occurs.

An alternate variation of this tariff is available for sporting clubs with significant floodlighting. The alternate tariff is the same, except that the peak demand period has been amended to 12noon-7pm December to February, Monday-Friday only rather than 12 noon-9pm *November to March, Monday-Friday*. This is because floodlights are not likely to be used on summer evenings when extreme temperatures occur due to health concerns, so peak charging for these lights is inappropriate.

This tariff was simplified in July 2015 to only include two blocks, with the second block (above 1,000 kVA) only being utilised by the largest of LV businesses. The energy consumption of these customers is a simple anytime usage based charges. The primary pricing signal comes from the agreed demand charges.

The low voltage kVA demand tariff incorporates the charging parameters set out in Table 13.

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Table 13 - Low voltage kVA agreed demand tariff charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply Rate	\$/day	✓	-	✓	Type 4 or 5 monthly meter required	Fixed daily charge
Annual Block 1 Demand Rate	\$/kVA /mth	✓	✓	✓	-	For peak demand up to and including 1000 kVA
Annual Block 2 Demand Rate	\$/kVA /mth	✓	✓	✓	-	For the balance of kVA demand
Additional demand	\$/kVA /mth	✓	-	✓	-	Demand in excess of that required during summer peak hours.
Usage Rate	\$/kWh	✓	✓	✓	-	For all energy consumption

Metering is charged where applicable as a separate alternative control charge, not within the standard control tariff. Metering charges are discussed in detail in Section 13.

These tariffs are invoiced monthly and are determined on a 'per day' basis in accordance with the AER's metering charges.

5.4.4 Business low voltage kVA actual demand tariff

The business low voltage actual demand tariff is available to eligible business customers taking supply at less than 1 kV (the tariff is also available for business customers taking HV supply, typically at 11 kV). This tariff was introduced on 1 July 2015. It forms part of a suite of cost-reflective tariffs that are used by large business customers. This tariff is optional for suitable medium-sized

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businesses. Customers using this tariff require a Type 1-5 NEM compliant meter which is read at least monthly.

Metered energy consumption is charged at a single rate. The maximum kVA demand (measured over a half hour interval) between 12 noon and 4pm on any workday in the month is used to bill the shoulder actual demand across all 12 months of the year. A higher peak price applies for the five summer months (November to March between 4pm and 9pm workdays when system co-incident peaks occur on extreme days). There is no charge where the customer exceeds the agreed demand if it is outside of the peak and shoulder time periods.

There is a variation of this tariff where it has the same structure and demand measurement, but bills the actual kVA recorded for the number of days between the meter-read dates rather than for a month. Its purpose is to assist retailers with their billing where type 5 meters are used, as these are read during the month (or quarter) as opposed to the month-end associated with a type 4 meter. It has also enabled the AER's requirement for metering charges to be implemented on a 'per day' basis

The low voltage Business actual demand tariff incorporates the charging parameters set out in Table 14.

Table 14 – Low voltage business actual demand tariff charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply rate	\$/day	-	-	-	Type 4 or 5 monthly meter required	Fixed daily charge
Summer Demand Peak Rate	\$/kVA /mth	✓	✓	✓	-	For Nov-March demand, 16:00-21:00 local time
Year-round Demand Shoulder Rate	\$/kVA /mth	✓	✓	✓	-	For July-June demand, 12:00-16:00 local time
Demand Off-peak Rate	\$/kVA /mth	-	-	-	-	For anytime demand each month
Usage Rate	\$/kWh	✓	✓	✓	-	For all consumption

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Metering is charged where applicable as a separate alternative control charge, not within the standard control tariff. Metering charges are discussed in detail in Section 13.

5.4.5 Business low voltage kVA transition actual demand tariff

The business low voltage transition actual demand tariff is available to large business customers reassigned from a business energy tariff to a cost-reflective tariff in July 2015, but who would be worse off as a result. It forms part of a suite of cost-reflective tariffs that are required to be used by large business customers.

In 2016/17, the proportion of business 2-rate will reduce from 70% to 50% and the actual demand proportion will increase from 30% to 50%. The transition will be complete by 2020. Customers on this tariff require a Type 1-5 NEM compliant meter read at least monthly.

All tariff elements used in the business 2-rate and agreed monthly demand tariffs are used in this transition tariff. The low voltage Business actual demand tariff incorporates the charging parameters set out in Table 15.

There is a variation of this tariff where it has the same structure and demand measurement, but bills the actual kVA recorded for the number of days between the meter-read dates rather than for a month. Its purpose is to assist retailers with their billing where type 5 meters are used, as these are read during the month (or quarter) as opposed to the month-end associated with a type 4 meter. It has also enabled the AER's requirement for metering charges to be implemented on a 'per day' basis.

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Table 15 – Low voltage business transition actual demand tariff charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply rate	\$/day	✓	-	✓	Type 4 or 5 monthly meter required	Fixed daily charge
Summer Demand Peak Rate	\$/kVA /mth	✓	✓	✓	-	For Nov-March demand, 16:00-21:00 local time
All Year-Demand Shoulder Rate	\$/kVA /mth	✓	✓	✓	-	For July-June demand, 12:00-16:00 local time
Demand Off-peak Rate	\$/kVA /mth	-	-	-	-	For anytime demand each month
Peak Usage Rate	\$/kWh	✓	✓	✓	-	For all peak period consumption
Off-Peak Usage Rate	\$/kWh	✓	✓	✓	-	For all off-peak period consumption

Metering is charged where applicable as a separate alternative control charge, not within the standard control tariff. Metering charges are discussed in detail in Section 13.

5.4.6 Unmetered supply tariffs

Unmetered supply tariffs are applicable to supply points that are not metered. Energy consumption is calculated using the appropriate algorithm in the applicable Metrology Procedure. Unmetered tariffs comprise of an energy rate that is applied to the calculated electricity consumption.

There are two unmetered supply tariffs that are assigned by SA Power Networks, depending upon the customer's consumption profile:

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- Unmetered Overnight Usage supply is used for overnight public lighting.
- Unmetered 24 hour usage supply is for constant 24 hour per day use, typically public phones, traffic lights and telecommunications installations.

The low voltage unmetered usage tariffs incorporate the charging parameters set out in Table 16.

Table 16 - Unmetered overnight and 24 hour usage tariff charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Anytime Usage Rate	\$/kWh	✓	✓	✓	-	For estimated energy consumption

Unmetered supply tariffs are generally invoiced monthly.

5.5 High Voltage Business tariff class

There is also a broad range of customer sizes and types connected to SA Power Networks' system at high voltage. They are predominantly manufacturing and commercial installations.

5.5.1 High Voltage kVA agreed demand tariff

The kVA agreed demand tariff for business customers connected at high voltage is similar in structure to the low voltage equivalent described in Section 5.4.3.

Two variants of this tariff are available with different charging parameters, depending upon whether the customer's maximum demand is in excess of 400 kVA. Lower demands up to 400 kVA can use the equivalent of the Business LV agreed demand tariff, whilst larger HV customers are more suited to this HV variation. HV customers can also elect to use the actual demand tariff discussed above for LV businesses.

The HV agreed demand tariff consists of a single block of peak demand, a single usage price for energy and a significant supply charge. Demand is measured on workdays between 12 noon and 9pm local time from November through March, as this is the time when co-incident demand affects the network during extreme weather.

The charging parameters of these tariffs are set out in Table 17 and Table 18. Charging is on a 'per day' basis. Metering is charged where applicable as a separate alternative control charge, not within the standard control tariff. Metering charges are discussed in detail in Section 13.

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Table 17 - High voltage kVA agreed demand tariff charging parameters <400 kVA

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply Rate	\$/day	✓	-	✓	Type 4 monthly meter required	Fixed daily charge
Agreed Peak Demand Rate	\$/kVA /mth	✓	✓	✓	-	For all peak demand
Usage Rate	\$/kWh	✓	✓	✓	-	For all energy consumption

Table 18 - High voltage kVA agreed demand tariff charging parameters 400 kVA and above

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply Rate	\$/day	✓	-	✓	Type 4 monthly meter required	Fixed daily charge
Annual Peak Demand Rate	\$/kVA /mth	✓	✓	✓	-	For all peak demand
Additional demand	\$/kVA /mth	✓	-	✓	-	Demand in excess of that required during summer peak hours
Usage Rate	\$/kWh	✓	✓	✓	-	For all peak period energy consumption

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5.6 Major Business tariff class

The major business customers are the largest connected to SA Power Networks' network. They comprise of a range of industrial, manufacturing and mining enterprises.

5.6.1 Zone substation kVA demand tariff

This kVA demand tariff is for larger high voltage connected business customers that take supply on direct distributors from a zone substation. The tariff has a minimum agreed anytime demand of 5,000 kVA with no minimum annual usage. A Type 1-4 interval meter is required with the ability to measure both active and reactive power. The charging parameters for this tariff are set out in Table 19.

Table 19 - Zone substation kVA demand tariff charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply Rate	\$/day	-	-	-	Type 4 monthly meter required	Fixed daily charge
Annual Demand Rate	\$/kVA /mth	✓	✓	✓	-	For peak demand > 5,000 kVA
Additional demand	\$/kVA /mth	✓	-	✓	-	Demand in excess of that required during summer peak hours
Usage Rate	\$/kWh	✓	✓	✓	-	For all p energy consumption

Charging is on a 'per day' basis. Metering is charged where applicable as a separate alternative control charge, not within the standard control tariff. Metering charges are discussed in detail in Section 13.

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5.6.2 Zone substation kVA demand locational tariff

This kVA demand tariff is similar in structure to the high voltage zone substation kVA demand tariff described in Section 5.6.1. It applies to those customers having a demand in excess of 10 MVA or annual consumption greater than 40 GWh. A Type 1-4 interval meter is required with the ability to measure both active and reactive power.

The tariff has averaged distribution charges, but a locational TUoS component is applied. The TUoS component typically comprises a locational supply charge (for exit charges) and a locational peak demand charge. Some customers with a low load factor may have a lower demand charge but also have a usage charge.

The charging parameters of this tariff are shown in Table 20.

Table 20 - Zone substation kVA demand locational tariff charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply Rate	\$/day	-	Locational	-	Type 4 monthly meter required	Fixed daily charge
Annual Demand Rate	\$/kVA /mth	✓	Locational	✓	-	For peak demand
Additional demand	\$/kVA /mth	✓	-	✓	-	Demand in excess of that required during summer peak hours
Usage Rate	\$/kWh	✓	✓	✓	-	For all energy consumption

Charging is on a 'per day' basis. Metering is charged where applicable as a separate alternative control charge, not within the standard control tariff. Metering charges are discussed in detail in Section 13.

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5.6.3 Sub-transmission kVA demand locational tariff

Sub-transmission customers are connected to SA Power Networks' network at 66 or 33 kV and have a minimum anytime agreed demand of 5 MVA. The tariff for these customers is similar in structure to the zone substation kVA demand locational tariff.

The TUoS component typically comprises a locational supply charge (for exit charges) and a locational peak demand charge. Some customers with a low load factor may have a lower demand charge but also have a usage charge.

The charging parameters for the tariff are set out in Table 21.

Table 21 – Sub-transmission kVA demand locational tariff charging parameters

Charging Parameter	Units	Element of service				Description
		Direct control DUoS	Transmission recovery TUoS	Jurisdictional Scheme amount pass through	Alternative Control Metering	
Supply Rate	\$/day	-	Locational	-	Type 4 monthly meter required	Fixed daily charge
Annual Demand Rate	\$/kVA /mth	✓	Locational	✓	-	For peak demand
Additional demand	\$/kVA /mth	✓	-	✓	-	Demand in excess of that required during summer peak hours
Usage Rate	\$/kWh	✓	✓	✓	-	For all energy consumption

Charging is on a 'per day' basis. Metering is charged where applicable as a separate alternative control charge, not within the standard control tariff. Metering charges are discussed in detail in Section 13.

6 Standard control services tariffs (NUoS)

Within the framework of SA Power Networks' longer term tariff strategy set out in Section 4 of this Pricing Proposal, this section sets out the proposed rates for tariff charging components of standard control services for 2016/17 and provides a comparison with the rates in place during 2015/16.

It should be noted that the information and comparisons in this section relate to SA Power Networks' standard control services for all network charges (NUoS). This is the charge seen by large customers on their unbundled bills from retailers. It comprises the addition of

- SA Power Networks' standard control services (DUoS);
- Transmission cost recovery components (TUoS); and
- PV FIT JSA cost recovery components (PV JSA).

The charges are generally bundled to small customers and can also include alternative control service charges for metering. These charges are explicitly set out in our tariff list, but are part of the total network charges to customers. Metering is discussed separately in Section 13.

6.1 Regulatory Requirements

The information in this section concerning the change in standard control service rates is provided pursuant to clause 6.18.9 of the Rules.

6.18.9 Publication of information about tariffs and tariff classes

- (a) A *Distribution Network Service Provider* must maintain on its website:
- (3) a statement of expected price trends (to be updated for each *regulatory year*) giving an indication of how the *Distribution Network Service Provider* expects prices to change over the *regulatory control period* and the reasons for the expected changes.

6.2 Tariff changes in 2016/17

The tariff changes in 2016/17 have been made with regard to our tariff strategy for the 2015-20 regulatory control period set out in Section 4. Details on how the tariff components (distribution, transmission and PV FIT) have been determined and their compliance with regulatory requirements are set out in chapters 9, 10 and 11. This section aims to inform customers about the general movement in these three NUoS components against the tariff classes, and how this year's resulting network charges (NUoS) compare with those charged last year.

6.3 Components of Network Charges by tariff class – this year vs last year

The following sections provide information on the three NUoS component of SA Power Networks' existing tariffs (ie DUoS, TUoS and PV Fit) and the movement in recovery proposed for 2016/17 by each of the five tariff classes. Changes in tariff recovery from one year to another should be apparent from these tables.

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Distribution increases have been applied uniformly across tariff classes and tariff elements.

Table 22 – DUoS using forecast quantities for 2016/17 at 2015/16 and 2016/17 prices

Tariff class	2015/16 Revenue \$'000	2016/17 Revenue \$'000	Change in weighted average revenue %	Side constraint %
Major Business	9,559	9,953	4.1	10.3
HV Business	32,868	34,139	3.9	10.3
Large LV Business	187,286	194,595	3.9	10.3
Small Business	123,143	127,655	3.7	10.3
Residential	353,767	367,166	3.8	10.3
Total	706,624	733,507	3.9	10.3

Transmission reductions have been calculated with final prices, and broadly applied across all tariff classes and elements to non-major business customers. Residential block 1 and business single block 1 received less reduction. Major Business locational prices have been determined with the final locational prices released by ElectraNet on 16 May 2016.

Table 23 – TUoS using forecast quantities for 2016/17 at 2015/16 and 2016/17 prices

Tariff class	2015/16 Revenue \$'000	2016/17 Revenue \$'000	Change in weighted average revenue %
Major Business	17,383	16,728	-3.8%
HV Business	20,936	17,789	-15.0%
Large LV Business	83,046	70,433	-15.2%
Small Business	41,567	35,111	-15.5%
Residential	112,633	99,604	-11.6%

The PV FIT was reduced to all tariff classes, but more so to business than residential, reflecting the larger proportion of 44 cent scheme customers that are residential. The tariff class reductions were applied equally to all tariff elements, with the exception that all supply charges (residential, business single and business 2-rate) were retained at a common level. The two principles of 'simplicity' and 'fairness and equity' were considered in making these decisions.

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Table 24 – JSO (PV FIT) using forecast quantities for 2016/17 at 2015/16 and 2016/17 prices

Tariff class	2015/16 Revenue \$'000	2016/17 Revenue \$'000	Change in weighted average revenue %
Major Business	1,661	950	-42.8%
HV Business	5,658	3,058	-46.0%
Large LV Business	31,294	16,806	-46.3%
Small Business	20,685	11,528	-44.3%
Residential	61,512	55,797	-9.3%

The outcome of the three sets of charges shown above is the NUoS outcome, which shows reductions to all tariff classes, but with larger reductions to business classes.

Table 25 – NUoS using forecast quantities for 2016/17 at 2015/16 and 2016/17 prices

Tariff class	2015/16 Revenue \$'000	2016/17 Revenue \$'000	Change in weighted average revenue %
Major Business	28,604	28,506	-0.3%
HV Business	59,462	56,068	-5.7%
Large LV Business	301,626	282,068	-6.5%
Small Business	185,395	174,294	-6.0%
Residential	527,912	522,566	-1.0%

All prices in the following Sections are exclusive of GST and have been rounded. They detail the change in tariff elements for each tariff (NUoS only) between this and last year.

6.4 Low Voltage Residential tariff class

6.4.1 Low voltage residential tariff

Table 26 contains the proposed 2016/17 prices for single rate residential customers.

Note that the NUoS supply rate and block 1 price has been retained at 2015/16 prices.

The reduction in block 2 usage distribution rates is in line with TSS proposals and cost-of-supply information. Over time, we expect block 1 and block 2 prices to be aligned.

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Table 26 - Proposed 2016/17 low voltage residential tariff single rate

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Supply rate	\$ p.a.	109.95	109.95	0.00
Block 1 usage rate	¢/kWh	11.75	11.75	0.00
Block 2 usage rate	¢/kWh	15.23	14.70	-0.53

6.4.2 Low voltage residential actual demand tariff

Table 27 contains proposed 2016/17 prices for residential actual demand tariff. Demand prices and usage prices have been reduced.

Table 27 - Proposed 2016/17 low voltage residential tariff actual demand

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Supply rate	\$ p.a.	0.00	0.00	0.00
Peak demand (Nov-March)	\$/kW/mth	13.48	12.91	-0.57
Shoulder demand (April-Oct)	\$/kW/mth	6.74	6.45	-0.29
Off-peak demand (2100-1600)	\$/kW/mth	0.00	0.00	0.00
Usage rate	¢/kWh	7.19	6.52	-0.67

6.4.3 Controlled load tariff

Table 28 contains the proposed 2016/17 prices for controlled load customers.

The NUoS rate for this tariff has been retained at 2015/16 levels, offering a significant reduction to residential prices.

Table 28 - Proposed 2016/17 controlled load tariff

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Usage rate	¢/kWh	5.39	5.39	0.00

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6.5 Low Voltage Business tariff class

6.5.1 Low voltage business single rate tariff (obsolete)

Table 29 contains the proposed 2016/17 prices for low voltage business single rate tariff customers. These customers were using this tariff prior to 30 June 2010 when the tariff was made obsolete.

Note that the NUoS supply rate has been retained at 2015/16 prices whilst block 1 and block 2 prices have been aligned. Both blocks have price reductions but block 2 has the larger reduction. This tariff will formally become a single block tariff during 2016/17.

Table 29 - Proposed 2016/17 low voltage business single rate tariff

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Supply rate	\$ p.a.	109.95	109.95	0.00
Block 1 usage rate	¢/kWh	13.64	13.42	-0.22
Block 2 usage rate	¢/kWh	14.96	13.42	-1.54

6.5.2 Low voltage business 2-rate tariff

Table 30 contains the proposed 2016/17 prices for low voltage business 2-rate tariff customers.

The NUoS supply rate has been retained at 2015/16 price as has the off-peak price. The peak-rate has been reduced. The TSS outlines further reductions in the peak-rate whereas the off-peak rate is likely to increase. Customers with significant off-peak loads are encouraged to look at the anytime usage rate tariffs available with business actual monthly demand which are 2.04 ¢/kWh lower than the off-peak rate (note that monthly demand charges do apply at peak times though).

Table 30 - Proposed 2016/17 low voltage business 2-rate tariff

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Supply rate	\$ p.a.	109.95	109.95	0.00
Peak usage rate	¢/kWh	17.38	15.84	-1.54
Off-peak usage rate	¢/kWh	7.11	7.11	0.00

6.5.3 Low voltage business kVA demand tariff

Table 31 contains the proposed 2016/17 prices for low kVA demand business tariff customers.

This tariff has a supply charge and a first block covering the first 1000kVA. Peak demand is measured between 12 noon and 9pm on work days between November and March. There is no minimum level of agreed demand for this tariff.

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Table 31 - Proposed 2016/17 low voltage business kVA demand tariff

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Supply rate	\$ p.a.	4,203.86	4,063.85	-140.01
Annual block 1 demand rate	\$/kVA/mth	10.45	9.70	-0.75
Annual block 2 demand rate	\$/kVA/mth	8.67	7.99	-0.68
Additional demand	\$/kVA/mth	4.04	3.90	-0.14
Usage rate	¢/kWh	3.29	3.07	-0.22

There is a variant to this tariff available for sportsgrounds with significant floodlighting. This tariff variant has a slightly different definition of peak demand period, using 12:01 to 19:00 local time for December to February. The tariff variant is otherwise in line with the original tariff.

6.5.4 Low voltage business actual demand tariff

Table 32 contains proposed 2016/17 prices for low voltage business actual demand tariff.

This tariff was introduced in 2015/16 and has been used initially by large customers and some small customers previously on agreed demand tariffs. Some small businesses currently on energy tariffs may opt-in to this tariff.

Table 32- Proposed 2016/17 low voltage business tariff actual demand

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Supply rate	\$ p.a.	0.00	0.00	0.00
Peak demand (Nov-March)	\$/kVA/mth	15.83	14.83	-1.00
Shoulder demand (July-June)	\$/kVA/mth	7.91	7.41	-0.50
Off-peak demand	\$/kVA/mth	0.00	0.00	0.00
Usage rate	¢/kWh	5.40	5.05	-0.35

6.5.5 Low voltage business actual demand tariff Transition

Table 33 contains proposed 2016/17 prices for low voltage business actual demand transition tariff. This tariff was introduced in 2015/16 and has been used initially by large customers previously on energy tariffs who might otherwise have faced an increase in prices when reassigned to a cost-reflective tariff.

Each year, this tariff will progressively increase the proportion of the cost-reflective actual demand tariff and reduce the proportion of the business 2-rate tariff. In 2016/17, the proportion of business 2-rate will reduce from 70% to 50% and the actual demand proportion will increase from 30% to

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50%. By July 2020, the transition will be complete.

Table 33 - Proposed 2016/17 low voltage business tariff actual demand Transition

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Supply rate	\$ p.a.	76.67	54.97	-21.70
Peak demand (Nov-March)	\$/kVA/mth	4.74	7.42	2.68
Shoulder demand (July-June)	\$/kVA/mth	2.38	3.71	1.33
Off-peak demand	\$/kW/mth	0.00	0.00	0.00
Peak usage rate	¢/kWh	13.79	10.46	-3.33
Off-peak usage rate	¢/kWh	6.67	6.09	-0.58

6.5.6 LV Unmetered supply tariffs

Proposed 2016/17 prices for the unmetered supply tariff customers are set out in Table 34 and Table 35.

Table 34 - Proposed 2016/17 Unmetered Overnight tariff

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Anytime usage rate	¢/kWh	7.27	6.87	-0.40

Table 35- Proposed 2016/17 Unmetered 24 hour Usage tariff

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Anytime usage rate	¢/kWh	7.27	6.87	-0.40

6.6 High Voltage Business tariff class

6.6.1 High voltage business 2-rate tariff (closed)

This tariff has been closed and the few customers using it will be reassigned to another appropriate HV tariff.

6.6.2 High voltage kVA demand tariff < 400 kVA

The proposed 2016/17 prices for high voltage demand tariff < 400 kVA business customers are the same as those for the low voltage agreed demand equivalent tariff in Table 33.

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There is also a variant to this tariff available for any sportsgrounds with significant floodlighting, as discussed in 6.5.3 above.

6.6.3 High Voltage kVA demand tariff

Table 32 contains the proposed 2016/17 prices for High Voltage kVA demand business tariff customers.

This tariff has a supply charge and a single block covering all of the old tariff's three blocks. Peak demand is measured between 12 noon and 9pm on work days between November and March.

Table 36 - Proposed 2016/17 high voltage business kVA demand tariff

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Supply rate	\$ p.a.	30,361.24	29,350.04	-1,011.20
Annual block 1 demand rate	\$/kVA/mth	7.72	7.06	-0.66
Additional demand	\$/kVA/mth	3.75	3.62	-0.13
Usage rate	¢/kWh	2.63	2.43	-0.20

6.7 Major Business tariff class

6.7.1 Zone substation kVA demand tariff

Table 37 contains the proposed 2016/17 prices for zone substation kVA demand business customers.

Peak demand is measured between 12 noon and 9pm on work days between November and March. The minimum level of agreed demand (annual plus additional) for this tariff is 5,000 kVA.

Table 37 - Proposed 2016/17 zone substation kVA demand business tariff

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Supply rate	\$ p.a.	0.00	0.00	0.00
Annual demand rate	\$/kVA/mth	6.41	5.80	-0.61
Additional demand	\$/kVA/mth	3.09	2.99	-0.10
Usage rate	¢/kWh	1.69	1.53	-0.16

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6.7.2 Zone substation kVA demand locational tariff

This tariff incorporates the distribution and PV FiT charges applied in the zone substation kVA demand tariff, with an individually calculated locational transmission charge for the major business. Sub-transmission kVA demand tariff

Table 38 contains the proposed 2016/17 prices for sub-transmission kVA demand business customers. It is used by those customers connected at sub-transmission that have not had a locational tariff defined for them. Peak demand is measured between 12 noon and 9pm on work days between November and March. The minimum level of agreed demand (annual plus additional) for this tariff is 5,000 kVA.

Table 38 - Proposed 2016/17 Sub-transmission kVA demand tariff

Charging Parameter	Units	Existing 2015/16	Proposed 2016/17	Variance
Supply rate	\$ p.a.	0.00	0.00	0.00
Annual demand rate	\$/kVA/mth	3.97	3.44	-0.53
Additional demand	\$/kVA/mth	0.65	0.63	-0.02
Usage rate	¢/kWh	1.13	0.99	-0.14

6.7.3 Sub-transmission kVA demand locational tariff

This tariff incorporates the distribution and PV FiT charges applied in the sub-transmission kVA demand tariff, with an individually calculated locational transmission charge for the major business.

7 Customer Impacts

In this Section, customer impacts are calculated for the individual components and the total of the proposed bundled NUoS tariffs in a simple and transparent manner. The use of these network tariffs results in customer impacts that include the following components:

- DUoS charges, for SA Power Networks' standard control services;
- Transmission cost recovery tariffs, to recover costs associated with ElectraNet's standard control services and any avoided TUoS payments made by SA Power Networks to embedded generators; and
- The PV Jurisdictional Scheme Amount, which recovers the cost of payments made by SA Power Networks for SA Government Feed-in Tariffs to customers with solar PV generators.

All of the customer impacts presented in this section are GST exclusive. Metering charges for SA Power Networks' alternative control services may also apply, but are not included in this analysis.

We have shown detailed outcomes for small customers in this section. Outcomes for large customers should be in line with that shown in the tariff class summaries shown in the previous section, at somewhere between a 5% and 6% saving.

7.1 Regulatory Requirements

7.1.1 Rules requirements

Rules clause 6.18.2 imposes a requirement for the Pricing Proposal to set out the nature of variations potential deviations from the published tariffs that may take place during 2016/17.

6.18.2 Pricing proposals

- (b) *A pricing proposal* must:
- (5) 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;

Clause 6.18.9 requires the publication of price trends over the 2015-20 regulatory control period and the reasons for expected variations.

6.18.9 Publication of information about tariffs and tariff classes

- (a) *A Distribution Network Service Provider* must maintain on its website:
- (3) a statement of expected price trends (to be updated for each *regulatory year*) giving an indication of how the *Distribution Network Service Provider* expects prices to change over the *regulatory control period* and the reasons for the expected changes.

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7.2 Overall price trends during the 2015-20 regulatory control period

The expected overall price trends over the course of the determination are built up from the following components:

- SA Power Networks' distribution prices for standard control services, in accordance with the AER's Final Decision of a revenue cap;
- Transmission related prices, using ElectraNet's 16 May 2016 pricing advice for 2016/17 prices; and

Forecasts for future period recovery of the SA Government PV FiT payments to qualifying generators under the JSA arrangement. At this time, we have not prepared any further forecast of forward prices beyond 2016/17. We have prepared detailed forecasts of prices through to 2019/20 in our TSS prepared in December 2015 which remain relevant today. We will be updating our forecast of future network prices as part of our TSS Revision in September 2016. We refer customers to these documents if they seek information on likely tariff price movements.

Table 39– SA Power Networks' DUoS charges (nominal \$, GST excl.)

Tariff	DUoS \$/MWh 2015/16	DUoS \$/MWh 2016/17
Residential	104	108
Residential and Hot Water	83	86
Business Single	105	108
Business 2-Rate	85	88
Business LV Actual Demand	92	95
Business LV Agreed Demand	54	56
Business HV Demand	36	37

In addition to SA Power Networks' distribution charges, the bundled NUoS price includes the pass-throughs of the transmission and SA Government PV feed-in payments as shown in Table 40.

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Table 40 – NUoS charges (nominal \$, GST excl.). Includes Pass-through costs for Transmission and SA Government PV Feed-In as well as SA Power Networks' charges

Tariff	NUoS \$/MWh 2015/16	NUoS \$/MWh 2016/17
Residential	154	152
Residential and Hot Water	124	123
Business Single	156	147
Business 2-Rate	129	121
Business LV Actual Demand	143	133
Business LV Agreed Demand	87	81
Business HV Demand	66	61

7.3 Variations to prices

Clause 6.18.2(b)(5) requires SA Power Networks to set out the nature of any variations and adjustments that could occur to tariffs during the course of future years. In addition, clause 6.18.9(a)(3) requires an indication of how SA Power Networks expects prices to change over the regulatory control period and the reasons for the expected changes. Given the Tariff Structure Statement will address tariff reform for 2017-20, we have only provided information for 2015/16 and 2016/17 in the sections that follow. Price information through to 2019/20 is available from our December 2015 TSS, and an update will be available in September 2016 in our Revised TSS.

The average price trends mask the variation in price that has taken place for individual customers. Each customer's price will vary depending upon their level of consumption, and for business customers, the load profile and monthly demand.

7.4 Low Voltage Residential tariff class

7.4.1 Low voltage residential tariff

The low voltage residential tariff has a single-rate with an inclining block structure and two consumption steps. The 2016/17 annual bill and price change for this tariff is shown in Table 41, for a range of different customer consumption levels.

The table shows NUoS being the impact of distribution, transmission and PV JSA FiT pass-throughs on the annual electricity bill. The table also shows (as DUoS) the SA Power Networks' related price changes that incorporated the AER's Final Decision for the 2015-20 regulatory control period. Note that the table does not include the Alternative Control Services Type 6 metering charge typically associated with this tariff.

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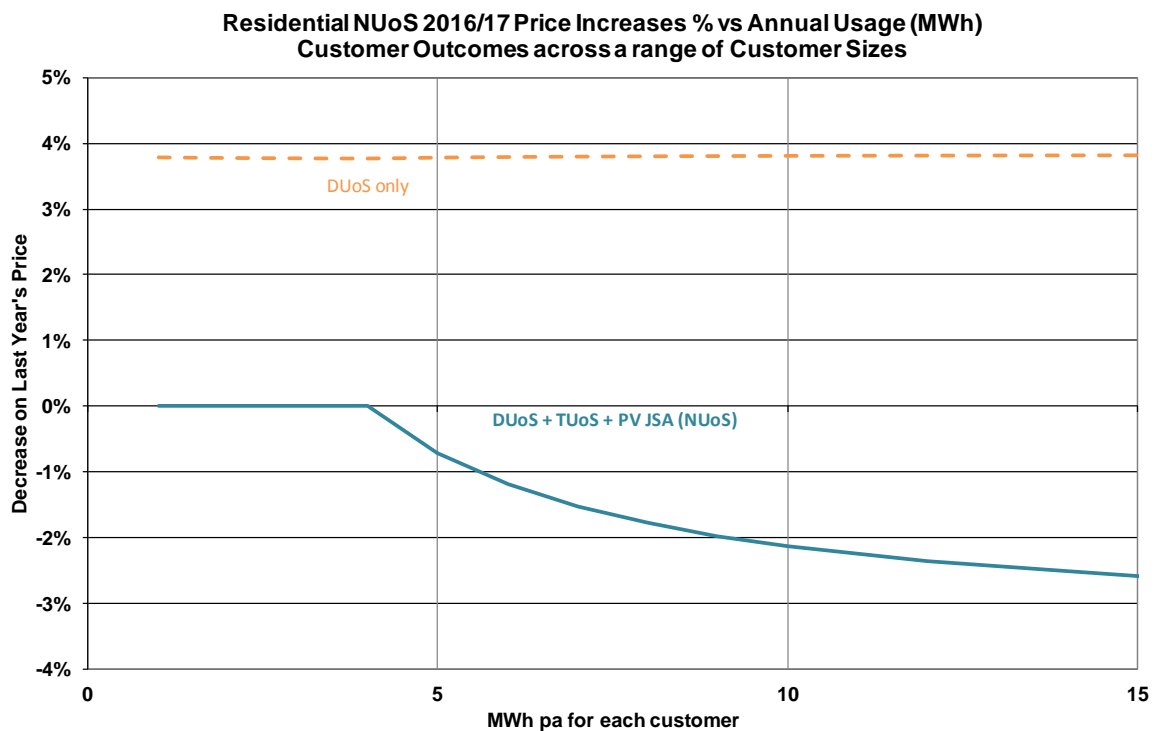
Table 41- Low voltage residential price change in 2016/17

Annual Usage MWh pa	NUoS 2015/16 \$ pa	NUoS 2016/17 \$ pa	Change in NUoS %	Change in Retail %	DUoS 2015/16 \$ pa	DUoS 2016/17 \$ pa	Change in DUoS %	Change in Retail %
2	345	345	0.0%	0.0%	243	252	3.8%	1.2%
4	580	580	0.0%	0.0%	392	407	3.8%	1.1%
5	732	727	-0.7%	-0.3%	491	509	3.8%	1.1%
8	1,189	1,168	-1.8%	-0.8%	788	818	3.8%	1.2%
16	2,408	2,344	-2.6%	-1.2%	1,580	1,640	3.8%	1.2%

Note: NUoS = DUoS + TUoS + PV JSA

Figure 12 illustrates how the effect of the price change varies with customers' annual energy consumption. Within this chart, the impacts of the DUoS change and the cumulative effects of the TUoS change and the PV JSA, recovered through NUoS are separately indicated.

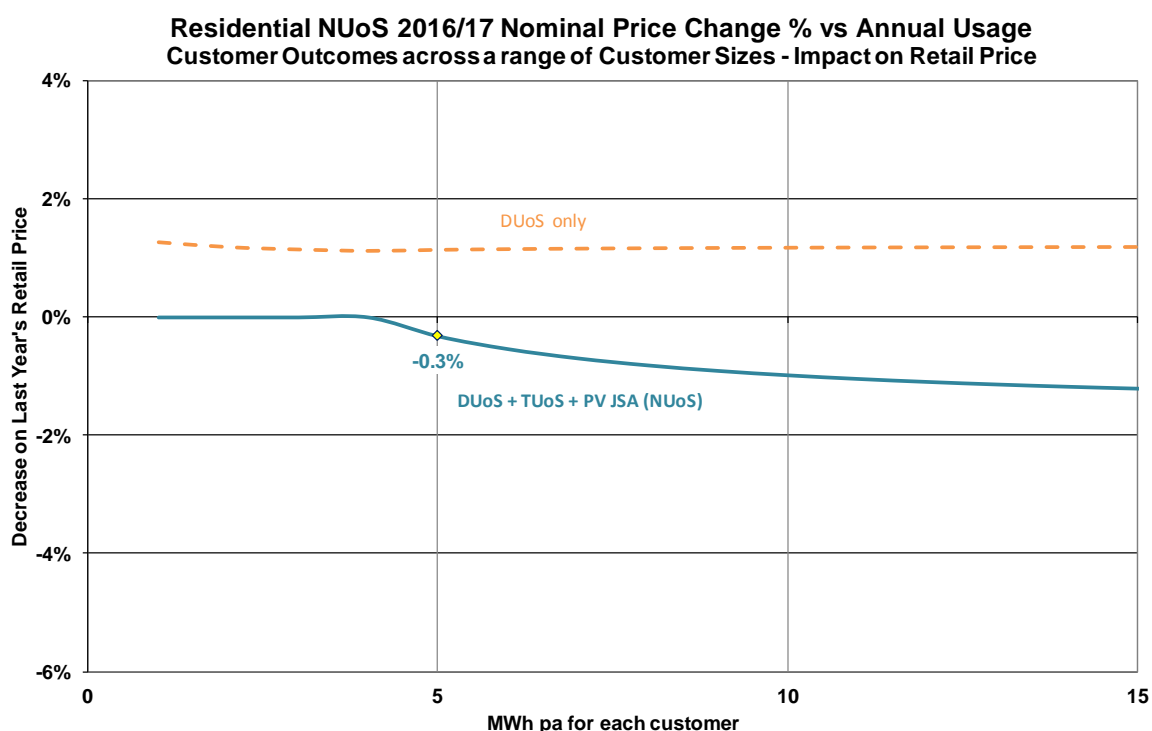
Figure 12 - Low voltage residential NUoS price change in 2016/17



The equivalent impact of the 2016/17 price change on the July 2015 AGL Standard Retail Contract Rates is shown in Figure 13.

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Figure 13 - Low voltage residential Retail price change in 2016/17



7.4.2 Residential with Controlled load tariff

The controlled load tariff has a single block. The 2016/17 annual bill and price change shown in Table 42 for residential customers with hot water, for a range of representative consumption levels. The table shows NUoS being the impact of distribution, transmission and PV JSA FiT pass-throughs on the annual electricity bill (inclusive of the retail charges). The table also shows (as DUoS) the SA Power Networks' related price changes.

Table 42 - Low voltage residential + hot water price change in 2016/17

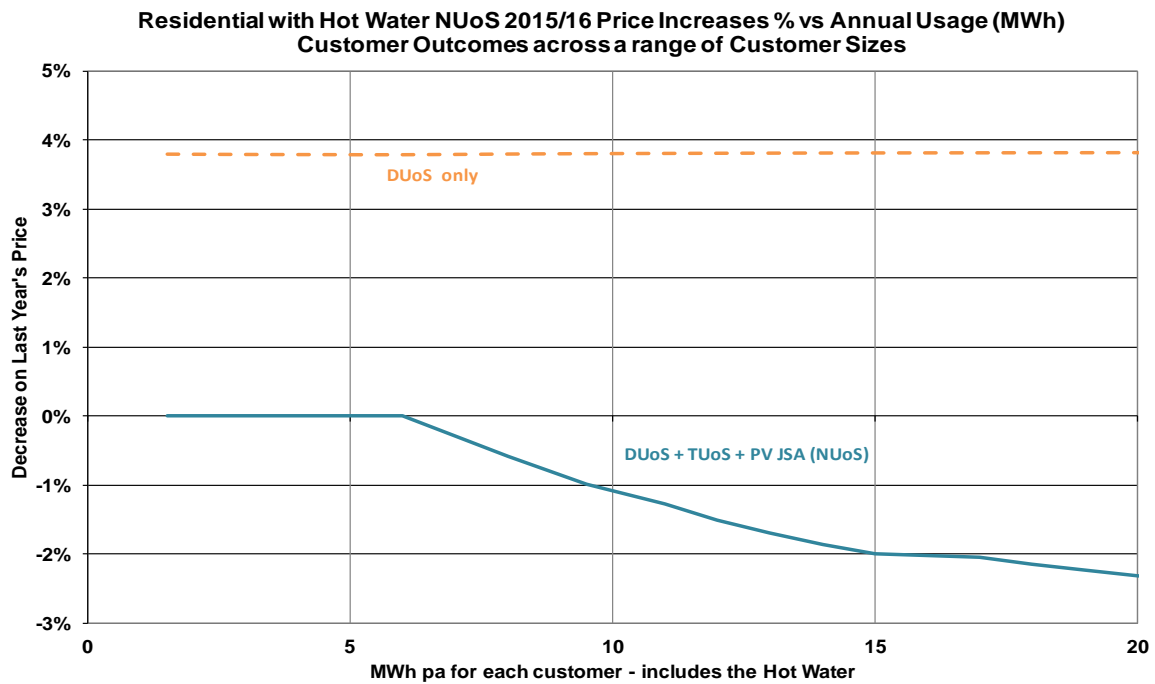
Annual Usage MWh pa	NUoS 2015/16 \$ pa	NUoS 2016/17 \$ pa	Change in NUoS %	Change in Retail %	DUoS 2015/16 \$ pa	DUoS 2016/17 \$ pa	Change in DUoS %	Change in Retail %
2 + 1	399	399	0.0%	0.0%	274	284	3.8%	1.1%
4 + 2	688	688	0.0%	0.0%	454	471	3.8%	1.1%
5 + 3	894	889	-0.6%	-0.3%	584	606	3.8%	1.1%
8 + 4	1,405	1,384	-1.5%	-0.7%	912	947	3.8%	1.1%
16 + 5	2,677	2,613	-2.4%	-1.1%	1,735	1,802	3.8%	1.1%

Note: NUoS = DUoS + TUoS + PV JSA

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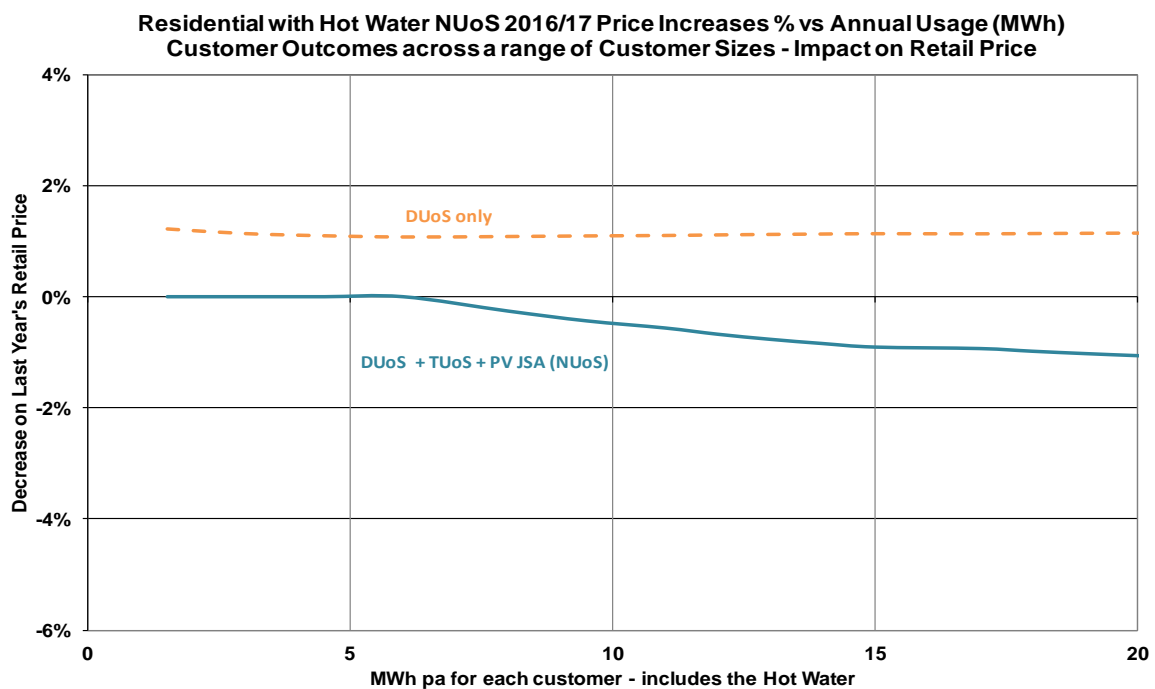
Figure 14 illustrates how the effect of the price change varies with customer's annual energy consumption where hot water is used. Within this chart, the impacts of the DUoS change and the cumulative effects of the TUoS change and the PV JSA, recovered through NUoS are separately indicated.

Figure 14 - Low voltage residential + hot water NUoS price change in 2016/17



The equivalent impact of the 2016/17 price change on the current July 2015 AGL Standard Retail Contract Rates is shown in Figure 15.

Figure 15 - Low voltage residential + hot water Retail price change in 2016/17



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7.5 Low Voltage Business tariff class

7.5.1 Low voltage business single rate tariff (obsolete)

The low voltage business single rate tariff has an anytime consumption charge with an inclining block structure and two consumption steps. Table 43 shows the 2016/17 annual bill and price change for this tariff, for a range of annual consumption levels.

The table shows NUoS being the impact of distribution, transmission and PV JSA FiT pass-throughs on the annual electricity bill (inclusive of the AGL transitional contract retail charges). The table also shows (as DUoS) the SA Power Networks' related price changes but excludes the Alternative Control Services Type 6 metering typically associated with this customer.

Table 43- Low voltage business single rate NUoS price change in 2016/17

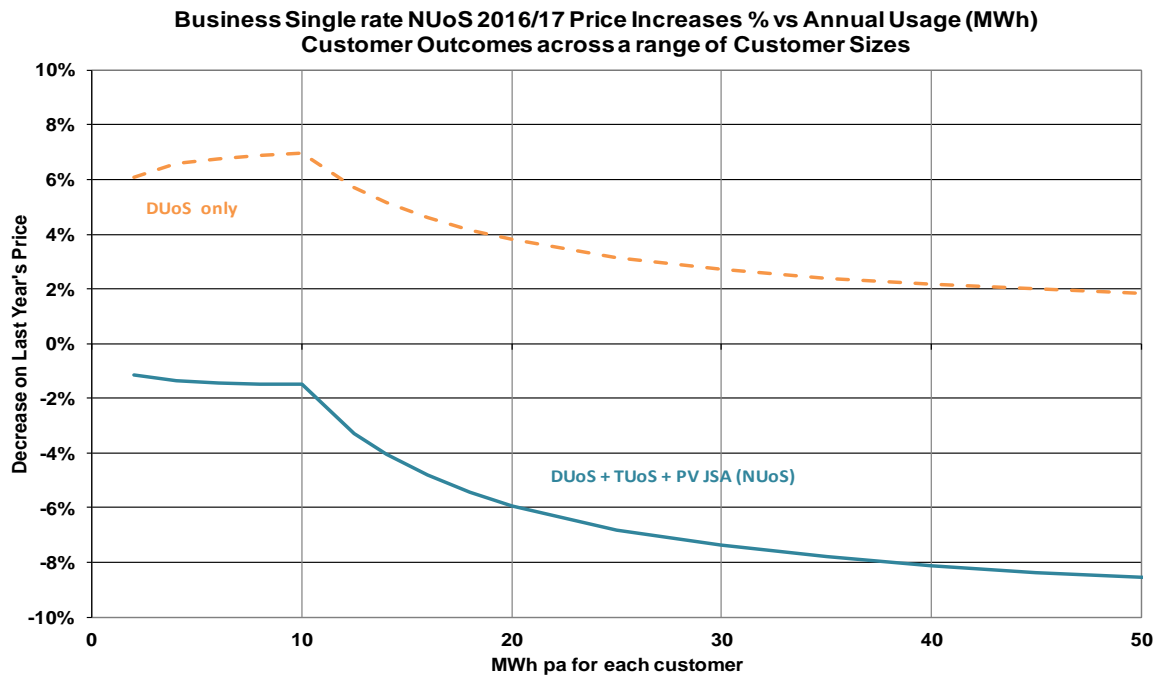
Annual Usage MWh pa	NUoS 2015/16 \$ pa	NUoS 2016/17 \$ pa	Change in NUoS %	Change in Retail %	DUoS 2015/16 \$ pa	DUoS 2016/17 \$ pa	Change in DUoS %	Change in Retail %
4	656	647	-1.3%	-0.6%	456	486	6.6%	2.0%
10	1,474	1,452	-1.5%	-0.7%	1,000	1,069	7.0%	2.1%
20	2,970	2,794	-5.9%	-2.6%	1,967	2,041	3.8%	1.1%
40	5,962	5,478	-8.1%	-3.7%	3,901	3,985	2.2%	0.6%
80	11,946	10,846	-9.2%	-4.2%	7,769	7,873	1.3%	0.4%

Note: NUoS = DUoS + TUoS + PV JSA

The price change versus annual consumption and the distribution of customers for the low voltage business single rate tariff is illustrated in Figure 16. Within this chart, the impacts of the DUoS change and the cumulative effects of the TUoS change and the PV JSA, recovered through NUoS are separately indicated.

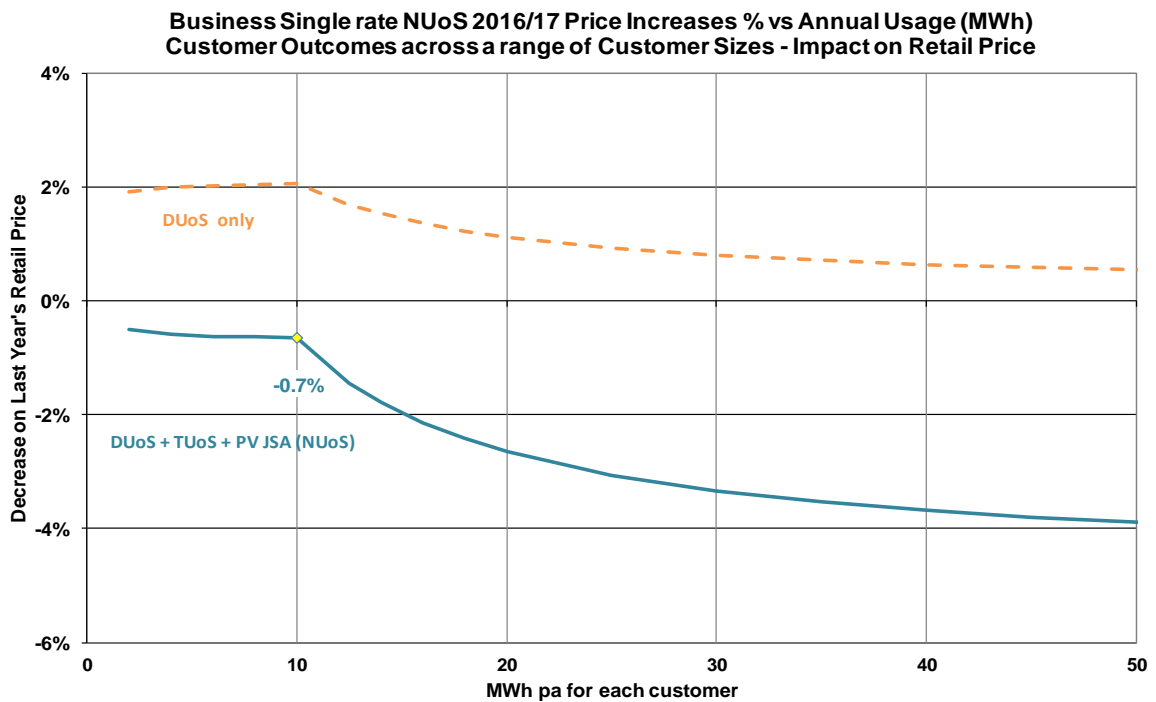
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Figure 16 - Low voltage business single rate NUoS price change in 2016/17



The equivalent impact of the 2016/17 price change on the July 2015 AGL Standard Retail Contract Rates for business single rate customers is shown in Figure 17.

Figure 17 - Low voltage business single rate Retail price change in 2016/17



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7.5.2 Low voltage business 2-rate tariff

The effect of the price change in 2016/17 for low voltage business 2-rate will depend upon the customer consumption profile, in particular the ratio of peak to off-peak period usage. Table 41 shows how the 2016/17 annual bill has changed for this tariff, for different customer consumption levels and average peak to off peak consumption proportions of 50%.

Table 44 shows NUoS being the impact of distribution, transmission and PV JSA FiT pass-throughs on the annual electricity bill (inclusive of the AGL transitional tariff retail charges). The table also shows (as DUoS) the SA Power Networks' related price changes but excludes the Alternative Control Type 6 metering charge typically associated with this customer.

Table 44 - Low voltage business 2-rate NUoS price change in 2016/17

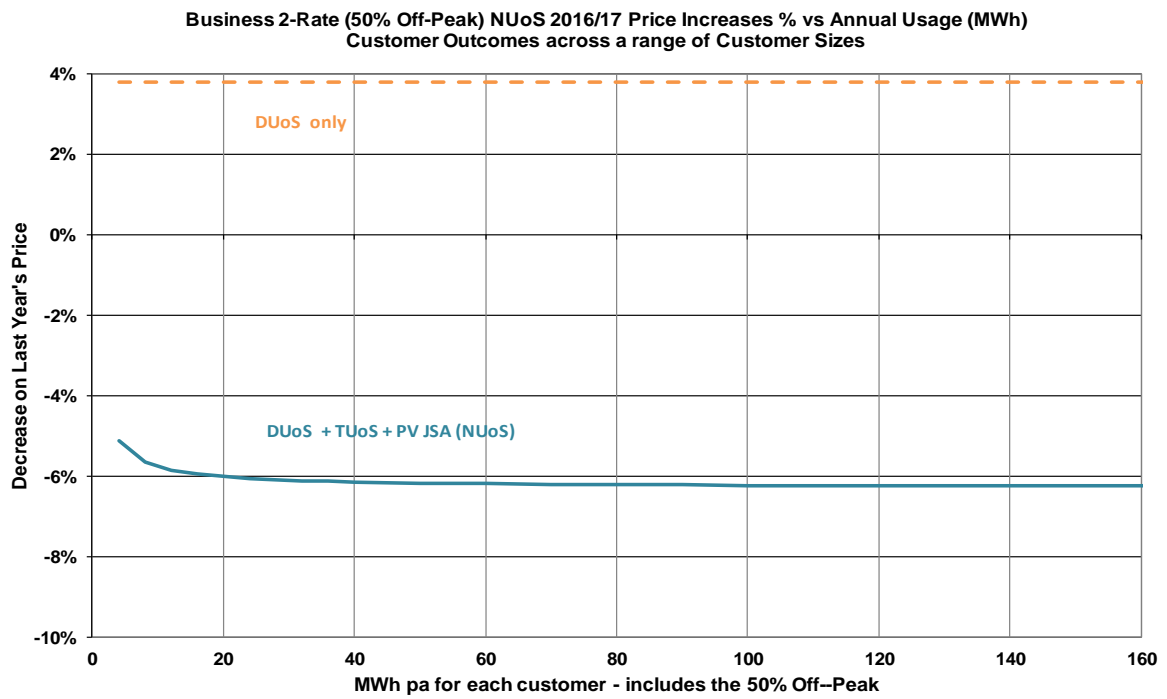
Annual Usage MWh pa	NUoS 2015/16 \$ pa	NUoS 2016/17 \$ pa	Change in NUoS %	Change in Retail %	DUoS 2015/16 \$ pa	DUoS 2016/17 \$ pa	Change in DUoS %	Change in Retail \$
8	1,090	1,028	-5.7%	-2.5%	728	756	3.8%	1.1%
20	2,559	2,405	-6.0%	-2.7%	1,680	1,743	3.8%	1.1%
50	6,232	5,847	-6.2%	-2.8%	4,059	4,212	3.8%	1.1%
100	12,355	11,585	-6.2%	-2.8%	8,024	8,327	3.8%	1.1%
160	19,702	18,470	-6.3%	-2.8%	12,782	13,265	3.8%	1.1%

Note: NUoS = DUoS + TUoS + PV JSA

A chart displaying the bill impact vs customer consumption is shown in Figure 18. Within this chart, the impacts of the DUoS change and the cumulative effects of the TUoS change and the PV JSA, recovered through NUoS are separately indicated.

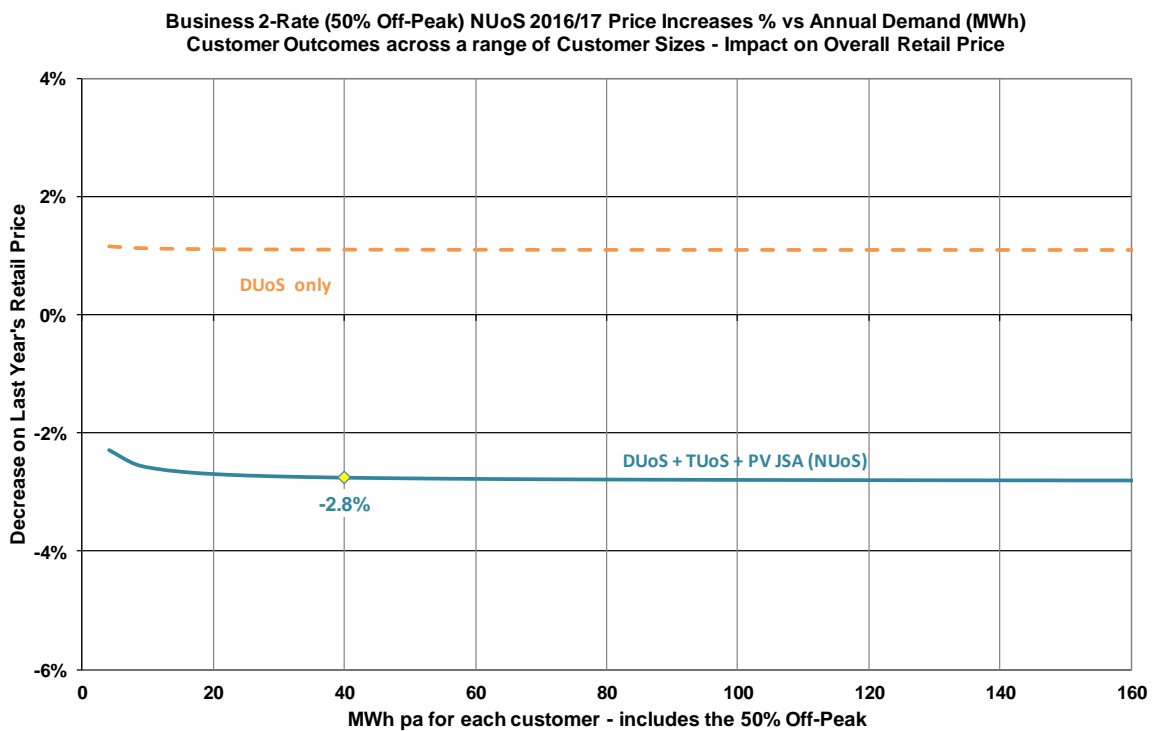
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Figure 18 - Low voltage business 2-rate NUoS change in 2016/17, 50% peak consumption



The equivalent impact of the 2016/17 price change on the July 2015 AGL Standard Retail Contract Rates for business two rate customers is shown in Figure 19.

Figure 19 - Low voltage business 2-rate Retail change in 2016/17, 50% peak consumption



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Some business 2-rate customers use more than 50% of their energy during peak times. These customers will receive a slightly smaller price decrease than indicated above. Other customers use more than 50% of their energy in off-peak times and will receive a larger decrease. Off-peak NUoS prices were held at the low 2015/16 price level whilst peak prices were reduced from a high price level. Figures 20 and 21 below indicate the outcomes for customers using 75% of their energy in off-peak times.

Figure 20 - Low voltage business 2-rate NUoS change in 2016/17, 25% peak consumption

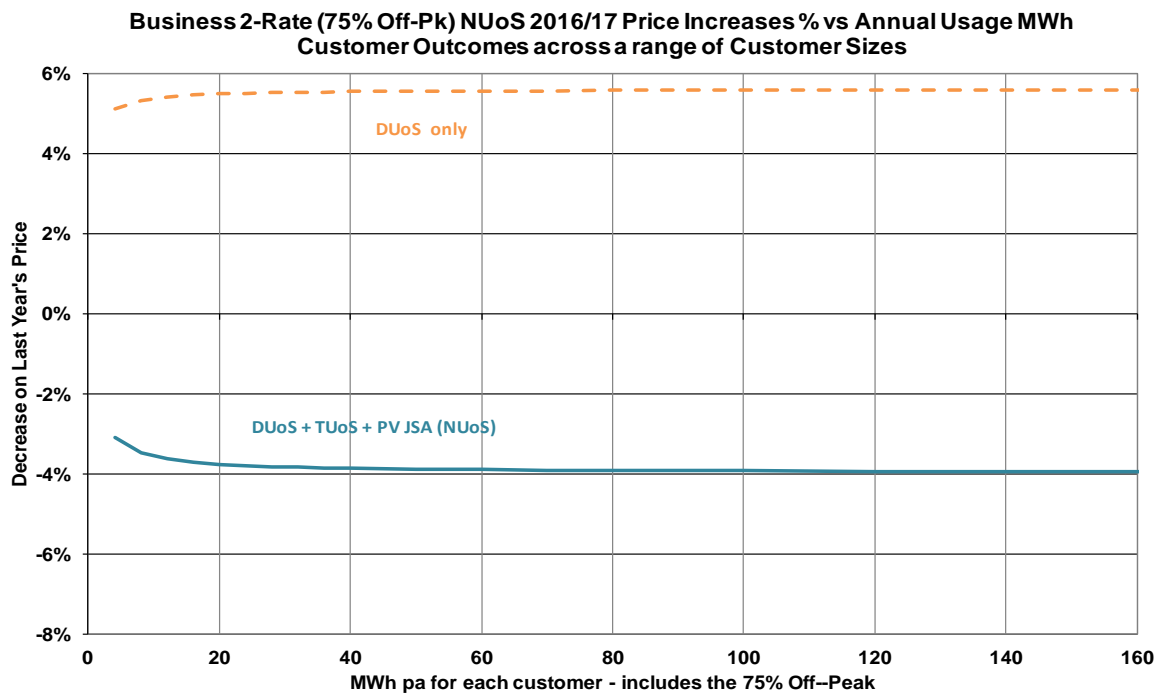
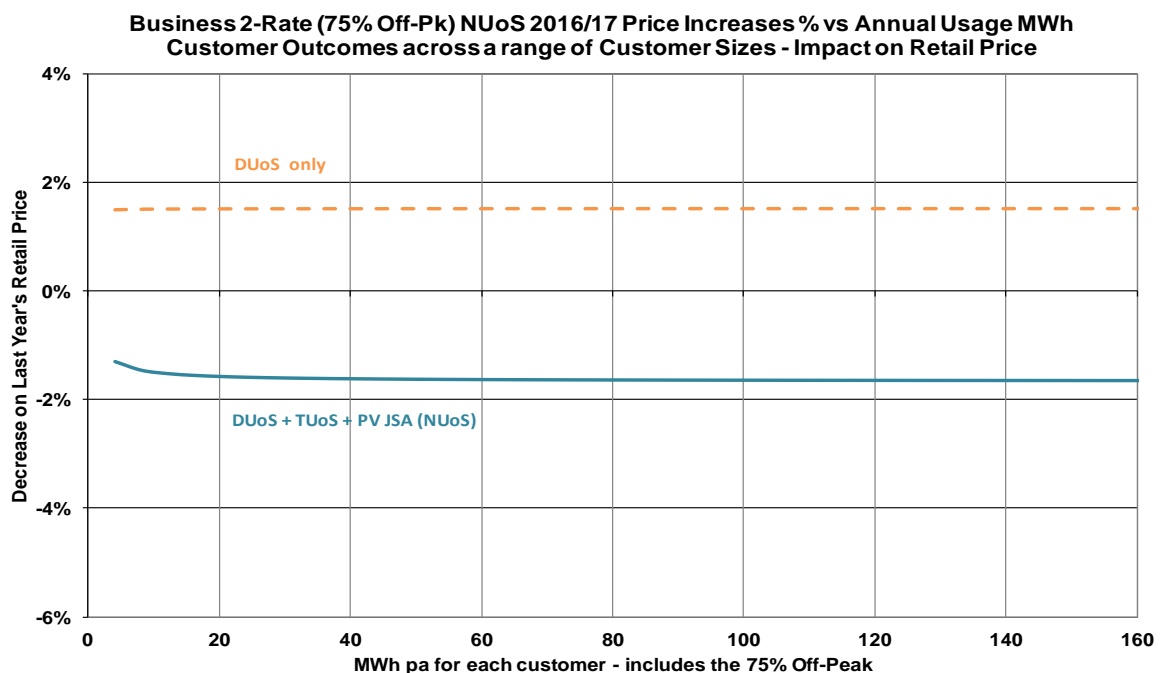


Figure 21 - Low voltage business 2-rate Retail change in 2016/17, 25% peak consumption



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7.5.3 Low Voltage kVA agreed demand/actual demand/transition actual demand tariff

The average NUoS price decrease of low voltage kVA cost-reflective customers in 2016/17 is 6%.

7.6 High Voltage Business tariff class

7.6.1 High voltage kVA agreed demand < 400 kVA tariff

The rates of the high voltage < 400 kVA and the low voltage kVA agreed demand tariffs are the same. The information in Section 7.5.3 above mimics the outcome for these customers.

7.6.2 High Voltage kVA agreed demand/actual demand tariff

The average NUoS price decrease of high voltage kVA agreed demand customers in 2016/17 is 5.4%.

7.7 Major Business tariff class

7.7.1 Zone substation and Sub-transmission kVA agreed demand locational tariffs

There is little variability between the individual price changes for these customers and the averages for the tariff. The average DUoS/PV FiT price change for these major businesses in 2016/17 is a decrease of -3%.

8 Pricing of standard control services

This Section demonstrates how SA Power Networks' network tariffs for 2016/17 comply with the requirements of the Rules and the AER's Preliminary Decision in respect of the pricing X factors, side constraints and pricing principles.

8.1 Regulatory requirements

8.1.1 Rules requirements

Rules clause 6.18.2(b) specifies that SA Power Networks' Pricing Proposal must contain information concerning the expected revenue to be derived from its tariff classes and tariffs, as follows.

6.18.2 Pricing proposals

- (b) A pricing proposal must:
- (4) 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*; and

In setting its prices for standard control services, clause 6.18.5 of the Rules requires SA Power Networks to comply with the following pricing principles.

6.18.5 Pricing principles

- (a) For each *tariff class*, the revenue expected to be recovered should lie on or between:
- (1) an upper bound representing the stand alone cost of serving the customers who belong to that class; and
 - (2) a lower bound representing the avoidable cost of not serving those customers.
- (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.

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In respect of pricing side constraints, SA Power Networks is required to comply with clause 6.18.6 of the Rules:

6.18.6 Side constraints on tariffs for standard control services

- (a) This clause applies only to *tariff classes* related to the provision of *standard control services*.
- (b) The expected weighted average revenue to be raised from a *tariff class* for a particular *regulatory year* of a *regulatory control period* must not exceed the corresponding expected weighted average revenue for the preceding *regulatory year* by more than the permissible percentage.
- (c) The permissible percentage is the greater of the following:
 - (1) the CPI-X limitation on any increase in the *Distribution Network Service Provider's* expected weighted average revenue between the two *regulatory years* plus 2%;
Note:
The calculation is of the form $(1 + \text{CPI})(1 - X)(1 + 2\%)$
 - (2) CPI plus 2%.
Note:
The calculation is of the form $(1 + \text{CPI})(1 + 2\%)$
- (d) In deciding whether the permissible percentage has been exceeded in a particular *regulatory year*, the following are to be disregarded:
 - (1) the recovery of revenue to accommodate a variation to the distribution determination under rule 6.6 or 6.13;
 - (2) the recovery of revenue to accommodate pass through of charges for *transmission use of system services* to customers.
- (e) This clause does not, however, limit the extent a tariff for customers with remotely-read interval metering or other similar metering technology may vary according to the time or other circumstances of the customer's usage.

8.1.2 Requirements of the AER's Decision

The principal elements of the AER's Preliminary Decision are set out in Attachment 14 (Control Mechanisms) Decision and form the major determinants of prices for standard control services for 2016/17. Section 3.3 of this Pricing Proposal sets out the specific formulae.

8.2 2016/17 prices for standard control services

The fundamental pricing criteria that SA Power Networks has factored into this Pricing Proposal are that prices should be set to recover the allowed revenue of \$733.57M assuming forecast quantities.

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SA Power Networks has determined the likely sales volumes by customer segment for 2016/17 and utilised them in the sales forecast attached to this proposal.

We have included the STPIS incentive outcomes from 2013/14 (a 1.25% penalty) and 2014/15 (a 3.0% reward). After adjusting for the change in revenue levels from 2010-15 to 2015-20, the net reward of 1.75% becomes a reward of 2.237%. CPI has been included at 1.69% along with a negative X of -7.13% from the AER's Final Decision, after allowing for the change in cost of debt issued in April 2016.

We have also allowed for an estimated over-recovery of 2015/16 revenues by \$24.5 M.

8.3 Compliance with the Revenue Cap

The AER's Revenue Cap model has been used and amended for the purposes of demonstrating compliance with the provisions of the 2015-20 Revenue Cap. This model is submitted as Appendix G (confidential) and forms part of this Pricing Proposal.

8.4 Tariff class side constraints

8.4.1 Tariff class movement side constraint

The maximum increase in distribution charges is determined by a side constraint equation shown in Table 45.

Table 45 – Side constraint equation

Criterion	2016/17 Value %
Consumer Price Index	1.69
X Factor	-7.13
S Factor	2.24
I Factor	0.00
B Factor	-3.33
C Factor	0.00
Side $C(1+CPI)x(1-X)x(1+2\%)+I+B+C-1$	10.27

Table 46 in section 8.4 below shows that all tariff class increases in 2016/17 are well below the 10.28% increase permitted by the side constraint rule.

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Table 46 – DUoS using forecast quantities for 2016/17 at 2015/16 and 2016/17 prices

Tariff class	2015/16 Revenue \$'000	2016/17 Revenue \$'000	Change in weighted average revenue %	Side constraint %
Major Business	9,559	9,953	4.1	10.3
HV Business	32,868	34,139	3.9	10.3
Large LV Business	187,286	194,595	3.9	10.3
Small Business	123,143	127,655	3.7	10.3
Residential	353,767	367,166	3.8	10.3
Total	706,624	733,507	3.9	10.3

8.4.2 Fixed supply charge side constraint for small customers

In the transitional Rules, Clause 9.29.5(d) limited the maximum increase in the fixed supply charge component for small customers to \$10 per annum. This obligation no longer applies from July 2015. However, we have attached Table 47 below to show that, despite the removal of the fixed charge side constraint for small customers, the annual supply charge has been retained at 2015/16 prices.

The fixed NUoS charges for small customers are illustrated in Table 47.

Table 47 – Compliance with the fixed charge side constraint for small customers

Tariff class	2015/16 Fixed charge		2016/17 Fixed charge		Difference
	¢ / day	\$ p.a.	¢ / day	\$ p.a.	\$ p.a.
LV Residential					
DUoS	25.630	93.81	26.680	97.38	3.58
TUoS	0.000	0.00	0.000	0.00	0.00
PV JSA	4.410	16.14	3.442	12.56	-3.58
Total	30.040	109.95	30.122	109.95	0.00
LV Business					
DUoS	25.630	93.81	26.680	97.38	3.58
TUoS	0.000	0.00	0.000	0.00	0.00
PV JSA	4.410	16.14	3.442	12.56	-3.58
Total	30.040	109.95	30.122	109.95	0.00

8.5 Compliance with pricing principles

This Section demonstrates SA Power Networks' compliance with the pricing principles set out in clause 6.18.5 of the Rules, which requires SA Power Networks to ensure that the revenue recovered for each tariff class lies between:

- An upper bound, representing the stand-alone cost of serving the customers who belong to that class; and
- A lower bound, representing the avoidable cost of not serving those customers.

The Stand-alone and Avoidable cost methodologies are described in detail in Appendix F of this Proposal. These approaches are used to calculate the revenues for each standard control services tariff class associated with each cost methodology. These costs are compared with the weighted average revenue derived from SA Power Networks' proposed tariffs.

8.5.1 Definition of Stand-alone and Avoidable costs

These two categories of cost may be defined for tariff classes, as follows:

- The **Stand-alone cost** for a tariff class is the cost of supplying only the tariff class concerned, with all other tariff classes not being supplied. If customers were to pay above the stand-alone cost then it would be economically beneficial for customers to switch to an alternative provider, and economically feasible for an alternative provider to operate. This creates the possibility of inefficient bypass of the existing infrastructure; and
- The **Avoidable cost** for a tariff class is the reduction in network cost that would take place if the tariff class were not supplied (whilst all other tariff classes remained supplied). If customers were to be charged below the avoidable cost, it would be economically beneficial for the business to stop supplying the customers and as the associated costs would exceed the revenue obtained from the customer.

There are two alternative concepts that could be used to calculate these costs:

- To ignore the sunk nature of the existing network and estimate the costs which would be associated with an optimally designed network, constructed to supply standard control services to the tariff class(es) concerned; or
- To base the estimation of costs on the modification of the existing network to provide standard control services to the tariff class(es) concerned

The Rules do not prescribe the methodology that should be used to calculate the Stand-alone and Avoidable costs of tariff classes of the network. SA Power Networks has chosen to base its cost estimations on the second concept, with hypothetical modification of the existing network, rather than by devising and costing optimal new network structures. This has been done for two reasons:

- To avoid the very substantial resource requirements that would be involved in a full network redesign; and
- In recognition that the economic regulatory framework for distribution supports the

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existence and value of existing (sunk) network investments and does not support the optimisation of existing networks.

The derivation of the stand-alone and avoidable cost for tariff classes uses a methodology based on SA Power Networks' cost of supply model. This model has been in use for a decade and was formulated to permit the efficient allocation of network costs to tariff classes and the formulation of network prices. The cost allocation model has been adapted to include the allocation of non system costs to tariff classes.

This model is described in the following Sections. This approach was independently reviewed by KPMG, and certified to be compliant with the Rules in 2010. The approach has not been altered from that used in the 2010/11 Pricing Proposal and the sole change has been to index the outcomes by CPI each year.

8.6 Stand-alone costs

The stand-alone cost for each tariff class was derived from an engineering estimate of the proportions of the cost of providing network capacity that would need to remain in place to service the load in each of the four tariff classes in turn if the other three tariff classes were no longer required to be supplied.

The resulting cost allocation for each tariff class has been expressed in \$/kVA, using the estimated coincident contribution to SA Power Networks' peak system demand and after adjustment for the average power factor of the tariff class.

The detailed procedure used to calculate the stand-alone cost of tariff classes is set out in Appendix F of this Pricing Proposal.

8.7 Avoidable costs

In similar manner to the stand-alone cost, the avoidable cost associated with each of the four tariff classes were derived from an engineering estimate made of the network cost that could be avoided, in the event that each of the four tariff classes were to be removed in turn.

As with the stand-alone cost, the avoidable network cost was expressed in \$/kVA for each tariff class. The procedure used to calculate the avoidable cost of tariff classes is also set out in Appendix F of this Pricing Proposal.

8.8 Compliance with Rules clause 6.18.5(a)

The revenue expected to be recovered from each of SA Power Networks' tariff classes in 2016/17 is compared with the stand-alone and avoidable costs calculated in Sections 8.6 and 8.7 in Table 48.

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Table 48 - Stand-alone and avoidable distribution network costs (\$ M)

Tariff class	Stand-alone cost	Tariff revenue	Avoidable cost
Major business	\$91	\$10	\$5
HV business	\$102	\$34	\$4
Large LV business	\$244	\$195	\$35
Small business	\$308	\$128	\$54
LV residential	\$641	\$367	\$255

SA Power Networks' tariff classes lie within the subsidy free range, in that the expected DUoS revenue collected from each tariff class lies between the avoidable and stand alone costs of supply and therefore meet the requirements of Section 6.18.5(a) of the Rules.

8.9 Long Run Marginal Costs

In the context of an infrastructure business with assets lives of typically 40 years, short run costs are effectively zero up to the point where the capacity of the network is exceeded. It is therefore important to use the Long Run Marginal Cost (LRMC) in any consideration of the marginal cost of providing network service.

There are three general approaches to the calculation of LRMC. Marsden Jacob Associates articulated these alternatives in its review of possible approaches, for the Queensland Competition Authority. This review was undertaken in the context of determining efficient prices for the Gladstone Area water Board. The alternatives are as follows³¹:

- **Marginal Incremental Cost (MIC)** - where a scenario involving increased demand is tested for its incremental effect on capex. The associated marginal cost is calculated as the difference between the present value of the investment programs divided by the increment in demand;
- **Average Incremental Cost (AIC)** - is the present value of the incremental investment associated with increasing demand divided by the present value of the increment in demand; and
- **Long Run Incremental Cost (LRIC)** - is the annuitised value of the capital expenditure divided by the increment in demand.

In comparing the suitability of these three approaches, the first requires scenario definition and analysis, which although not impracticable would be very resource intensive in the context of a distribution business. Marsden Jacob make the point that because the AIC approach is based on a long term planning period, it takes a longer view of costs and provides more stable prices than the

³¹ Marsden Jacob Associates, Estimation of Long Run Marginal Cost (LRMC) - A report prepared by the Queensland Competition Authority - Final, 3 November 2004

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LRIC approach³².

The approach used by SA Power Networks in this Pricing Proposal to determine the LRMC of its tariff classes may be characterised as the AIC. However, the calculation has been extended to incorporate the incremental operating cost associated with new capital investment.

SA Power Networks' approach to the calculation of the network LRMC for its tariff classes is set out in Appendix E of this Proposal. The approach has not been altered from that used in the 2010/11 Pricing Proposal and the sole change has been to index the outcomes by CPI each year.

These calculations are carried out at the following voltage levels of the network:

- Sub-transmission;
- High voltage; and
- Low voltage.

The marginal cost at each network voltage level has been determined using the following relationship:

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

Where:

growth related capex is the annualised capital expenditure to meet the additional demand and new customer connections forecast over the forecast period;

growth related opex is the incremental annual cost of operating and maintaining the newly constructed network and connection assets over the forecast period; and

incremental demand is the forecast change in kVA demand compared with the base year of 2009/10

The LRMC outcomes at the sub-transmission and high voltage levels are directly applicable to the Major Business and High Voltage Business tariff classes. At low voltage, a small difference between the LRMC of the Low Voltage Business and Residential tariff classes arises because of their different power factors.

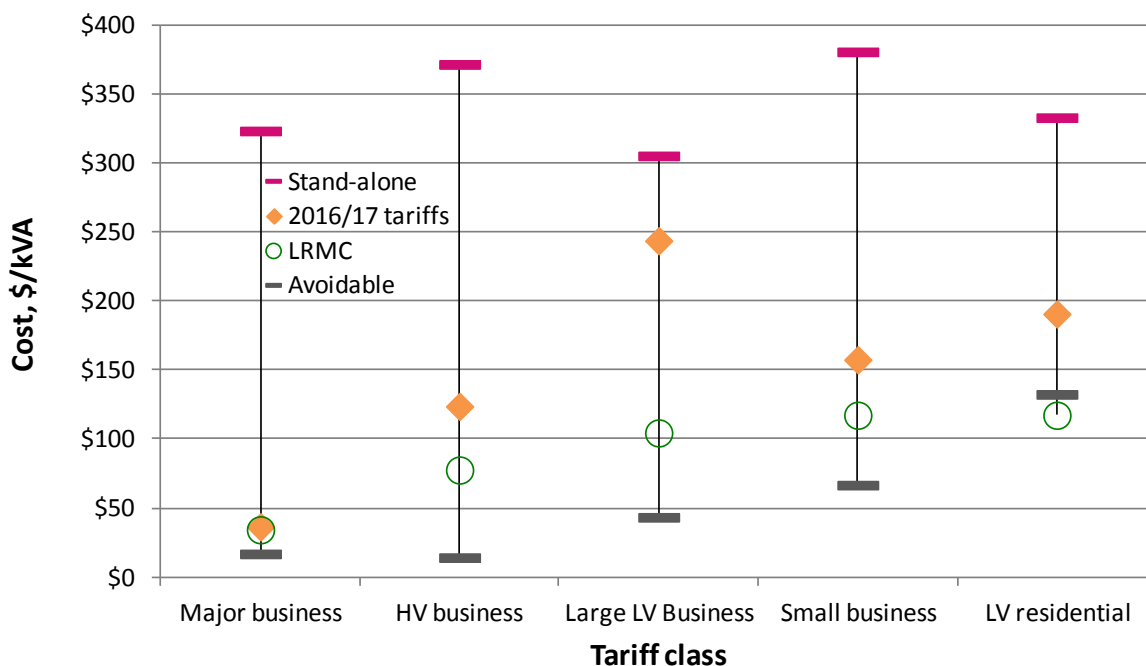
A comparison of the stand-alone, avoidable, LRMC and 2016/17 tariff rates for SA Power Networks' five tariff classes are shown in Figure 22³³.

³² Marsden Jacob, LRMC, November 2004, p.16.

³³ The stand-alone, 2015/16 tariff and avoidable tariff class rates are expressed as their \$ contribution divided by the forecast coincident peak kVA for SA Power Networks' system demand in 2015/16, with a 10% PoE.

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Figure 22 - Cost comparison (\$/kVA per annum)



It can be noted from Figure 22 that:

- The 2016/17 prices for each network tariff class fall within the bounds of the stand-alone and avoidable costs and hence are subsidy-free;
- The LRMC of each tariff class determined from the approach described above yields a cost that is less than that expected to be recovered through the 2016/17 prices in the case of all tariff classes. The tariffs therefore do not over signal the incremental cost imposed by the customer on the network; and
- For the formulation of these estimates, kVA peak demands coincidental with SA Power Networks' peak were estimated for each tariff. In the case of the low voltage business tariff class, its relatively lower contribution to SA Power Networks' coincidental peak demand (compared with residential tariff which tends to drive a greater proportion of the overall peak) has resulted in a tariff rate which is higher in \$/kVA terms.

8.9.1 Application of the LRMC to price formulation

As required by clauses 6.18.5(b)(1) and 6.18.5(c) of the Rules, SA Power Networks has taken into account the calculated values of LRMC in establishing the charging parameters for each of SA Power Networks' 2016/17 network tariffs.

Charging parameters of tariffs that are related to volume may be expected to influence customers' consumption decisions. Those parameters are:

- Monthly demand;
- Peak period energy; and
- To a much less significant extent, anytime energy.

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On the other hand, charging parameters that are effectively fixed would be unlikely to affect customer consumption patterns, throughout a very broad range.

SA Power Networks' tariffs for larger business customers have a ToU structure, having demand charges that apply or are higher during a defined peak consumption period. Business 2-rate has energy charges that are higher during what has traditionally been regarded as peak times although these are poorly targeted by applying all year for 14 hours every work-day. The TSS tariff reform will see such tariffs progressively replaced by monthly actual demand tariffs.

The revenue that is forecast to be recovered in 2016/17 from these peak period business kVA demand and 2-rate tariff components is compared with the LRMC for tariff classes in Table 49 and Table 50. These tables illustrate the proportions of tariff revenue recovered from peak period demand charges and peak energy usage rates.

In order to convert the price signalling components of tariffs to the equivalent annual \$/kVA charges in this price comparison, the revenue per annum derived from the application of each price component during peak periods was divided by the kVA demand for the tariff. The associated calculations are described in Appendix E.

Table 49 - LRMC and volume related charging parameters for Time of Use

	Major Business tariff class			HV Business tariff class	LV Business tariff class	
	Sub-trans	Zone sub (loc TUoS)	Zone Sub			
	kVA demand				2-rate	
LRMC \$/kVA/yr	34	34	34	78	117	117
Price signalling						
Peak demand rate \$/kVA/yr	7	33	33	47	76	-
Peak energy rate \$/kVA/yr	4	20	18	28	38	170
Total peak charge \$/kVA/yr	11	53	51	75	114	170

Note: Energy rate is charged in \$/MWh but is expressed here in equivalent \$/kVA terms over the period of peak demand. The revenue recovery forecast by each charge during the peak period is divided by the associated peak kVA demand.

The equivalent LRMC and revenue information for SA Power Networks' single rate energy tariffs is illustrated in Table 50. For the purpose of estimating an equivalent \$/kVA rate, it was assumed that all traditional peak energy (ie 0700-2100 work days) should be used. This is a broad definition that reflects a historic view of the peak, but it doesn't reflect the true peak demand periods of the low voltage network.

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If the Peak energy rate of \$/kVA/year was to be amended to better reflect the proportion of tariff charged at true times of peak demand, then that number would only be a small fraction of that shown below, around 5% to 10% depending on assumptions. This reflects the lack of granularity available from energy-based charges when dealing with an occasional demand spike, as experienced in South Australia where during mild weather an extreme weather event can occur. The residential monthly demand tariff has a summer demand charge of about \$85/kW (\$10.56/kW over 5 months, for a typical customer with 50% diversity and 80% average monthly demand vs peak) and a winter demand charge of about \$60/kW (\$5.28/kW over 7 months, for a typical customer with 50% diversity and 80% average monthly demand vs peak). This is much closer to the LRMC figures than the existing energy usage tariff. The balance of charges is recovered by a usage charge on the residential actual demand tariff.

Table 50 - LRMC and volume related charging parameters for single rate

	LV Business tariff class		Residential tariff class
	Single rate	Unmetered	Residential + CL
LRMC \$/kVA/yr	117	117	117
Price signalling			
Energy rate \$/kVA/yr	129	166	113

Note: Energy rate is charged in \$/MWh but is expressed here in equivalent \$/kVA terms over the period of peak demand. The revenue recovery forecast by each charge during the peak period is divided by the associated peak kVA demand.

The way in which the tariff class LRMC has been taken into account by SA Power Networks in establishing the 2016/17 tariff components has involved the following considerations:

- **Ensuring that price signalling components do not over signal the LRMC:** As customers' consumption decisions will be influenced by the charging parameters of tariffs related to volume, SA Power Networks has confirmed that, expressed on a common basis, the price signalling tariff components have all been set less than the LRMC of supply. The network tariffs will therefore not over-signal the marginal cost of supply;
- **Use of price signalling components where practicable:** Where permitted by the metering arrangements, volume related charges that reflect the customers' demand or incremental energy consumption have been used to improve signalling of the tariff class LRMC; and
- **Revenue recovery through non-distortionary charging parameters:** For each tariff, price signalling charging parameters recover a proportion of the total revenue during peak consumption periods. The balance of revenue recovery takes place in the least distortionary manner possible, through fixed supply charges and through the single rate energy rates that apply during off peak periods.

SA Power Networks' 2016/17 tariffs have therefore been established in compliance with the provisions of clauses 6.18.5(b)(1) and 6.18.5(c) of the Rules.

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8.10 Transaction costs

Clause 6.18.5(b)(2)(i) of the Rules requires SA Power Networks to have regard to the transaction costs arising from its network tariffs, by limiting the complexity of tariff structures and the number of charging parameters within each tariff. The charging parameters applicable to each tariff are provided in Section 6 of this Pricing Proposal.

SA Power Networks has simplified the legacy tariffs (residential usage, controlled load, business single and business 2-rate) and has also reduced the number of significant values in each tariff element. This should reduce some transaction costs and improve the comprehension of these tariffs by customers.

8.11 Customer response to price signals

SA Power Networks is required to have regard to the ability of customers to respond to the price signals provided by its network tariffs, in accordance with clause 6.18.5(b)(2)(ii) of the Rules. The efficiency gains of marginal cost pricing are realised when a tariff based on the marginal cost of supply induces the customer to make behavioural change.

To the extent possible within the limitations imposed by network tariff structures and metering constraints, SA Power Networks signals the long run marginal cost of supply through those tariff charging parameters with the greatest price elasticity of demand, namely the variable consumption charges that are based on the customers energy use and maximum demand.

In relation to the operation of clause 6.18.5(c) of the Rules, it is noted that SA Power Networks' current estimate of LRMC falls near most of the price signalling charging parameters for most of the tariff classes, as described in Section 8.9.

If the price signalling charging parameters alone (which were set taking into account the LRMC) were used, the revenue for each tariff class would be insufficient to recover the expected revenue. The revenue shortfall is recovered through the use of tariff components which would cause minimal distortion in efficient patterns of consumption, namely:

- Fixed charges; and
- Anytime energy charges during off peak periods.

SA Power Networks is therefore compliant with this Rules provision. We will be undertaking further analysis of our pricing structures as part of the Revised Tariff Structure Statement submission, due for lodgement in September 2016. We will also be updating our calculations of LRMC for that submission.

9 Distribution cost recovery tariffs

This Section sets out the procedures that SA Power Networks will follow to enable the recovery of distribution related charges.

9.1 Regulatory Requirements

9.1.1 Rules requirements

SA Power Networks' Pricing Proposal is required under clause 6.18.2(b) of the Rules to set out how the DUoS charges it incurs are passed on to customers.

6.18.2 Pricing proposals

- (b) A pricing proposal must:
- (3) set out, for each proposed tariff, the *charging parameters* and the elements of service to which each *charging parameter* relates; and
 - (4) 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*; and
 - (5) 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; and
 - (6) set out how designated pricing proposal charges 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; and

9.1.2 Requirements of the AER's Decision

The AER requires SA Power Networks as part of its Pricing Proposal to provide the amounts for the following entries in its DUoS unders and overs account for the most recently completed regulatory year (t-2), the current regulatory year (t-1) and the next regulatory year (t)³⁴:

1. opening balance for year t-2, year t-1 and year t;
2. an interest charge for one year on the opening balance for each regulatory year (t-2, t-1 and t). These adjustments are to be calculated using the approved nominal WACC.
3. the amount of revenue recovered from DUoS charges in respect of that year, less the total annual revenue for the year in question;
4. an adjustment to the net amount in item 3 by six months of interest. These adjustments are to be calculated using the approved nominal WACC.

³⁴ AER, Final Decision - South Australia distribution determination 2015-16 to 2019-20, October 2015, Attachment 14 - Control mechanisms pg 15.

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5. the total of items 1–4 to derive the closing balance for each year.

In the Final Decision, the AER reiterated (in Attachment 14 A) the requirement for SA Power Networks to maintain a DUoS unders and overs account in a specific format. The AER also requires SA Power Networks to target a zero expected balance on its DUoS unders and overs account in each Pricing Proposal.

9.2 Distribution use of system overs and unders account balance

In accordance with Attachment 14 A of the 2015-20 Final Decision, Table 51 provides the forecast 30 June 2016 balance of SA Power Networks' distribution use of system overs and unders amounts. It is close to zero at (\$64,000) under-recovered.

Table 51 - Distribution overs and unders account balance (\$'000)

Overs and unders account	2014/15 Actual	2015/16 Estimate	2016/17 Forecast
Revenue from distribution cost recovery (A)	-	706,500	733,507
Less TAR components for regulatory year =	-	682,000	759,584
+ Annual smoothed revenues (Art)	-	682,000	759,584
+ DMIS carryover amount (It)	-	-	-
+ Approved pass-throughs (Ct)	-	-	-
OVERS AND UNDERS ACCOUNT			
Annual rate of interest applicable to balances	9.76%	6.17%	6.19%
Opening balance	-	-	25,245
Interest on opening balance	-	-	1,563
(Under)/over recovery for financial year	-	24,500	(26,077)
Interest on (under)/over recovery	-	745	(795)
Closing balance	-	25,245	(64)

10 Transmission cost recovery tariffs

This Section sets out the procedures that SA Power Networks will follow to enable the recovery of transmission related charges, including any avoided TUoS charges paid to the embedded generators connected to SA Power Networks' distribution network.

ElectraNet is the Transmission Network Service Provider in South Australia and calculates location specific transmission prices for the connection points to SA Power Networks' network, in accordance with the provisions of the Rules.

ElectraNet's 2016/17 revenue will again be offset by some amount for revenue from settlement residue auctions. ElectraNet has not advised the amount of discount that has been applied in tariffs.

ElectraNet provided its pricing advice for 2016/17 on 16 May 2016. Accordingly the prices in this APP have been adjusted to meet the forecast transmission expense levels.

10.1 Regulatory Requirements

10.1.1 Rules requirements

SA Power Networks' Pricing Proposal is required under clause 6.18.2(b) of the Rules to set out how the TUoS charges it incurs are passed on to customers.

6.18.2 Pricing proposals

- (b) *A pricing proposal must:*
- (3) set out, for each proposed tariff, the *charging parameters* and the elements of service to which each *charging parameter* relates; and
 - (6) set out how charges incurred by the *Distribution Network Service Provider* 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*;

Clause 6.18.7 of the Rules sets out the requirement concerning the recovery of transmission related charges by SA Power Networks.

6.18.7 Recovery of charges for transmission use of system services

- (a) *A pricing proposal* must provide for tariffs designed to pass on to customers the charges to be incurred by the *Distribution Network Service Provider* for *transmission use of system services*.
- (b) The amount to be passed on to customers for a particular *regulatory year* must not exceed the estimated amount of the *transmission use of system* charges for the relevant *regulatory year* adjusted for over or under recovery in the previous *regulatory year*.

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- (c) The extent of the over or under recovery is the difference between:
- (1) the amount actually paid by the *Distribution Network Service Provider* by way of *transmission use of system charges* in the previous *regulatory year*; and
 - (2) the amount passed on to customers by way of *transmission use of system charges* by the *Distribution Network Service Provider* in the previous *regulatory year*.

10.1.2 Requirements of the AER's Decision

The AER requires SA Power Networks as part of its Pricing Proposal to provide the amounts for the following entries in its TUoS unders and overs account for the most recently completed regulatory year, the current regulatory year and the next regulatory year³⁵:

1. Opening balance for each year.
2. Interest accrued on the opening balance for each year, calculated at the rate of the post-tax nominal rate of return as approved by the AER in its distribution determination.
3. The amount of revenue recovered from TUoS charges applied in respect of that year, less the amounts of all transmission related payments made by the DNSP in respect of that year.
4. Six months interest on the net amount in item 3, accrued at the approved post-tax nominal rate of return.
5. Summation of the above amounts to derive the closing balance for each year.

In the Final Decision, the AER reiterated (in Attachment 14 B) the requirement for SA Power Networks to maintain a TUoS unders and overs account in a specific format. The AER also requires SA Power Networks to target a zero expected balance on its TUoS unders and overs account in each Pricing Proposal.

10.2 Transmission cost recovery tariff methodology

The key principles of SA Power Networks' transmission cost recovery (TCR) tariff methodology are:

- The total TUoS allocated to network tariffs aligns with the total estimated transmission charge to be paid by SA Power Networks, adjusted for any overs and unders account balance;
- To the extent possible given the constraints of metering and tariff structures, transmission charges are allocated to network tariffs in a manner that reflects the cost drivers present in transmission pricing;
- Customers with a demand of 10 MW or consumption in excess of 40 GWh have individually calculated tariffs with transmission charges allocated in a manner that preserves the location and time signals of transmission pricing in accordance with the principles in Part J of Chapter 6A of the Rules; and

³⁵ AER, Final Decision - South Australia distribution determination 2015–16 to 2019–20, October 2015, Attachment 14 – Control mechanisms pg 18.

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- Network tariffs for smaller customer classes have transmission charges allocated on an energy basis, as location signals cannot be preserved. Small customers are assumed to have a load factor better suited to using ElectraNet's Non-locational energy prices than the capacity-based price. Large business cost-reflective tariffs have costs allocated on a capacity basis, but is then priced partly as demand and partly as energy. This ensures a reasonable outcome across the large business tariff classes that do not receive an individually calculated transmission price.

10.2.1 Avoided TUoS payments

With respect to avoided TUoS for embedded generators, SA Power Networks calculates the avoided TUoS for all embedded generators that export to its distribution network at the same rates for the locational component which would be applied to a load of similar size at the same connection point. These calculations are prepared on a with/without basis.

This payment of avoided TUoS charges to embedded generators is as required under clauses 5.5(h), 5.5(i) and 5.5(j) of the Rules. These avoided TUoS payments to embedded generators would be recouped through the recovery mechanism for the TUoS charges.

SA Power Networks proposes to make payments in 2015/16 and 2016/17 to the Adelaide-based land-fill gas generators and to the Bordertown generator, but only to the extent that these generators are providing network support or have historically reliable generation. These payments will be at the TUoS locational price for the level of reliable generation.

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10.3 Transmission use of system overs and unders account balance

In accordance with Attachment 14 B of the 2015-20 Final Decision, Table 52 provides the forecast 30 June 2016 balance of SA Power Networks' transmission use of system overs and unders amounts. It is close to zero.

Table 52 - Transmission overs and unders account balance (\$'000)

Overs and unders account	2014/15 Actual	2015/16 Estimate	2016/17 Forecast
Revenue from transmission cost recovery	259,328	273,400	239,588
Transmission charges to be paid to TNSP	264,106	260,076	246,216
(Settlement residue payments)	-	-	-
Avoided TUoS payments	-	118	118
Inter-DNSP payment	-	-	-
Total transmission related payments	264,106	260,194	246,334
OVERS AND UNDERS ACCOUNT			
Annual rate of interest applicable to balances	9.76%	6.17%	6.19%
Opening balance	(1,597)	(6,759)	6,431
Interest on opening balance	(156)	(417)	398
Under/over recovery for financial year	(4,779)	13,206	(6,746)
Interest on under/over recovery	(228)	401	(206)
Closing balance	(6,759)	6,431	(123)

Note: As a result of reducing the number of significant figures used in pricing, the June 2016 closing balance cannot be predicted at \$0. However, a forecast closing balance of (\$0.044 M) under-recovered compared to forecast annual recovery of \$239,664 M is effectively a zero balance.

10.4 Charging parameters for transmission recovery tariffs

SA Power Networks' transmission recovery tariffs are included in the bundled NUoS Rates of customer tariffs. The charging parameters associated with transmission cost recovery tariffs are shown in Sections 5.3 to 5.6, in Table 8 through to Table 21. For customers with a demand greater than 10 MW or consumption in excess of 40 MWh the transmission cost recovery tariff is location specific; for all other customers including small customers it is averaged.

Transmission cost recovery amounts are billed at the same frequency as the relevant tariff for standard control services.

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10.5 Transmission recovery tariffs for 2016/17

SA Power Networks' 2016/17 recovery through transmission tariffs is forecast to decrease from an estimated \$273.4 M in 2015/16 to \$239.6 M in 2016/17. This is a 12.4% decrease, which arises for the following reasons:

- The forecast \$14 M decrease in annual ElectraNet charges. These result from either;
 - Different revenues under their 2013-2018 Price Reset, and also the recovery of approved MurrayLink revenue,
 - any change in 'discount' and 'surcharge' in ElectraNet's charges in 2016/17, due to settlement residues and payments for interstate networks (new arrangements for interstate networks charges have started in 2015/16); and
 - The level of over/under-recovery by ElectraNet of the allowed annual revenue in 2016/17 versus 2015/16. ElectraNet endeavour to set their prices each year to achieve a zero balance at the end of each year but variations in revenue recovery and settlements residue occur every year.
- Prices are likely to over-recover transmission costs by \$13M.
- The \$7 M under -recovery in pricing required by SA Power Networks in 2016/17 to achieve a near nil balance.

SA Power Networks has prepared prices for 2016/17 that recover ElectraNet's charges. Prices for locational customers are based on the ElectraNet price list.

All other customers have had prices applied on a State-wide non-locational basis, using the pricing signals provided by ElectraNet, the billing parameters available for that customer segment and the customer demand assumptions for that customer segment.

11 Recovery of the PV Jurisdictional Scheme Amount

The solar feed-in scheme is a South Australian Government initiative which commenced on 1 July 2008 and is to apply for 20 years. It was reviewed by the SA Government in 2009/10 and amendments to the legislation took effect from 29 July 2011³⁶. The amendments to the legislation introduced two further schemes – one which required application by September 2011 which also applies till June 2028 and a further scheme for subsequent applications which applies till September 2016. Entry to these schemes has now closed. Under the SA Government legislation, SA Power Networks is obliged to make FiT payments to qualifying customers that have solar PV generators, for energy they export to the grid.

The purpose for the PV Jurisdictional Scheme Amount is to allow SA Power Networks to recover from all of its customers the cost of the SA Government legislated Feed-in Tariff payments that SA Power Networks is required to make to those customers that have qualifying solar PV generators.

Under the Jurisdictional Scheme Amount arrangements, SA Power Networks is required to provide information on the payments and recoveries of PV FiT in the same manner to that used for transmission (see 10.1.2 above for these requirements). The AER has confirmed in the Final Decision (Attachment 14 C) that these requirements continue. SA Power Networks recovers the PV JSA as an additional component of its bundled NUoS charges.

The PV FiT JSO has historically been recovered as uniform percentage uplift across all customer groups on each component of their DUoS charge. This resulted in a further charge for all customers to recover the amounts incurred under the SA Government legislation.

This historic approach to the recovery of the PV FiT JSO had the following characteristics:

- It was simple, and readily understood;
- As it is scaled to the customer's DUoS charge
 - It did not unduly penalise high load factor commercial and industrial customers,
 - It was applied to each and every customer, and
 - Is represented equal treatment across tariff classes.

The approach did not take account that the primary beneficiary of this scheme was the 25% or so residential customers eligible for the '44 cent' schemes. Very few small businesses elected to participate in these initial schemes and large customers were not permitted to access the schemes. With the closure of the 2016 16 cent scheme imminent (30 September 2016), there will be a near \$30M reduction in annual costs. An approach which retains simplicity but revisits the fairness and equity of the PV FiT allocation has been considered. In 2016/17, the amount of PV FiT charged to all tariff classes will be reduced, but proportionally the reduction is larger for business tariff classes than it is for residential. We will consult with customers on how we should price each tariff class in the future as part of our revised TSS submission. In this Pricing Proposal, we have applied the tariff class outcome broadly equally across all tariffs and elements within that tariff class.

³⁶ Government of South Australia, Electricity (Feed-In Scheme—Solar Systems) Amendment Act 2008.

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The recovery of the PV RiT JSO has been included as an additional charging component in the NUoS tariffs, as described in Section 5.

11.1 PV Jurisdictional Scheme Amount overs and unders account balance

In accordance with Attachment 14 C of the Final Decision, Table 53 provides the forecast 2016/17 balance of SA Power Networks' PV JSA overs and unders amounts.

Table 53 – PV JSA overs and unders account balance (\$'000)

Overs and unders account	2014/15 Actual	2015/16 Estimate	2016/17 Forecast
Revenue from Jurisdictional Scheme Obligations Recovery (JSO PV) tariffs	163,684	120,600	88,138
PV Incentive Scheme Payments for export PV – 2028 scheme	16,329	16,329	16,329
PV Incentive Scheme Payments for export PV – 2028S scheme	72,462	72,462	72,462
PV Incentive Scheme Payments for export PV – 2016 scheme	37,790	37,790	9,448
Total JSO (PV pass through) payments	126,582	126,582	98,239
OVERS AND UNDERS ACCOUNT			
Annual rate of interest applicable to balances	9.76%	6.17%	6.19%
Opening balance	(21,762)	14,984	9,745
Interest on opening balance	(2,124)	925	603
(Under)/over recovery for financial year	37,102	(5,982)	(10,101)
Interest on (under)/over recovery	1,768	(182)	(308)
Closing balance	14,984	9,745	(61)

The reconciliation in Table 53 demonstrates a near-zero closing balance of (\$0.061 M) under-recovered for the overs and unders account in 2016/17 and thence SA Power Networks' compliance with the provisions of clause 6.18.7 of the Rules and the AER's Final Decision. Forecasting a zero balance is more difficult to achieve with the simplified approach to pricing now being used, as less significant figures in prices result in larger steps in tariff recovery.

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11.2 Charging parameters for PV JSA cost recovery tariffs

SA Power Networks' PV JSA cost recovery tariffs are included in the bundled NUoS Rates of customer tariffs. The charging parameters associated with PV JSA cost recovery tariffs are shown in Sections 5.3 to 5.6, in Table 8 through to Table 21.

PV JSA cost recovery amounts are billed at the same frequency as the relevant tariff for standard control services.

11.3 PV JSA cost recovery tariffs for 2016/17

SA Power Networks' 2016/17 PV FIT JSO recovery tariffs are forecast to recover \$88 M in 2016/17 (\$121M is estimated for 2015/16). This will recover three series of payments:

- Payments under the original scheme (the '2028' Scheme). This scheme closed to new applicants in August 2010. Payments of \$16.3 M are estimated for 2015/16 and forecast for 2016/17;
- Payments under the subsequent scheme (the '2028 Stepped' Scheme). This scheme opened to new applicants when the 2028 scheme closed, and required applications to be approved by September 2011. The number of generators approved under this scheme is much higher than under the 2028 scheme, and the size of the PV generation in each installation is also much higher. As a result, payments under this scheme are significantly higher, with estimated payments in 2015/16 of \$72.5 M and forecast for 2016/17 .
- Payments under the third scheme (the '2016' Scheme). This scheme opened to new applicants when the 2028 Stepped scheme closed, ie from 30 September 2011. Payments are at the rate of 16 cents/kWh until September 2016, whereas the other two schemes have payments at 44 cents/kWh for qualifying generation until June 2028. Applications were at a high rate for this scheme, with the size of installation continuing to grow, resulting in increasing levels of export. As a result, payments under this scheme are significant despite the lower FiT rate of 16 cents/kWh. Estimated payments in 2015/16 are \$37.8 M and forecast payments in 2016/17 are \$9.4 M before the scheme closes at 30 September 2016.

There is also an interest allowance for the timing of these cash flows, as shown in Table 53 above.

12 Customer tariff class assignment and reassignment

The requirements concerning the assignment and reassignment of customer to tariff classes are set out in clause 6.18.4 of the Rules and Attachment 14 Appendix D of the AER's Final Decision.

12.1 Regulatory Requirements

12.1.1 Rules requirements

In making a distribution determination, the AER is required to formulate provisions for the assignment and reassignment of customers to tariff classes, in accordance with the principles set out in clause 6.18.4 of the Rules. This Rule covers the following matters:

- Factors governing the assignment of customers to tariff classes;
- Equitable treatment of customers with micro-generation;
- The review of the DNSP decision on tariff class assignment; and
- The review of DNSPs' tariff structures containing energy or demand related charges.

12.1.2 Requirements of the AER's Decision

In accordance with the principles in clause 6.18.4 of the Rules, Attachment 14, Appendix D of the AER's decision sets out the procedures to apply to assigning or reassigning customers to tariff classes³⁷. These provisions are in several parts, covering the following aspects:

- Assignment of existing retail customers to tariff classes at the commencement of the forthcoming regulatory control period;
- Assignment of new retail customers to a tariff class during the next regulatory control period;
- Reassignment of existing retail customers to another existing or a new tariff during the next regulatory control period;
- Objections to proposed assignments and reassignments; and
- System of assessment and review of the basis on which a retail customer is charged.

Assignment of existing retail customers to a tariff classes at the commencement of the forthcoming regulatory control period

1. SA Power Networks' retail customers will be taken to be "assigned" to the tariff class to which SA Power Networks was charging that retail customer immediately prior to 1 July 2015 if:
 - they were an SA Power Networks retail customer prior to 1 July 2015
 - they continue to be a retail customer of SA Power Networks as at 1 July 2015.

³⁷ AER, Final Decision, October 2015, Attachment 14 pp. 21-23.

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Assignment of new retail customers to a tariff class during the forthcoming regulatory control period

2. If, after 1 July 2015, SA Power Networks becomes aware that a person will become a customer, then SA Power Networks must determine the tariff class to which the new customer will be assigned.
3. In determining the tariff class to which a retail customer or potential retail customer will be assigned, or reassigned, in accordance with paragraph 2 or 5 of this section, SA Power Networks must take into account one or more of the following factors:
 - (a) the nature and extent of the retail customer's usage
 - (b) the nature of the retail customer's connection to the network³⁸
 - (c) whether remotely-read interval metering or other similar metering technology has been installed at the retail customer's premises as a result of a regulatory obligation or requirement.
4. In addition to the requirements under paragraph 3 above, SA Power Networks, when assigning or reassigning a retail customer to a tariff class, must ensure:
 - (a) retail customers with similar connection and usage profiles are treated equally
 - (b) retail customers who have micro-generation facilities are not treated less favourably than retail customers with similar load profiles without such facilities.

Reassignment of existing retail customers to another existing or a new tariff during the next regulatory control period

5. SA Power Networks may reassign a retail customer to another tariff class if the existing retail customer's load characteristics or connection characteristics (or both) have changed such that it is no longer appropriate for that retail customer to be assigned to the tariff class to which the retail customer is currently assigned or a retail customer no longer has the same or materially similar load or connection characteristics as other retail customers on the retail customer's existing tariff class, then it may reassign that retail customer to another tariff class. In determining the tariff class to which a retail customer will be reassigned, SA Power Networks must take into account paragraphs 3 and 4 above.

Objections to proposed assignments and reassignments

6. SA Power Networks must notify a customer's retailer in writing of the tariff class to which the retail customer has been assigned or reassigned, prior to the assignment or reassignment occurring.
7. A notice under paragraph 6 above must include advice informing the customer's retailer that they may request further information from SA Power Networks and that the retail

³⁸ The AER interprets 'nature' to include the installation of any technology capable of supporting time based tariffs.

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customer may object to the proposed reassignment. This notice must specifically include:

- a. a written document describing SA Power Networks' internal procedures for reviewing objections, if the customer's retailer provides express consent, a soft copy of such information may be provided via email
 - b. that if the objection is not resolved to the satisfaction of the customer's retailer under SA Power Networks' internal review system within a reasonable timeframe, then, to the extent that resolution of such disputes are within the jurisdiction of the South Australian Energy Industry Ombudsman, or like officer, the customer's retailer is entitled to escalate the matter to such a body
 - c. that if the objection is not resolved to the satisfaction of the customer's retailer under SA Power Networks' internal review system and the body noted in clause 7.b above, then the customer or its retailer is entitled to seek a decision of the AER via the dispute resolution process available under Part 10 of the NEL.
8. If, in response to a notice issued in accordance with paragraph 7 above, SA Power Networks receives a request for further information from a customer's retailer, then it must provide such information within a reasonable timeframe. If SA Power Networks reasonably claims confidentiality over any of the information requested by the customer's retailer, then it is not required to provide that information to the customer's retailer. If the customer's retailer disagrees with such confidentiality claims, he or she may have resort to the dispute resolution procedures referred to in paragraph 7 (as modified for a confidentiality dispute).
 9. If, in response to a notice issued in accordance with paragraph 7 above, a customer's retailer makes an objection to SA Power Networks about the proposed assignment or reassignment, SA Power Networks must reconsider the proposed assignment or reassignment. In doing so SA Power Networks must take into consideration the factors in paragraphs 3 and 4 above, and notify the customer's retailer in writing of its decision and the reasons for that decision.
 10. If a customer's retailer's objection to a tariff assignment or reassignment is upheld by the relevant body noted in paragraph 7.b and 7.c above, then any adjustment which needs to be made to tariffs will be done by SA Power Networks as part of the next annual review of prices.
 11. If a customer's retailer objects to SA Power Networks' tariff class assignment SA Power Networks must provide the information set out in paragraph 7 above and adopt and comply with the arrangements set out in paragraph 8, 9 and 10 above in respect of requests for further information by the customer's retailer and resolution of the objection.

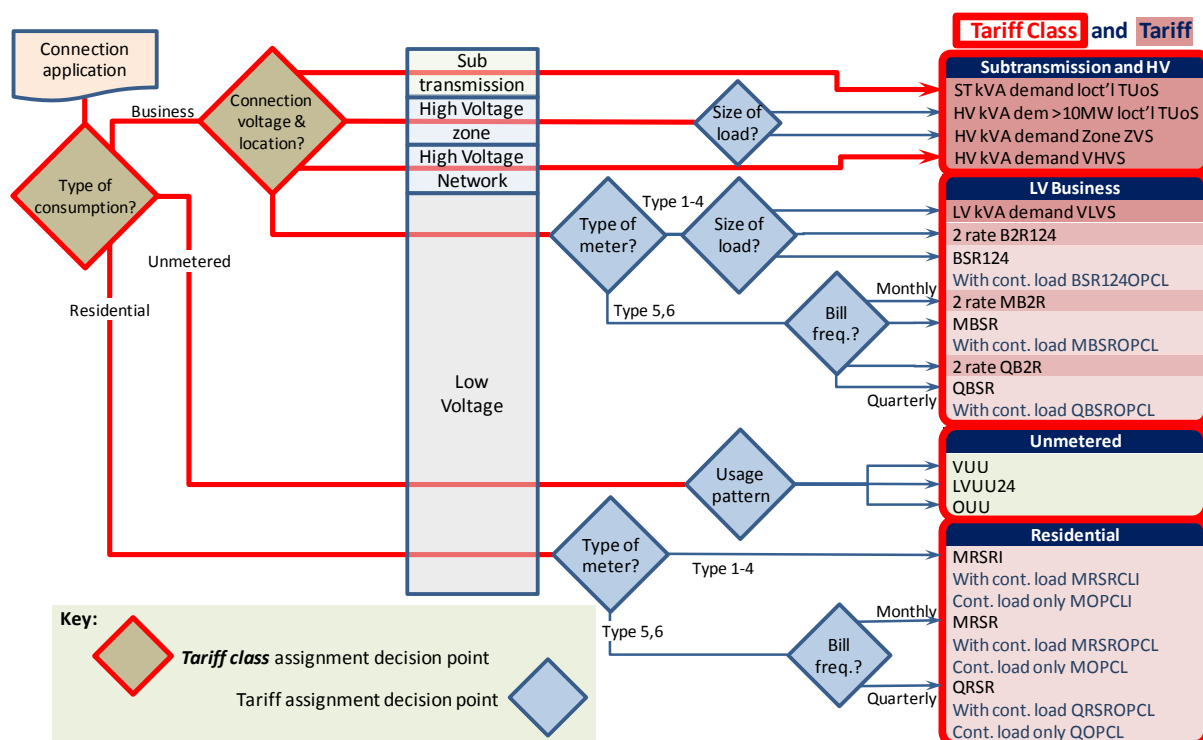
12.2 Assignment of new customers to a tariff class during the next regulatory control period

The approach that SA Power Networks applies to the tariff assignment of new and upgraded customer connections has been developed over the years since the formation of the NEM.

In this Section of the Pricing Proposal, SA Power Networks describes the process it applies to the initial assignment of customers to tariffs and to their reassignment. Notwithstanding that the individual tariffs have been grouped within tariff classes in this Pricing Proposal, the existing approach to managing tariff assignment and reassignment is demonstrated to align with the requirements established by the AER. Accordingly, no change is required to current practices.

The process whereby new customers are assigned to tariff classes and tariffs, following the receipt of a connection application by the customer or their retailer, follows the decision tree shown in Figure 23. In the application of this process, a customer that lodges an application to modify or upgrade an existing network connection is treated in the same manner as a new customer.

Figure 23 – Assignment of new and upgraded customer connections to tariff classes



This decision tree in Figure 23 highlights the existing process whereby customers are assigned to a tariff class and then to an individual tariff. The process relies upon a systematic sequence of decisions based on the information provided with the customer's application for supply. Decisions associated with assignment to the four tariff classes have been separately identified in red. Second-order decisions on individual tariffs are also shown. These relate to type of meter, load size and billing frequency, and lead to the customer's assignment to a specific tariff within the tariff class.

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The two major decisions that determine the tariff class assessment are as follows:

- The nature of a customer's usage: (ie residential, business, or unmetered); and
- For business customers only, the nature and extent of the associated connection to the network (the connection voltage, whether located within in the network or directly connected to a zone substation).

The process employed by SA Power Networks therefore appropriately takes account the factors in clause 3(a) and 3(b) of the AER's Appendix D³⁹.

Moreover, in the event that remotely-read interval metering or other similar metering technology is installed at the customer's premises as a result of a regulatory obligation or requirement during the 2015-20 regulatory control period, SA Power Networks will review this procedure.

12.2.1 Customers with micro-generation

As SA Power Networks' tariff class assignment process is applied to the *net* customer demand on the network, it does not distinguish between customers that have micro-generation and those without.

The only aspects of the connection process that distinguish customers with micro-generation are technical requirements, principally to ensure public and employee safety in the event of disconnection of supply to a site with generation.

SA Power Networks' tariff assignment process therefore ensures that the requirements in clause 4(a) and 4(b) of the AER's Appendix D⁴⁰ are met.

12.3 Reassignment of existing customers to another existing or a new tariff during the next regulatory control period

Within each tariff class, there has been and will continue to be movement between individual tariffs. This is particularly the case with the customers on the Low Voltage Business tariff class

The five tariff classes that SA Power Networks has established are sufficiently broad to ensure that all the existing customers are within the appropriate tariff class and that it is unlikely that customers will seek to migrate or be reclassified to a different tariff class during the course of the determination. Transfer between tariff classes would be limited to circumstances where the nature of usage or level of consumption changed significantly, for example where a residence was redeveloped to become a small business such as a medical surgery or office.

Notwithstanding that the reassignment of customers' tariff classes is unlikely during the 2015-20 regulatory control period, SA Power Networks would do so in accordance with the provisions of the AER's Decision.

SA Power Networks follows the same processes for customers being reassigned to another tariff within a tariff class as would apply to customers being reassigned to another tariff class. Customers

³⁹ AER, Final Decision, October 2015, Attachment 14 pp. 22.

⁴⁰ AER, Final Decision, October 2015, Attachment 14 pp. 22.

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are able to object to such reassignments in the same manner that they are permitted to object to a tariff class reassignment.

12.4 Objections to proposed assignments and reassignments

The AER has established requirements that SA Power Networks must follow in assigning or reassigning customers to tariff classes and in responding to objections to SA Power Networks' tariff class assignments.

The requirements that SA Power Networks must follow have been documented in an internal procedure entitled "Manual 18, Network Tariff Manual".

This document is attached as to this Pricing Proposal as Appendix K and is published on SA Power Networks' web site.

13 Alternative Control Services – metering services

In the Final Decision, the AER has determined a price cap for Alternative Control Services (metering services). Attachment 16 sets out all of the pricing arrangements and the final prices that will apply. Part A of Attachment 16 sets out the annual metering charges (AER Table 16.11) and the upfront capital charges (AER Table 16.14, with annual X-factors set out in AER Table 16.15).

The annual metering charges contain a Capital and a non-Capital charge, with different prices applying to the three categories of alternative control services metering, ie WC, CT and Exceptional meters.

There are four different combinations of metering fees possible:

- Existing customers using SA Power Networks’ meters. These customers continue to pay the capital and non-Capital charges.
- Where an existing customer at June 2015 has the meter replaced by an alternate meter provider eg a type 4 meter, the customer will continue to pay the Capital-related charge, but will cease paying the non-Capital related charge.
- Where a new customer connects to the network and elects to use an SA Power Networks meter, the customer incurs an upfront capital charge, and also incurs the annual non-Capital charge. The customer is not liable for any ongoing capital charges.
- Where an existing customer at June 2015 was not using an SA Power Networks meter but that of an alternate meter provider, eg a type 4 meter, the customer is not liable for any annual metering charges to SA Power Networks.

We have implemented the AER’s preferred system of meter service pricing. We have implemented a new meter charging system which can be separated from the standard control services tariffs. We will use separate, more manual systems to manage the exceptional and CT metering pricing, as occurs at present. We also use a separate manual process to manage the pricing where an existing customer’s meter churns to another meter provider.

Table 54 sets out the tariffs that correspond to the price terms contained in the alternative control services metering services in 2015/16 and 2016/17. The table shows the change in price outcome for those customers who use a type 5-6 WC meter. This is the overwhelming majority of our customers today.

Table 54 and Table 55 show the annual metering charges that apply in 2016/17.

Table 54 – Alternative Control Services – Annual metering charges (excludes GST) \$ p.a.

Tariff	Non-capital only	Capital only	Non-capital and capital
Type 1-4 ‘exceptional’ remotely read	185.16	215.83	400.99
Type 5-6 CT connected, manually read	100.79	117.48	218.27
Type 5-6 WC manually read	12.31	14.35	26.66

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Table 55 – Alternative Control Services – Annual metering charges on a per day basis (excludes GST) \$/day

Tariff	Non-capital only	Capital only	Non-capital and capital
Type 1-4 'exceptional' remotely read	0.5073	0.5913	1.0986
Type 5-6 CT connected, manually read	0.2761	0.3219	0.5980
Type 5-6 WC manually read	0.0337	0.0393	0.0730

Table 56 shows the derivation of the 2016/17 Upfront capital charges. The AER prices have been escalated by CPI from December 2015 values and by the application of the X-factor.

Table 56 – Alternative Control Services – Upfront Capital charges

\$ December 2015	Type 5	Type 6	
Single element meter	163.92	102.00	
Two element meter	235.02	259.44	
Three phase meter	404.13	304.19	
Escalation by CPI and X Factor	CPI	X 2016/17	(CPI)*(1-X)
Type 5 – single element	1.0169	-17.43%	1.1941
Type 5 – two element	1.0169	-17.65%	1.1964
Type 5 – three phase	1.0169	-17.39%	1.1937
Type 6 – single element	1.0169	-7.64%	1.0946
Type 6 – two element	1.0169	-6.57%	1.0837
Type 6 – three phase	1.0169	-7.27%	1.0908
\$ 2016/17 Prices	Type 5	Type 6	
Single element meter	195.74	111.65	
Two element meter	281.17	281.15	
Three phase meter	482.42	331.81	

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Appendices

- Appendix A. Network Use of System Tariffs and explanatory notes
- Appendix B. CONFIDENTIAL – Audit of 2014/15 quantities
- Appendix C. S-Factor calculation
- Appendix D. Transmission Prices from ElectraNet – 2016/17 TUoS prices
- Appendix E. Long Run Marginal Cost Methodology
- Appendix F. Stand-alone and Avoided Cost Methodologies
- Appendix G. CONFIDENTIAL – Revenue and Price Compliance Model (standard control)
- Appendix H. Not used
- Appendix I. Not used
- Appendix J. SA Power Networks' procedure for assigning and reassigning customers to tariff classes (Tariff Manual)
- Appendix K. SA Power Networks' Regulatory Compliance Checklist