Proposed Tariff Structure Statement

ActewAGL Distribution Electricity Network

27 November 2015

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Glossary

ACT	Australian Capital Territory
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
DAPR	Distribution Annual Planning Report
DNSP	Distribution network service provider
DUOS	Distribution Use of System
ECRC	Energy Consumer Reference Council
EV	Electric vehicles
HV	High Voltage
GST	Goods and Services Tax
kVA	Kilovolt-amperes
KWh	Kilowatt hours
LRMC	Long-run marginal cost
LV	Low Voltage
MVA	Mega volt amps
MW	Megawatt
NEL	National Electricity Law
NEO	National Electricity Objective
NER	National Electricity Rules
NMI	National Metering Identifiers
NUOS	Network Use of System
OH	Overhead
p.a.	Per annum
PV	Photovoltaic
TOU	Time of use
TSS	Tariff Structure Statement
TOUS	Transmission Use of System
UG	Underground

1 Introduction

1.1 About ActewAGL Distribution

ActewAGL Distribution (AAD) owns and operates the electricity network in the ACT, and gas networks in the ACT and surrounding areas in New South Wales. We own and operate 2,400 kilometres of overhead electricity lines, 2,700 kilometres of underground cables and almost 4,900 kilometres of natural gas pipelines and serve around 180,000 residential and commercial electricity and gas consumers.

We are responsible for the power lines and other infrastructure required to transport electricity through the network to your home or business. We undertake electricity network maintenance, connect new consumers, plan and construct new infrastructure, provide emergency responses, and install, replace and read consumers' electricity meters.

Within the ACT, we operate and maintain a network of poles, wires, transformers and other equipment to distribute electricity safely and reliably to consumers. The AAD network is an essential part in the process of moving electricity from where it is generated to where it is used by our consumers as demonstrated in Figures 1-1 and 1-2. Our service area is shown in Figure 1-3 (overleaf).

Figure 1-1: The energy market

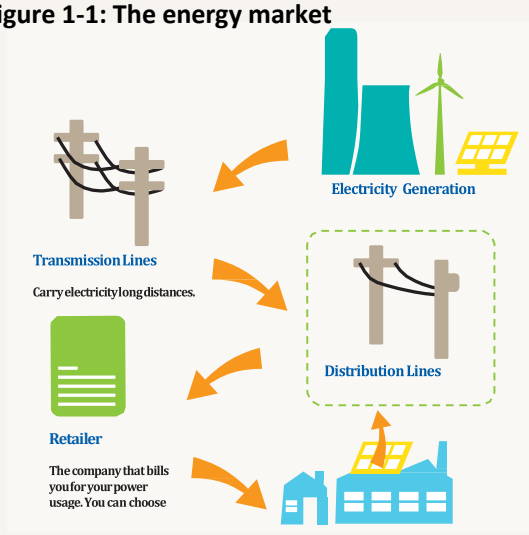


Figure 1-2: Our distribution network's assets

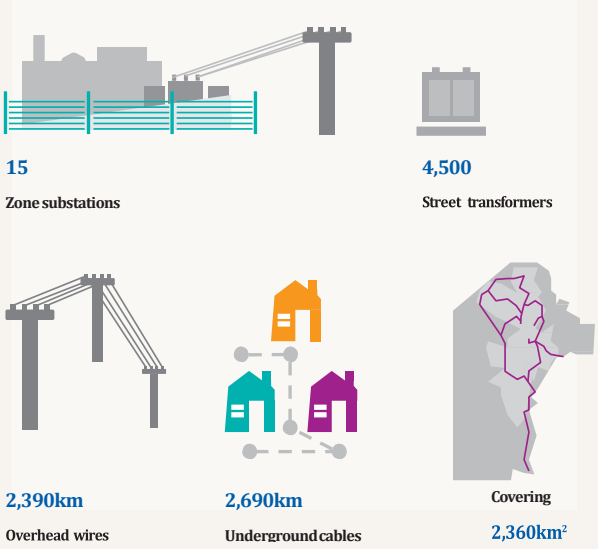
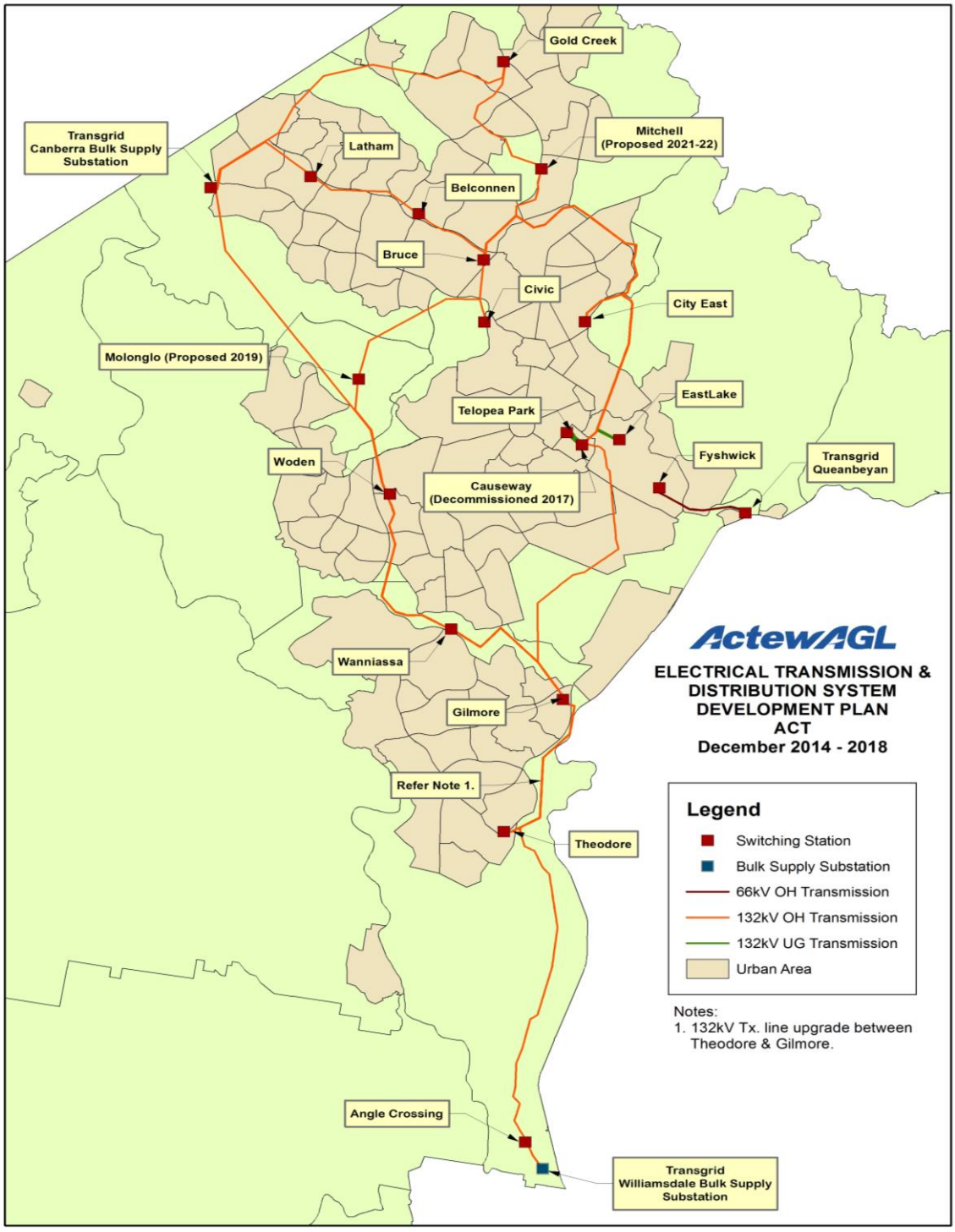


Figure 1-3: Our service area in the Australian Capital Territory



1.2 How we are regulated

Like all electricity distribution network service providers in Australia, we are a regulated business. As such, we must comply with the National Electricity Rules ('the Rules') and the National Electricity Law (NEL). The Australian Energy Market Commission (AEMC) is responsible for setting the Rules. The Australian Energy Regulator (AER) monitors and enforces compliance with these regulatory requirements.

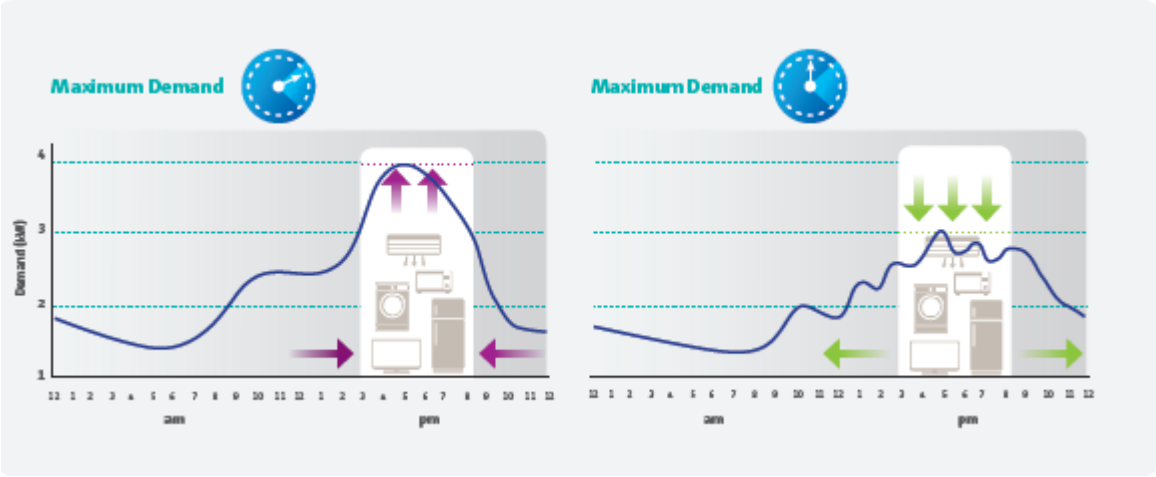
The AER determines the revenue we are allowed to collect over a five year period via distribution charges although we have some flexibility around how those charges are applied to our consumers. The AER has already set the overall revenues that we are allowed to recover from network tariffs for the period 1 July 2014 to 30 June 2019.

1.3 Policy and regulatory background

In recent years there has been increasing interest across the electricity industry in reforming network tariffs to move away from flat rate consumption based charges to tariff structures that better reflect the marginal cost of providing network services to individual consumers. This interest was initially driven by the impact on the electricity grid of rising maximum demand which required increased investment in electricity networks at a time when consumption was either flat or falling. In this regulatory period, network investment by AAD was driven mainly to accommodate new consumers rather than rising demand of existing consumers.

As shown in Figure 1-4, changing the pricing structure for electricity network tariffs also provides an opportunity to encourage the use of the network at off-peak times and mitigate the impact of rising peak demand, confirming, delaying or reducing the need for investment in new capacity.

Figure 1-4: How consumers can respond to price signals



Following the initial interest in reforming tariffs, the AEMC's 2012 *Power of Choice* review proposed that greater consideration be given to implementing tariffs that reflect the cost of network services and provide consumers with price signals to encourage efficient use of network assets, most importantly, the efficient use of electricity at times of aggregate peak demand on the network. Following the *Power of Choice* review and with a view to helping consumers participate more

effectively in energy markets, the AEMC made a number of changes to the Rules in November 2014. The key features of these changes are outlined in the box below.

Key features of the Distribution Pricing Arrangements Rule Change

1. A **network pricing objective** was codified in the Rules. The objective requires each network tariff to reflect the efficient costs of providing network services to consumers assigned to a tariff and that tariffs can be transitioned to cost reflective levels over time.
2. DNSPs must base their tariffs on the **Long Run Marginal Costs** (LRMC) of supply.
3. DNSPs must recover their allowed revenue in a way that **minimises distortions** to price signals for efficient usage as provided by LRMC based prices.
4. DNSPs must: (a) **manage the impact** of annual changes in network prices on consumers; and, (b) set network prices which consumers are reasonably capable of understanding.
5. Tariffs must be set so as to recover an amount of revenue that lies between the **stand alone and avoidable costs** of supply to a customer (or group of customers).
6. Tariffs must recover any residual costs in a way that **least distorts consumption** behaviour.

Cost-reflective prices are a fundamental part of the concept of economic efficiency which underlies the National Electricity Objectives (NEO). Section 7 of the NEL outlines the NEO:

> *The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—*
>
> *(a) price, quality, safety, reliability and security of supply of electricity; and*
>
> *(b) the reliability, safety and security of the national electricity system.*

The NEO guides all AER decisions, and reflects the concept of economic efficiency, which has three sub-components: *productive*, *allocative* and *dynamic* efficiency.

Components of economic efficiency

Economic efficiency (which underpins and is required by the NEO) is comprised of:

Productive Efficiency ('promote efficient investment in'): Tariffs for regulated services should, in totality, only recover the 'efficient costs' of investing in regulated services.

Allocative Efficiency ('efficient….use of, electricity services'): Tariffs for regulated services should be reflective of the forward looking costs of providing those services (cost reflective), so that consumption only occurs where the benefit to the consumer outweighs the cost to the society of providing those services.

Dynamic Efficiency ('for the long term interests of consumers of electricity with respect to…price'): Regulated businesses should be incentivised to seek out efficiency gains over time, and improve performance where the benefits exceed the costs, such that efficiency is promoted in the long-term.

For the purposes of designing tariffs, the most important of the components in the box above is **allocative efficiency.** In the context of the electricity industry, the most fundamental component of allocative efficiency is that consumers should consume electricity up to the point where the marginal benefit to them of consuming an additional unit of energy (kWh, kW or kVA, depending on the cost driver being priced) equals the marginal cost[1] of providing that extra unit of energy to that consumer.

When price deviates from the marginal cost of supply, consumers will consume either:

- too much of the service, which will occur if the marginal price is less than its true cost (that is, some consumers will consume electricity services despite the fact that the cost of providing them with an additional unit of that service exceeds the benefit that they receive from consuming that service), or
- not enough of the service, which will occur if the marginal price is greater than its cost of supply (that is, some consumers will not consume electricity services despite the fact that the cost of providing them with an incremental unit of that service is less than the incremental benefit that they would receive from consuming that additional unit).

[1] Noting that the marginal cost may vary depending on a range of factors, such as the location at which the consumption takes place, or the time of day/week/season/year at which the consumption occurs.

1.4 Objective of this document

The Tariff Structure Statement (TSS) seeks to provide our consumers and other stakeholders with clear and accessible information about current network tariffs and how these may change in the future. In preparing this proposed TSS, and in response to changes in electricity markets (for example, the growth of rooftop photovoltaic (PV) systems, battery storage and electric vehicles), we have undertaken a comprehensive review of our network costs and existing tariff structures, and have consulted widely with the Canberra community, large consumers and retailers (see Section 6).

The Rules require network businesses like AAD to develop a TSS that clearly shows how the pricing principles have been applied to develop price structures and indicative price levels, typically for a five year regulatory period.[2]

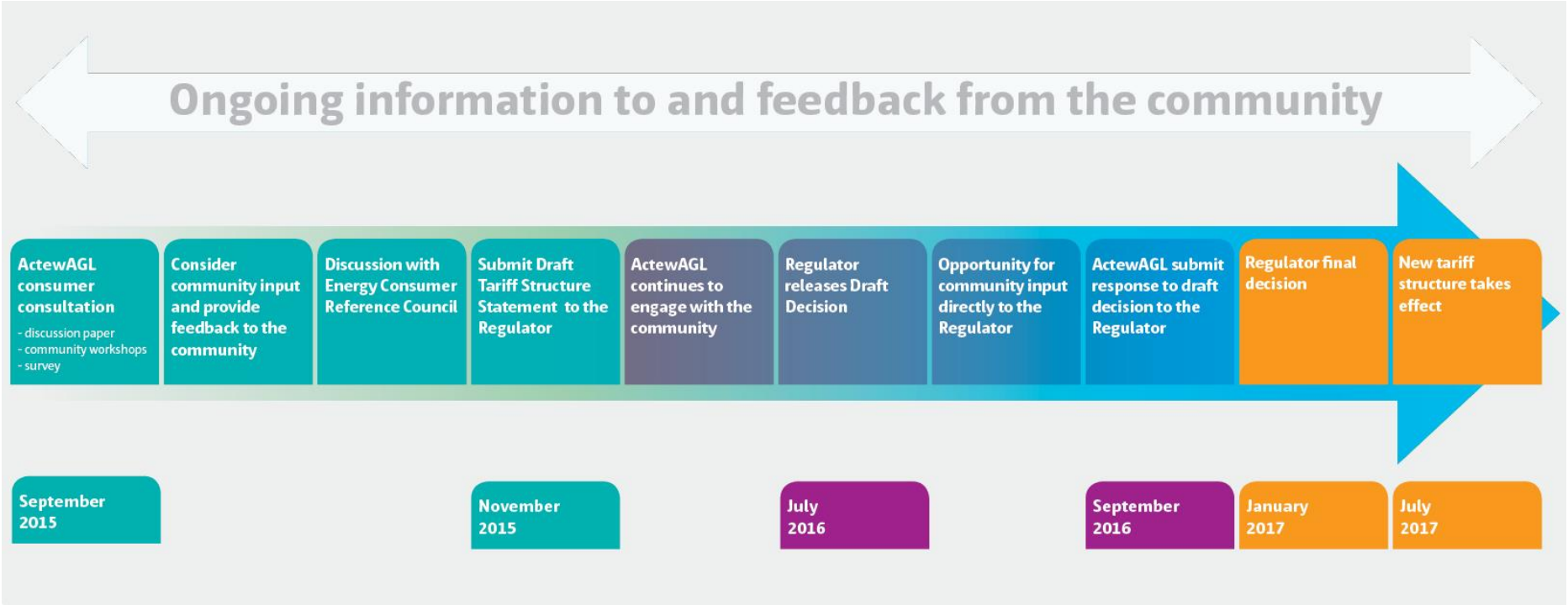
This is our first (proposed) TSS to the AER under the new Rules. Once approved, the TSS remains in place for the remainder of the current regulatory period (that is, from 1 July 2017 until 30 June 2019), unless an event occurs that is beyond the distribution business' reasonable control and could not reasonably have been foreseeable requires a change to be made, and the AER approves that change.

The tariff structures contained in the approved TSS will form the basis for AAD's annual pricing proposals for the financial years 2017/18 and 2018/19. The AER will conduct an approval process for annual prices to check consistency with the TSS, compliance with pricing principles and other requirements, such as the control mechanism under the AER's distribution determination.

The timeline for the review and implementation of the new network tariff structure over the next 12 to 15 months is shown at Figure 1-5. Specifically, the AER will review the proposed TSS and make a draft determination on 1 July 2016 and a final determination on 30 January 2017. Our first annual pricing proposal under the new Rules must be submitted by 31 March 2017.

[2] The Rules changes put in place transitional provisions for the initial proposed TSS to be effective for the last two years (2017/18 and 2018/19) of the current regulatory control period (2014/15 to 2018/19). As a result, network prices for 2015/16 and 2016/17 will be set under the pricing Rules that have applied prior to the introduction of the new Rules on 1 December 2014. A subsequent TSS will be developed in consultation with customers, for the next 5-year regulatory period 2019–24.

Figure 1-5: Process for introducing cost–reflective tariffs



1.5 Structure of this document

The rest of the document is structured as shown in Table 1-1: Structure of this proposed TSS below.

Table 1-1: Structure of this proposed TSS

What questions do we answer	See section
• What are the opportunities from tariff reform	Section 2—Drivers of tariff reform
• What is our current tariff structure and tariff availability? • What makes up the bill of electricity consumers? • How we currently recover our costs through tariffs? • What is the profile of our consumers? • Do we have any constraints in our network?	Section 3—Our current tariffs
• Our understanding of the network pricing objective and pricing principles	Section 4—Pricing principles
• What are the broad tariff options that we have considered? • Which tariffs are more cost-reflective? • What is our vision of more cost-reflective tariffs in the long-term?	Section 5—Possible tariff options
• What is our consumer engagement strategy? • How did we engage with different consumer groups? • How did we engage with retailers?	Section 6—How we engaged with our stakeholders
• What is our long term tariff strategy? • How are we proposing to transition our tariffs in the medium-term? • What is our tariff assignment and reassignment policy? • How did views of consumers and retailers influence our strategy?	Section 7—Our tariff strategy
• Are we making changes to tariff classes? • Are we introducing new tariffs? • What changes are we making to existing tariffs? • How we set our tariffs? • What are the consumer impacts? • Our approach to updating tariffs annually	Section 8—Proposed tariff structure

To help with the review process, Table 1-2 below sets out how we demonstrate compliance with the TSS Rule requirements.

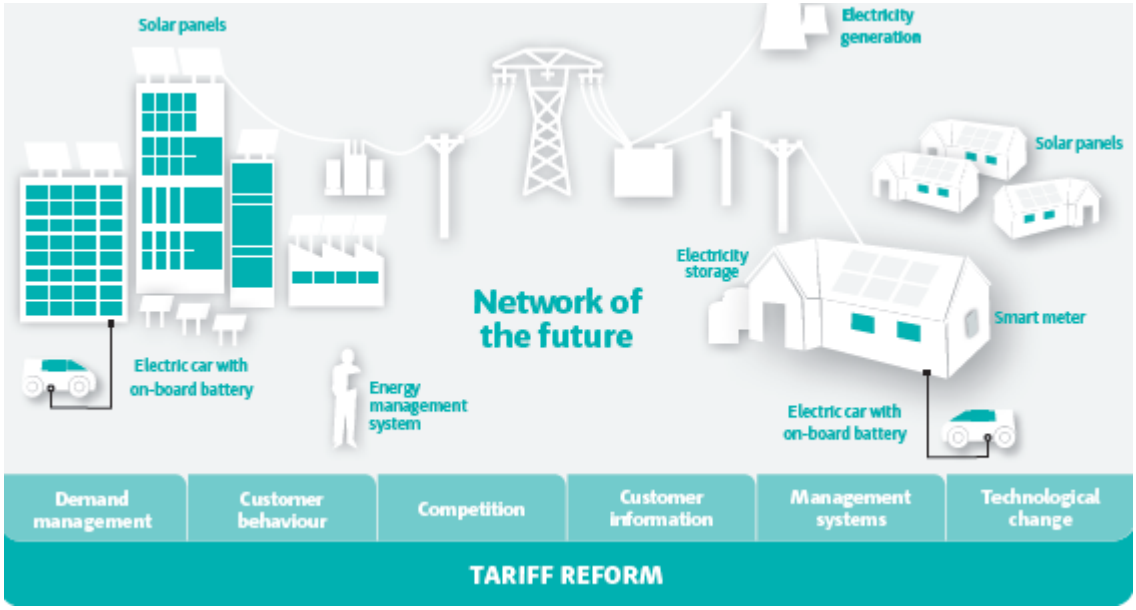
Table 1-2: How the proposed TSS complies with the Rule requirements

Requirement	Rule	Reference in the TSS
TSS to be **submitted by 27 November 2015**	6.8.2(b) and 11.73.2	This document constitutes the proposed TSS submission.
TSS to be accompanied by an **overview paper**	6.8.2(c1a)	Overview Paper provided separately
A description of how the proposed **TSS complies with the pricing principles,** including supporting materials	6.8.2(c), 11.73.2	See Section 8.5. Attachment 1 sets out how we set tariffs that are based on LRMC. Attachment 2 describes how the revenue to be recovered from each tariff class lies between stand alone and avoidable costs.
The TSS must include **tariff classes**	6.18.1A(a)(1)	See Section 8.1
The TSS must include the policies and procedures for **assigning consumers to tariffs and reassigning** from one to another	6.18.1A(a)(2)	See Section 7 and Sections 8.2-8.4
The TSS must include the **structures** for each tariff	6.18.1A(a)(3)	See Sections 8.2-8.4
The TSS must include the **charging parameters** for each tariff	6.18.1A(a)(4)	See Sections 8.2-8.4
The TSS must include a **description of the approach to be taken in setting each tariff** in each pricing proposal during the regulatory period	6.18.1A(a)(5)	Section 8 and Attachment 1
A description of **engagement with consumers, retailers and stakeholders** in developing the TSS	6.8.2(c1a), 11.73.2	See Section 6 and Overview Paper. In Section 7 we describe how stakeholder engagement influenced our tariff strategy for each tariff class.
The TSS must be accompanied by an **indicative pricing schedule**	6.8.2(d1), 6.18.1A(e)	Indicative pricing schedules for NUOS and ACS are provided in Attachments 3 and 4.

2 Drivers of tariff reform

Our tariff strategy for the future needs to be flexible enough to accommodate a wide range of drivers of electricity supply and usage. The recent changes in the Australian electricity market driven by regulatory and policy decisions, technological developments and changing consumer attitudes are set to continue. As shown in Figure 2-1 below, it is likely that in the future, energy flows in the supply chain will not be "one-way" (and this is already happening with PVs) but will have the ability to influence flows, peak demand and energy management through battery storage and electric vehicles.

Figure 2-1: Network of the future[3]



2.1 Better alignment between tariffs and costs

The distribution network component of a consumer's electricity bill covers the cost of the infrastructure (for example, poles, wires and substations) required to deliver electricity to their home or business.

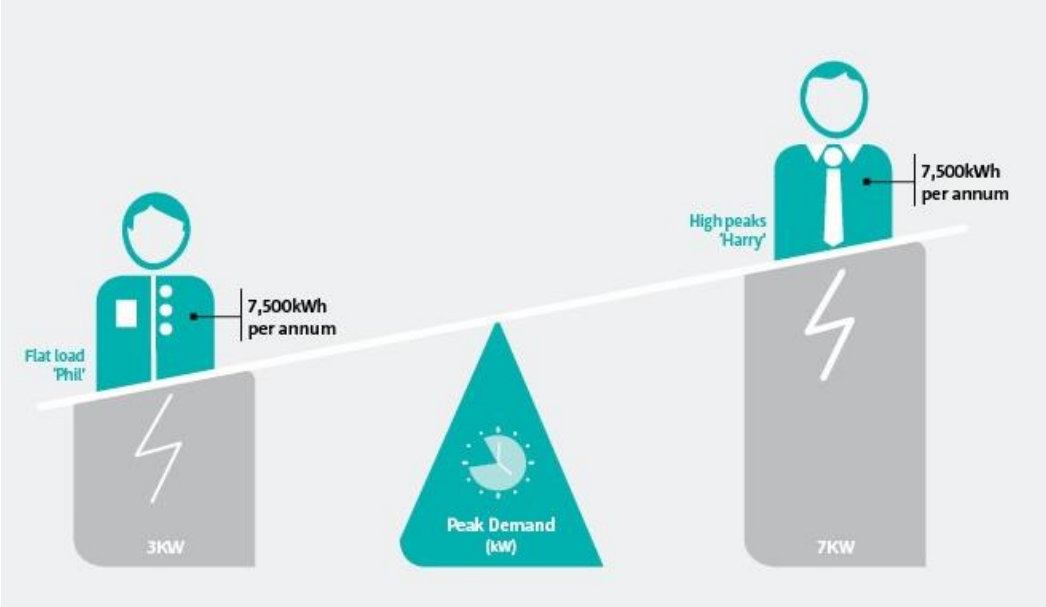
Electricity networks are built to meet the maximum demand requirements of consumers at any given time (known as peak demand). The main driver of network costs is how much up-front

[3] Figure adapted from TSS published by United Energy, September 2015.

capacity needs to be built into the network to meet this peak demand. As a result, a significant proportion of the cost of providing services are up-front costs incurred in the construction the network.

Most of the costs incurred by a distribution business are typically recovered from consumers through variable usage charges based on cents per kilowatt hour (c/kWh). In this way, consumers' bills reflect their electricity consumption, under a pricing structure based on the user pays principle. Mismatches between what drives network costs and how consumers are charged for their use of the network can result in some consumers not paying the right amount for their use of the network, which is considered not to be cost reflective. As an example illustrated in Figure 2-2 below, two different consumers may be consuming the same amount of electricity in kWh (and hence paying the same network bill) but could be placing different demand on the system at peak periods (and thereby imposing different costs).

Figure 2-2: Contribution to the system peak and network costs[4]



These mismatches can fail to give the right incentives to consumers to adopt behaviours which support the efficient use and development of the network. Conversely, cost reflective price signals provide an opportunity to align the network attributes that consumers' value with the price of those attributes.

Although concurrent "maximum demand" is what drives network costs, charges are generally based on energy consumption, due to historical reasons and metering technologies in place. Moving to more cost reflective prices, such as charging on demand rather than consumption, will allow prices

[4] Figure adapted from TSS published by United Energy, September 2015.

to better reflect the costs of using the network. This will allow signalling to consumers of when the cost of using the network is high (when the network is at peak capacity) and when there is spare capacity available to be used by consumers.

It follows from the example above that the current consumption based network tariffs do not provide sufficiently accurate price signals to consumers – that is, they do not tell consumers when it is costly to provide electricity network services but rather charge according to how much is consumed. Without price signals to impact on peak demand there could be increased requirements to build more network capacity, resulting in increased investment and a higher network component of consumer bills.

2.2 Consumers can take control of their electricity decisions

Consumers are increasingly taking a greater interest in the supply of, and their demand for, electricity. Hence, our tariffs need to provide them with the accurate signals and accommodate future changes in consumer behaviour.

An indicator of this changing environment is the take up rate of solar PVs. About 16,300 consumers in the ACT had installed PV systems as of June 2015, which is close to 10 per cent of the total consumer base. The majority of these consumers are not 'off the grid', as they remain connected to the distribution network for different parts of the day or for back-up.

In the future it is likely that more consumers will install solar PV technology resulting in some consumers withdrawing from the electricity grid. Hence, our network tariffs need to be structured in a way that these consumers face the cost of their access to the network, particularly during high demand periods when the network is under system-wide pressure.

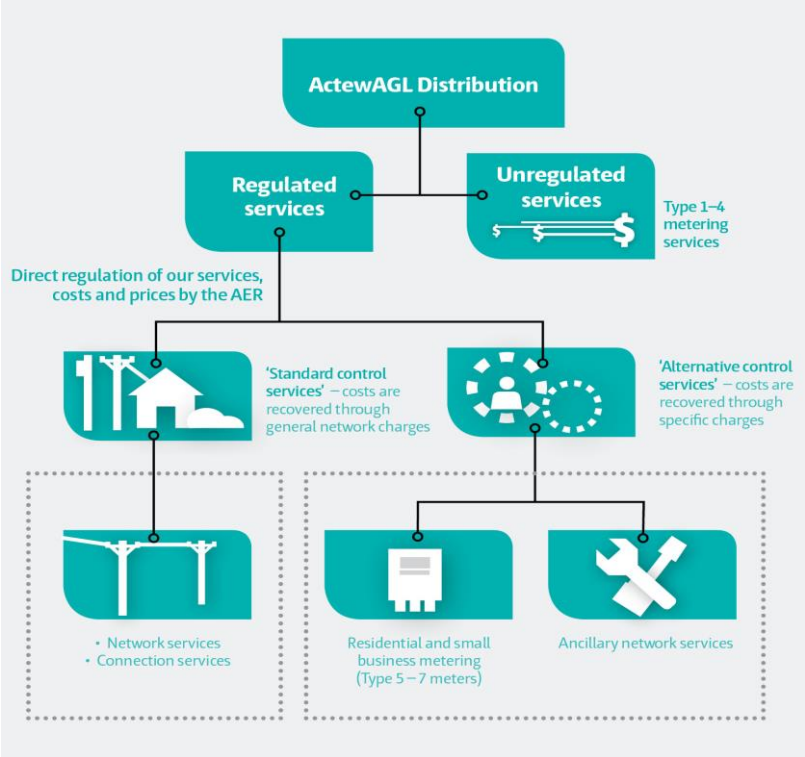
The likely penetration of remotely read metering technology will, in the future, provide consumers with real-time information about energy usage including demand and consumption and will give consumers greater control over when to use electricity. As consumers begin to assert their consumption choices on a more informed basis it becomes increasingly important to ensure that network tariff structures incorporate the right price signals.

3 Our current tariffs

3.1 Our network services

The TSS covers our *direct control services* which are regulated by the AER. We also provide unregulated services (see Figure 3.1). The AER has classified our *direct control* services as either *standard control services* or *alternative control services*.

Figure 3-1: Classification of network services



Distribution network and transmission network services are called *standard control* services.

- **Distribution network services**—these are our core network and connection services associated with the access and supply of electricity to consumers — that is, transporting and transforming electricity from high-voltage transmission lines to low voltage supply lines for consumers, maintaining the network and controlling the load. The costs associated with providing these services are recovered through distribution network tariffs which are billed to retailers.

- **Transmission services**—a portion of the costs of AAD's high voltage lines (which operate parallel to and provide support services for TransGrid's transmission network),[5] is recovered through a separate transmission network charge.

Our *alternative control services* include metering services and user requested ancillary services. These represent a relatively small component of our services. Whereas standard control services are central to electricity supply and are relied on by most, if not all, consumers, alternative control services may be consumer specific or consumer requested, and may also have the potential for provision on a competitive basis.

- **Metering services**— for the current regulatory control period, the AER classified our Type 5 to 7 metering services as alternative control services. These services include: Commissioning of metering and load control equipment
  - Provision of Types 5 to 7 meters
  - Types 5 to 7 metering data services (collection, processing, storage and delivery of metering data and the management of relevant NMI Standing Data in accordance with the Rules)
  - Scheduled meter readings
  - Maintaining and repairing meters and load control equipment
  - Meter testing during business hours (refunded if meter proves to be faulty)
  - Special meter reading or check read (refunded if original reading was incorrect)
  - Install interval meter at consumer's request
  - Replace meter to facilitate renewable energy installation.
- **User requested services**—these are typically divided into fee based and quoted ancillary services:
  - fee-based services – services for which costs are generally known prior to undertaken the services, and typically don't vary very much between consumers such as new network connections, premise re-energisation and network design and investigation/analysis services (PV installations)
  - quoted ancillary services – which are not considered typical or standard, or where the scope of the service is specific to a particular consumer's needs

[5] Recently-sold, TransGrid owns the electricity transmission network in New South Wales.

3.2 Current tariffs

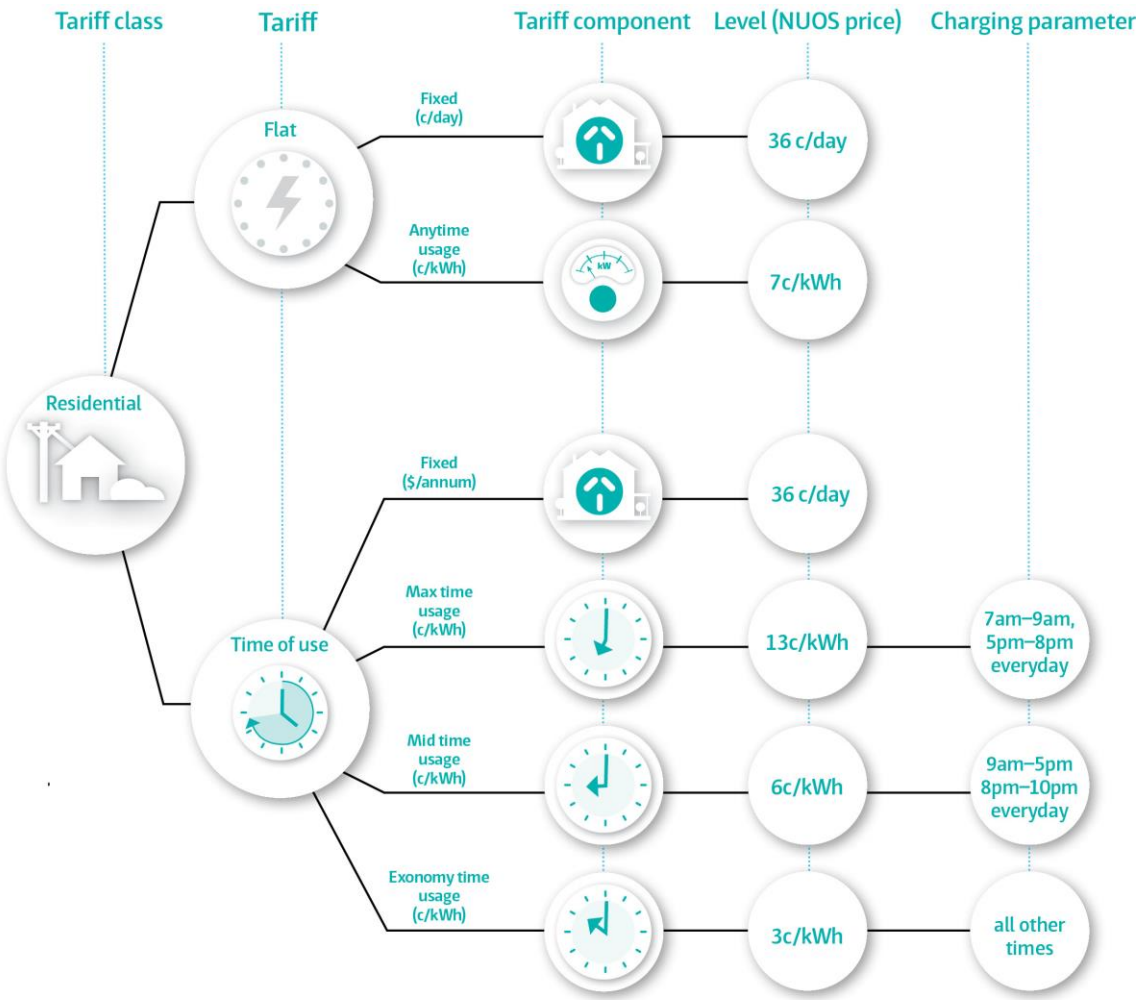
3.2.1 Understanding the tariff concepts used in this TSS

It is useful to explain a few key concepts as they get used throughput the TSS:

- **Tariff classes**—Our business serves about 180,000 residential and business electricity consumers. Based on their characteristics we categorise them into three tariff classes. See Section 3.3.2 for further information on this.
- **Tariffs**—For each tariff class, we currently offer a number of tariffs. A consumer is typically receiving their electricity service from us by being assigned to selecting one tariff. A tariff will consist of different tariff components. See Section 3.3.3 for further information on our existing tariffs.
- **Tariff component**—Each tariff has a tariff structure which enables consumers to receive different pricing signals from us. The tariff structure consists of different tariff components. For example, one tariff may only have two components such as a fixed charge and one energy charge that does not vary with time of the day. Another tariff may include up to five tariff components, such as a fixed charge, energy charge for the peak periods, an energy charge for shoulder periods, a different energy charge for the off-peak period, and a demand charge.
- **Tariff Levels**—the price that is paid for each tariff component is referred to as the tariff level.
- **Charging parameter**—these provide additional information on how and when a tariff component and level are applied. For example, the charging parameter for the off-peak charge for energy consumption may be 10pm-7am.

Figure 3-2 visualises how these concepts fit together.

Figure 3-2 – Tariff concepts



Source: ActewAGL Electricity Networks Schedule of charges from 1 July 2015

3.2.2 Current tariff classes

Our electricity consumers are categorised into three separate tariff classes:

- Residential—there are about 159,000 consumers in this tariff class[6]
- Commercial low voltage (LV)—there are just over 15,000 consumers in this tariff class
- Commercial high voltage (HV)—there are 26 consumers in this tariff class.

[6] Based on 2013/14 verifiable data provided to the AER as part of our *Network Pricing Proposal, May 2015*.

The Rules stipulate that tariff classes must be constituted with regard to the need to group consumers together on an economically efficient basis and the need to avoid unnecessary transactions costs (clause 6.18.3(d)). We meet this requirement by grouping consumers according to type of connection (residential or commercial) and connection voltage (LV or HV). This means that consumers within each class have similar load and connection characteristics. The relevant costs for each class can then be identified and reflected in the tariffs for each class.

For example, to qualify for the high voltage demand network charges, consumers must take their energy at high voltage (nominal voltage not less than 11 kV) and make a capital contribution towards their connection assets and transformers. High voltage consumers have the option of owning and operating their own high voltage assets. Some consumers have aggregated their load, incorporating part of our low voltage network to become a high voltage consumer.

3.2.3 Overview of our network tariffs

We currently offer our consumers a range of innovative network tariff options so that they are able to choose the tariff that best suits their needs, subject to some eligibility requirements. Within each of the three tariff classes, we have developed a suite of network tariffs that effectively meets the diverse needs of our consumers, encourages efficient use of the network and signals the costs of future network expansion. Figure 3-3 summarises AAD's current network tariff structure.

Figure 3-3 Structure of our current network tariffs

				Network Tariff Components						
Tariff class	Tariff structure	Fixed	All time c/kWh	Block Tariff	Peak c/kWh	Shoulder c/kWh	Off-peak c/kWh	Controlled load off-peak	Demand kVA	Capacity kVA
Residential	Res Basic	✓	✓					✓		
	TOU	✓			✓	✓	✓	✓		
	Res 5000	✓		✓						
	Res Heat Pump	✓		✓						
LV Business	General	✓		✓				✓		
	General TOU	✓			✓	✓	✓			
	Small Unmetered	✓	✓							
	Streetlight	✓	✓							
	LV Demand	✓			✓	✓	✓		✓	
	LV Capacity	✓			✓	✓	✓		✓	✓
HV Business	HV Demand	✓			✓	✓	✓		✓	✓

1. Res refers to residential. LV stands for Low Voltage, HV stands for High Voltage. TOU stands for Time of Use. c/kWh represents cents per kilowatt hours kVA represents kilovolt-amps. Time-of-use and demand tariffs require an interval meter which is currently only available in some homes in the ACT.

3.2.3.1 Residential tariffs

Residential consumers are offered a choice of four network tariff options plus two controlled load off-peak options and an embedded renewable generation tariff option. The underlying basis of each network tariff for residential consumers is a two-part tariff – fixed and consumption, with additional components incorporated in some cases. These additional components are the introduction of inclining block and time of use (TOU) consumption charges.

The *Residential TOU* tariff provides an opportunity and an incentive for consumers with the necessary metering capability to respond to price signals at different times of the day, where reflected in the final price of their retailer, and manage their electricity bill in line with the costs they impose on the network. The Residential TOU tariff is the default tariff for all new residential and commercial connections.

The *Residential 5000* and *Residential with heat pump* tariffs involve a higher connection charge and an inclining block structure with a higher energy charge (cents per kWh) applying above certain thresholds. These tariffs more accurately tailor costs to the load profile of these consumers. The off-peak tariff options can be used in conjunction with the *Residential basic* and the *Residential TOU* network charges.

3.2.3.2 LV Commercial tariffs

Our *Commercial LV consumers* are offered four main tariff options. Commercial consumers on the general network charge also have access to the controlled load off-peak tariff options and the embedded renewable generation tariff option on a similar basis to consumers in the residential

class. All tariffs except for the General Network tariff (which uses an inclining block consumption tariff) involve a fixed network charge and a consumption charge based on TOU.

The additional components that we offer our Commercial LV consumers are a maximum demand charge and/or capacity charge. These additional components are based on demand-side management principles of sending appropriate pricing signals with regard to peak usage.

Two of the Commercial LV options involve capacity and/or maximum demand charges, in conjunction with time-of-use charges. Consumers able to improve their load factor[7] have an incentive to choose a tariff with a demand or capacity charge, and reduce their energy bills. Consumers on the *General network* and *General time-of-use network* tariffs have the option of moving to the demand tariffs and they could lower their network costs if they have a sufficiently large load (for the network cost savings to offset the higher cost of interval metering) and if their load factor is suitable (to ensure that the demand costs do not offset the lower energy charges).

AAD's pricing strategy has in recent years accommodated the development of some innovative tariffs and significant consumer responses. For example, in line with the strategies of setting cost reflective prices and providing opportunities and incentives for demand management, AAD has gradually introduced several time-of-use charging options for both commercial and residential consumers. Approximately 55 per cent of the total load in the ACT is now subject to time-of-use or controlled load (off-peak) charges. For the non-residential sector, approximately 82 per cent of the load is on demand, time-of-use or controlled load tariffs.

In October 2010, time-of-use tariffs became the default tariff for all new residential and commercial premises, but consumers can currently 'opt-out' of time-of use charging by selecting an alternative tariff. More than 25,000 residential consumers are now on the residential time-of-use tariff. Also, more than 4,000 non-residential consumers have moved to the general time-of-use or the low voltage demand tariff, an increase of more than 100 per cent since the new default tariff arrangements were put in place.

3.2.3.3 HV Commercial tariffs

Commercial HV consumers in the ACT are offered four tariff options. All our commercial HV tariffs include a fixed network charge, a volumetric charge based on TOU, and a maximum demand charge and/or capacity charge.

The application of maximum demand and capacity charges in several commercial tariff options has further strengthened price signals to consumers, providing incentives to use the network more efficiently and resulting in significant consumer responses. The maximum demand charges signal to consumers the relatively high cost of providing capacity to meet demand and provide incentives to consumers to improve both their load factor (that is, spread their load more evenly) and power factor (which allows the existing network to deliver more energy). Between 1999/00 and 2013/14, consumers on the *Low voltage demand* network tariff improved their load factor and, therefore,

[7] The load factor is the ratio of average load to the maximum demand (peak load).

their utilisation of the network by 12.3 per cent, increasing the average energy consumed relative to the average of their monthly maximum demand from 40.1 per cent to 45.1 per cent. Over the same period, high voltage consumers increased their load factor, and therefore their utilisation of the network, from 54.2 per cent to 59.4 per cent, an improvement of 9.6 per cent.

These price signals have been effective demand management tools and have allowed AAD to keep network augmentation costs to a minimum.

As shown in Figure 3-4, our existing residential and commercial tariffs broadly comprise different combinations of the following components:

- A fixed network access charges—these apply per consumer for residential consumers and per connection point for commercial consumers.
    - They involve a fixed daily charge and do not vary with electricity consumption or capacity.
    - These charges relate to the connection services provided to consumers.
    - They are based upon the cost of constructing and maintaining connection assets as well as servicing consumers for each tariff class, including consumer related costs such as network call centre costs.
- Energy or usage charges—these apply to each unit of electricity consumed.
    - The c/kWh rate may vary with the level of consumption (with higher rates applying above certain thresholds) or with the time-of-use (with lower rates applying at off-peak periods).
    - Higher energy rates at peak periods reflect higher costs of providing capacity for these peak times. Higher energy rates beyond 330 kWh per day for the general network charge encourage larger consumers with a good load factor to move to demand or time-of-use network charges.
    - Energy charges relate to the distribution services provided to consumers. They are linked to the cost of constructing, maintaining and servicing distribution assets (other than connection assets), and also recover most of the common services costs.
- Maximum demand charges—these apply per connection point for some commercial tariffs. They involve a charge per unit of maximum demand (in c/kVA/day). The maximum demand is the highest demand calculated over a 30-minute interval during the billing period.
- Capacity charges—these apply on the same basis as maximum demand charges, but are for the maximum demand calculated over a 30-minute interval during the previous 12 months.

Maximum demand and capacity charges are based upon the cost of providing capacity to meet the consumers' maximum demand and are intended to provide incentives for consumers to manage their load on the network.

Figure 3-4: Summary of existing tariff components

Residential consumers are offered a choice of four network tariff options plus two controlled load off-peak tariffs and an embedded renewable generation tariff. Commercial LV consumers are offered four main tariff options. Commercial HV consumers are also offered four tariff options. Consumers are able to choose the option which best suits their needs, subject to the eligibility criteria set out in Table 3-1 below.

Table 3-1: ActewAGL's existing tariff structures and eligibility criteria

Tariff class	Tariff	Consumer eligible to receive tariff	Component	Unit	Charging parameter
Residential	Residential Basic Network*	Private dwellings (excluding serviced apartments) — including living quarters on farms, charitable homes, retirement villages, etc.	Fixed network access charge Energy consumption charge	¢/day ¢/kWh	
	Residential TOU Network*	Residential consumers (as defined above) and electric vehicles recharge facilities (on residential properties) with a TOU meter.	Fixed network access charge Energy consumption charge based on (TOU)	¢/day ¢/kWh	**Max Times:** 7am – 9am and 5pm – 8pm every day **Mid Times:** 9am – 5pm and 8pm – 10pm every day **Economy Times:** All other times
	Residential 5000*	Residential consumers who have large continuous (rather than time controlled) loads, such as electric hot water systems, and consume over 5,000 kWh per annum.	Fixed network access charge Inclining block tariff energy consumption charge with 2 tiers	¢/day ¢/kWh	Tier break set at 60 kWh per day
	Residential with Heat Pump*	Only available to residential consumers with a reverse cycle air conditioner.	Fixed network access charge Inclining block tariff energy consumption charge with 2 tiers	¢/day ¢/kWh	Tier break set at 165 kWh per day
	Off-Peak (1) Night Network	Available only to consumers utilising a controlled load element — it is applicable to permanent heat (or cold) storage, electric vehicle	Energy consumption charge	¢/kWh	Within controlled period: 10pm – 7am only

Tariff class	Tariff	Consumer eligible to receive tariff	Component	Unit	Charging parameter
		recharge, and CNG vehicle gas compression installations.			
	Off-Peak (3) Day & Night Network	Available only to consumers utilising a controlled load element — it is applicable to permanent heat (or cold) storage installations.	Energy consumption charge)	¢/kWh	Within controlled period: 10pm – 7am and 9am – 5pm only
	Renewable Energy Generation	Consumers with grid connected solar or wind energy generation systems.	Energy consumption/generation	¢/kWh	
Commercial Low Voltage	General Network*	Available to all commercial low voltage consumers.	Fixed network access charge Inclining block tariff energy consumption charge with 2 tiers	¢/day ¢/kWh	Tier break is set at 330 kWh per day
	General TOU Network*	Available to all commercial low voltage consumers with a TOU meter.	Fixed network access charge (per connection point) Energy consumption charge based on time of use	¢/day ¢/kWh	**Business Times:** 7am – 5pm every weekday **Evening Times:** 5pm – 10pm every weekday **Off-Peak Times:** All other times
	TOU kVA Demand Network*	Available to all low voltage consumers with a TOU meter (except those consumers with an embedded generation system).	Fixed network access charge (per connection point) Maximum demand charge Energy consumption charge based on time of use	¢/day ¢/kVA/day ¢/kWh	Maximum Demand charge applied to the maximum demand in the billing period Energy charges: **Business Times:** 7am – 5pm every weekday **Evening Times:** 5pm – 10pm every weekday **Off-Peak Times:** All other times

Tariff class	Tariff	Consumer eligible to receive tariff	Component	Unit	Charging parameter
	TOU Capacity Network*	Open to all low voltage consumers with a TOU meter. Prescribed for low voltage consumers with embedded generation.	Fixed network access charge Maximum demand charge Capacity charge Energy consumption charge based on time of use	¢/day ¢/kVA/day ¢/kVA/day ¢/kWh	Maximum Demand charge applied to the maximum demand in the billing period Capacity charge applied to the maximum demand in the previous 12 months Energy charges: **Business Times:** 7am – 5pm every weekday **Evening Times:** 5pm – 10pm every weekday **Off-Peak Times:** All other times
	Small Unmetered Loads Network	Applies to eligible installations as determined by AAD, including: telephone boxes, telecommunication devices.	Fixed network access charge Energy consumption charge	¢/day ¢/kWh	
	Street Lighting Network*	Applies to the night-time lighting of streets and public ways and places.	Fixed network access charge Energy consumption charge	¢/day ¢/kWh	
Commercial High Voltage	TOU Demand Network	Large consumers taking supply at high voltage with a low voltage network owned and maintained by AAD.	All four tariffs have the following components: • Fixed network access charge (per connection point) • Maximum demand charge	$/day ¢/kVA/day	Demand charge applied to the maximum demand in the billing period Capacity charge applied to the maximum
	TOU Demand Network – Consumer HV	Large consumers taking supply at high voltage with a low voltage network owned and maintained by			

Tariff class	Tariff	Consumer eligible to receive tariff	Component	Unit	Charging parameter
		AAD, where consumer owns and is responsible for their high voltage assets.	• Capacity charge • Energy consumption charge based on time of use	¢/kVA/day ¢/kWh	demand in the previous 12 months Energy charges: **Business Times:** 7am – 5pm every weekday **Evening Times:** 5pm – 10pm every weekday **Off-Peak Times:** All other times
	TOU Demand Network – Consumer LV	Large consumers taking supply at high voltage where the consumer owns and is fully responsible for its own low voltage network.			
	TOU Demand Network – Consumer HV and LV	Large consumers taking supply at high voltage where the consumer owns and is fully responsible for their own low voltage network and where the consumer owns and is responsible for their high voltage assets.			

* For each of these tariffs, two separate charges apply - one which includes a meter capital charge (consumers who connected before 30 June 2015) and one which excludes the meter capital charge for those consumers connected to the network after 1 July 2015 and who have paid for their meter.

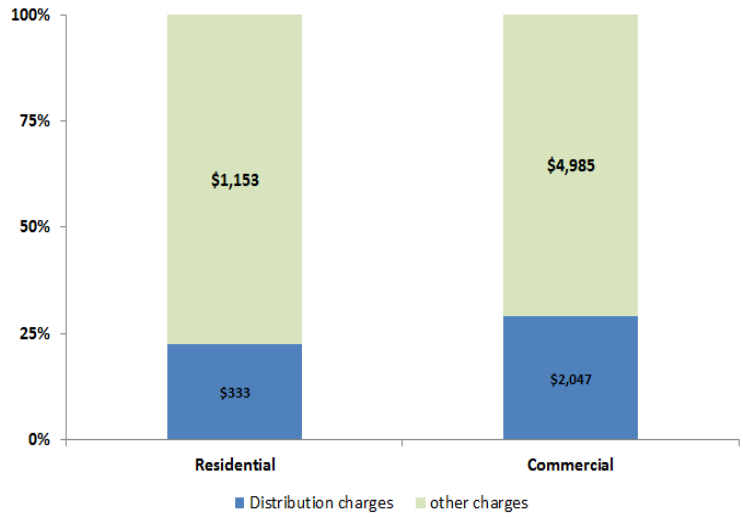
3.2.4 Network charges and the retail bill

All electricity bills are made up of several components:

- the distribution network component covers the poles and wires, that are required to deliver your electricity from transmission points and embedded generators;
- Other charges
    - metering and meter reading costs,
    - the retail component covers the retailer's costs and margins — including the actual cost of purchasing the electricity from generators (wholesale energy cost); and,
    - other components which include charges for transmission costs, ACT jurisdictional schemes[8] as well as GST, which are all passed directly on to consumers.

The breakdown of an average annual household and business electricity retail bill between distribution and other charges is represented in Figure 3-5. For households, the distribution costs of the network account for about 22 per cent of the total electricity bill (including GST), while for business consumers the distribution costs account for 29 per cent of the total bill (including GST).

Figure 3-5: Distribution component of the average annual residential and commercial retail bill for AAD consumers, 2014/15



Note: Average Residential bill is based on 7,000 kWh p.a. (total retail bill is estimated to be $1,468 including GST). Average Commercial bill is based on 30MW p.a. (total retail bill is estimated to be $7,032 including GST). Average bill estimations are based on Residential Basic tariff for residential consumers, and General Network tariff for commercial consumers.

[8] For example, the Energy Industry Levy, the Utilities Network Facilities Tax and the feed-in tariffs under the *Electricity Feed-in (Large-scale Renewable Energy Generation) Act 2011 (ACT)*.

3.3 Profile of our consumers

Figure 3-6 provides a profile of our consumers and tariffs.[9] The top-half of the diagram presents key metrics (percentage of consumers, consumption, and distribution revenues) for each tariff class. The second half of the diagram shows, for each tariff class, the revenues derived for different types of tariff components—fixed charges, flat rate consumption charges, Time-of-Use consumption charges, and demand/capacity charges.

Residential consumers

Although residential consumers represent over 90 per cent of our total consumer base, they account for only 40 per cent of total electricity consumption. Residential consumers contribute 39 per cent of the total distribution tariff revenue (see top row of Figure 3.5). Most of the revenue is from fixed charges (32 per cent) and flat rate consumption tariff components (62 per cent). The Time-of-Use tariff component contributes only seven per cent of total DUOS revenues for the residential consumer tariff class.

Low voltage commercial consumers

Our commercial LV consumers account for 9 per cent of our total consumer base but consume a significant proportion of the total electricity load, at about 47 per cent. They generate 54 per cent of our DUOS revenues and the largest source of revenues is the demand/capacity tariff component (36 per cent). This is followed closely by Time-of-Use tariff component which contributes 32 per cent of the total DOUS revenues.

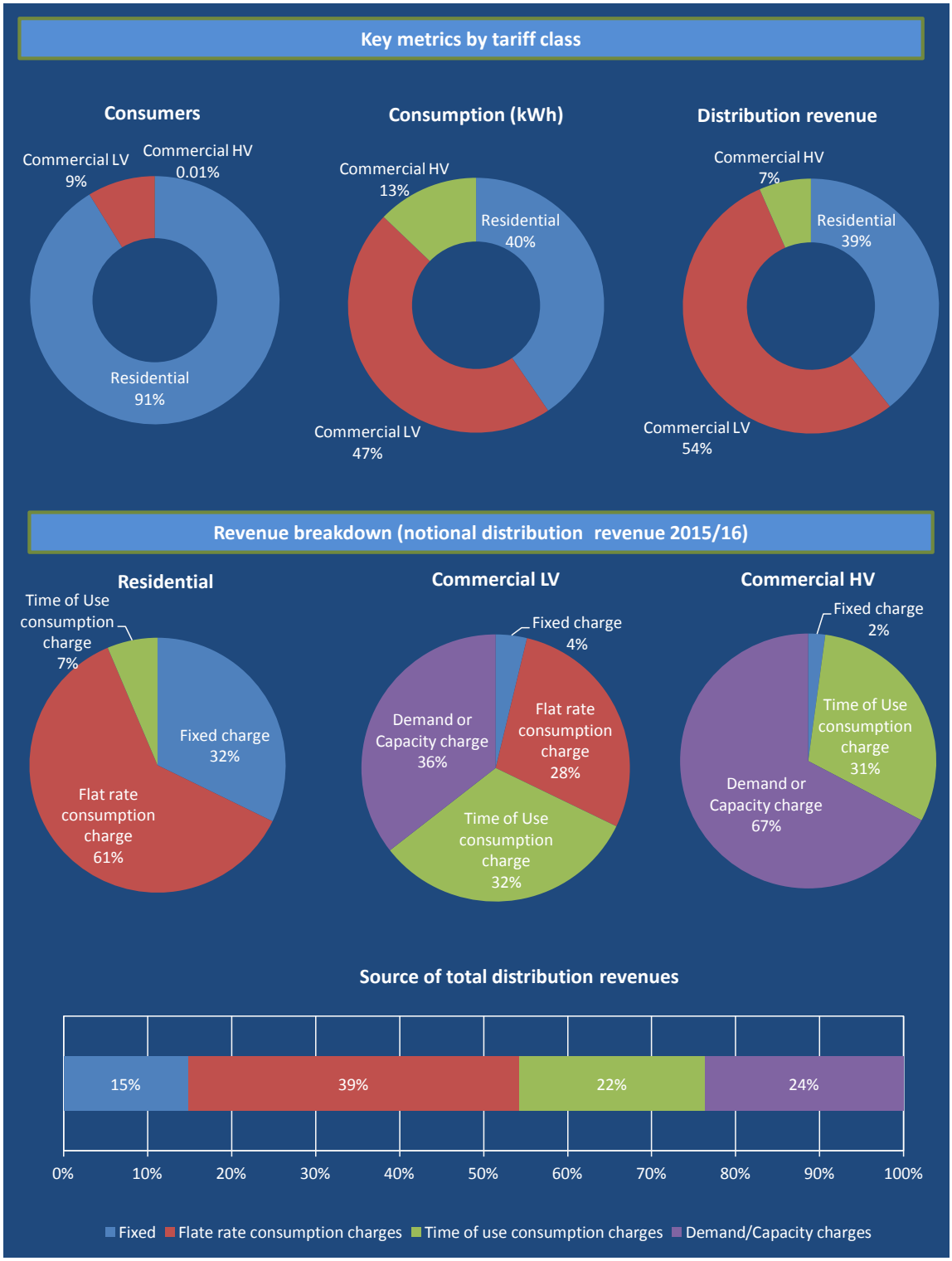
High voltage commercial consumers

Commercial HV consumers account for only 0.01 per cent of our total consumer base yet they constitute 13 per cent of the electricity consumption and contribute 7 per cent of AAD's distribution tariff revenue. Around two-thirds of the revenue we receive from commercial HV consumers is from demand or capacity tariff components.

Overall, nearly a quarter of our total DUOS revenues are derived from demand or capacity tariff components and a further 22 per cent from Time-of-Use tariff components. Further, 76 per cent of total consumption by commercial consumers is already subject to tariffs that include a demand or capacity tariff component.

[9] Based on information consistent with AAD's *Network Pricing Proposal 2015/16* submitted to the AER in May 2015. The information uses 2015/16 tariffs and relies on consumer and consumption data for 2013/14.

Figure 3-6: Key metrics by tariff class and revenue contribution by tariff component



3.4 Profile of our network

3.4.1 What are the current constraints and how do they drive network augmentation

In designing either new tariffs or assessing the speed of transition to cost-reflective tariffs, we must consider the extent of any capacity constraints in the network. For example, a specific and critical capacity constraint may, as part of a wider range of solutions, require designing our tariffs to send sharp price signals in the short-to-medium term. That said, we have not historically experienced such critical peak demand constraints and we have had to invest in two new zone substations in the last 20 years.[10]

One of the drivers for network tariff reform was peak demand constraints which necessitated augmentation of electricity networks. The required capital expenditure has been a source of much public and regulatory debate. However, it is unhelpful to discuss constraints at the system level as peak demand is more usually a localised issue rather than a network-wide matter. Moreover, the peak demand placed upon an electricity network is influenced by many factors including the economy, consumer activity, the type and nature of consumer installations connected to the network and the extremes of weather conditions.

We forecast the network peak demand for summer and winter for a ten-year period to enable forward planning and these forecasts are provided to the AER every year through *Distribution Annual Planning Report (DAPR)*. Based on the load forecasts, the DAPR outlines our plans for augmentation of the distribution network to meet demand over the next 10 years.

Figure 3-7 provides load forecasts for 2024 for key zone substations where load forecasts are expected to be:

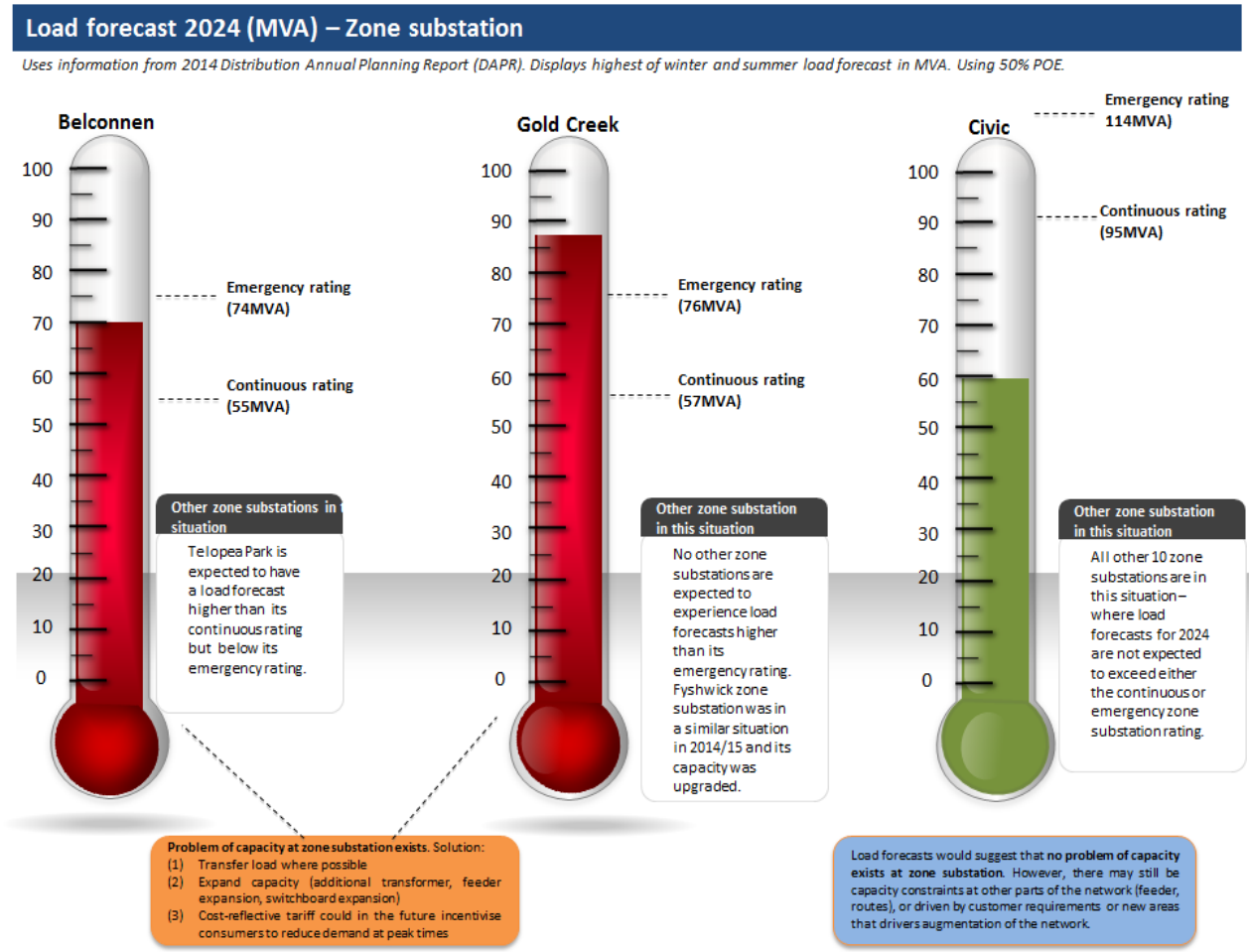
(i) below the continuous and emergency rating;

(ii) higher than the continuous rating but below the emergency rating; and

(iii) exceed both the continuous and emergency rating.

[10] Angle Crossing (2012), Eastlake (2013)

Figure 3-7: Load forecasts (Mega Volt Amps)



For zone substations that are expected to exceed the continuous rating or emergency rating, the possible planning solutions include:

- transferring load where possible;
- expanding capacity (which could include additional transformers, feeder expansion, or switchboard expansion); and/or,
- setting cost-reflective tariffs that incentivise consumers to reduce demand at peak times.

Of equal importance is the number of zone substations that are expected to operate well within their continuous or emergency rating, such as the Civic zone substation identified in Figure 3-7. Although the load forecast would suggest that no peak demand exists at that zone substation, there may still be capacity constraints within different parts of the area covered by the Civic zone substation.

There could be capacity constraints at the feeder level or specific routes, and augmentation may still be required as driven by consumer requirements. For example, this could be driven by large

consumers such as the Australian National University or new geographic areas that need to be serviced from this zone substation before a new zone substation is built for that area.

Similarly, a new major urban development at Molonglo and North Weston districts with a total planned population of 55,000 over the next twenty (20) years is expected to introduce an additional demand of around 10MVA by 2020. It has been determined that the early stages of this development, until 2019, can be supplied from Woden, Latham and Civic Zone Substations by upgrading and extending selected feeders. A new zone substation or other network supply solution will be required to be in service prior to 2019 to meet the growing electricity supply requirements of the Molonglo area.

As a result, demand driven augmentation is usually undertaken to meet growing demand in new and existing suburbs, address voltage issues caused by growing demand or to meet planning criteria where growing demand breaches the planning criteria. The costs of the network augmentation, in turn, drive the calculation of long run marginal costs.

3.4.2 Peak load profile of our network

In designing either new tariffs or assessing the speed of transition to cost-reflective tariffs, we analyse our load profile across the year, between different seasons and times of the week and day. This provides the foundation for designing of new tariffs or to refine existing ones.

The objective of this Section is to:

- highlight the shape and characteristics of AAD's system peak day load profile;
- highlight the shape and characteristics of the peak day load profiles of each of AAD's main zone substations; and,
- outline our key observations based on these network characteristics and their implications for the design of our network tariffs.

Table 3-2 below shows that our system generally peaks in the winter months, with approximately 80 per cent of the peak demand days (as represented by the top five demand days in a year) have occurred in the winter.

Table 3-2: Top 5 system peak demand days by season: 2010-11 to 2014-15

Year	Number of Top 5 System Peak Demand Days in	
	Winter	Summer
2010-11	3	2
2011-12	5	0
2012-13	4	1
2013-14	2	3
2014-15	5	0
Total	19	6

Further, Table 3-3 below shows that many of the zone substations experience their individual peak demands in different seasons across the years.

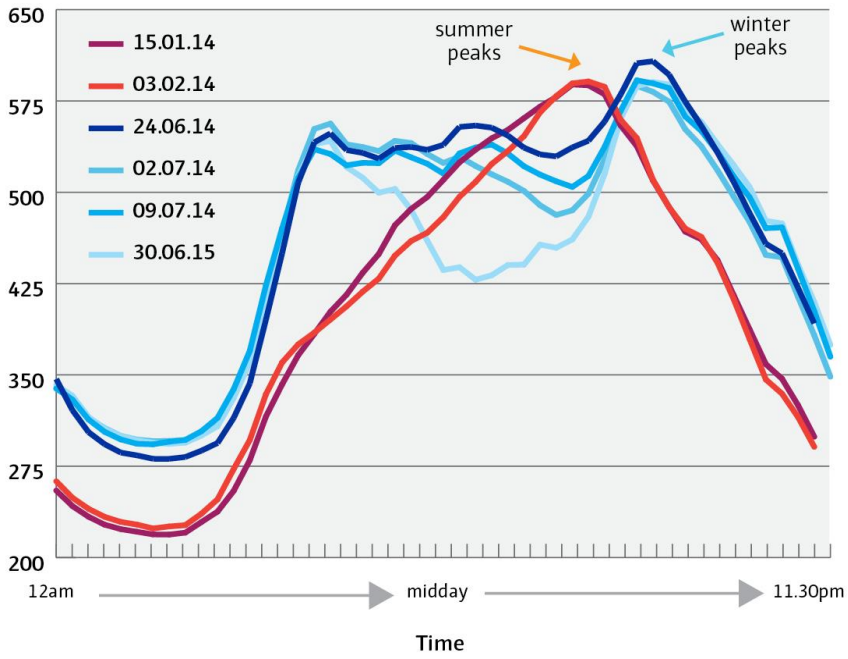
Table 3-3: Number of maximum peak demand days by zone substation by season (2010-11 to 2014-15)

Year	Number of Maximum Peak Demand Days by Season	
	Winter	Summer
Belconnen	2	3
City East	2	3
Civic	2	3
East Lake*	1	1
Fyshwick	1	4
Gilmore	5	0
Gold Creek	5	0
Latham	5	0
Telopea	2	3
Theodore	5	0
Wanniassa	5	0
Woden	2	3
Total	37	20

** Only two years of data were available for the East Lake zone substation, 2013/14 and 2014/15.*

Figure 3-8 below shows the profile of total electricity usage in the ACT on the three top peak demand days of 2013/14 and 2014/15. In 2013/14, two of the three top peak demand days were experienced in the summer, and one in the winter. In 2014/15, the three top peak electricity demand days were experienced during the winter months. This shows that typically, in Canberra, peak demand for electricity can be experienced in either summer or winter, depending on the weather conditions. This is different from most other states and territories which typically experience peak demand in the summer months.

Figure 3-8: Top peak electricity demand days in MW in the ACT (2013/14 and 2014/15)



Based on the above information, the key inputs to our tariff strategy are that:

- our network has peaked in both summer and winter over the last five years and the magnitude of those peaks has been fairly similar (at around 600MW);
- our overall system peak day load profile has, in certain years, exhibited similarly high levels at both the morning peak (7.30am-9am), the mid/late afternoon peak (which is generally the time of day when the system peaks in summer) and early evening (which is generally the time of day when the system peaks in winter);
- our overall system load profile, as well as each of the zone substation profiles that have been reviewed, has never peaked before 7am, nor after 8pm, which is consistent with most electricity distribution businesses, and
- like the system overall, individual zone substations do not necessarily peak in the same season each year, and they do not necessarily peak in the same season as each other in each year.

This analysis of our seasonal peak electricity demand indicates that, there is a basis for implementing tariffs that signals to consumers, the seasons in which it is more costly to provide electricity. For example, our system peaks in both the summer and the winter and the charging parameters for existing or new demand-based tariffs could reflect in these seasonal cost impacts. This consideration has been taken into account in our review of electricity network tariffs (see Section 8).

4 Pricing principles

Our overarching goal is to set prices in the long term interests of consumers and achieve the National Electricity Objective (the 'NEO'). We do this by structuring network prices to signal to consumers the future costs of providing network services. This enables consumers to make informed choices about their consumption and investment decisions. If consumers choose to lower their consumption and reduce the magnitude of their peak demand, this will help to reduce future network costs and lower bills.

As discussed earlier, the 2012 changes to the distribution network pricing Rules are designed to provide sufficient flexibility and guidance to encourage network businesses to structure network prices and set network price levels to achieve two main objectives:[11]

- to ensure that prices signal future costs; and
- businesses can recover the total efficient costs of providing network services.

The new Rules include a pricing objective and several pricing principles. The network pricing objective is for network prices to reflect the efficient costs of providing services to consumers. This objective guides how to comply with the pricing principles. The pricing principles require:

- *Tariffs to be based on long run marginal cost.* Each tariff must be based on the long run marginal cost to ensure that network prices send efficient future cost signals to consumers. (Clause 6.18.5 (f))
- *There are no cross subsidies between tariff classes.* The expected revenue from each tariff class must be between the avoidable costs and stand alone cost of serving those consumers. This safeguards against large cross-subsidies between tariffs classes, such as residential and business consumers. (Clause 6.18.5 (e))
- *Tariffs to recover total efficient costs.* This principle has three parts, to enable the recovery of total efficient costs, that the revenue from each tariff reflects the total efficient cost of providing services to those consumers and that revenue is recovered in a way that minimises distortions to consumers' usage decisions. (Clause 6.18.5 (g))
- *Consideration of consumer impacts.* The impact of network price changes on consumers must be considered in determining how to transition consumers to cost reflective prices over time. (Clause 6.18.5(h))
- *Tariffs to be capable of being understood.* Network prices must be set so that they can be understood by consumers. (Clause 6.18.5 (i))

[11] AEMC 2014, *National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014,* Rule Determination, pp10-11

- *Tariffs comply with jurisdictional obligations.* This principle allows businesses to take into account any jurisdictional specific obligations which apply to prices. (Clause 6.18.5(j))

We outline how this proposed TSS complies with the pricing principles in Section 8.5.

5 Possible tariff options

We consulted with consumers on their understanding of different tariff options and the stakeholder feedback is reported in Section 6. The options considered in the Network Pricing Review are explained in this section, as well as an assessment of each tariff component. The analysis of tariff options (Section 5) and consumer feedback (Section 6) guides our tariff strategy presented in Section 7.

5.1 Types of tariffs components

Typically electricity network tariffs consist of two or more tariff components, a fixed charge which is charged every day and a variable charge for consumption (typically ¢/kWh). More complex tariffs include other components but also combine some of the more basic elements (such as fixed and consumption components).

While the list below is not exhaustive, the different types of tariff components that are offered by distribution companies around Australia are broadly outlined below, excluding the fixed charge.

- **Flat rate**: The consumption charge for the amount of electricity consumed (charged on a per kWh basis) is a single rate "anytime" charge which is applied to the amount of electricity used, regardless of the time of use or season.
- **Block component**: Different consumption charges are applied for different pre-determined thresholds of usage.
  - Inclining block: Consumption during the billing period is priced in blocks with initial blocks costing less per kWh and consumption in successive blocks costing more per kWh.
  - Declining block: as above but the initial blocks cost more and successive blocks less.
- **Time of use**: The consumption charge varies at different times of the day and is typically cheaper at off-peak periods and more expensive at peak periods.
- **Capacity**: A charge for reserving or booking a certain amount of the network.
- **Demand-based components**:
  - Anytime maximum demand: a charge based on the consumer's maximum demand (maximum amount electricity consumption within a half-hour or other defined period) at any time over the last month
  - Peak time maximum demand: this works in exactly the same way as anytime maximum demand but the maximum demand component is based on the consumer's maximum amount of electricity consumed in a specified peak time interval over the last month. The specified time period corresponds to the time

during which the network would be likely to experience its highest aggregate during that month or on an annual basis

- Seasonal maximum demand: this works in exactly the same way an anytime maximum demand but the maximum demand component is based on the consumer's maximum amount of electricity consumed in a specified season
- Critical peak demand: consumers are charged lower consumption charges for most of the year but higher prices during a few short critical peak periods, such as during extreme weather. Consumers are notified in advance of critical peak times and the critical peak price is a signal for consumers to manage consumption during a critical period.

The introduction of a demand tariff component requires an electricity meter that can measure consumption either instantaneously or over a relatively short time period (such as a half hour).

- **Controlled load**: This tariff is used in combination with another tariff. In exchange for not being able to use appliances such as an electric hot water system at peak periods, the consumption rate applied is lower, and the appliance can only be used during non-peak periods.

It is also conceptually possible to add a locational element to some of the tariff components described (for example either a consumption charge, demand or a critical peak demand charge that varies by location). Such a location-based tariff component recognises that the costs of the network are not uniform and the price signals would reflect this. The Rules provide an option for setting the LRMC based on location (6.18.5(f)(3)). We have not adopted location-based tariffs in this TSS proposal.

5.2 How different tariffs compare

Figure 5-1 shows a simple comparative assessment of the cost-reflectivity performance of various tariff components. For example, there is a wide variety of cost-reflective demand-based tariffs to choose from, such as peak period demand tariffs, seasonal demand tariffs or critical peak demand tariffs. Tariff components can also be combined (such as a peak period demand tariff that varies by season) to develop sharper price signals.

This figure shows, for example, that critical peak demand tariffs are one of the most cost reflective tariffs. The peak period demand tariff or seasonal demand tariffs are more cost-reflective than anytime maximum demand tariff. In describing our transition from existing tariffs to the proposed tariffs, we refer to this continuum of cost-reflective tariffs.

Figure 5-1: Cost-reflectivity of different tariff components

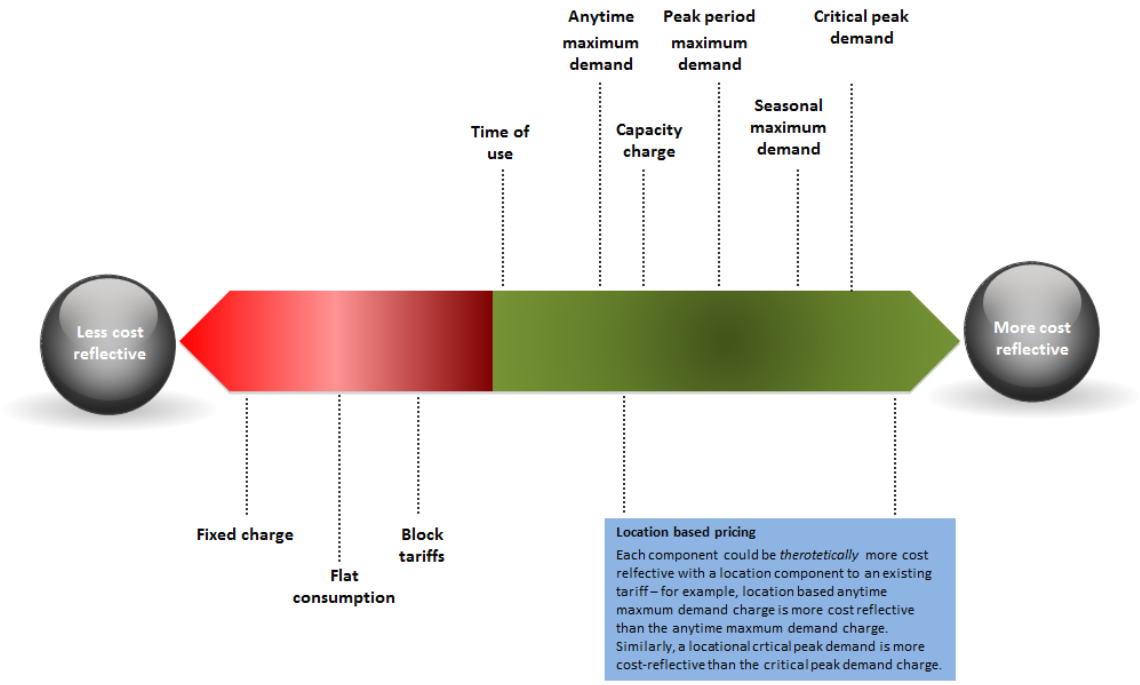
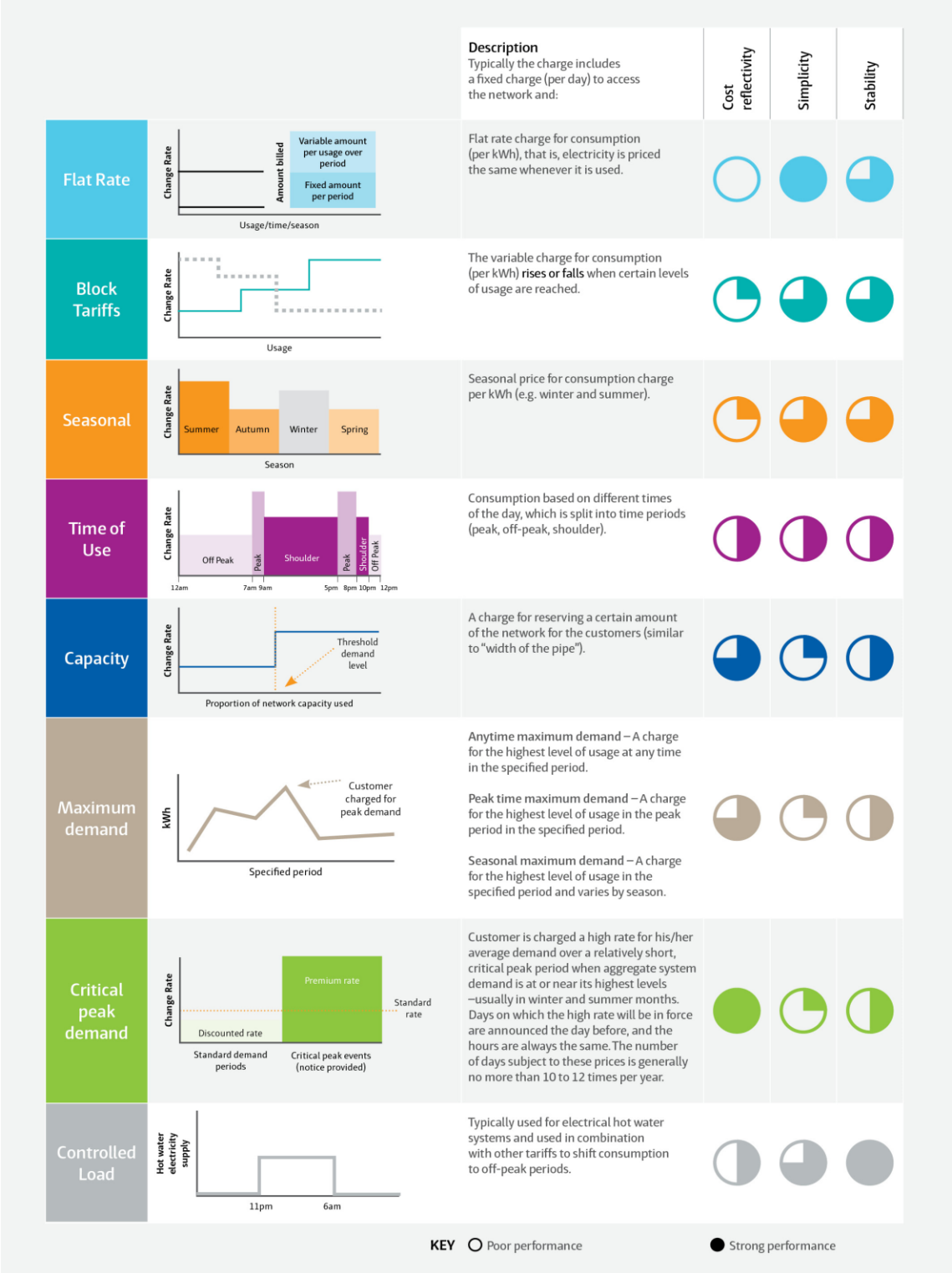


Figure 5.2 presents information on how different tariff components compare against other key pricing principles.

- Simplicity—that the tariff is easy for consumers to understand and should be simple to implement and administer
- Stability (consumer impact)—the tariff does not result in unduly large or sudden increases in consumer's electricity bill (unless as a result of a significant change in consumption)

Figure 5-2: How different tariff components compare



Based on Deloitte Access Economics Pty Ltd *Residential electricity tariff review* January 2014 with additional analysis by AAD.

6 How we engaged with our stakeholders

The consumer engagement program supporting the preparation of the proposed TSS commenced in August 2015 and will continue until the TSS comes into force in July 2017. It was undertaken within the context of our 2014-18 Consumer Engagement Strategy.[12]

The Strategy outlines AAD's commitment to long term consumer engagement to ensure the decisions made on services, costs and tariffs take into consideration consumer preferences. The Strategy defines overarching principles that guide consumer engagement across all aspects of our work. These principles are outlined below and were adopted throughout all consumer engagement activities in developing the proposed TSS.

Table 6-1: Our consumer engagement principles

Principle	What this means for our consumers
Clear, accurate and timely information	Information will be provided that is useful, relevant and easy to understand so that consumers can make informed choices and contribute effectively to the conversation.
Accessible and inclusive	Consumers will be engaged broadly across relevant communities and through a variety of interactions, so that they have the opportunity to participate in discussions, express opinions and understand the outcomes of our conversations.
Transparent	Our engagement with consumers will be open and honest, with regular and meaningful reporting, to enable an understanding of how consumer views and comments were taken into consideration.
Measurable	Each consumer engagement activity will establish clear and measurable criteria against which the success of the engagement can be measured. This will allow for continued improvement across the entire engagement program and ensure we are accountable against the objectives of each engagement activity.
Long-term	Engagement with our consumers will be on-going and regular, recognising that our consumers will be at differing levels of understanding and involvement in our organisation over time.

[12] ActewAGL Distribution Consumer Engagement Strategy Stage 1 May 2014. www.actewagl.com.au/consumerengagement

6.1 Our consumer engagement for this TSS

As explained above, our Consumer Engagement program supports the preparation of the proposed TSS as part of an on-going relationship with AAD's stakeholders that fosters the continual exchange of information with the community.

The TSS consumer engagement program builds on existing relationships with stakeholders and uses a range of activities to engage with stakeholders.

The following activities were used to gather feedback from stakeholders prior to the preparation of the TSS:

- A **consultation paper** titled *Pricing Review for the ACT Electricity Network* was used to explain to consumers the current electricity charges, why network charges are being reviewed, the importance of cost-reflective tariffs and the types of tariffs that could be implemented in the ACT. The consultation paper was published online and distributed to stakeholder groups. Stakeholders were invited to provide direct feedback on the consultation paper. It was also used as an important basis for discussion during workshops and meetings of the Energy Consumer Reference Council.
- The **Energy Consumer Reference Council** (ECRC) provides a representative forum for consumer advocates and industry representatives to have regular input into work of AAD. The Council discussed the upcoming proposed TSS at two meetings during the consultation program and will continue to be engaged during the finalisation and implementation of tariff reform.
- A series of consumer **workshops** for residential and business consumers were used to obtain direct feedback from a number of consumer sectors as well as provide more detailed briefing on the proposed tariff options for the ACT and answer questions from consumers.
- An **online survey** to gather broad feedback from more than 300 residential consumers.
- Individual meetings with **retailers** to explore their views in more detail.

The table below summarises the activities undertaken within the consumer engagement program and the key stakeholders targeted through these activities (Table 6-2).

Table 6-2: Summary of activities and stakeholders

Stakeholder	Consumer engagement activity				
	Consultation paper	ECRC	Workshops	Online survey	Individual meetings
Residential consumers	✓	✓	✓	✓	
Vulnerable consumers	✓	✓	✓		
Commercial consumers	✓	✓	✓		
Retailers	✓	✓			✓

To support these engagement activities, information and regular updates were included on the consumer engagement area of our website. This included the consultation paper, copies of presentations given during the engagement program and a summary of consumer feedback.

The consumer engagement information and activities were promoted across the ACT through the following mechanisms:

- Direct invitation to members of the Energy Consumer Reference Council (10 consumer representative organisations)
- Distribution through the ACT Community Council network (7 Community Councils representing several thousand community members)
- Promotion to members of Canberra Business Chamber industry taskforces, including the small business taskforce (100+ businesses)
- Inclusion in the Master Builders Association ACT weekly newsletter (1,500 businesses)
- Direct email to large consumers and retailers (25 businesses)
- Direct email to database of previous participants in ActewAGL consultation activities (25 individuals)
- Direct email to relevant ACT Government agency representatives
- Information on the consumer engagement pages of the ActewAGL website
- Promotion to ActewAGL Retail Power Panel members (900 residential consumers)
- Social media campaign.

Senior representatives of the AAD Regulatory team participated in all consumer engagement activities to ensure questions from participants were able to be answered well and to allow feedback from participants to be actively heard by those developing AAD's TSS.

Throughout the consumer engagement program there were a number of key themes that were consistent across a range of activities and stakeholder groups. These are summarised in the box below.

What consumers told us – key themes

- *Need to work more with our customers to build better understanding of the energy market and the tariff structures.*
- *Communication with customers to explain the changes to tariffs is important.*
- *Important that vulnerable customers are supported.*
- *Important that price signals are effective for customers that have the ability to modify energy consumption.*
- *There is general understanding and acceptance of the value of more cost-reflective tariffs.*
- *Value stability and therefore comfortable to move to more cost-reflective tariffs in*

6.2 The consultation paper

The consultation paper *Pricing Review for the ACT Electricity Network* was released on 10 September 2015. The paper provided background information, context, the rationale for pricing review and importance of moving towards cost-reflective pricing. The paper provided details on the existing AAD tariff structure and outlined a range of cost-reflective tariffs that could be introduced in the ACT. A copy of the paper can be found at:

www.actewagl.com.au/consumerengagement

The purpose of the consultation paper was to give consumers a better understanding of the issues being explored during the pricing review. It raised a number of questions and highlighted areas that AAD was seeking feedback on.

The consultation paper also included an invitation to consumers to attend one of the community or business workshops or to submit a written submission.

We received two written submissions in response to the consultation paper; one from a retailer and one from a residential consumer. The key feedback provided from these submissions is summarised below.

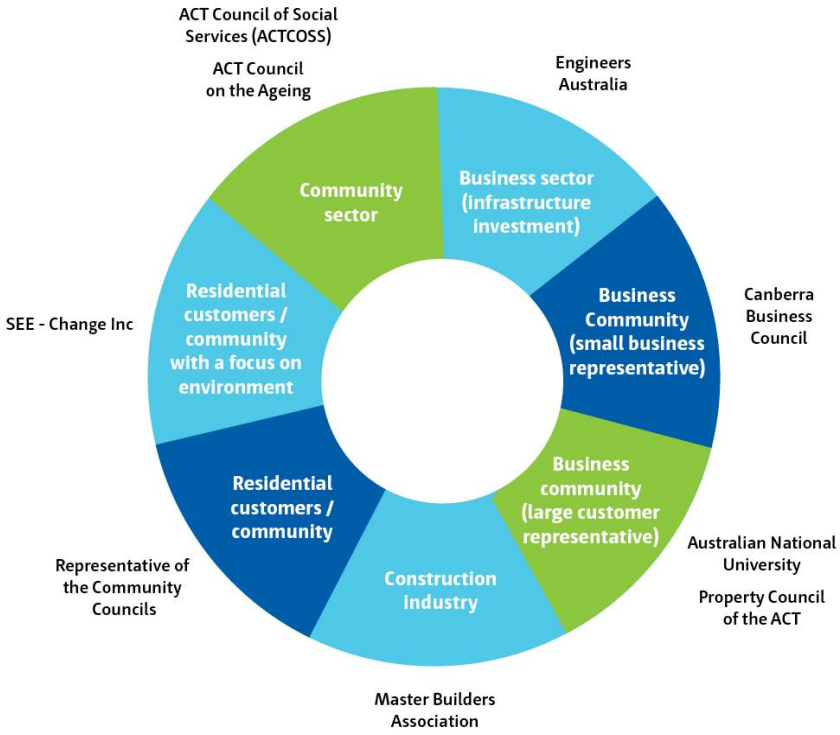
Feedback

- *Important to ensure tariff structure influences behaviours that reduce impact on the network during peaks.*
- *Support for the adoption of a tariff structure that is both cost reflective and influences behavioural change.*
- *Important that tariffs are simple and terminology is used that allows the tariffs to be easily communicated and understood.*
- *Important to consider the transition period associated with the introduction of smart metering technology*
- *Specific suggestions on calculation and application of long run marginal costs.*

6.3 Feedback from the ECRC

The AAD Energy Consumer Reference Council (ECRC) was established in 2014. It has an independent chairperson and is made up of representatives of cross-sections of Canberra consumers from vulnerable consumers, residential, small and large businesses as demonstrated by Figure 6-1 below.

Figure 6-1: Membership of our consumer council



The ECRC spent considerable time considering the electricity tariff reform, setting aside most of two meetings for presentations and discussion.

The discussion at these meetings covered a wide range of areas and minutes of these meetings are available on the AAD Consumer Engagement webpage:

www.actewagl.com.au/consumerengagement .

ECRC Meeting 12 August 2015

The first presentation to the ECRC was supported by a pre-meeting information paper titled "Network Pricing Rule Changes and the TSS". This paper and the supporting presentation provided ECRC members with information on:

- changes to the electricity network pricing Rules;
- the different types of tariffs, including the drivers to move towards more cost-reflective tariffs; and
- proposed consumer engagement program to explore changes to the electricity tariff structure.

During discussion the ECRC provided the following suggestions with respect to the consumer engagement program associated with the network pricing Rule change:

- that it would be useful to be able to engage with the retailers as part of the discussion.
- that discussion at the ECRC would be better informed by participation of 'other voices' in the discussion and proposed to AAD that Mr Gavin Dufty of St Vincent De Paul be invited to attend the next ECRC meeting.
- that a presentation on the results of modelling currently being undertaken by AAD on the impacts of more cost-reflective tariffs would be useful.
- that extra efforts would need to be taken to engage with the business community

AAD Distribution was able to take on board these suggestions by the ECRC as it finalised and implemented the consumer engagement program.

ECRC Meeting 14 October 2015

A second presentation was given to the ECRC by AAD that featured the following:

- update on consumer engagement outcomes
- exploration of the drivers for cost-reflectivity
- analysis on the current tariffs and associated consumer and consumption profiles
- Proposals for introduction of new tariffs

The presentation by AAD was supported by contributions from Mr Lance Hoch, Executive Director, Oakley Greenwood and Mr Gavin Dufty, Manager, Policy and Research, St Vincent de Paul Victoria. The participation by the 'extra voices' provided additional information and alternate views for the ECRC to consider as they discussed proposed tariff changes.

An invitation was extended to representatives of the three active electricity retailers in the ACT. Two representatives of ActewAGL Retail attended the meetings. The other retailers expressed interest in being kept informed of the discussion at the meeting.

Draft minutes of the ECRC meeting have been prepared and will be discussed for ratification at the next ECRC meeting in December 2015. Below is a summary of the overarching feedback provided by the ECRC at the October meeting.

Feedback from the ECRC

- *Support the views of the community and business consultations that there is a need to build customer understanding of the energy sector and how electricity tariffs work.*
- *The importance of further information on the different customer segments and the impacts on particular customers of change to demand based tariffs.*
- *Keen to understand the impacts of tariffs becoming more cost-reflective on the long-term viability of ActewAGL Distribution.*
- *Interested in seeing trials and pilot-projects conducted in the ACT as part of implementing changes to the electricity tariff structure.*

The table below highlights some of the discussion that occurred with respect to specific tariffs proposed by AAD during this meeting (Table 6-3).

Table 6-3: ECRC feedback on specific tariffs

Tariff option	Tariff class	ECRC comments
Critical peak	High voltage consumers	Noted that large business consumers seem comfortable with the tariff. Important that there is a transition path involving the retailers
Critical peak or seasonal demand	Low voltage consumers	Since the ACT is a large service based economy, there may not be much flexibility by this consumer base to modify energy demand. Certainty is important. Need to ensure capacity is available.
General and time-of -use – changing prices, not tariff structure	Low voltage commercial consumers	A reasonable approach for small businesses. Important to provide clear communication with the sector to explain the changes.
Basic and time-of-use – changes to increase fixed proportion of charges	Residential	Interested in impacts on different types of residential consumers, particularly the lower income consumers.

6.4 Engagement with residential consumers

In addition to considered feedback from the ECRC as a representative forum for community, business and the not-for-profit sector, AAD also sought direct feedback from electricity consumers within the ACT. Two types of activities were adopted to gather feedback from residential consumers; community workshops and an online survey.

6.4.1 Workshops

Two community workshops were hosted, one on the north side of Canberra and one in the southern suburbs, as follows:

- 5 – 7pm, 17 September 2015, ActewAGL House, Civic
- 3 – 5pm, 21 September 2015, Abode Hotel, Woden

The workshops were promoted as part of the broader consumer engagement program as outlined in Section 6.1. Representation at the workshops included residential consumers, vulnerable consumers, and ACT Government agency representatives. There was positive engagement by participants and good discussion. Participants completed a brief post-workshop survey which found that information presented at the workshop was easy to understand (90 per cent of respondents), the session was well facilitated (80 per cent of respondents) and it was 'easy or very easy' to contribute and express views (90 per cent of respondents).[13]

The workshops included a presentation by AAD and then a facilitated discussion. The presentation drew on the content of the Consultation Paper and discussion considered the questions raised by the paper. All participants were provided with hard copies of the paper.

The box below summarises the feedback from the community workshops.

Feedback from community workshops

- *Customer education is important to understand how network tariffs work*
- *Interested in solar and how it relates to network charges, what subsidisation occurs and disadvantages to low incomes households not able to take up solar.*
- *Concerned about changes to fixed charges unless they are well explained*
- *Generally supportive of more cost-reflective network tariffs*
- *Keen to understand the need for increased network infrastructure*
- *Curious about how changes in network tariffs will be passed on by retailers*
- *Consideration for vulnerable customers.*

[13] The post-workshop evaluation survey was completed by 90% of participants in the community workshops. The survey was optional and anonymous.

6.4.2 Survey

The online survey was based on the questions posed in the Consultation Paper and sought to gain feedback regarding the following:

- How familiar respondents were with their electricity plans/tariffs[14]
- Importance they place on specific aspects of electricity network pricing
- Understanding of different network pricing plans and their suitability for the ACT
- Preferences for different network pricing plans
- Willingness to change to a different plan
- Speed of transition towards implementing more cost-reflective tariffs

The survey questionnaire is provided as Attachment 5.

319 residential consumers of ActewAGL Retail self-selected to participate in the survey. The sample size reduces to 235 respondents when the responses are classified by household income as about one quarter of respondents provided no income data. A low household income was defined as less than $70,000 per annum. Key findings of the survey are summarised in the box below.

Feedback from survey participants

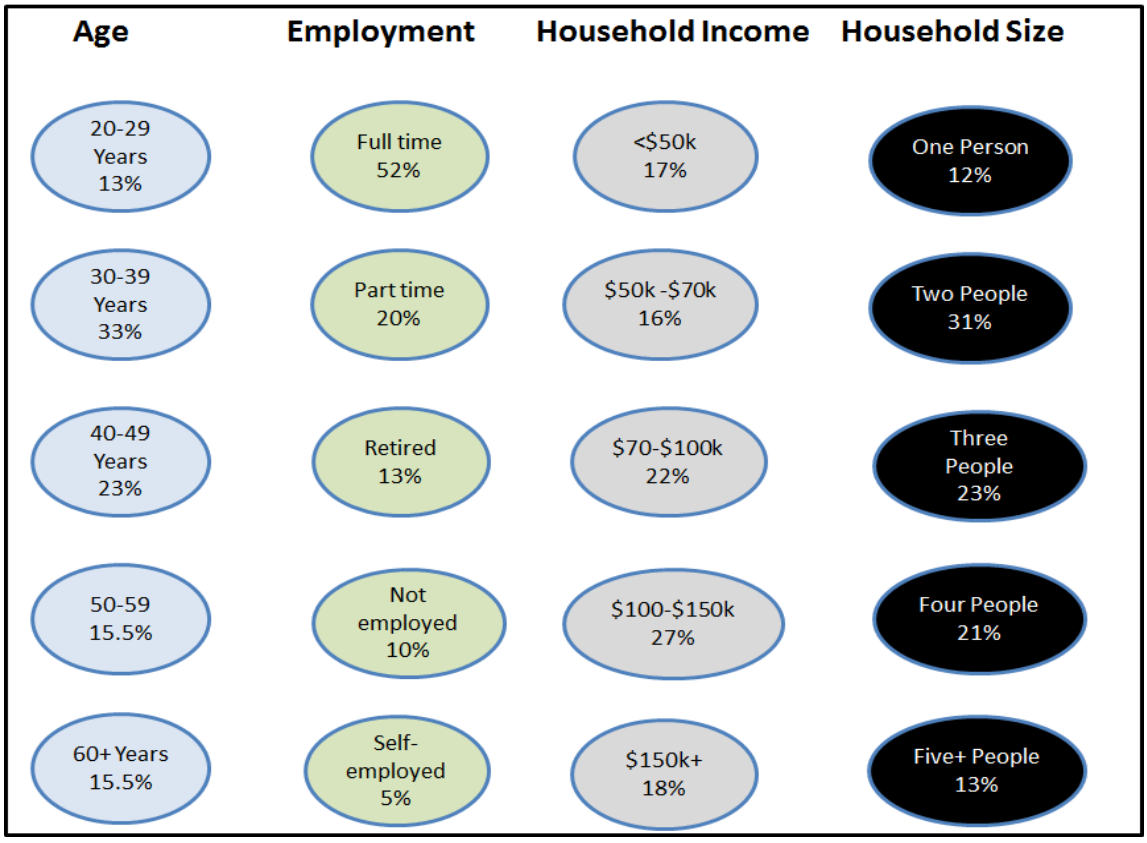
- *Less than 43% of respondents understood there was a network component to their retail bill.*
- *More than 50% did not know which retail electricity tariff they were on.*
- *Only 9% of customers would not consider changing to a more cost-reflective tariff*
- *Based on a brief explanation of a range of tariff types:*
    - *there was a preference for anytime demand and critical peak tariffs,*
    - *demand and critical peak tariffs were the least understood which is to be expected as these are not currently offered to our residential customers.*
- *There was a strong preference (77%) for the transition to cost-reflective pricing to occur quickly; within 3 – 5 years.*

[14] For the purposes of the survey tariffs were referred to as 'plans'.

6.4.2.1 Demographic Information of the Survey Sample

The survey included demographic questions about the respondents to gain an understanding of the representation of different types of consumers. The data is summarised in Figure 6-2.

Figure 6-2: Demographic Information of the Survey Sample



There are a number key findings detailed below drawing from the survey responses that are useful to consider in relation to tariff restructuring.

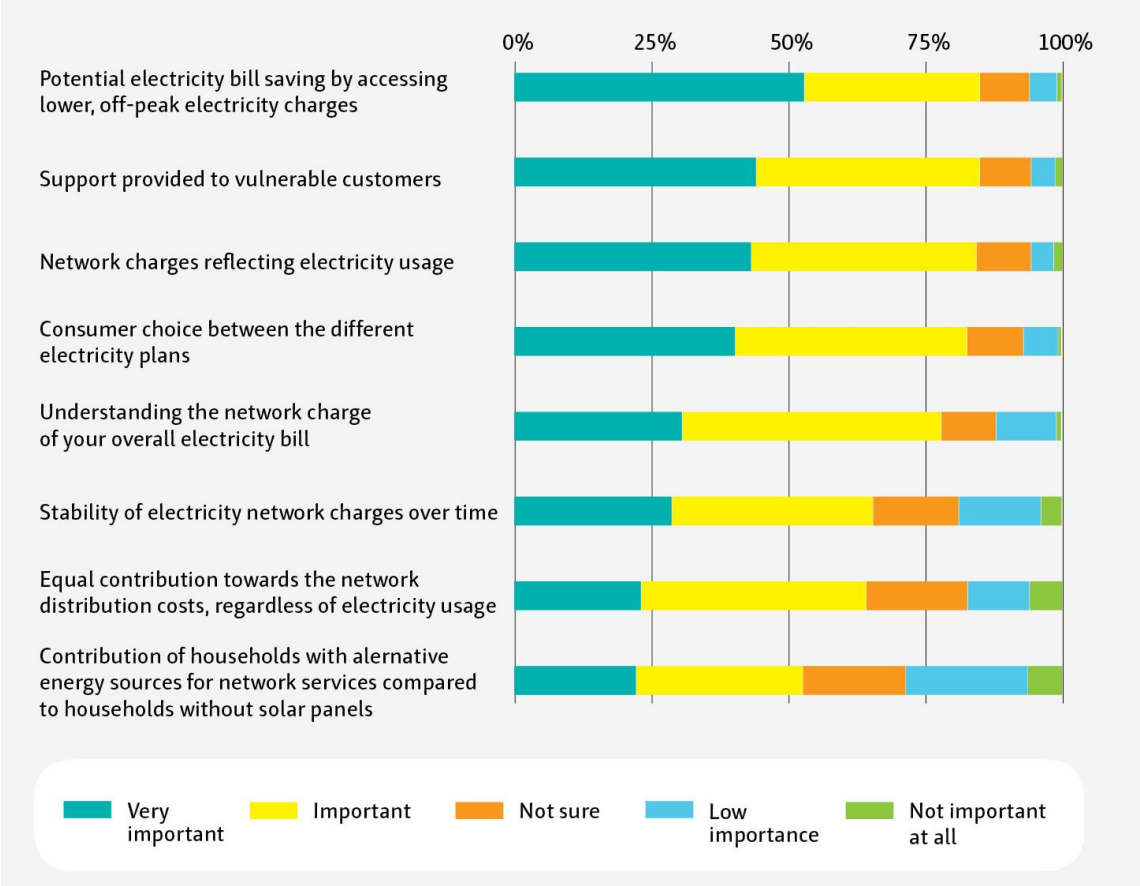
6.4.2.2 Knowledge about Current Plan and Value of Bills

Nearly all respondents knew the annual value of their bills but only half knew the current retail tariff they were on.

Figure 6-3 summarises the strength of respondents' views on key issues relevant to restructuring prices. Respondent's primary concern is the potential for bill savings to be obtained by accessing lower off peak electricity charges with 53% of respondents rating it "very important" and 32% rating it "important". Respondent's second concern is providing support to vulnerable consumers with 44% of respondents rating it "very important" and 41% rating it "important".

The survey results also highlighted it is important to consumers to have choice between electricity tariffs, to understand their bills and that their bills are stable.

Figure 6-3: Respondents' views on key issues relevant to the restructuring tariffs



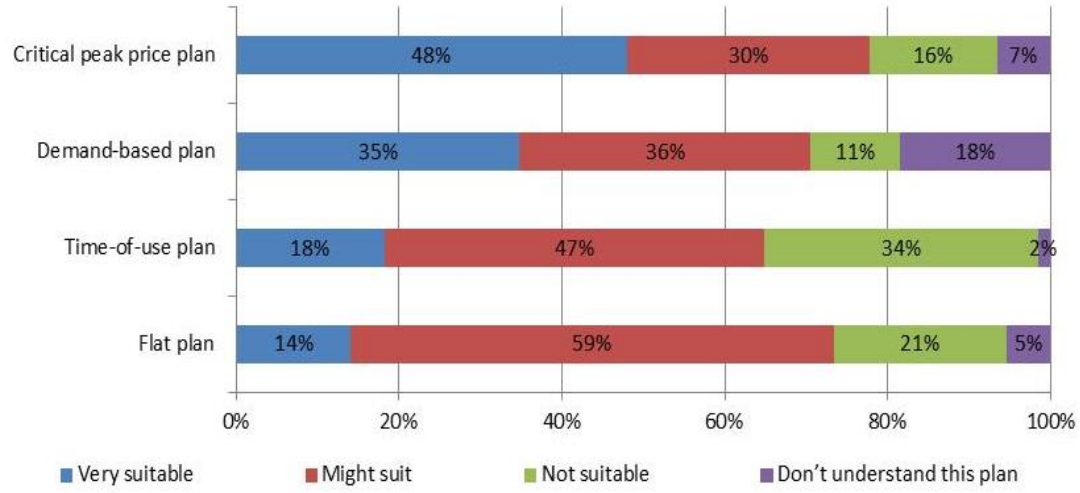
6.4.2.3 Suitability of different pricing tariffs for the ACT

The survey provided a basic description of different tariff options and asked respondents to rate the suitability of the tariff for the ACT. The results are presented in Figure 6-4.

The tariffs with the strongest rating for "very suitable to the ACT" were the critical peak price tariff and demand based tariff. The tariffs that were considered the least suitable for the ACT were the time-of-use and the flat tariffs. This is interesting given that when consumers were asked about willingness to change plan (see below) Time-of-Use was the most preferred new plan and flat tariffs was the second choice.

It is important to note that the demand tariff was the least understood of the options. This is likely to be because residential consumers are not currently offered this type of tariff in the ACT. This lack of understanding has been taken into account in our review of network tariffs, to ensure any residential tariffs are introduced with plenty of time and designed with simplicity in mind. Although the critical peak tariff is not offered to residential consumers, survey respondents generally understood this tariff. This is possibly because this tariff is simpler to explain.

Figure 6-4: Suitability of network electricity tariffs in the ACT

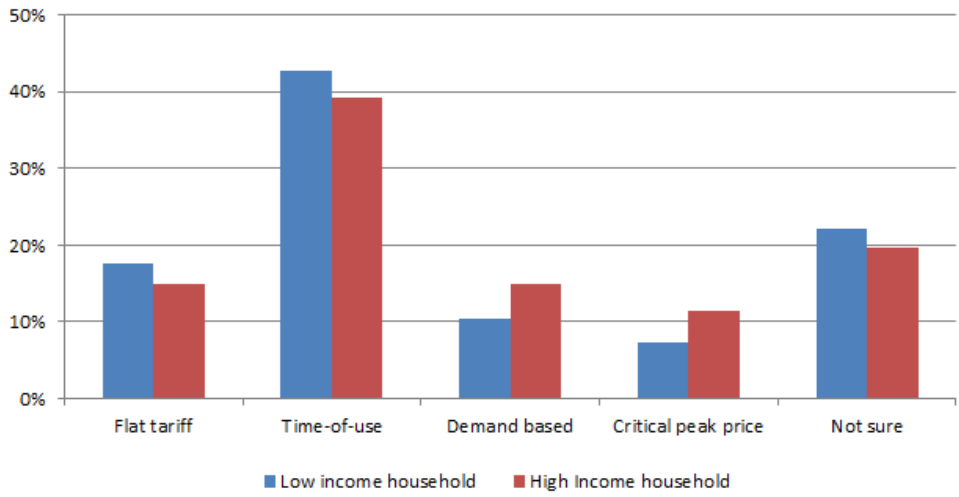


6.4.2.4 Willingness to Change Plan

Respondents indicated a strong willingness to consider changing their current plan. 32% of respondents indicated they would be willing to change, with a further 60 per cent indicating they may be willing to change.

Figure 6-5 shows the respondents preferred tariff option. The most preferred plan in the time-of-use tariff with 40 per cent of respondents indicating they would change to this tariff. The responses were roughly equivalent across low and high income household cohorts.

Figure 6-5: Willingness to change to new tariff



6.5 Engagement with commercial consumers

AAD also sought input from commercial consumers on changes to electricity network tariffs. In particular the top 20 high voltage consumers were contacted by email to update them on the consumer engagement program, provide them with a copy of the discussion paper and invite them to participate in a business workshop. The business workshop was also promoted through the Master Builders Association and the Canberra Business Council.

Two business workshops were promoted, however due to low numbers of respondents this was combined into one workshop held on 2 October 2015. The box below summarises the feedback from the business community.

Feedback from business consumers

- *Communication with business customers is essential to allow them to prepare for changes*
- *Tariffs that target electricity peaks would be welcome by some businesses*
- *Some businesses would be able to adopt to seasonal-based demand, and critical peak demand tariffs*
- *Competitiveness of ACT's low electricity prices may be affected by the ACT Government's renewables target*

6.6 Engagement with retailers

AAD met separately with Energy Australia, Origin Energy and ActewAGL Retail to seek their feedback on electricity network tariff reform. Each retailer was provided with a copy of the discussion paper, as background material before our meetings. The main and consistent point that each retailer raised was the need for a simple tariff structure that consumers can easily understand and respond to. The box below summarises the feedback from the three electricity retailers.

Feedback from retailers

- *Customer education about new tariff options and analysis of potential bill impacts is important to successful tariff reform. This would also help determine the pace of transition.*
- *Concerned about the incentives for customers to move onto new tariffs and manage their consumption accordingly.*
- *A preference for consistency in tariff structure across neighbouring jurisdictions (especially NSW)*
- *Welcomed the opportunity to evaluate the proposed tariff options and offered suggestions on existing tariffs (such as re-balancing fixed and variable charges).*
- *Welcome early notification of change in tariff structure, to resolve metering constraints and properly communicate any new retail tariffs (that result from changes to network tariffs) to their customers.*

6.7 How stakeholders influenced the proposed TSS

Our development of the TSS has been strengthened by the input from the community received in the early stages of developing our TSS proposal. Table 6-4 summarises the feedback and where in the TSS we set out how AAD is responding.

Table 6-4: Consumer feedback and our proposed TSS

Topic	What we heard	Our response and reference in the TSS
Communication	• Need to work more with our consumers to build better understanding of the energy market and the tariff structures. • Business community needs to understand the impacts early to allow time to adjust • Communication by the retailers to consumers about new tariffs is important.	• We propose to continue our engagement once the proposed TSS is lodged and through to the implementation of tariffs in July 2017. • See Section 6.8
Consumer impacts	• Important that vulnerable consumers are supported. • Need to understand the impact of changes to the tariff structure on each consumer segment.	• Consumers are able to utilise existing schemes offered by retailers. See Section 7. • Impacts of new tariffs and changes to existing tariffs are covered in Section 8.
Behaviour change	• Important to ensure tariff structure influences behaviours that reduce impact on the network during peaks and recognise where consumers may not have the ability to modify energy consumption.	• We designed and implement new tariff where consumers are able to respond. • We do not implement tariff where we are not certain that consumers will be able to respond. • See Section 7.2 on our transition strategy.
Transition	• Comfortable to move to more cost-reflective tariffs in the shorter (3-5 years) rather than the longer term. • Keen to understand the impacts of tariffs becoming more cost-reflective on the long-term viability of AAD. • Interested in seeing trials and pilot-projects conducted in the ACT as part of implementing changes to the electricity tariff structure. • Consider impacts of transition to remotely read interval meters.	• See Section 7.2 on our transition strategy and how technology and the assignment policy will be used to driven speed of transitions. • Impacts of new tariffs and changes to existing tariffs are covered in Section 8. • We propose to engage with consumers on design on new and more complex tariffs. See Section 7.2 • We may consider pilots as a way of determining whether and the extent to which consumers may be able to respond • Our transition strategy is influenced by the roll-out of

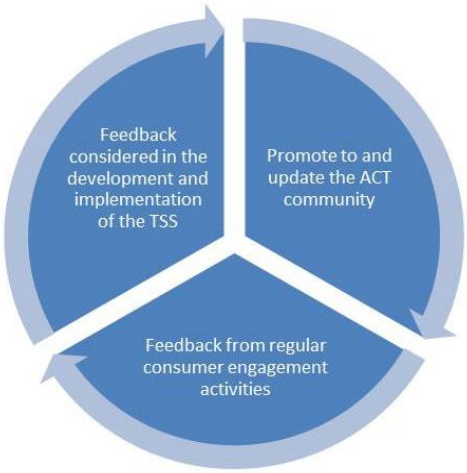
Topic	What we heard	Our response and reference in the TSS
		remotely read meters
Tariff design	• There is general understanding and acceptance of the value of more cost-reflective tariffs. • A number of large consumers are comfortable to move to demand tariffs, such as critical peak or seasonal. • Low voltage business consumers may not have much flexibility to modify consumption behaviour in response to new tariffs. • Move to increased fixed cost proportion for small business and residential consumers will require clear communication and explanation so they understand why. Not just seen a grab for more money. • Preference for consistency of structure and terminology with NSW.	• Our long-term and transition tariff strategy embodies the acceptance of cost-reflective tariffs. See Section 7.1. • Our transition strategy considers the evolution of tariff components over time. See Section 7.2. • Our strategy for small commercial LV consumers is consistent with a transition to cost-reflective tariffs, where they will receive a signal for the costs incurred at times of peak demand. • The start point for our strategy reflects the evolution of tariffs in the ACT and may be different to NSW. As a result, the long term and transition strategy is also influenced by existing practices and commercial approach.
Long run marginal cost	• That an average incremental cost of 500MW, adopting a common distribution charging methodology, be used to calculate the long run marginal cost for determining tariffs. • Keen to understand the need for increased network infrastructure into the future.	• There are a range of methods and models that can be utilised to estimate long run marginal costs. AAD has adopted the average incremental cost method (AIC) and this is described in Attachment 1 • We plan to further raise awareness of the annual network planning report that is submitted to the AER. This would enable consumers to understand and respond to our network plans.
Alternate energy sources	• Interested in solar and how it relates to network changes, what subsidisation occurs and disadvantages to low incomes households not able to take up solar. • Competitiveness of ACT's low electricity prices may be affected by ACT Government's renewables target.	• Our proposed tariffs structure for residential consumers introducing a demand tariff that would apply to consumers with and without PVs. The demand component also aims to ensure that those consumers who use electricity at periods of peak demand but with low overall consumption pay for the costs that they impose on the network. • The ACT Government's renewable energy target may affect the costs

Topic	What we heard	Our response and reference in the TSS
		passed on to consumers. AAD's tariff strategy focuses on ensuring that its network charges send cost-reflective signals to consumers and that any distortions to these signals is minimised by jurisdictional schemes.

6.8 Next steps for consumer engagement

The consumer engagement program associated with changes to electricity network tariffs and the development of the TSS does not conclude then TSS is lodged. We have given an undertaking to the ECRC and more broadly to the participants in the consultation activities to keep them informed and continue to seek their feedback as the process of tariff reform progresses.

Figure 6-6: How we propose to continue our engagement process



We have published a summary of the feedback received during the consumer engagement program. Once the proposed TSS has been lodged, we will further update the ECRC and participants in the consumer engagement program on the detail within the proposed TSS, including publishing a consumer overview of the proposed TSS, information on consumer impacts, key changes in tariff structure and introduction of new tariffs. As the process continues, with the release of a draft determination, AAD will continue to provide information to our stakeholders, particularly the ECRC and seek continued input to the process.

7 Our tariff strategy

The changes in the regulatory framework are premised on the belief that the long term interests of consumers are best served by the introduction and higher adoption of cost-reflective tariffs. In developing our tariff strategy we have had to consider a number of factors including:

- the network pricing objective and the pricing principles as outlined in Section 4;
- the consumer and network benefits and opportunities;
- consumer and retailer feedback as outlined in Section 6;
- the practicalities of detailed cost methodologies and calculations that influence the introducing of more complex tariffs;
- the ability of consumers to respond to price signals and impacts of new tariffs; and
- enabling technologies that are necessary to introduce more cost-reflective tariffs.

These considerations have informed our tariff strategy set out in this proposed TSS. We are committed to further engagement and research with consumers as we work towards our final TSS.

7.1 Our preferred long-term tariff structure

We must comply with four key requirements in the Rules when designing our future network tariffs. Our tariffs:

- must be based on the long-run marginal cost of supply (LRMC);
- must be set so as to recover an amount of revenue that lies between the stand alone and avoidable cost of supply of a consumer (or group of consumers);
- must recover any residual costs in a way that least distorts consumption behaviour; and
- tariffs can be transitioned to cost-reflective levels over time.

7.1.1 Where do we want to get to

Table 7-1 below describes what a more cost reflective tariff structure, consistent with the requirements of the Rules, might look like.

Table 7-1: More cost-reflective tariff structure

Network tariff component	Unit	Composition of a more cost reflective tariff under the Rules
Fixed network access	cents per day	Part of the consumer's bill would remain fixed, and would not vary with the level of energy consumption or demand.
Energy (or consumption)	cents per kWh	Part of the consumer's bill would be based on energy consumption.
Demand	cents per kVA preferred (otherwise kW)	Part of the consumer's bill would be based on the demand that the consumer places on our network when that part of the network or the network as a whole, experiences peak demands. The type of demand component (anytime, peak period, seasonal or critical peak) may vary depending on the ability of consumers to understand and react to price signals.

7.1.2 Where are we now

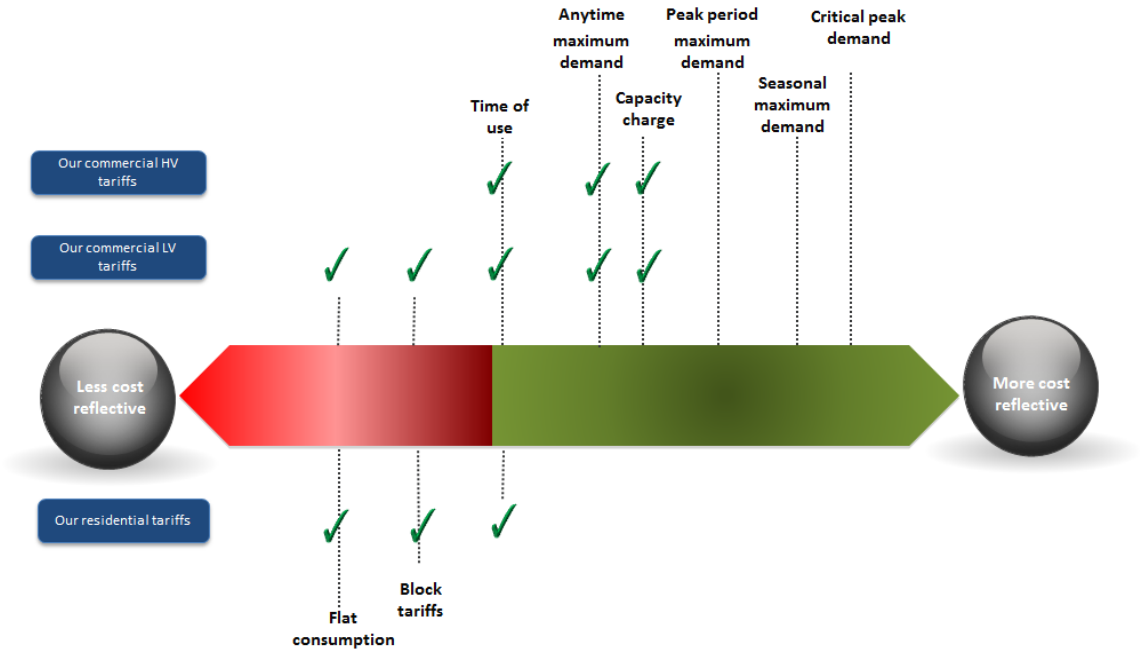
A number of our existing network tariffs already go some-way to being cost-reflective. This is because we have been progressively implementing more cost reflective tariff components.

For our consumers assigned to the commercial HV tariff class, we have historically offered tariffs with demand and capacity tariff components incentivising them to manage their peak demand, together with time-of-use consumption charges to provide them with further incentives to consume energy more efficiently.

Since October 2010 consumers assigned to our commercial LV tariff class have been assigned to the time-of-use tariff as the default tariff (and are able to opt-out to flat-rate or block tariffs). Larger LV commercial consumers are able to choose between demand and capacity tariff components incentivising them to manage their peak demand.

Similarly, since October 2010 new residential consumers have also been assigned to the time-of-use tariff as the default tariff (and able to opt-out to the flat-rate or block tariffs). In setting the time of use charges, AAD has aligned the charges to peak demand in the network—these are morning between 7-9 a.m. and in the evening between 5-8 p.m. every day. Hence, our time-of-use charges are already at the early stages of cost-reflective tariffs. Figure 7-1 illustrates how our current tariffs perform in terms of cost-reflectivity.

Figure 7-1: Cost-reflectivity of our current tariffs



7.1.3 What next

Theoretically, perfectly cost reflective tariffs would be based on the instantaneous capacity of the network, the actual costs of providing an additional unit of capacity, on location, and signals delivered through 'live' pricing. Of course implementing this theoretical ideal is not currently possible given metering technology limitations and the implementation costs.

However, our capability to provide more cost reflective signals to residential consumers, and for consumers to respond to these signals, will be improved as more advanced metering technology is rolled out during the regulatory period. Accordingly, we will:

- *migrate more small consumers to cost-reflective tariffs* as the enabling metering technology is rolled out; and
- *improve the price signals* we send to our larger consumers through refinements in types of demand components, consolidation of our tariffs to simplify our tariffs for consumers, as well as adjustments to fixed and consumption charges.

Hence, to continue our journey towards our long-term vision of more cost-reflective tariffs, we are proposing to focus in the first TSS on establishing the desired *cost-reflective tariff structure*.

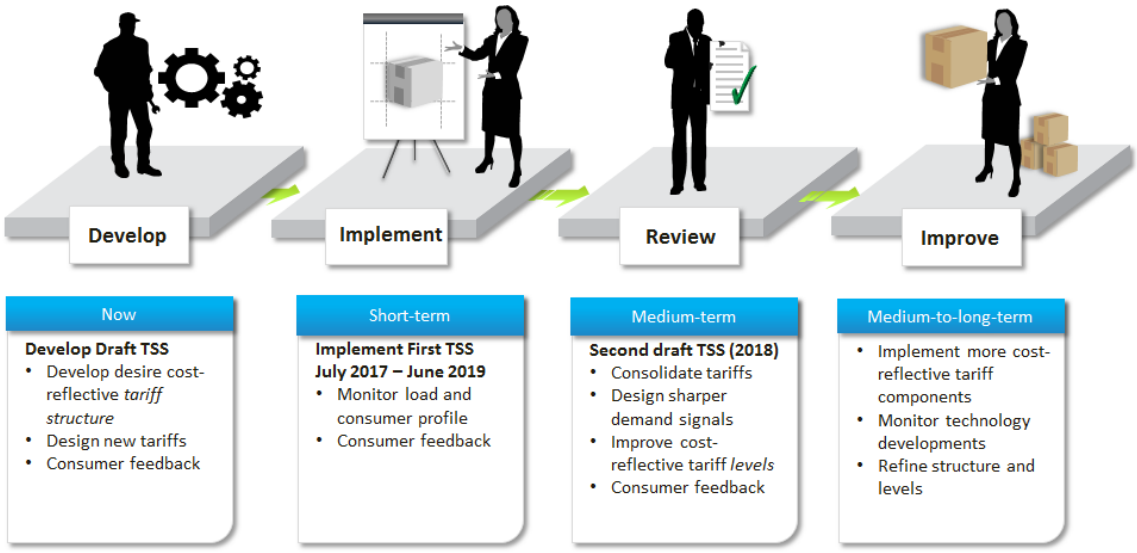
- introduce a new peak period demand tariff in 2017 for residential consumers whose premises are fitted with interval meters that can be remotely read. This will be gradually introduced from 1 December 2017. For our consumers without remotely read metering technology we will begin the process of aligning our tariff structure to be based on our latest LRMC estimate.

- Introducing a new peak period demand tariff for small commercial LV consumers whilst maintaining cost-reflective for other existing LV consumers
- maintain the existing tariff structure for commercial HV consumers.

In summary, based on the benefit of reviewing the performance of the tariff structure and tariffs proposed in the first TSS, and receiving continuous consumer feedback, we anticipate that our tariff strategy will evolve and may deliver even more cost-reflective tariff components and changes in tariff levels for the next regulatory control period. This is simply illustrated in Figure 7-2.

Further, based on the tariffs we currently offer and the nature of the network load profile at both the total system and zone substation level, we believe that a different path will be needed to move each of our consumer classes from the tariffs they are currently on to an adequately cost-reflective tariff. Therefore, the tariffs for each of the consumer classes are likely to travel a different path and take a different amount of time to reach the intended structure and level.

Figure 7-2: Our transition to cost-reflective tariffs will evolve



7.1.4 How is our long-term strategy informed by consumer and retailer engagement

As explained in Section 6, we undertook a focused consumer engagement program to review our tariff structure. The feedback we have received from our stakeholder informs our long-term strategy:

- Our stakeholders told us that that it is important that price signals are effective for consumers who have the ability to modify energy consumption:

- We have implemented a more cost-reflective tariff structure for residential consumers and established time periods in which there will be an incentive to manage their electricity load.
- We have not implemented a critical peak period demand tariff, at this time for commercial HV consumers, until we assess in more detail whether our consumers understand and are able to respond to a critical peak.

- There is general understanding and acceptance of the value of more cost-reflective tariffs by our consumers:
  - There was however also considerable evidence that consumers did not know what tariff they were on. Hence, we propose to invest in greater consumer awareness to encourage consumers to become more aware of their tariffs and therefore how to respond to price signals.
  - Our approach to commercial LV consumers is to increase the adoption of demand-based tariffs through a new demand charge for small LV consumers and through the tariff assignment policy (see Section 8.3).
  - We are proposing to introduce a peak period demand tariff for residential consumers (see Section 8.2).
  - Simplify commercial HV tariff structure by eliminating one of the tariffs that is not used (see Section 8.4).
- The feedback indicates that consumers are comfortable to move to more cost-reflective tariffs in the shorter term (3-5 years) rather than the longer term.
  - We are initiating a transition to more cost-reflective tariffs for both residential and commercial LV consumers
  - We are adopting a cautious approach in the first TSS so that the speed of the transition is driven by changes in the market. This allows us to adjust the transition in the next regulatory control period.
- Consumers are interested in seeing trials and pilot-projects conducted in the ACT as part of implementing changes to the electricity tariff structure.
  - Our approach to the transition strategy provides a good basis for understanding the impact of simpler tariff changes and using the lessons learnt to modify our approach for tariffs for the 2019-24 regulatory period. Through our regular engagement with consumers, and in particular the Energy Consumer Reference Council, we will be able to share our lessons and understanding as it is developed and seek further feedback from consumers.

- Our stakeholders have stated that it is important for them that vulnerable consumers are supported.

- Consumers in the ACT are able to take advantage of different schemes offered by retailers.

7.2 Transition strategy

The Rules give us some flexibility as to the period over which we transition our network tariffs to levels or structures. This flexibility has been provided in order to ensure that the transition can proceed smoothly and without imposing undue financial shock on consumers, as explained in the Rules.[15]

> *A Distribution Network Service Provider must consider the impact on retail consumers of changes in tariffs from the previous regulatory year and may vary tariffs from those that comply with paragraphs (e) to (g) to the extent the Distribution Network Service Provider considers reasonably necessary having regard to:*
>
> *(1) the desirability for tariffs to comply with the pricing principles referred to in paragraphs (f) and (g), albeit after a reasonable period of transition (which may extend over more than one regulatory control period);*
>
> *(2) the extent to which retail consumers can choose the tariff to which they are assigned; and*
>
> *(3) the extent to which retail consumers are able to mitigate the impact of changes in tariffs through their usage decision.*

In this subsection we explain the key enablers necessary for the implementation of our transition strategy, and then describe the strategy for each tariff class.

7.2.1 What are the key enablers to the introduction of demand tariffs

Our ability to move to more cost-reflective pricing hinges on two enablers:

- The availability of remotely read interval meters that can record the interval data necessary for implementing demand-based tariffs; and
- The way in which consumers are assigned to tariffs.

7.2.1.1 Availability of remotely read interval meters

Most consumers have an electricity meter that records the amount of electricity they use over a period of time. AAD has been upgrading the meters we maintain across the ACT.

There are now about 80,000 meters that currently record interval data (time-of-use or peak demand data).

However, the majority of households (60%) and many small business consumers are fitted with accumulation meters that are only capable of measuring total electricity consumption; that is, they are not currently capable of measuring energy demand or the time of energy is used.

[15] Rule 6.18.5 (h)

Consumers with accumulation meters will not be able to use demand-based tariffs until a new remotely read interval meter is fitted, through replacement or at the consumer's request.

Most of the interval meters are currently programmed to display time-of-use data which has allowed AAD to offer time-of-use tariffs. A remotely read interval meter is capable of reading data at the intervals required for demand and Time-of-Use tariffs. However, manually reading interval meters to measure half hour maximum demand requires up-front cost of reprogramming as well as additional cost of downloading the detailed half hour metering information:

- The meters are currently set up to record consumption in the three time bands associated with our TOU tariffs. There are considerable costs to reprogramming existing meters.
- While half-hourly data is recorded in the meters, the probes that are used to manually read the meters are only capable of reading the accumulated consumption within the three time bands. They cannot read the half-hourly data, nor can they be retrofitted to do so.

In the context of the Rule change covering competition in metering services[16], addressing all of these issues may require a material level of capital expenses and also impose other administrative costs putting upward pressure on network prices if implemented with regard to all of the Type 5 meters (i.e. manually read interval meters) that are currently in place.

Instead, AAD believes that a prudent course of action is to link our tariff strategy with the outcomes and timing of the recently published final AEMC metering Rule change, particularly the minimum services specification for all new and replacement meters.

Minimum services specification proposed for new and replacement meters

The final metering Rule change published by the AEMC includes a minimum services specification, which all new and replacement meters that are installed for small consumers must meet. This specification sets out a list of services that a meter must be capable of providing, rather than focussing on the technical components that must be included in the meter. To meet the minimum services specification, a meter must be capable of providing the following services:

- remote disconnection service;
- remote reconnection service;
- remote on-demand meter read service;
- remote scheduled meter read service;
- meter installation inquiry service; and
- advanced meter reconfiguration service.

The meter must also enable remote access to the meter.

[16] AEMC, *National Electricity Amendment (Expanding competition in metering and related services) Rule 2015*, 26 November 2015.

7.2.1.2 How we assign consumers to tariffs

The pace of adoption of cost-reflective tariffs can be influenced by how consumers are assigned to tariffs ("tariff assignment policy"). The way in which consumers are assigned to tariffs typically involves the following approaches.

- **mandatory assignment**, where the cost-reflective tariff is set as the default for consumers. This policy is likely to result in a pace of reform that is relatively fast.
- **opt-out**, where consumers are placed on the default cost reflective tariffs but can opt out to another (less cost-reflective tariff) which could result in a medium pace of reform; and
- **opt-in**, where are a consumer is given the choice of selecting the cost-reflective tariff. This would likely result in a slow transition to cost reflective tariffs.

Our experience in implementing tariff reform over the last decade demonstrates that opt-in tariffs are relatively ineffective in migrating consumers to more cost-reflective tariffs. Between 2007 and 2010 AAD rolled out intervals meters, together with opt-in to time-of-use tariffs. The consumer response was minimal with only 30 consumers opting in to the residential time-of-use tariff before it became the default tariff). However, when the tariff assignment policy changed to time-of-use tariffs being the default tariffs for new connections, (but with the choice to opt-out), the incidence of opting out has been negligible.

7.2.2 Options considered for each tariff class

In developing our transition strategy towards more cost-reflective tariffs, we considered three broad strategic responses for each tariff class presented in the options below:

- **Option 1** – Adjust the *levels* of tariffs between fixed and usage charges, while maintaining the current structures;
- **Option 2** – Move to more cost reflective tariff *structures* quickly and then manage the price levels over the long-term; and
- **Option 3** – Move to more cost reflective tariff structures and levels in the short-term.

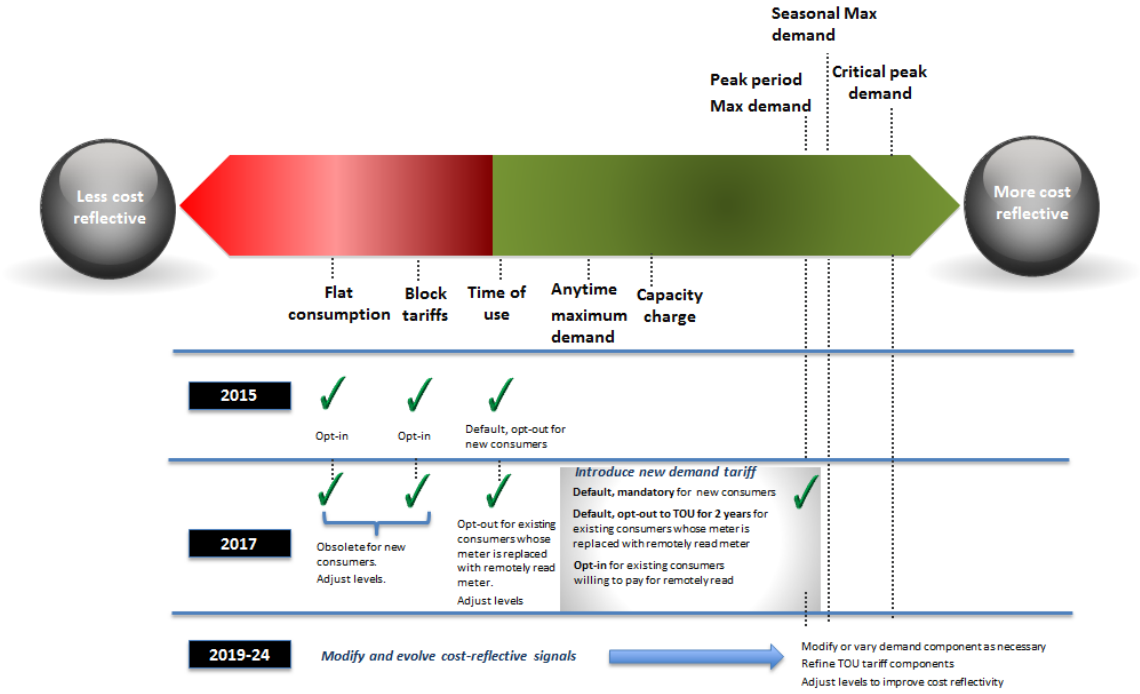
Our transition strategy for each tariff class below is a combination of these options, tailored to new and existing consumers for each tariff class. Further details on the rationale for the design, selection of the charging parameters and setting of the levels of each parameter for each tariff are provided in Section 8.

7.2.3 Residential consumers

AAD proposes to implement a cost-reflective tariff structure for residential consumers by introducing a new peak period demand tariff and a new policy for assigning consumers to tariffs.

Figure 7-3 illustrates our transition strategy for the period 2017-18 and also for the 2019-24 regulatory control period. Key highlights of our transition strategy are explained here and further details on the rationale for the tariff design and selection of tariff levels and parameters are provided in Section 8.

Figure 7-3: Transition strategy for residential consumers



Proposed demand tariff

The new residential demand tariff would be introduced in December 2017, consistent with the introduction of metering competition. This new tariff would only be available to consumers that have a remotely read interval meter. Our *assignment policy* for the new tariff involves the following aspects:

- The tariff is default and mandatory for new consumer premises (i.e. premises that have a meter installed for the first time). These new consumers will not be able to choose less cost-reflective tariffs.

- The tariff is default for existing consumers who have their meter replaced with a remotely read interval meter after December 2017. However, existing consumers can opt-out until December 2019, after which they will be reassigned to the demand tariff.
- For existing consumers with accumulation meters or manually read interval meters who wish to benefit from the availability of a demand tariff, can opt-in to the demand tariff if they pay for a remotely read meter (or if their metering provider or retailer upgrades their meter to one that is a remotely read interval meter).

This approach links the speed of the transition to cost-reflective tariffs to the availability of remotely read meters and the tariff assignment policy. Hence, the greater the number of consumers with the remotely read interval meters, the higher the adoption of cost-reflective tariffs.

Existing consumers on other tariffs

We will continue to offer flat rate, block or time-of-use tariffs to our existing consumers with accumulation or manually read interval meters.

The *tariff assignment policy* for any new consumers until December 2017 is as follows:

- The time-of-use remains the default tariff.
- Flat rate and block tariffs remain as opt-in tariffs.

The *tariff assignment policy* for existing consumers after December 2017 is that they continue to stay on their tariff until their meter is replaced. For example, it is possible that there could be consumers that are still on current tariffs in medium to long term. However, these current tariffs—together with other tariffs such as the heat pump tariff—will be obsolete for new consumers after December 2017.

Our Off-Peak (1) Night Network, Off Peak (3) Day and Night Network and Renewable Energy Generation tariffs are secondary tariffs. That is, they are used by consumers in conjunction with another tariff. There is no reason to alter the *structure* of these tariffs but the level of their energy charge will be reviewed to ensure that the differences between tariffs levels remain valid.

Beyond 2017

We will closely monitor the performance of the demand tariff and the response to our assignment policy. After the initial implementation in 2017 we expect to review and learn from this experience modify the demand component or charging parameters as necessary, refining the time-of-use tariffs and generally adjusting tariff levels to improve cost reflectivity.

To achieve this, we propose to work with our consumers to help them understand how their tariffs are going to change over time and how they can take action to adjust to those changes. We need to ensure the process of transition progresses as planned and in a way that avoids abrupt changes to consumers' bills. The ECRC will provide an important forum and regular opportunity to share our experiences and lessons with consumers and to seek their feedback on potential consumer concerns or confusion.

How our strategy is informed by consumer and retailer engagement

Although the new pricing Rules require electricity network businesses to update their distribution network charges to be more cost reflective, the timeframe for making this change will follow a transition path that takes into account the preferences of consumers.

The feedback we have received from our residential consumers has informed our transition strategy for this tariff class:

- Residential consumers told us that they are generally supportive of cost-reflective tariffs and only 9 per cent of respondents in our online survey would not consider changing to a more cost-reflective tariff. As a result
    - We have implemented a more cost-reflective tariff structure for residential consumers
    - The time periods selected will allow consumers time to understand the new tariffs and to modify their consumption
- In terms of new types of tariff components, there was a preference for demand-based tariffs:
    - We are introducing a new demand tariff
- Online survey respondents were more willing to change to time-of-use tariffs than change to other tariffs:
    - Existing consumers are expected to stay on the time-of-use tariff unless their meter is replaced after December 2017 for a remotely read interval meter. Even in this instance, existing consumers will be placed on the default demand tariff but be able to opt-out until December 2019 and return to the Time-of-Use.
    - The current design of the demand tariff sends a price signal to the consumers that the maximum demand over selected periods will attract a higher charge; however, consumption based charges will be lower at all other (non-peak) times providing an opportunity for consumers to make savings.
- The feedback received indicates that consumers are comfortable to move to more cost-reflective tariffs in the shorter (3-5 years) rather than the longer term.
    - We are initiating a transition to more cost-reflective for residential consumers at the earliest possible time
    - We are adopting an approach in the first TSS so that speed of the transition is driven by changes in the enabling technology. This allows us to adjust the transition in the next regulatory control period if required.
- Survey responses also suggest that consumers want equal contribution toward network costs, regardless of usage, and the same contribution by households with alternative energy sources as those without such sources:

- Our new demand tariff for new and existing consumers with a remotely read interval meter after December 2017 applies equally to those with and those without alternative energy.
- The demand tariff component by design is better at providing price signals to consumers about their contribution to networks costs, independent of consumption.

- Residential consumers want us to improve communication of tariff changes:
  - They are concerned about changes to fixed charges unless they are well explained. They believe that consumer education is important to understand how network tariffs work. This is why we propose to continue with consumer engagement after the proposed TSS is lodged and will ensure that as new tariffs take effect there is clear communications with consumers about what the tariffs mean.
- Our stakeholders have stated that it is important for them that vulnerable consumers are supported:
  - Consumers in the ACT are able to take advantage of different schemes offered by retailers. For example, there are two main schemes offered by ActewAGL Retail. See text box overleaf.
  - We will continue to work with our ECRC to better understand the particular needs of vulnerable consumers and what role we might play in supporting them.

Importantly, the ACT Government's Energy Concession program is currently under review. Under the existing program, eligible consumers can apply through their retail energy provider for the Energy and Utility Concession, which provides an annual rebate on their electricity and natural gas bills. In its review, the ACT Government is considering a range of changes, including transferring the current funding provided for the Water and Sewerage Concession to the Energy and Utility Concession.

Examples of existing retailer schemes for vulnerable consumers in the ACT

1. Concession scheme—Electricity account holders who also have a current Centrelink Pensioner Concession card (PCC), Centrelink Low Income Health Care card (HCC) or Veterans' Affairs Pensioner concession Card may be eligible for an energy concession. ActewAGL Retail manages the energy concession on behalf of the ACT government. The energy concession is passed to consumers via their electricity account. The energy concession is calculated on a daily basis and is shown as a separate line item on each electricity invoice.

2. Hardship program (Stay Connected)—For consumers finding it difficult to pay their bills, the retailer works with the consumer to set up a flexible and affordable payment plan. As part of this, further debt recovery action is stopped while the consumer is on the program. To be eligible, the consumer must be willing to agree to a personalised payment plan and to keep in regular contact.

7.2.4 Commercial LV consumers

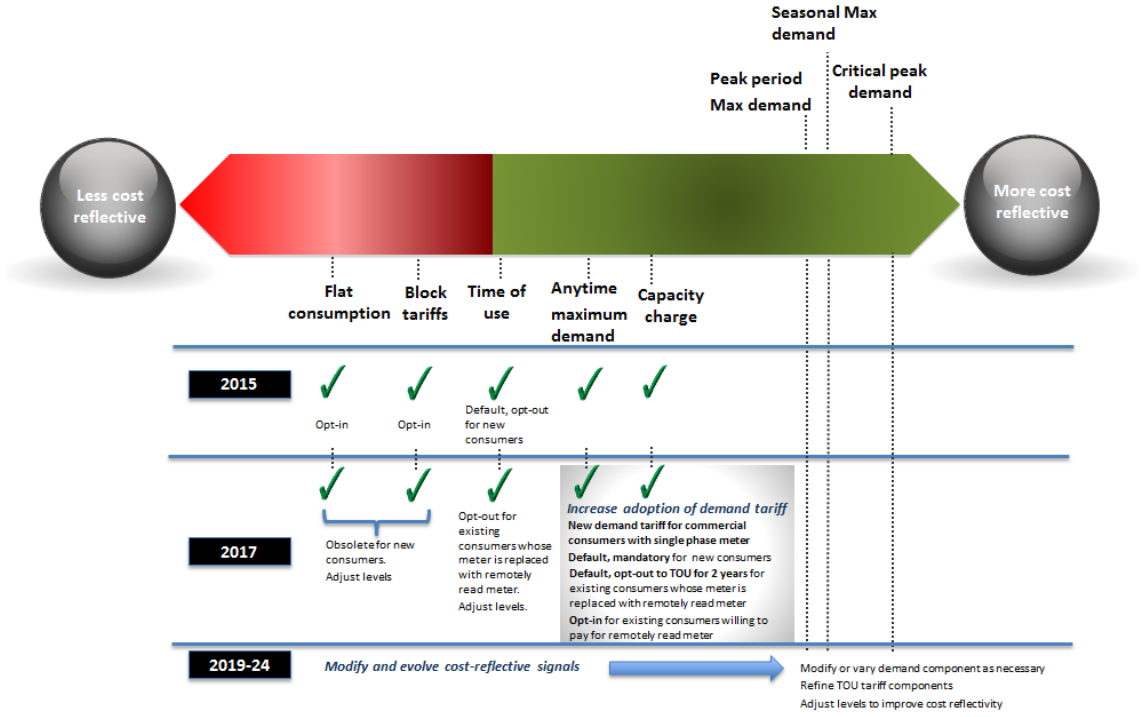
Our tariff structure for commercial LV consumers is already a good way towards cost-reflective tariffs with the availability of both demand and capacity tariffs. However, a majority of these consumers are on simpler and relative less cost-reflective tariffs, such as the General Tariff and block tariffs.

To increase adoption of cost-reflective tariffs, we propose to introduce a new anytime maximum demand tariff for commercial LV consumers with a single phase meter, and to introduce a new tariff assignment policy that is similar to what we propose for residential consumers. This is an important first step towards improving the cost-reflectivity by moving to peak demand tariff components in the future.

Such a tariff is already available to commercial LV consumers with a three phase meter. Hence, all commercial LV consumers will have access to the same structure for a demand tariff, and in the future the parameters and levels will be made more cost-reflective

Figure 7-4 provides an overview of the transition path for low voltage commercial consumers to transition them to more cost-reflective tariffs. The transition strategy allows for a managed transition through our assignment policy and availability of remotely read interval meters.

Figure 7-4: Transition strategy for commercial LV consumers



New demand tariff

This tariff would be introduced in December 2017, consistent with the introduction of metering competition. This new tariff would only be available to consumers that have remotely read interval meters. Our tariff *assignment policy* for this tariff is that:

- It will be the **default and mandatory tariff** for new consumers with a single phase connection in premises in which a meter is being installed for the first time (from December 2017). All such premises are expected to be required to be fitted with remotely read interval meters. These new consumers will not be able to choose less cost-reflective tariffs.
- It will be the **default tariff for existing consumers** who have their meter replaced with a remotely read interval meter after December 2017. However, existing consumers can **opt-out** until December 2019, after which they will be reassigned to the demand tariff.
- Existing consumers with accumulation meters or manually read interval meters who wish to benefit from the availability of a demand tariff can **opt-in** to the demand tariff if they pay for a remotely read meter (or if their metering provider or retailer upgrades their metering to a remotely interval read meter).

The approach outlined above connects the speed of the transition to cost-reflective tariffs with the availability of remotely read meters and our proposed tariff assignment policy. Hence, the greater

then number of consumers with remotely read intervals meters, the higher the adoption of cost-reflective tariffs.

Existing consumers on other tariffs

We will continue to offer flat rate, block or time-of-use tariffs to our existing low voltage commercial consumers with accumulation meters or manually read interval meters.

The *tariff assignment policy* for new consumers until December 2017 is as follows.

- The time-of-use remains as the default tariff.
- Flat rate and block tariffs remain as opt-in tariffs
- Existing demand and capacity tariffs remain as opt-in for commercial consumers.

From December 2017, the tariff assignment policy for any existing consumers will be that they continue to stay on their existing tariff unless their meter is replaced, or if they opt-in to another tariff.

AAD proposes to refine the tariff levels between fixed and consumption charges for existing tariffs. The changes will not be accomplished in one year. Rather the change will need to be undertaken over several years, with the rate of change in network prices determined by its impact on consumers' bills which is covered in Section 8.

However, the flat-rate, time of use and block tariffs will be obsolete for new consumers after December 2017.

Beyond 2017

We will closely monitor the performance of the demand tariff and the experience with our assignment policy. We expect to review and learn from this initial implementation and appropriately modify or vary the demand component or charging parameters as necessary, refining the time-of-use tariffs and to adjust tariff levels to improve cost reflectivity.

To achieve this we propose to work with our consumers to help them understand how their tariffs are going to change over time and how best to adjust to those changes. We need to ensure the process of transition progresses as planned and in a way that avoids abrupt changes to consumers' bills.

How our is strategy informed by consumer and retailer engagement

The feedback we have received from our commercial stakeholders informs our long-term strategy:

- There is general understanding and acceptance of the value of more cost-reflective tariffs and that tariffs which are more consistent with electricity peaks would be welcome by some businesses:
    - We are progressed in our journey to cost-reflective tariff through our existing demand tariffs for commercial LV and HV consumers. These existing tariffs are well

understood by our consumers. Hence, we are not proposing to make any significant changes to the structure of tariffs for these tariff classes.

  - Our approach to commercial LV consumers is to increase the adoption of demand-based tariffs through a new demand charge for small LV consumers and through the tariff assignment policy.
  - Over time we expect to change the nature of the demand charge to make it more cost-reflective.

- The ECRC noted that, in response to the possible introduction of critical peak or seasonal demand tariffs, there may not be much flexibility in a largely service based economy to modify energy demand:
  - We have not implemented more complex tariffs at this time for commercial LV consumers, such as a critical peak period demand component until we can assess in more detail whether commercial consumers in the ACT have the ability to modify their behaviour in response to a critical peak price signal.
  - Consistent with our overall tariff strategy we have introduced a demand tariff for new LV consumers with a single phase connection/meter. This will introduce the concept of maximum demand to these consumers.
- Our commercial consumers want us to improve communication of tariff changes and help them plan for the changes:
  - This is why AAD's proposed assignment policy will limit the extent of change to those consumers that are either new or those with a remotely read replacement meter.
  - We also propose to continue with consumer engagement after the proposed TSS is lodged supported by on-going communication with our consumers as new changes are introduced.

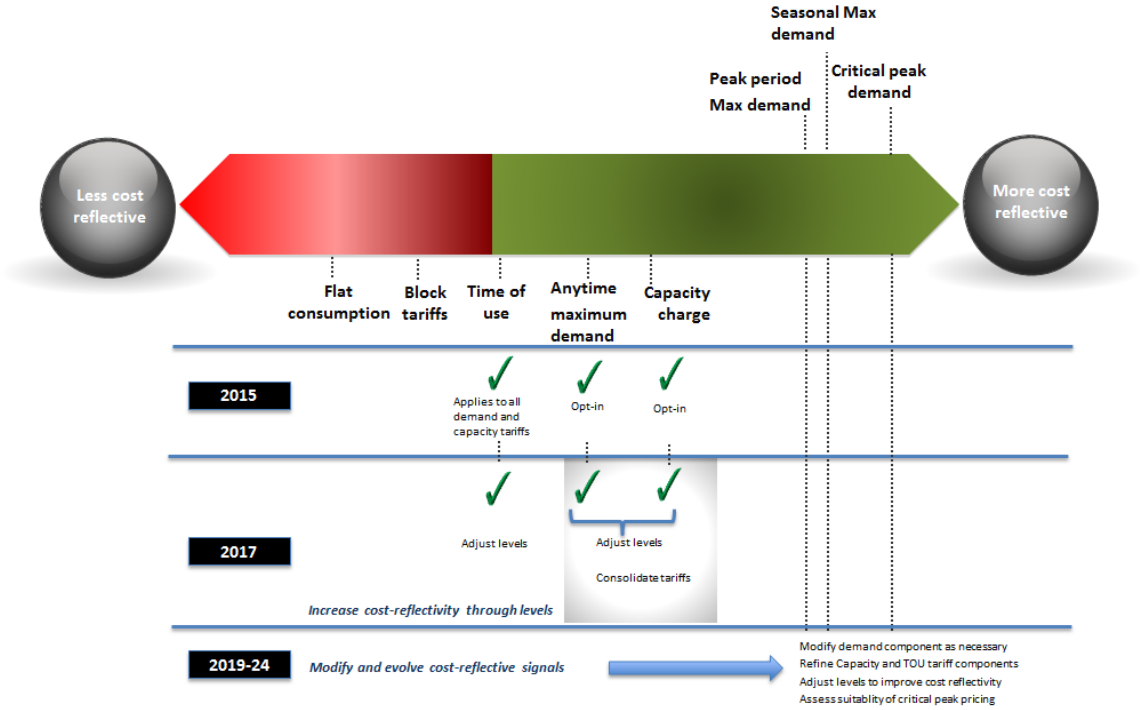
7.2.5 Commercial HV consumers

AAD's journey to cost-reflective tariffs for high voltage commercial consumers is well progressed in its.

We offer our commercial HV consumers four demand tariffs each of which is comprised of an anytime maximum demand component, a capacity component, a fixed charge and time-of-use energy charges.

Figure 7-5 provides an overview of the transition path for high voltage commercial consumers to even more cost-reflective tariffs. The transition strategy allows for refinements to charging parameters and levels, as well as consideration of new tariffs.

Figure 7-5: Transition strategy for commercial HV consumers



Hence, our strategy for the first TSS is to improve the cost-reflectivity of the tariff levels by basing our tariffs on LRMC. In addition, we propose to consolidate the number of tariffs available from four to three. This is because for one of the commercial HV demand tariffs that was introduced in July 2010, we have had no consumers selecting this tariff.

Our proposal to consolidate the tariff will simplify the choice for new consumers.

Beyond 2017

After the initial implementation in 2017 we expect to review and appropriately modify or vary the demand component (for example from anytime maximum demand to a seasonal peak demand) or charging parameters as necessary, refining the time-of-use tariffs and generally adjust tariff levels to improve cost reflectivity.

In particular, we will assess the feasibility of more cost-reflective demand tariffs such as a critical peak demand charge. This is because our commercial HV consumers:

- already have meters capable of measuring demand; and
- are commercially competent entities that are used to managing fluctuating prices for the goods and services they purchase, and therefore should be adequately equipped to respond to such price signals.

However, AAD must assess this in the context of the profile of HV consumers in the ACT. The nature and profile of our consumers, which tend to be large administrative or government organisations, is different to other states in Australia. On other states the presence of large industrial loads can have a significant impact on peak demand and deferral of network augmentation in response to critical peak signals.

Further, there are specific practicalities and transaction costs associated with implementing critical peak tariffs which make it not appropriate at present.

If we were to introduce more complex demand tariffs in the ACT, we propose to work with our consumers to help them understand how their tariffs may change over time and to adjust to those changes. This would provide sufficient time for consumers to be given information regarding the tariff structure and levels and to plan for its introduction, including arranging for specialised products and services to help them respond to these prices.

How is our strategy informed by consumer and retailer engagement

Although the new pricing Rules require electricity network businesses to update their distribution network charges to be more cost reflective, the timeframe for this change can be flexible and take into account the preferences of consumers.

The feedback we have received from our stakeholders inform our long-term strategy:

- There is general understanding and acceptance of the value of more cost-reflective tariffs and that tariffs which target electricity peaks would be welcome by some businesses:
    - We are well progressed in our journey to implementing cost-reflective tariffs. The current demand tariffs are well understood by consumers and we are therefore not proposing to make any significant changes to the structure of tariffs for this tariff class.
- Large business consumers told us that they are comfortable with more complex tariffs such as the critical peak tariff but that it is important for there to be a transition path involving the retailers:
    - We propose to continue with consumer engagement after the proposed TSS is lodged and will provide communications and education programs directly to consumers as amendments to tariffs come into effect.

8 Proposed tariff structure

The network tariffs in our proposed TSS are designed to meet the network pricing objective and comply with the pricing principles contained in the Rules. Importantly, our transition to more cost-reflective tariffs incorporates feedback from our consumers and retailers.

Our transition strategy recognises that the Canberra market is unique in Australia. We will continue to build a better understanding of the ability of our consumers' to respond to market signals provided by more cost-reflective tariffs.

The changes proposed to our tariff structure are designed to increase cost-reflectivity rather than to increase the revenue that AAD can recover from the network as this is set by the AER for each regulatory control period.

This section outlines our proposed tariff structure and provides:

- Explanation of proposed Network tariff classes (Section 8.1).
- Details of the tariff structure, tariffs and charging parameters for tariffs offered to residential, low voltage commercial and high voltage commercial consumers in Sections 8.2-8.4 respectively.
- A description the way in which our tariffs comply with the pricing principles (Section 8.5).
- An explanation of how we will update our tariffs annually (Section 8.6).

8.1 Proposed tariff classes

We do not propose to change our approach to the classification of tariff classes. As outlined in Section 3.2.2, our consumers are currently classified into three tariff classes.

1. Residential
2. Commercial low voltage (LV)
3. Commercial high voltage (HV)

In accordance with Clause 6.18.1A(a) of the Rules, these are the classes into which our retail consumers for direct control services will be classified during the 2015 – 2019 regulatory period. The tariff classes are set:

- on an economically efficient basis; and
- to avoid unnecessary transactions costs (clause 6.18.3(d)).

The tariff classes are set on an economically efficient basis. Consumers within each tariff class have similar load and connection profiles, which mean they impose similar costs on the network. Thus, setting tariffs within tariff classes enables us to distinguish those similar costs and apply charges to each tariff class appropriately, which drives an efficient outcome.

These tariff classes also enable us to avoid unnecessary transaction costs by treating consumers with similar profiles in a similar way. These tariff classes have proven to provide the most cost-effective way of grouping consumers together to minimise administrative costs, compared to offering additional classes and re-assigning existing consumers to different classes.

8.2 Proposed tariff structure for residential consumers

Consistent with our transition strategy to more cost-reflective tariffs, we will introduce a new demand tariff that takes advantage of the expected availability of remotely read interval meters from December 2017. The assignment of consumers to this tariff was explained in Section 7 but is repeated here for the reader's convenience.

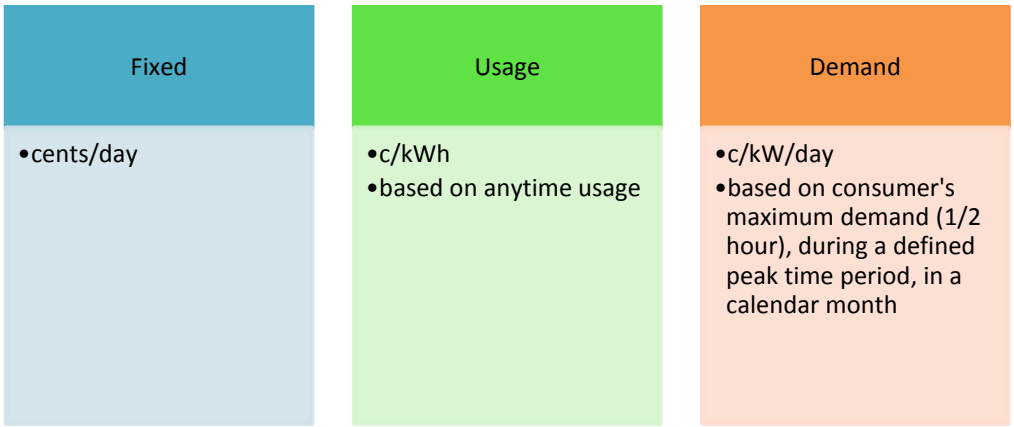
In this subsection, we explain the proposed changes to the residential tariff structure. Within this subsection, we outline the structure of the proposed tariff (subsection 8.2.1) including the reasons for selecting the particular parameters for the new tariff (subsection 8.2.1.1) and the assignment policy for the proposed tariff (subsection 8.2.1.2) Other changes that have been made to the structure of residential tariffs are then explained in subsection 8.2. Finally, in subsection 8.2.3 the indicative residential consumer bill impacts are outlined.

8.2.1 Proposed demand tariff

During our review of network tariffs and engagement with our consumers, we identified the value of introducing a demand tariff for our residential consumers. The new peak period demand tariff will offer residential consumers a more cost reflective option than existing residential tariffs. Consumers on the new demand tariff will pay a bill that more closely reflects the long term marginal cost of supplying electricity to them, and will enable residential consumers to more actively manage and control the size of their electricity bills by considering when and how they use electricity.

The new demand tariff will comprise a fixed component, a usage component and a demand component, as shown in Figure 8-1 below.

Figure 8-1: Residential peak period demand tariff



In line with current practice, the **fixed supply** component of the demand tariff would not vary with the level of energy consumption or demand. The fixed charge is determined as the residual of the long run marginal cost (LRMC) (of providing electricity services) allocation that is not recovered from demand or energy charges. The fixed charge relates to the connection services provided to consumers and ensures approved revenue requirements are met. The fixed charge signals the cost of maintaining connection assets as well as servicing consumers, for example, consumer related costs such as the network call centre.

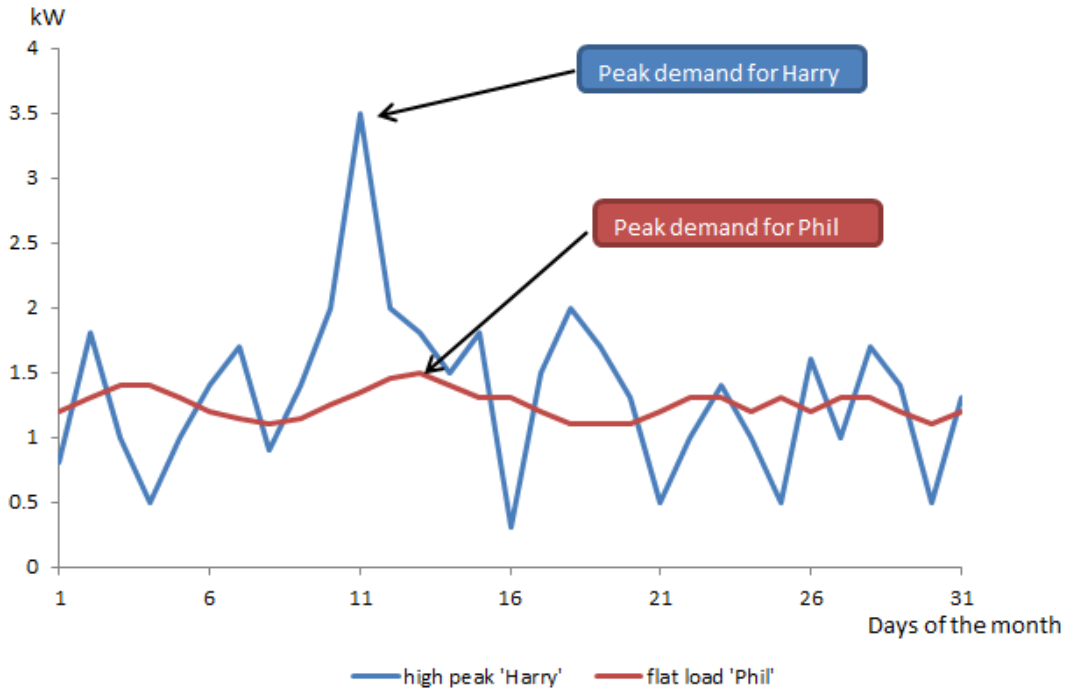
Part of the consumer's bill would be based on **energy** consumption, with the rate reflecting the cost of supplying energy outside those times when our network is expected to experience peak demands (because any peak demand related future costs would, in time, be fully signalled and recovered through the demand component).

Part of the consumer's bill would be based on the **demand** that the consumer places on the network during periods of peak demand. The demand component is structured in this way because it addresses the main driver of our future costs that can be influenced by consumers' current consumption behaviour. The demand component would be defined as:

- within peak times of every day (7-9am and 5-8pm); and
- during a calendar month.

Figure 8-2 provides an example to show how a consumer may have several peaks during a calendar month – some of these peaks may occur during the defined peak period of the day, and others may not. A consumer's highest (half hourly) peak demand period that occurs during the defined peak period, within a single calendar month, constitutes the basis for the demand component of the new tariff. Figure 8-2 identifies several maximum demand periods in the calendar month for two different hypothetical consumers – 'high peak Harry' and 'flat load Phil' that were introduced in Section 2. For 'high peak Harry', the maximum half hourly demand is 3.5kW for the month. For 'flat load Phil', the maximum half hourly demand is lower at 1.5 kW for the calendar month.

Figure 8-2: Example of two consumers' half hourly maximum demand (in peak periods) each day of a calendar month (kW)



This maximum half hourly demand (within the peak periods of a calendar month) is then multiplied by two, to convert the demand to an hourly basis. The demand tariff component of 19 cents per kW per day (see Indicative NUOS schedule in Attachment 3) is then multiplied by the maximum hourly demand. This illustration is outlined in the box below.

Examples of calculation of daily residential demand charge

High peak 'Harry'

1. Convert maximum **half hourly** demand to **hourly** demand

   (3.5kW x 2 = 7kW)

2. Apply maximum (hourly) demand to the demand component of the tariff to calculate cost to the consumer

   (7kW x $0.19 = $1.33)

High peaks 'Harry' pays $1.33 per day, each day of that month, for the demand component of his bill.

Flat load 'Phil'

1. Convert maximum **half hourly** demand to **hourly** demand

   (1.5kW x 2 = 3kW)

2. Apply maximum (hourly) demand to the demand component of the tariff to calculate cost to the consumer

   (3kW x $0.19 = $0.57)

Flat load 'Phil' pays $0.57 per day, each day of that month, for the demand component of his bill.

Table 8-1 provides further explanation of the new demand tariff by showing the tariff parameters and the reason for selecting those parameters. As explained above, the proposed demand tariff for residential consumers will be based on the maximum half hourly demand that occurs within the peak periods of a calendar month. Only residential consumers who have remotely read interval meters installed will be assigned to the new peak period demand tariff (see 8.2.1.2 for more details about the assignment policy).

Table 8-1: Peak period demand tariff parameters

	Maximum demand	Time period	Seasonality
Parameters	Maximum half-hourly demand period in a calendar month.	Maximum demand periods are constrained to peak periods: 7-9am, 5-8pm each day.	No seasonality in the demand tariff, during this regulatory period. Same demand charge applied all year round (each calendar month).
Reason	Sends price signal to consumers about the impact of their behaviour on network costs.	Consistent with TOU peak period, which aligns with system peaks.	Structure has been set up so that demand charge may have a season element in future.

Our transition towards more cost reflective tariffs requires careful consideration of consumer's ability to understand and respond to the new demand tariff. For this reason, we propose to introduce the residential demand tariff without a seasonal element in this regulatory period (as shown in the final column of Table 8-1). However, we intend to consider the option of further refining the price signal of the new residential demand tariff through seasonal variations tied to network loads, in the future regulatory periods.

This new demand tariff has been carefully designed to take advantage of advanced metering technology that is expected to be available from 1 December 2017 under the metering Rule change. The advanced metering technology coupled with our new peak period demand tariff would help to send a signal to our consumers about when the use of the network is likely to bring forward the need for investment in additional capacity which creates upward pressure on tariffs. Other factors that have been taken into account in the design of the new tariff include:

- the administrative costs associated with transitioning to a demand-based tariff;
- the reality that most consumers will not have meters that allow the levying of a demand-based price signal;
- feedback from consumers that there needs to be increased communication around the types of network tariffs, so it important that we allow time to provide this;
- the fact that some consumers may not understand and have the ability to effectively respond to these cost-reflective tariffs in the immediate period; and
- the need to keep the impact of a new tariff on consumers' bills manageable.

In the lead up to introducing the new peak period demand tariff, we will continue to engage with our residential consumers. This approach was endorsed by our consumers, during the consumer engagement phase, leading up to the preparation of the proposed TSS. In particular, we intend to clearly explain to our residential consumers how the new tariff works, the tariff components, and how consumers can more effectively manage their load to continue to get the benefit of our

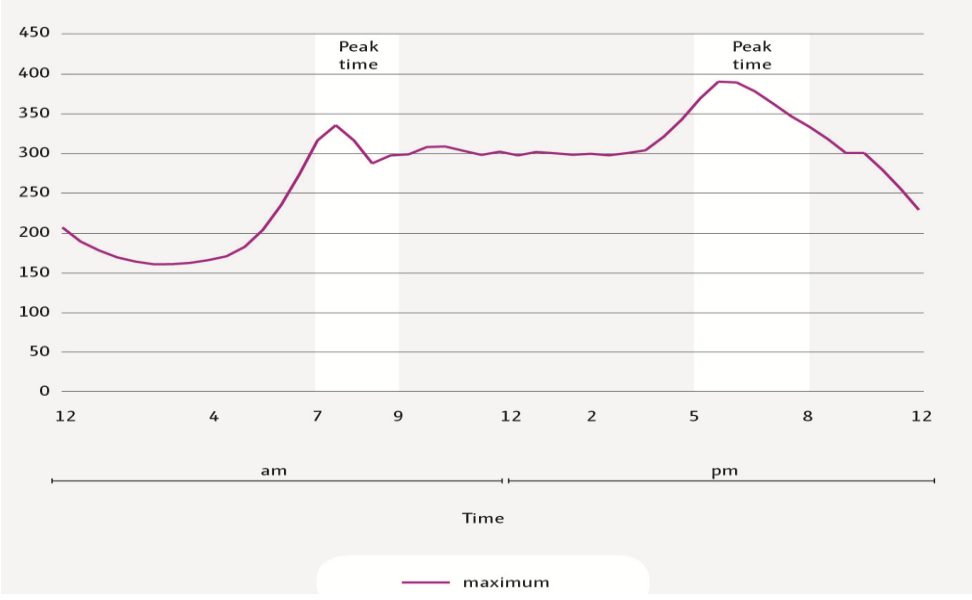
network services at lowest cost. Our on-going interactions with the ECRC will help guide this communication and provide regular feedback on areas of community concern or confusion.

8.2.1.1 Setting the peak period

When designing the time period that should apply to the peak period demand tariff, we have examined the load profile of our system. Figure 8-3 below shows the maximum demand levels reached on our network for each half hour period in 2014. It shows that our system peaks are highest in the morning (7:00 – 9:00 am), and in the evening (5:00 – 8:00 pm). Thus, to send a price signal to our residential consumers about when it is most costly to use the network, the demand component of the new tariff will be based on the maximum demand recorded each day (across both time periods).

Our existing residential TOU peak periods (7:00 – 9:00 am and 5:00 – 8:00 pm) have previously been set to align with the system's maximum load. This consistency between the existing TOU peak period and the new demand tariff peak period, will make it simpler for those transitioning from the existing TOU tariff to the new demand tariff. In future reviews of electricity network tariffs (related to future TSS'), the time periods that apply to the demand component may vary according to analysis of the peak load periods at that time. The design of the demand component will send a cost reflective signal to our consumers about when reducing their demand can help them save money on their bill and help keep network costs efficient, which will put downward pressure on future network tariffs.

Figure 8-3: Maximum net system load profile by time of day, 2014 (MW)



Source: Australian Energy Market Operator (AEMO) load profile data, ACT, 2014 (http://www.aemo.com.au/Electricity/Data/Metering/Load-Profiles).

8.2.1.2 Assignment policy for the proposed demand tariff

An important enabler for introducing more cost-reflective tariff is metering technology. Some consumers, particularly households and small business consumers do not have meters that record the data required to implement new demand tariffs. An interval meter is capable of reading data at the intervals required for demand and Time-of-Use tariffs. Hence, the introduction of the residential peak period demand tariff has been established to coincide with the metering competition that will come into effect in the ACT in December 2017. This means that only consumers who have remotely read interval meters installed will be assigned to the new peak period demand tariff as their default tariff.

Our residential consumers will be assigned to the new peak period demand tariff in one of two ways.

1. Residential consumers who move into **new premises** and are connected with a remotely read interval meter, will be assigned on a default and mandatory basis to this peak period demand tariff. This is a change from our existing policy which assigns new consumers to the TOU tariff by default with an opt-out provision.
2. When an existing residential consumer has a **replacement meter** installed (as part of AAD's ongoing replacement program) that is a remotely read meter, they will also be assigned to the new demand tariff by default. This is also a change from our existing policy in which consumers who have a replacement meter installed remain on their existing tariff. To assist existing consumers adjust to the new demand tariff, we propose a period of transition where consumers who are assigned to the peak period demand tariff (by default) will be able to opt out of the demand tariff to the TOU tariff until 1 December 2019 (two years after the introduction of the new demand tariff). From 1 December 2019, it will be mandatory for residential consumer with remotely read meters to be reassigned to the peak period demand tariff. AAD typically replaces approximately 3,700 meters per year.

This assignment policy means that all non-demand residential tariffs will eventually become obsolete. This is because, over time, all AAD consumers will have their meter replaced with a remotely read interval meter and therefore be assigned to the peak period demand tariff. Even though residential consumers with replacement meters will be able to opt out of the demand tariff until 1 December 2019, after that time, they will be assigned back to the demand tariff on a mandatory basis.

8.2.2 Changes in other residential tariffs

We currently offer residential consumers a range of residential tariffs. These include Residential Basic, Time-of-Use tariff, Residential 5000 and Residential Heat Pump tariffs. In addition, residential consumers can combine these tariffs with a controlled load tariff (Off Peak Night or Off Peak Day and Night tariff). Each of the residential tariffs has been reviewed to base them on the LRMC of the network (as per Clause 6.18.5(f) of the Rules).

In setting our pricing strategy, we have considered views expressed by stakeholders, in particular concerns about the possibility of rising fixed charges. Therefore, we propose to carefully transition

to more cost reflective fixed charges to enable consumers time to adjust to any changes in the mix of fixed and variable charges.

Our residential tariff structure, tariffs, charging parameters, eligibility and assignment of consumers to tariffs is summarised in Table 8-2.

Table 8-2: Our proposed residential tariffs

Tariff	Consumer eligible to receive tariff	Component	Unit	Charging parameter	Proposed Change
Peak Period Demand*	Residential consumers (as defined in Residential Basic tariff) and electric vehicles recharge facilities (on residential properties) with a remotely read meter Tariff becomes default for new consumers and those with remotely read meters from 1 December 2017.	Fixed network access charge Energy consumption charge Seasonal demand charge (seasonal variation is not applied this regulatory period)	¢/day ¢/kWh c/kW/day	**Peak Times:** 7am – 9am and 5pm – 8pm every day Maximum demand (during peak times) each calendar month Based on seasons (not this regulatory period)	This is a new residential tariff
Residential Basic Network*	Private dwellings (excluding serviced apartments), including living quarters on farms, charitable homes, retirement villages, etc. Tariff becomes obsolete to new consumers from 1 December 2017.	Fixed network access charge Energy consumption charge	¢/day ¢/kWh		Review of fixed and energy charge to be based on LRMC
Residential TOU Network*	Residential consumers (as defined above) and electric vehicles recharge facilities (on residential properties) with a TOU meter. Tariff becomes obsolete to consumers with remotely read meters from 1 December 2017. TOU is **no longer** the default tariff for consumers with remotely read meters from 1 December 2017.	Fixed network access charge Energy consumption charge based on (time of use)	¢/day ¢/kWh	**Max Times**: 7am – 9am and 5pm – 8pm every day **Mid Times**: 9am – 5pm and 8pm – 10pm every day **Economy Times**: All other times	Review of fixed and energy charges to be based on LRMC

Tariff	Consumer eligible to receive tariff	Component	Unit	Charging parameter	Proposed Change
	TOU is opt-in tariff.				
Residential 5000*	Residential consumers who have large continuous (rather than time controlled) loads, such as electric hot water systems, and consume over 5,000 kWh per annum. Tariff becomes obsolete to new consumers from 1 December 2017.	Fixed network access charge Inclining block tariff energy consumption charge with 2 tiers	¢/day ¢/kWh	Tier break set at 60 kWh per day	Review of fixed and energy charges to be based on LRMC
Residential with Heat Pump*	Only available to residential consumers with a reverse cycle air conditioner. Tariff becomes obsolete to new consumers from 1 December 2017.	Fixed network access charge Inclining block tariff energy consumption charge with 2 tiers	¢/day ¢/kWh	Tier break set at 165 kWh per day	Review of fixed and energy charges to be based on LRMC
Off-Peak (1) Night Network	Available only to consumers utilising a controlled load element – it is applicable to permanent heat (or cold) storage, electric vehicle recharge, and CNG vehicle gas compression installations.	Energy consumption charge	¢/kWh	Within controlled period: 10pm – 7am only	Review of energy charges to be based on LRMC
Off-Peak (3) Day & Night Network	Available only to consumers utilising a controlled load element – it is applicable to permanent heat (or cold) storage installations.	Energy consumption charge	¢/kWh	Within controlled period: 10pm – 7am and 9am – 5pm only	Review of energy charges to be based on LRMC

Tariff	Consumer eligible to receive tariff	Component	Unit	Charging parameter	Proposed Change
Renewable Energy Generation	Consumers with grid connected solar or wind energy generation systems.	Energy consumption/generation	¢/kWh		No change, as this is a policy based tariff
*For each of these tariffs, two separate charges apply – one which includes a meter capital charge (consumers who connected before 30 June 2015) and one which excludes the meter capital charge for those consumers connected to the network after 1 July 2015 and who have paid for their meter.					

8.2.3 Indicative bill impacts for residential consumers

The proposed demand tariff has been designed to ensure that the *average* consumer—assuming that they maintain the same consumption and usage profile—is no worse-off on the new demand tariff for the transition when compared to the existing basic flat-rate part Basic or Time-of-Use tariff.

It may however result in some consumers paying less to use the network and others paying more. The impacts for individual consumers will however depend on their specific circumstances, such as their consumption, their maximum demand and how they might respond to cost-reflective price signals. Further, whether an individual consumer's bill is higher or lower will depend on how retailers choose to incorporate proposed network tariffs into retail prices, and any other adjustments to annual tariffs.

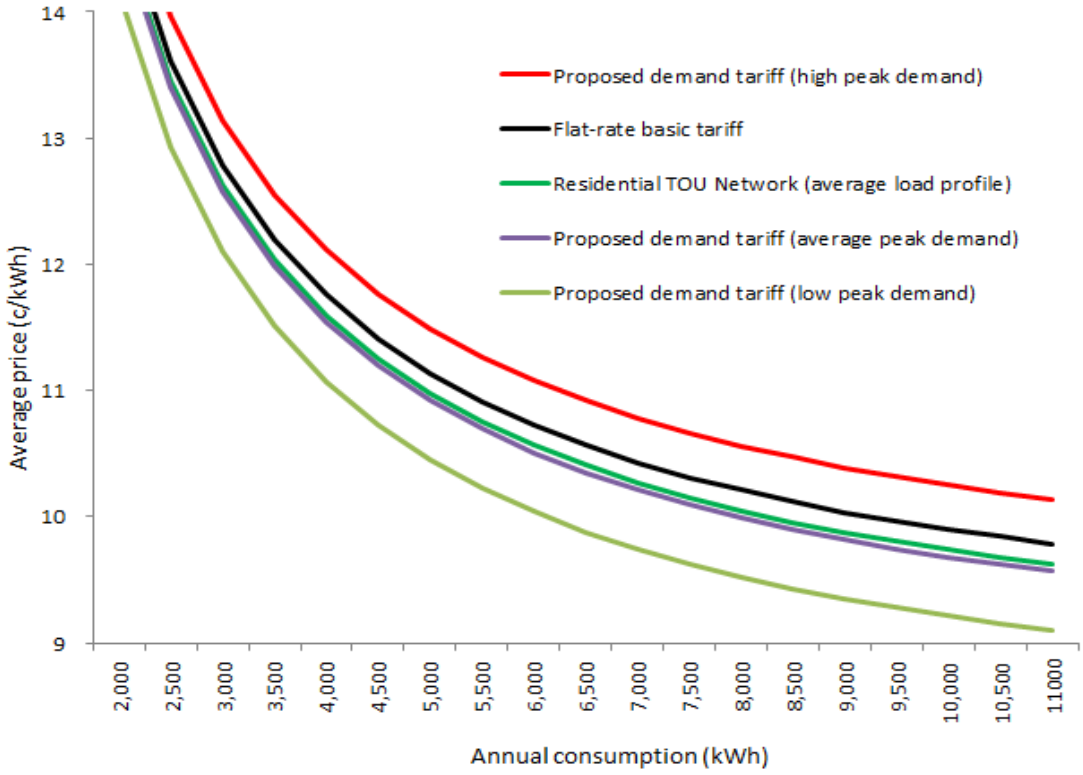
We have estimated the *indicative* bill impact of the introduction of the new demand tariff using 5 steps:

- Step 1—establish a wide range of *hypothetical* consumption profiles—from 2,000kWh p.a. to 11,000kWh p.a.
- Step 2—apply three types of load profiles. Load profiles are based on existing network load factors.[17] The load factors used for the consumer impact analysis are 0.24 (high), 0.29 (medium) and 0.35 (low).
- Step 3—calculate the hourly maximum demand using Steps 1 and 2.
- Step 4—calculate the residential NOUS bill, for each consumption profile, that is driven by the demand tariff component.
- Step 5—add fixed charges and consumption charges to the demand charge, for each consumption profile, to calculate the total indicative network bill for residential consumers using the demand tariff.

Figure 8-4 compares the average network prices using the proposed residential peak period demand tariff against what consumers would pay if they were assigned to existing residential Basic and residential Time-of-Use network tariffs. Average prices—total bill divided by energy consumption—are shown on the vertical axis and the hypothetical annual consumption is shown on the horizontal axis (in kwh).

[17] Load factors are average consumption per hour divided by the maximum consumption per hour.

Figure 8-4: Residential bill impacts using a range of consumption profiles (using 2017/18 indicative tariffs)



Note: The average price for the residential time-of-use tariff has been calculated using the profile for consumers on the residential basic network tariff.

The figure above shows that:

- Consumers with an average peak demand are on average likely to receive a network bill similar to what they could expect under the residential Basic or residential Time-of-Use network tariff.
- Consumers with a low maximum demand (and therefore a high load factor) are on average likely to receive a network bill lower than they would under the current network tariffs.
- Consumers with a high maximum peak demand (and therefore a low load factor) are on average are likely to receive a higher network bill than they would under the residential basic or residential time-of-use tariffs.

More specifically, Table 8-3 compares the total estimated network bill using different tariffs and consumption profiles, and how the network bill varies when compared against the Basic two-part residential tariff. For example, the average annual consumption for residential consumers in the ACT is 7,500 kWh.

Assuming that this consumer is on the flat-rate Basic residential tariff, the estimated current network bill is $773 per year. This consumer will:

- be better off by about $60 over 5 years (or $12 p.a.) if they moved to a Time-of-Use tariff.
- be better off by about $80 over 5 years (or $16 p.a.) if they moved to the proposed demand tariff, assuming an average peak demand.
- be better off by about $260 over 5 years (or $52 p.a.) if they were assigned to the proposed demand tariff and respond to the price signals by reducing their consumption during peak periods. Likewise, those consumers that already have lower peak demand would experience a similar network bill impact.
- be worse off by about $130 over 5 years (or $26 p.a.) if they have high peak demand. As a result, these types of consumers with higher than average demand during peak periods can either:
  - Continue to maintain their profile but are likely to experience an increase in their network bill compared to existing Basic or Time-of-Use tariffs. Therefore, their bills better reflect the costs that they impose on the electricity network at peak periods.
  - Change their consumption patterns by using appliances outside of the peak period and hence mitigate against the potential increase in their network bill. As a result, based on the cost-reflective demand tariff, consumers can make informed decisions about how to control their usage and bill.

Table 8-3: Estimated change in indicative annual network bills of residential consumers (using indicative 2017/18 tariffs)

	Total Annual Network Bill ($)			Difference in network from Basic tariff ($)		
Annual Consumption (kWh)	*3,500*	*7,500*	*10,000*	*3,500*	*7,500*	*10,000*
Flat rate Basic tariff	$427	$773	$990	- -	-	-
Time-of-Use tariff (average profile)	$421	$761	$974	- 6	-12	-16
Proposed demand tariff (low peak demand)	$403	$722	$921	-24	-52	-69
Proposed demand tariff (average peak demand)	$419	$757	$968	-8	-16	-22
Proposed demand tariff (high peak demand)	$439	$800	$1,025	12	26	35

In summary, and consistent with how a demand tariff ought to work in principle, the indicative effect of the proposed demand tariff on a consumer's network depends on their demand profile

during peak periods. Further, since network charges typically comprise about a third of the total retail bill, the relative effect of introducing the proposed demand tariff on consumer's retail bills becomes less significant.

8.3 Proposed tariffs for low voltage commercial consumers

AAD currently offers low voltage commercial consumers a range of tariffs. These include a flat tariff, a TOU tariff, a demand tariff and a capacity tariff. Our review of commercial LV tariffs suggests that we need to make cost reflective tariffs available to all LV consumers.

Currently, the commercial LV tariff structure includes a kVA demand tariff which is only available to commercial LV consumers on three phase meters. In light of our review, we propose to introduce a new kW based anytime maximum demand tariff for commercial LV consumers with single phase meters that do not measure power factor. Changes to the commercial LV tariff structure will take place from 1 December 2017, in line with the forthcoming AEMC final determination on metering competition.

In future, ADD may consider refining the commercial LV demand tariffs further by incorporating a peak period element to the tariff. This may be similar to the peak period demand tariff introduced for residential consumers in this regulatory period. However, during this regulatory period, AAD is focussed on providing a tariff structure that offers all commercial LV consumers, demand tariffs that are based on the same charging parameters.

This is consistent with feedback we received from the business community and commercial consumers that they would welcome tariffs that encourage users to modify energy use in peak periods.

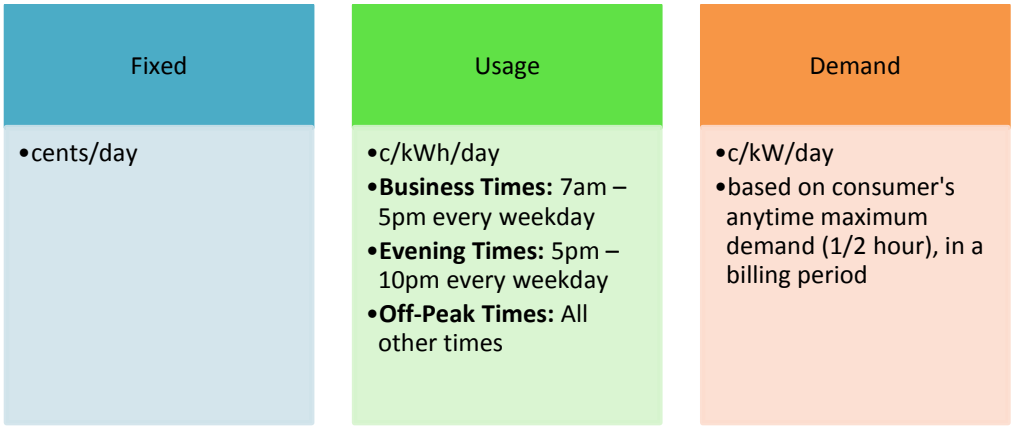
In this subsection, we explain the proposed changes to the commercial LV tariff structure. The subsection begins with an outline the structure of the proposed tariff (subsection 8.3.1). In subsection 8.3.2, the change in our assignment policy for commercial LV consumers is outlined. Other changes that have been made to the structure of commercial LV tariffs are then explained in subsection 8.3.3. Finally, in subsection 8.3.4 the indicative commercial LV consumer bill impacts are outlined.

8.3.1 Structure of the new low voltage commercial demand tariff

The kW demand tariff for commercial LV consumers will be structured in the same way as the kVA demand tariff for commercial LV consumers, as outlined in Figure 8-5. Specifically, the new kW demand tariff will include:

- a fixed component;
- TOU energy components (based on the same business, evening and off-peak times as the kVA demand tariff – see Attachment 4 for more details); and
- a demand charge that is applied to the maximum demand in a billing period.

Figure 8-5: Proposed kW demand tariff for low voltage commercial consumers



8.3.2 Changes in assignment policy

From 1 December 2017, low voltage commercial consumers who move to new premises with a remotely read meter or whose meter is replaced with a remotely read meter will be assigned to a demand tariff by default. Under the proposed tariff structure, there will be two commercial LV demand tariffs – one applied to kWs and one applied to kVAs.

Those consumers with a remotely read interval meter will be assigned to a kW demand tariff if they have a single phase service and to the kVA demand tariff if they have a three phase service.

This is a change from our existing policy which assigns new consumers as follows.

- Commercial consumers **under 160 MWh per year** are currently assigned to the General TOU tariff (code 90). From 1 December 2017, these consumers with a remotely read meter will be assigned to the new kW demand tariff.
- Commercial consumers **over 160 MWh per year** (and without an embedded generator) are assigned to the LV TOU kVA Demand tariff (code 101). There is no change to this assignment during this regulatory period.
- Commercial consumers with an **embedded generator** are assigned to the LV TOU Capacity tariff (code 103). There is no change to this assignment during this regulatory period.

The exception to the above assignment policy is for small unmetered loads (code 135) and streetlighting (code 80), where most of the usage is not measured using a meter. In the case of small unmetered loads (which applies to eligible installations such as telephone boxes), AAD has not connected meters to these loads. The streetlight tariff applies only to usage for public lighting loads that operate at night. Most of these loads are also unmetered. These tariffs do not vary with usage, or load profile, and therefore, there is no need for AAD to transition these loads onto a demand tariff as consumers on these tariffs are unlikely to respond.

The introduction of the kW demand tariff and change in assignment policy have been established to coincide with the data for the introduction of metering competition—1 December 2017. This means that consumers who have remotely read interval meters, will be assigned to a demand tariff from that date, by default, and it will be mandatory for commercial LV consumers to remain on that tariff (that is, there are no opt-out provisions).

This assignment policy means that our non-demand based commercial LV tariffs will eventually become obsolete (General Network and General TOU). This is because, over time, all LV Commercial consumers will have their meter replaced with a remotely read interval meter which will mean they are assigned to a demand tariff.

The business community and the ECRC highlighted the importance of providing information to the business community prior to changes to tariffs to allow for planning and preparation. We will continue our consumer engagement program, complemented by targeted communications to provide information to consumers and potential new consumers as we transition to changes in commercial tariffs.

8.3.3 Changes in low voltage tariffs

Our proposed low voltage commercial tariff structure, tariffs, charging parameters, eligibility and assignment of consumers to tariffs is summarised in Table 8-4. In summary, each of the tariffs has been reviewed to base the tariffs on LRMC (as per Rule 6.18.5(f)) and the new kW demand tariff has been added to the structure.

Table 8-4: Our proposed tariff structure for low voltage commercial consumers

Tariff	Consumer eligible to receive tariff	Component	Unit	Charging parameter	Proposed Change
General Network*	Available to all existing LV Commercial consumers. Tariff becomes obsolete to new consumers from 1 December 2017.	Fixed network access charge Inclining block tariff energy consumption charge with 2 tiers	¢/day ¢/kWh	Tier break is set at 330 kWh per day	Review of fixed and energy consumption charge to be based on LRMC
General TOU Network*	Available to all existing LV Commercial consumers with an interval meter. Tariff becomes obsolete to new consumers from 1 December 2017. TOU is **not** the default tariff for new consumers with a remotely read meter after 1 December 2017.	Fixed network access charge (per connection point) Energy consumption charge based on time of use	¢/day ¢/kWh	**Business Times:** 7am – 5pm weekdays **Evening Times:** 5pm – 10pm every weekdays **Off-Peak Times:** All other times	Review of fixed and energy consumption charge to be based on LRMC
TOU kW Demand Network*	Available to existing low voltage consumers with a remotely read meter and a single phase connection (except those consumers with an	Fixed network access charge (per connection point) Maximum demand charge Energy consumption charge based on time of use	¢/day ¢/kW/day ¢/kWh	Maximum Demand charge applied to the maximum demand in the billing period Energy charges:	New tariff introduced to offer all LV Commercial consumers access to a demand tariff

Tariff	Consumer eligible to receive tariff	Component	Unit	Charging parameter	Proposed Change
	embedded generation system). Tariff becomes new default tariff for consumers with remotely read single phase meters from 1 December 2017.			**Business Times:** 7am – 5pm weekdays **Evening Times:** 5pm – 10pm weekdays **Off-Peak Times:** All other times	
TOU kVA Demand Network*	Available to all LV Commercial consumers with an interval meter (except those consumers with an embedded generation system). Tariff becomes new default tariff for consumers with three phase remotely read meters from 1 December 2017.	Fixed network access charge (per connection point) Maximum demand charge Energy consumption charge based on time of use	¢/day ¢/kVA/day ¢/kWh	Maximum Demand charge applied to the maximum demand in the billing period Energy charges: **Business Times:** 7am – 5pm weekdays **Evening Times:** 5pm – 10pm weekdays **Off-Peak Times**: All other times	Review of fixed and energy consumption charge to be based on LRMC
TOU Capacity Network*	Open to all LV Commercial consumers with an interval meter. Prescribed for low voltage consumers with embedded generation.	Fixed network access charge Maximum demand charge Capacity charge Energy consumption charge based on time of use	¢/day ¢/kVA/day ¢/kVA/day ¢/kWh	Maximum Demand charge applied to the maximum demand in the billing period Capacity charge applied to the maximum demand in the previous 12 months Energy charges: **Business Times:** 7am – 5pm weekdays	Review of fixed and energy consumption charge to be based on LRMC

Tariff	Consumer eligible to receive tariff	Component	Unit	Charging parameter	Proposed Change
				Evening Times: 5pm – 10pm weekdays **Off-Peak Times**: All other times	
Small Unmetered Loads Network	Applies to eligible installations as determined by ActewAGL, including: telephone boxes, telecommunication devices.	Fixed network access charge Energy consumption charge	¢/day ¢/kWh		Review of fixed and energy consumption charge to be based on LRMC
Street lighting Network*	Applies to the night-time lighting of streets and public ways and places.	Fixed network access charge Energy consumption charge	¢/day ¢/kWh		Review of fixed and energy consumption charge to be based on LRMC
*For each of these tariffs, two separate charges apply – one which includes a meter capital charge (consumers who connected before 30 June 2015) and one which excludes the meter capital charge for those consumers connected to the network after 1 July 2015 and who have paid for their meter.					

8.3.4 Indicative bill impacts for low voltage commercial consumers

The proposed demand tariff has been designed to ensure that the *average* consumer—assuming that they maintain the same consumption and usage profile—is no worse-off on the new demand tariff for the transition when compared to the existing basic flat-rate General or Time-of-Use tariff. It may however result in some consumers paying less to use the network and others paying more.

The impacts for individual consumers will however depend on their specific circumstances, such as their consumption, their maximum demand and how they might respond to cost-reflective price signals. Further, whether an individual consumer's bill is higher or lower will depend on how retailers choose to incorporate proposed network tariffs into retail prices, and any other adjustments to annual tariffs.

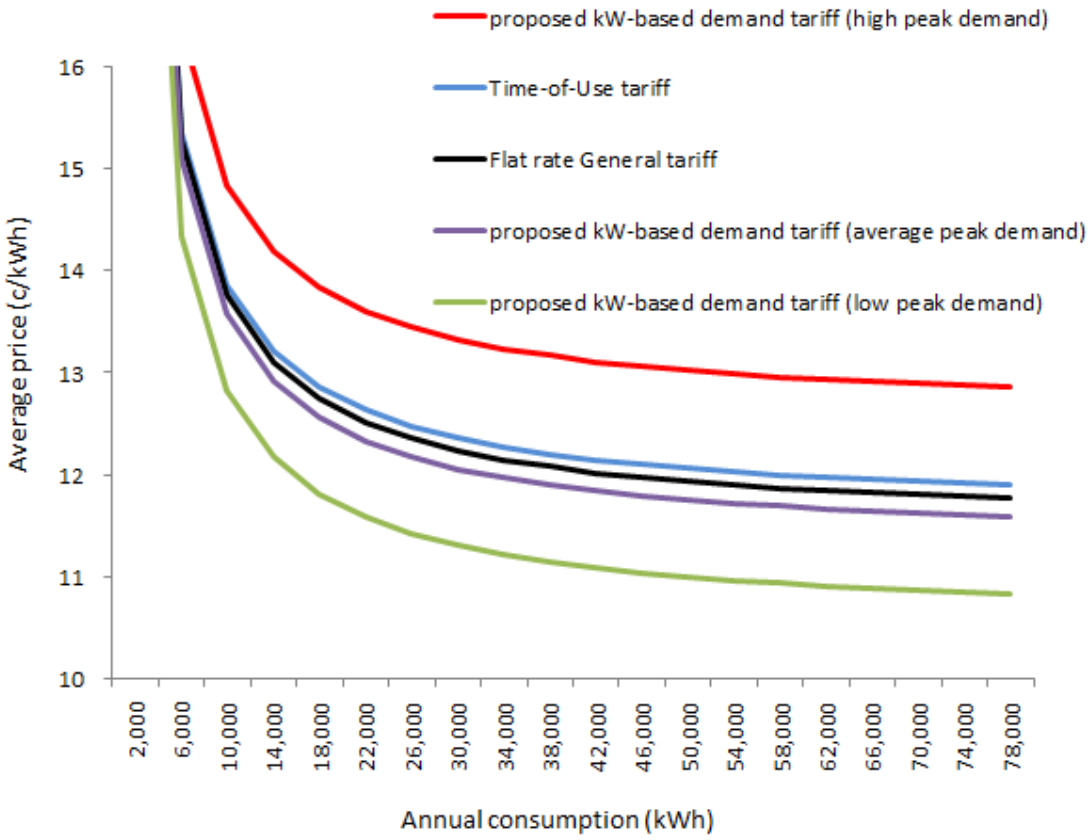
We have estimated the *indicative* bill impact of the introduction of the new kW-based demand tariff using 5 steps:

- Step 1—establish a wide range of *hypothetical* consumption profiles—from 2,000kWh p.a. to 78,000kWh p.a.
- Step 2—apply three types of load profiles. Load profiles are based on existing network load factors.[18] The load factors used for the consumer impact analysis are 0.27 (high), 0.33 (medium) and 0.38 (low).
- Step 3—calculate the hourly maximum demand using Steps 1 and 2.
- Step 4—calculate the low voltage commercial consumer NOUS bill, for each consumption profile, that is driven by the demand tariff component.
- Step 5—add fixed charges and consumption charges to the demand charge, for each consumption profile, to calculate the total indicative network bill for low voltage commercial consumers using the demand tariff.

Figure 8-6 compares the average network prices using the proposed kW-based peak period demand tariff against what low voltage consumers would pay if they were assigned to existing flat-rate General or Time-of-Use network tariffs. Average prices—total bill divided by energy consumption—are shown on the vertical axis and the hypothetical annual consumption is shown on the horizontal axis (in kwh).

[18] Load factors are average consumption per hour divided by the maximum consumption per hour.

Figure 8-6: Commercial bill impacts for voltage consumers using a range of consumption profiles (using 2017/18 indicative tariffs)



Note: The average price for the commercial time-of-use tariff has been calculated using the profile for consumers on the commercial General tariff.

The figure above shows that:

- Consumers with an average peak demand are on average likely to receive a network bill similar to what they could expect under the General or Time-of-Use network tariff.
- Consumers with a low maximum demand (and therefore a high load factor) are on average likely to receive a network bill lower than they would under the current network tariffs.
- Consumers with a high maximum peak demand (and therefore a low load factor) are on average likely to receive a higher network bill than they would under the current network tariffs.

More specifically, Table 8-5 compares the total estimated network bill using different tariffs and consumption profiles, and how the network bill varies when compared against the General two-part low voltage commercial tariff. For example, the average annual consumption for commercial low voltage consumers in the ACT is 30,000 kWh.

Assuming that this consumer is on the flat rate General tariff, the estimated current network bill is $3,671 p.a. This low voltage consumer will:

- be better off by about $270 over 5 years (or $54 p.a.) if they moved to the proposed demand tariff, assuming an average peak demand.
- be better off by about $1,400 over 5 years (or $280 p.a.) if they were assigned to the proposed demand tariff and respond to the price signals by reducing their consumption during peak periods. Likewise, those consumers that already have lower peak demand would experience a similar network bill impact.
- be worse off by about $1,630 over 5 years (or $326 p.a.) if they have high peak demand. As a result, this type of consumers with higher than average demand during peak periods can either:
  - Continue to maintain their profile but are likely to experience an increase in their network bill compared to existing Basic or Time-of-Use tariffs. Therefore, the amount they will pay will better reflect the costs that they impose on the electricity network at peak periods.
  - Reduce their consumption patterns outside of the peak period and hence mitigate against the potential increase in their network bill. As a result, based on the cost-reflective demand tariff, consumers can make informed decisions about how to control their usage and bill.

Table 8-5: Estimated change in indicative annual network bills of residential consumers (using indicative 2017/18 tariffs)

	Total Annual Network Bill ($)			Variation from General tariff ($)		
Annual Consumption (kWh)	10,000	30,000	50,000	10,000	30,000	50,000
Flat rate General tariff	$1,375	$3,671	$5,967	-	-	-
Time-of-Use tariff (average profile)	$1,386	$3,708	$6,031	10	37	63
Proposed kW-based demand tariff (low peak demand)	$1,282	$3,392	$5,502	-93	-280	-466
Proposed kW-based demand tariff (average peak demand)	$1,357	$3,617	$5,877	-18	-54	-91
Proposed kW-based demand tariff (high peak demand)	$1,484	$3,997	$6,510	109	326	543

In summary, and consistent with how a demand tariff ought to work in principle, the indicative effect of the proposed demand tariff on a low voltage commercial consumer's network depends on

their demand profile during peak periods. Further, since network charges typically comprise about a third of the total retail bill, the relative effect of introducing the proposed demand tariff on consumer's retail bills becomes less significant.

8.4 Proposed tariffs for high voltage commercial consumers

AAD currently offers HV Commercial consumers a set of tariffs that include a fixed component, a TOU energy component, a maximum demand component and a capacity component. As shown in Table 8-5 below, the HV Commercial tariffs differ depending on whether:

- the consumer or AAD owns and maintains the HV assets (such as transformers); and
- the consumer or AAD owns and maintains the LV network.

The table below provides an outline of how each of the existing HV tariffs are defined.

Table 8-6: AAD's existing HV commercial tariffs

Code	Tariff	Ownership and maintenance of HV assets		Ownership and maintenance of LV Network	
		AAD	Consumer	AAD	Consumer
111	HV TOU Demand Network	✓		✓	
112	HV TOU Demand Network – Consumer HV		✓	✓	
121	HV TOU Demand Network – Consumer LV	✓			✓
122	HV TOU Demand Network – Consumer HV and LV		✓		✓

The proposed change to the HV Commercial tariff structure is to consolidate the number of tariffs from four to three. Specifically, from 1 July 2017, we propose to eliminate the HV TOU Demand Network – Consumer HV (Code 112) tariff. The tariff currently has no consumers, so there is no consumer impact from this proposal. Given that we have a relatively small number of HV commercial consumers (26), and that the tariffs offered to those consumers are already similar, this change will simplify the tariff schedule.

During the consumer engagement program associated with the development of this TSS we have taken direct input from a number of HV Commercial tariff consumers, who indicated an interest in better communication with AAD to ensure they understood the tariff options and were therefore able to manage their energy consumption accordingly. Due to the small number of HV Commercial

consumers, this direct consumer communication will continue to be an important part of future stages of tariff reform for HV consumers.

8.4.1 Changes in HV tariffs

Our proposed HV Commercial tariff structure, tariffs, charging parameters, eligibility and assignment of consumers to tariffs are summarised in Table 8-7.

The main change to the tariffs offered to HV consumers are a review of tariff charges to base them on LRMC and the elimination of one of the tariffs (code 112) to simplify the structure while managing consumer impacts.

Table 8-7: Our proposed tariffs for commercial high voltage consumers

Tariff	Consumer eligible to receive tariff	Component	Unit	Charging parameter	Proposed Change
TOU Demand Network	Large consumers taking supply at high voltage with a low voltage network owned and maintained by AAD.	All three tariffs have the following components: • fixed network access charge (per connection point) • maximum demand charge • Capacity charge • energy consumption charge based on time of use	$/day ¢/kVA/day ¢/kVA/day ¢/kWh	Demand charge applied to the maximum demand in the billing period Capacity charge applied to the maximum demand in the previous 12 months Energy charges: **Business Times:** 7am – 5pm weekdays **Evening Times:** 5pm – 10pm weekdays **Off-Peak Times:** All other times	Levels have been refined according to cost reflectivity principle and based on LRMC
TOU Demand Network – Consumer LV	Large consumers taking supply at high voltage where the consumer owns and is fully responsible for its own low voltage network.				Levels have been refined according to cost reflectivity principle and based on LRMC
TOU Demand Network – Consumer HV and LV	Large consumers taking supply at high voltage where the consumer owns and is fully responsible for their own low voltage network and where the consumer owns and is responsible for their high voltage assets.				Levels have been refined according to cost reflectivity principle and based on LRMC

8.5 Tariff setting to comply with pricing principles

In this subsection, we set out how our tariffs have been set, and how they comply with each of the pricing principles in the Rules.

8.5.1 Tariffs to be based on the long run marginal cost

In order to be consistent with Clauses 6.18.5 (f), all of our network tariffs have been reviewed to be based on the LRMC of providing electricity network services. Network businesses have flexibility about how they measure their LRMC.

To guide the development of our tariffs, we conducted a LRMC study using the Average Incremental Cost (AIC) approach. This decision to use the AIC approach is consistent with the AEMC's conclusion regarding the AIC approach, which noted that:

> *For the remainder of the network where no network constraints are anticipated in the foreseeable future or advanced metering is not in place, then simpler approaches to calculating forward looking costs, such as the AIC methodology, may be sufficient.*[19]

The AIC methodology produces an estimate which is averaged across both time and location. This averaging produces a lack of granularity which is reasonable given that we are not applying either locational specific pricing or critical peak pricing.

The AIC approach is underpinned by AAD's forecast of the expected change in future costs (numerator) as a result of forecast changes in demand for electricity network services (denominator), with both the numerator and denominator discounted back to create a net present value (NPV)[20].

The net present value of capital works related to increased demand for the next 10 years was calculated to be $84 million. The NPV of operating expenditure on this demand driven capital expenditure is estimated to be $20 million. These capital and operating expenditure forecasts are required to facilitate the increase in demand estimated to have a NPV of 590 MVA. Dividing the NPV of the costs by the NPV of the increase in demand determines the average LRMC for AAD's distribution network calculated to be $197 per KVA per annum in terms of 2014/15 prices.

Before the LRMC was applied to the maximum demand for each tariff, it was inflated by CPI for each year. The CPI for 2016/17 was estimated using the latest available ABS statistics. For subsequent years, AAD used the AER's CPI forecasts that were included in its final decision on AAD's distribution prices. The CPI adjustment raised the LRMC in nominal terms from $197 to $210 per KVA pa in 2017/18 and $215 per KVA pa in 2018/19. Using the AIC approach derives a LRMC

[19] AEMC *National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014,* Rule Determination, p.129

[20] NPV (Forecast capital and operating costs) / NPV (Forecast growth in service attributes driving those costs)

estimate that is based on $/kVA. AAD split the process for determining DUOS tariffs based upon the LRMC into two basic steps.

1. determine the total amount of the LRMC which is to be recovered in each tariff; and
2. determine the prices to be applied to each components of each tariff so as to recover the LRMC for each tariff.

In determining the total LRMC to be applied to each tariff (step 1):

- the maximum demand for the total load on each tariff was estimated[21]; and then
- the LRMC was applied to these maximum demands to determine the total LRMC to be recovered within each tariff.

A different approach were used to set tariffs with a demand component compared to those without a demand component, as explained below.

Demand based tariffs

Each charging component within the overall tariff has been set on the basis that the overall network tariff is on a price path to fully reflect the LRMC. Where a tariff has (or it is proposed to have) a demand tariff component, AAD has based the demand rate on the LRMC, with a transition path to a fully cost reflective levels over time. The energy and fixed components of the tariff were set using existing flat and TOU tariffs' energy and fixed component levels as a starting point to move towards LRMC. In this way, AAD has taken into account consumers' bill impacts and the side constraint. The energy charges were set to become more cost-reflective over time, subject to a transition period. The fixed charges were set after determining the demand and energy charges, to recover the residual of the revenue requirement that is not recovered through demand or energy charges.

Non-demand based tariffs

Where a tariff does not have a demand tariff component, AAD has generally sought to retain fixed charges at similar levels to what they are currently, and adjusted the energy charge so that the average revenue generated from that tariff equals the LRMC for consumers on that tariff. In relation to tariffs that do not have a demand tariff component, AAD's approach should not materially distort consumption or investment decisions. This is because whilst translating a $/kVA LRMC to a $/kWh variable charge is mathematically correct, the resultant $/kWh tariff will not be perfectly reflective of the costs of any kWh of energy that is charged using that tariff component.

AAD's approaches to demand and non-demand based tariffs has ensured that tariffs are based on the LRMC and generate revenue that comply with the AER's average revenue constraints.

Our approach to basing tariffs on LRMC is outlined in more detail in Attachment 1.

[21] The maximum demand for each tariff was calculated by applying an estimate of the annual load factor for each tariff to the energy consumed under each tariff in 2013/14.

8.5.2 There are no cross subsidies between tariff classes

The Rule changes retain the existing pricing principle that is designed to avoid cross-subsidies between different classes of consumers (that is, residential and commercial consumers). This principle requires the revenues recovered from each tariff class to be between the avoidable cost of not providing the service and the stand-alone cost of providing the service to the relevant consumers. This safeguards against large cross-subsidies between tariffs classes, consistent with Clause 6.18.5 (e). The existing side constraints, which limit annual price movements within a tariff class, are also retained. Attachment 2 sets out how we calculated standalone and avoidable costs

8.5.3 Tariffs recover total efficient costs

The revenue to be recovered from each network tariff must recover the network business' total efficient costs of providing network services in a way that minimises distortions to price signals that encourage efficient use of the network by consumers. This principle has three parts:

1. to enable the recovery of total efficient costs;
2. that the revenue from each tariff reflects the total efficient cost of providing services to those consumers; and
3. that revenue is recovered in a way that minimises distortions to consumers' usage decisions consistent with Clause 6.18.5 (g).

Each year we will adjust the price levels, consistent with the approach outlined in the proposed TSS, such that the expected revenue from all tariffs is in accordance with the AER's 2014-19 distribution determination. We will also ensure that tariffs reflect the total efficient costs of serving each consumer assigned to each tariff by basing tariffs on LRMC (see Attachment 1).

8.5.4 Consideration of consumer impacts

Tariffs are to be developed in line with a new consumer impact principle that requires network businesses to consider the impact on consumers of changes in network prices and to develop price structures that are able to be understood by consumers, as per Clause 6.18.5(h).

We have considered the consumer impacts of changing network tariffs in determining how to transition consumers to cost reflective prices over time. We agree with the AEMC that clear, understandable and stable network prices, in accordance with the principles in the network pricing Rules, will facilitate the ability of consumers to receive and respond to future price signals.[22]

As set out in Section 7, our ability to move to more cost reflective tariffs is dependent on the availability of advanced metering technology. We expect this technology change to have the greatest impact on residential and small low voltage commercial consumers. These consumers are expected to be impacted by the availability of advanced metering technology in one of two ways:

[22] AEMC 2014, *National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014,* Rule Determination, p.12

1. new consumers who are connected with a remotely read interval meter; and
2. existing consumers who have their existing meter upgraded to a remotely read interval meter.

We consider consumers in the latter category, who have their metering technology upgraded, may be less able to mitigate the impact of changes in tariffs. This is because these consumers may have already made consumption and investment decisions on the basis of existing tariff structures, which are less cost reflective than our proposed tariff structure that include demand tariffs for all residential and commercial consumers. For instance, consumers may have installed appliances which have relatively low energy consumption but higher energy demand. Other consumers may have less control over their appliances (and in turn how they use energy), such as in situations where consumers are renting their premises. Therefore, residential consumers are assigned to the new demand tariff due to the replacement of their meter will have the ability to opt out of the demand tariff for the first two years of implementation (until 1 December 2019) to the TOU tariff.

The ability to opt out is not a permanent option. Instead it is a transitional measure provided to allow consumers to manage potential bill impacts while they make changes to their consumption and investment decisions. This transition period allows consumers to install more energy efficient appliances and/or learn to more effectively manage the demand incurred by their existing electrical appliances. This is one example of the way in which we have considered the impact of the new tariff structure on our consumers.

8.5.5 Capable of being understood

We have designed our tariffs to ensure they are reasonably capable of being understood by consumers, in accordance with Clause 6.18.5 (i).

We expect that over time, as many network businesses across Australia move towards more cost reflective tariff structures, the familiarity and therefore understanding of demand tariffs will improve. This will include a greater understanding of the drivers of network costs and how network prices reflect these costs.

In setting our proposed tariff structure for 2017/18 and 2018/19, we have carefully assessed the ability of consumers to understand changes to our tariff structure. For example, the new demand tariff for residential consumers is based on a single charge in every season applied over a peak time period. While a more complex tariff may be more cost reflective, it is also less likely to be appreciated and understood, which may lead to consumers being unaware or unable to respond to the price signal. Through our continuing consumer engagement process, we will monitor understanding of consumers—particularly the new tariff and proposed assignment policy—and revaluate the trade-off between cost reflectivity and complexity to determine the most appropriate way in which the tariff structures could be altered in the future.

8.5.6 Tariffs comply with jurisdictional obligations

As per Clause 6.18.5 (j), network tariffs must comply with any jurisdictional pricing obligations imposed by state or territory governments. If network businesses need to depart from the above principles to meet jurisdictional pricing obligations, they must do so transparently and only to the

minimum extent necessary. In line with ACT Government requirements, AAD recovers the following jurisdictional schemes in the ACT, (based on 2015/16).

- The Energy Industry Levy (EIL) $1m;
- The Utilities Network Facilities Tax (UNFT) $6.3m;
- The Feed-in Tariff (FiT) $15.3m; and
- The Feed-in Tariff for large schemes (FiT L) $8.4m[23]

These jurisdictional schemes are recovered in our NUOS tariffs.

8.6 Our approach to updating our tariffs annually

The AER is required to make a final determination on the proposed TSS by 30 January 2017. The AER's TSS determination will apply for each of the two years covering 1 July 2017 to 30 June 2018 and 1 July 2018 to 30 June 2019.[24]

Our annual pricing proposal[25] for 2017/18 to the AER by 30 March 2017 will apply methodology detailed in Attachment 1. The Pricing Proposal will also:

- Incorporate use of updated cost or volume information to derive updated tariff levels.
- Explain material differences (if any) between the tariffs included in the TSS indicative tariff schedule and those in our annual pricing proposal.
- Demonstrate compliance with the AER's TSS final determination.

The TSS will first apply the new tariff structures and tariffs on 1 July 2017.

The Rules do not permit us to amend the approved TSS in the first year of the TSS.[26] Should it be necessary to revise the tariff structure for the second year of the TSS (2018/19), we will consult with our stakeholders and seek the approval of the AER nine months before any changes are to come into effect, pursuant to Rule 6.18.1B(b). Otherwise, as part of on-going consumer engagement, we propose to inform our ECRC of the annual changes, and also communicate to our consumers through our website.

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[23] ActewAGL Distribution, *2015/16 Network Pricing Proposal,* p.29

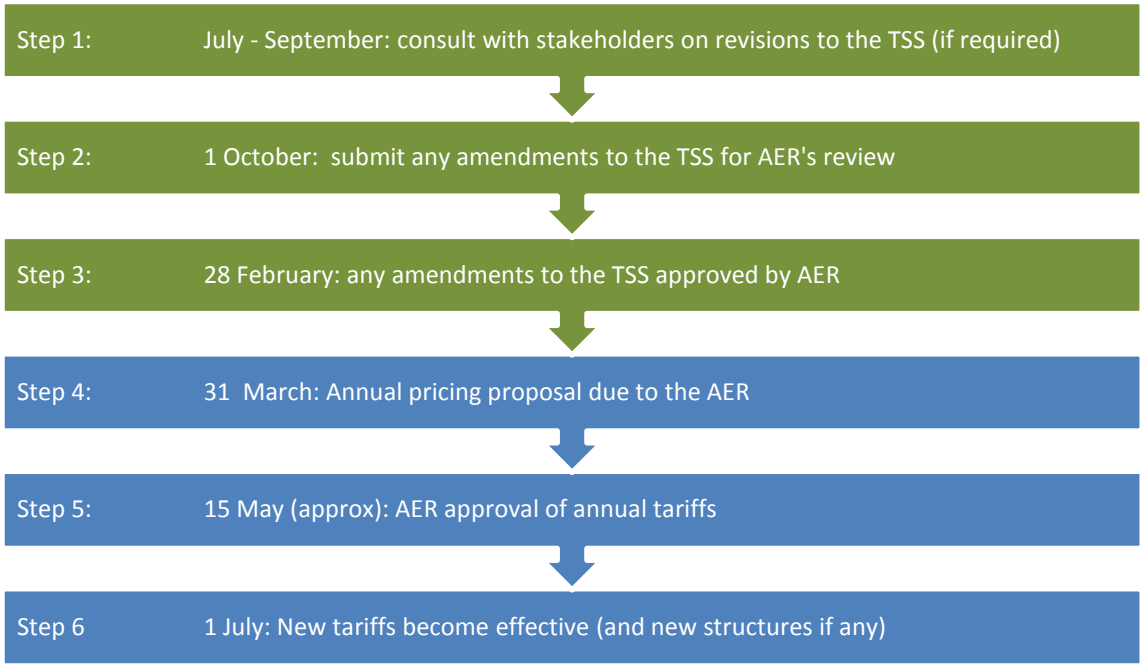
[24] After this, we will be required to submit another TSS proposal together with our regulatory proposal for the regulatory control period 1 July 2019-30 June 2024.

[25] Consistent with the contents of the pricing proposal specified in Rule 6.18.2(b)

[26] Rule 6.18.1B(a) and 11.73.2. The financial year 2017/18 is the first year during which the TSS will be effective. This is the third year of our regulatory control period (2015/16-2018/19).

Chapter 6 of the Rules sets out the framework that just be followed for making changes to our tariff annually. This is summarised in the figure below and the first three steps are only required if we choose to apply to the AER to amend our TSS.

Figure 8-7: Process for updating tariffs annually



Attachment 1 Price Setting Description

A.1.1 Estimating Long Run Marginal Cost

The requirement to take into account the LRMC when developing network prices reflects a fundamental economic concept - namely allocative efficiency. Allocatively efficient outcomes will be promoted if customers consume electricity up to the point where the marginal benefit to them of consuming an additional unit of energy (kWh, kW or kVA, depending on the cost driver being priced) equals the marginal cost of providing that extra unit of energy to that customer. When price deviates from the marginal cost of supply — in this case, the LRMC — customers will consume either:

- too much of the service. For example, when the price of an additional unit of electricity service is less than the cost of those services, some customers will consume more of those services. This creates an overall welfare loss (an economically inefficient outcome) as the cost of providing those customers with an additional unit of electricity services exceeds the benefit those customers receive from consuming those electricity services; or,
- not enough of the service. For example, when the price of an additional unit of electricity services is greater than the cost of those services, some customers will be unable consume those services (perhaps due to a budget constraint). This creates an overall welfare loss (an economically inefficient outcome) as the overall net benefits of supplying electricity services could be increased by reducing the price of the electricity services and thereby allowing customers to obtain the benefits of consumption that are in excess of the LRMC.

LRMC Approach

The LRMC for a network service can be calculated in a number of different ways. One calculation method is the Average Incremental Cost (AIC) approach, which is underpinned by a business' forecast of the change it expects to incur in its future costs (numerator) as a result of its forecast change in demand for its service/s (denominator), with both the numerator and denominator discounted back to create a net present value (NPV).

$$\frac{\Sigma \text{NPV (Forecast capital and operating costs)}}{\text{NPV (Forecast growth in service attribute driving those costs)}}$$

An alternative approach is to use the perturbation approach. This approach, in practical terms, seeks to ascertain how a business' expected future costs would change (in NPV terms) if there were to be an incremental increase (or decrease) in the future levels of demand for its services, relative to its underlying forecast.

$$\frac{\Sigma\text{NPV (Revised Capex \& Opex Program } \textit{less} \text{ Initial Capex \& Opex program)}}{\text{NPV (Revised demand forecast } \textit{less} \text{ Initial Demand Forecast)}}$$

Consistent with Rule 6.18.5 (f), we have considered the costs and benefits of both methodologies and have adopted the AIC method of calculating the LRMC. The AIC approach ensures that if AAD's underlying demand and cost forecasts eventuate, the NPV of revenue generated over the evaluation period from the implementation of LRMC-based tariffs will equal the NPV of the costs that AAD incurs. Also, the AIC method was preferable because it is underpinned by forecasts that have already been subjected to AER scrutiny during the recent regulatory review process. Further, it is commonly used by distribution networks as it is generally considered to be well suited to situations where there is a fairly consistent profile of investment over time to service growth in demand.

What is included in AAD's LRMC calculation?

- Forecast augmentation capital expenditure: The timing and size (and therefore cost) of expenditure in this cost category are influenced by changes in AAD's customers' future demand, therefore, these costs have been included in the calculation.
- Incremental forecast operating expenditure: The timing and size (and therefore cost) of AAD's expenditure on demand management programs and some short run operational and maintenance costs are influenced by changes in its consumers' future demand and / or consumption behaviour, therefore, these costs have been included in the calculation.
- Costs related to zone substations and feeders.

What is excluded from AAD's LRMC calculation?

- Forecast replacement capital expenditure: The timing and scale of AAD's future replacement capital expenditure is predominately driven by condition and risk factors affecting individual assets (or categories of assets). It is not materially impacted by the loadings (whether peak demand or energy throughput) placed on those assets.
- Forecast capital expenditure for customer connections: AAD has concluded that in general, signalling these costs to the broader customer base through a LRMC based variable charge is likely to diminish economic efficiency as the timing and scale of this expenditure is predominately driven by the location and particular connection characteristics of the connecting customer rather than the broader customer base.
- Forecast corporate safety related and IT capital expenditure costs: The timing and scale of these costs will not be affected by AAD's consumers changing their current demand or energy

consumption behaviour, and therefore, these costs have not been excluded from the calculation.

- Sunk costs: As these costs have already been incurred, these costs cannot be influenced by AAD's consumers changing their demand or energy consumption behaviour.
- Forecast of non-incremental operating expenditure: As this expenditure will not be influenced by AAD's customers changing their future demand or energy consumption behaviour, these costs have not been included in the calculation. This includes general management costs.
- AAD's sub-transmission system: These are classified as dual function assets and are regulated as transmission assets, hence, they are not included in the LRMC.

LRMC Calculation

The net present value of capital works related to increased demand for the next 10 years was calculated to be $84 million. The NPV of operating expenditure on this demand driven capital expenditure is estimated to be $20 million. These capital and operating expenditure forecasts are required to facilitate the increase in demand estimated to have a NPV of 590 MVA. Dividing the NPV of the costs by the NPV of the increase in demand determines the average LRMC for AAD's distribution network calculated to be $197 per KVA per annum in terms of 2014/15 prices.

AAD notes that the LRMC estimate is influenced by a number of data limitations. For example, the AIC approach depends on forecasts of capital expenditure, operating expenditure and demand growth. Any calculation that is based on forecasts is subject to a degree of error. While the inputs are as robust as possible, care must be taken when interpreting the results and drawing implications for tariff design.

AAD's forecast increase in additional capital and operating expenditure, together with very low forecast growth rates for demand, (attributable to the declining average residential consumption), result in a proportionately high estimate of LRMC. For this reason, and consistent with the obligation to base tariffs on LRMC, the LRMC estimate must be carefully interpreted to reflect actual capacity availability in existing areas, otherwise it would inadvertently provide a signal to existing customers that there were capacity constraints when the existing network has sufficient capacity to meet demand.

AAD's LRMC will change over time as significant network augmentation projects are included or excluded from the LRMC calculation depending on the time period covered for the LRMC calculation. For example, some of the expected future increase in electricity demand is associated with the extension of AAD's existing distribution network to new residential sub-divisions. In practice, it is difficult to isolate incremental demand in existing network areas from demand forecasts for AAD's overall network. As a result, the LRMC is based on the total additional forecast demand growth and total additional capital augmentation, including extensions of the network to provide access to the network in new areas.

Rule 6.18.5(c) foreshadows that network service providers (such as AAD) may have cause to vary from tariffs which would otherwise satisfy the pricing principles set out in rules 6.18.5 (e)-(g). In particular, the NER anticipates a possible need for a transition period as tariffs change and the need to consider the impacts on consumers. Some of these practical limitations and considerations are

set out in section 1.1.2 below. In framing the NER, the AEMC provided tacit acknowledgment that an extended transition period may be required, "… a reason transition period (which may extend over more than one regulatory control period)" — noting that a regulatory control period is generally five years.

Future LRMC Calculations

In future, our estimate of LRMC may be refined according to tariff classes to provide a more accurate pricing signal to consumers. LRMC estimates will become more accurate over time as we establish a process of collecting sample data on an ongoing basis, which provides detailed information about consumers' load profiles. Furthermore, as remotely read interval meters are introduced, both consumers and network providers will have access to a greater range of more detailed information. This will assist consumers to manage their electricity load, increasing understanding of behavioural factors that can influence their bill. It will also provide detailed information to AAD about the load profile of different tariff classes at different zone substations, which is expected to lead to a more accurate estimate of LRMC-based tariffs.

In this regulatory period, AAD has chosen not to undertake locational pricing. AAD is focussed on first establishing the core elements of a cost-reflective tariff structure, and then refining those elements in the future, once there is familiarity with and acceptance of that cost reflective tariff structure. To continue the successful transition towards a more cost reflective tariff structure, that transition has to proceed in defined steps that consumers can understand. In summary, locational pricing is a valid concept as it is more cost-reflective than a service area-wide price, but it is not the first step that needs to be taken, and in our view could introduce more complexity than is useful in this stage of the transition.

Taking the above considerations into account, AAD has based tariff levels on the LRMC, as explained below.

A.1.2 AAD's approach to setting prices based on the LRMC

Before the LRMC was applied to the maximum demand for each tariff, it was inflated by CPI for each year. The CPI for 2016/17 was estimated using the latest available ABS statistics. For subsequent years, AAD used the AER's CPI forecasts that were included in its final decision on AAD's distribution prices. The CPI adjustment raised the LRMC in nominal terms from $197 to $210 per KVA pa in 2017/18 and $215 per KVA pa in 2018/19. Using the AIC approach derives a LRMC estimate that is based on $/kVA. AAD split the process for determining DUOS tariffs based upon the LRMC into two basic steps.

1. determine the total amount of the LRMC which is to be recovered in each tariff; and
2. determine the prices to be applied to each components of each tariff so as to recover the LRMC for each tariff.

In determining the total LRMC to be applied to each tariff (step 1):

- the maximum demand for the total load on each tariff was estimated; and then

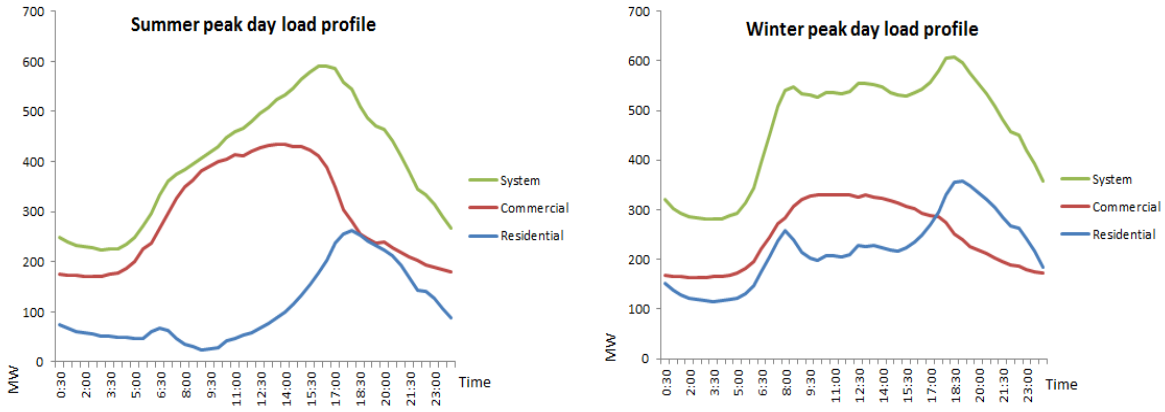
- the LRMC was applied to these maximum demands to determine the total LRMC to be recovered within each tariff.

The maximum demand for each tariff was calculated by applying an estimate of the annual load factor for each tariff to the energy consumed under each tariff in 2013/14. For the residential tariffs, the annual load factor was estimated using the residual load profile for the 2014 calendar year less an assumed load profile for small non-residential consumers.

In estimating the load factors, AAD recognised that it was also necessary to take into account other relevant factors. These include the standard of supply to different tariff classes, the fact that off peak loads are unlikely to have an effect on the LRMC of the network, and that high voltage consumers make a capital contribution towards their high voltage asset and towards upstream augmentation.

In addition, the average tariff for each tariff class is subject to a side constraint[27] during the current regulatory period. This means that the tariff level may be constrained from recovering the full LRMC in each tariff.

The adjusted load factors were applied to the energy consumption for each tariff to determine the maximum demand of the load for each tariff. If the maximum demand for all tariffs is aggregated, they are necessarily larger than the system peak because the peak for different tariffs or even tariff classes, don't occur simultaneously. This is shown in the charts below which show that our summer system peak in 2014 occurred on the same day as the peak for our commercial consumers (in 2014). In the winter of 2014, our system peak occurred on the same day as the peak for our residential consumers.



Given the different characteristics of commercial and residential loads, they typically peak at different times rather than simultaneously. In the same way, the estimated maximum demand for

[27] As per Rule 6.18.6, the side constraint provisions in the NER seek to limit the impact of network price changes on consumers.

each tariff would not occur simultaneously. For this reason, AAD has applied a diversity factor to lower the maximum demand of all tariffs so that when the diversified maximum demand is applied to the LRMC, the tariffs recover those costs to comply with the AER's price determination for each year. In setting the levels of the tariff components that make up each tariff, AAD has adopted slightly different approaches, depending on whether a tariff has a demand component or not. These approaches are described below.

Demand based tariffs

As explained above, each charging component within the overall network tariff has been set on the basis that the overall network tariff is on a price path to fully reflect the LRMC. Where a tariff has (or it is proposed to have) a demand tariff component, AAD has based the demand rate on the LRMC, with a transition path to a fully cost reflective levels over time. The energy and fixed components of the tariff were set using existing flat and TOU tariffs' energy and fixed component levels as a starting point to move towards LRMC. In this way, AAD has taken into account consumers' bill impacts and the side constraint. The energy charges were set to become more cost-reflective over time, subject to a transition period. The fixed charges were set after determining the demand and energy charges, to recover the residual of the revenue requirement that is not recovered through demand or energy charges.

Non-demand based tariffs

Where a tariff does not have a demand tariff component, AAD has generally sought to retain fixed charges at similar levels to what they are currently, and adjusted the energy charge so that the average revenue generated from that tariff equals the LRMC for consumers on that tariff. In relation to tariffs that do not have a demand tariff component, AAD's approach should not materially distort consumption or investment decisions (it may in fact reduce distortions). This is because whilst translating a $/kVA LRMC to a $/kWh variable charge is mathematically correct, the resultant $/kWh tariff will not be perfectly reflective of the costs of any kWh of energy that is charged using that tariff component.

AAD's approaches to demand and non-demand based tariffs has ensured that tariffs are based on the LRMC and generate revenue that comply with the AER's average revenue constraints.

Attachment 2 Standalone costs and avoidable costs

This Attachment discusses the methodology AAD used to generate the stand alone and avoidable cost efficiency test. In setting its tariffs, AAD must comply with Rule 6.18.5 (e) which requires:

> *'…that for each tariff class, the revenue expected to be recovered must lie on or between:*
>
> *(1) an upper bound representing the stand alone cost of serving the retail consumers who belong to that class; and*
>
> *(2) a lower bound representing the avoidable cost of not serving those retail consumers'*

For a tariff to be deemed to be efficient under the Rules, it must deliver a stream of revenue from a class of consumers, that is between this upper and lower bound. This is commonly known as the 'efficient pricing band'. Tariff prices are deemed to be efficient if revenue recovered is (1) less than the stand alone cost and (2) greater than the avoidable cost. There are two reasons why a price within this 'band' is deemed to be efficient.

1. Less than the stand alone cost: Breaching this upper bound may result in that tariff class being incentivised to inefficiently by-pass AAD's existing distribution network in order to avoid paying AAD's network tariffs, despite the fact that the incremental cost to AAD of providing these services to that consumer (or tariff class) may be less than the alternative (by-pass) option.
2. Greater than the avoidable cost: If the revenue expected to be recovered from a tariff class does not exceed the cost that the business would avoid if they did not provide them with electricity services, that tariff class is (a) being subsidised by other tariff classes, and (b) would be over-consuming electricity services, relative to efficient levels (assuming that the consumer or tariff class' demand curve is not perfectly inelastic).

The estimation of avoidable costs and stand alone costs are explained separately below. These cost estimates are then compared to the expected revenue from each tariff class in Table A1.

A.2.1 Stand Alone Costs

AAD has taken a tailored approach to establishing the costs that relate to the different tariff classes.

A key assumption that AAD has made in interpreting the Rules is that the stand-alone cost test should reflect the opportunity cost to the consumer of maintaining their existing connection to the distribution network (i.e., it should reflect the next most feasible, economic alternative to the current electricity supply solution). This principle is central to the economic equation faced by the consumer: – to stay connected to the distribution network, and pay a retail electricity bill that reflects all components of the electricity value chain; or disconnect from the distribution network, and instead, adopt an alternative source of electricity.

AAD notes that there are a number of methodologies that can, and have previously been, utilised to estimate the stand-alone cost of servicing a consumer, or group of consumers. These broadly include:

- A by-pass solution, that assumes a:
  - Network solution: For example, the construction of a connection from the consumer's premises into the transmission network in order to by-pass the distribution network, or
  - Non-network solution: For example, on-site generation via the construction of a solar PV system plus battery storage plus (potentially) back-up generation (for residential and small commercial consumers) or an embedded generation system (for larger consumers).
- A 'notional' network solution, that assumes a:
  - 'Bottom-up' build of stand-alone costs, via the construction of a modern day equivalent, optimised asset base in support of the delivery of services to each consumer or group of consumers on a stand-alone basis; and
  - 'Top-down' approach, which involves allocating each existing asset / asset type to a consumer or group of consumers, based on some allocation process/methodology. The allocation driver is generally based on the key underlying cost driver.

Having regard to this, AAD has utilised the by-pass solution methodologies to calculate the stand-alone cost of supply. The methodology used by AAD differs for HV commercial consumers compared to residential and LV commercial consumers.

AAD has taken a "modelled" network approach for **HV commercial consumers** based on their respective circumstances. This involves modelling the total cost of by-passing the distribution network and connecting a consumer into the existing electricity transmission network, with the stand alone test being such that every modelled consumer's DUOS bill must be less than their calculated stand alone cost. To do this, AAD has estimated the costs (in NPV terms) that two of its largest High Voltage consumers would have to incur if they were to by-pass AAD's distribution network, and then compared this to the NPV of those consumer's future DUOS bills.

AAD has taken a "modelled" non-network approach for **residential and LV commercial consumers**. This means that the cost per kWh of installing, operating and maintaining a standalone power system that is configured is based on typical retail/small commercial consumer's consumption profile (as applicable) and provides an equivalent level of reliability to consumers. To do this, AAD estimated the cost to various sized residential and small commercial consumers of installing a PV and battery system. We then compared the cost to each type of consumer of installing these systems (in NPV terms) to an estimate of the *retail* bill that each consumer would avoid (again, in NPV terms) if they were to cease obtaining reticulated electricity services.

A.2.2 Avoidable Costs

With regard to avoidable costs, AAD's model includes long term assumptions consistent with the LRMC approach set out in Attachment 1. With respect to the consumption profile of the consumer, AAD assumes that the consumers would make a contribution to co-incident peak demand consistent with an average consumer within that tariff class. Therefore:

> *the avoided cost = the average coincident peak demand (kVA) for that tariff class * $kVA LRMC calculated for their relevant voltage level*

In relation to the Avoidable Cost test (which checks that a tariff class' avoidable cost is less than the DUOS revenue for that tariff class), AAD notes that there are a number of factors that affect the way the avoidable cost of supply could be estimated. These factors are discussed below along with the implication and approach taken by AAD.

- The period over which avoided costs should be calculated (short term versus long-term).
  - Implication: This will affect whether or not avoided capex costs should be included, or just operating and maintenance costs,
    - Approach: The average consumption (kWh) of each consumer class has been estimated and then multiplied by an estimate of the short-run operating and maintenance costs ($/kWh), in order to inform our estimate of the costs that AAD would avoid if an average consumer within that tariff class no longer required any energy to be transported through AAD's distribution network.
- The consumption profile of the consumer assumed to be disconnecting from the grid.
  - Implication: This will affect whether or not AAD will avoid future augmentation costs (because this will be a function of whether or not and the degree to which a consumer is assumed to use electricity at times when the broader network is peaking).
    - Approach: The co-incident peak demand of each consumer class has been estimated and multiplied by the LRMC of supply in order to inform our estimate of the costs that AAD would avoid if an average consumer within that tariff class no longer consumed energy during times of system peak demand.
- Whether the avoided cost calculation should be based on the avoided costs of serving an individual consumer, or a group of consumers, and if the latter, whether that group should be assumed to be in a similar location.
  - Implication: This will influence whether future capital expenditure associated with upgrading the network to meet required levels of service and replacement expenditure should be included in the calculation.
    - Approach: The avoidable cost calculation is based on the avoided costs of serving an individual consumer rather than a group of consumers, except in regions where large upgrades are expected and en-masse disconnection of a consumer class could change upgrade requirements. This methodology implicitly assumes that AAD will not avoid, or be able to downsize or change the timing of, any replacement expenditure if a consumer disconnects from AAD's network.

Table A2-1 below shows the results of the avoidable cost and stand alone cost efficiency tests for each tariff class.

1. The avoidable cost is lower than the DUoS revenue for each tariff class.
2. The standalone cost is greater than the revenue for each tariff class.
    a. In the case of our *residential and LV commercial consumers*, the stand alone cost should be compared to the NUOS revenue because we assume that the consumers in these tariff classes would bypass the electricity grid altogether. Hence the

relevant revenues to be compared in the stand alone cost test are those where the consumer no longer pays the NUOS bill. The analysis shows that the NOUS revenues are still lower than the stand alone cost.

b. In the case of our *HV commercial consumers*, the stand alone cost should be compared to the DUOS revenue because the stand alone cost for those consumers is based on by-passing only the distribution network (and connecting into the transmission network).

Hence, the table shows that the NUOS and DUOS revenue for each tariff class lies within the lower bound of the avoidable cost and the upper bound of the stand alone cost. The tariffs therefore comply with Rule 6.18.5 (e).

Table A2-1: Avoidable and stand alone costs, 2017/18 ($'000)

	Avoidable Cost	DUOS bill	NUOS bill	Stand alone cost	Compliance check
Residential	42,296	54,929	111,667	608,146	yes
Commercial LV	11,592	61,175	128,944	313,103	yes
Commercial HV	3,943	7,957	n/a	56,685	yes
Total		**124,061**			

Attachment 3 Indicative NOUS Tariff Schedule

We are required under the Rules to include indicative network use of system (NUOS) prices in our TSS as this will improve transparency and predictability about our network prices through the remainder of our regulatory control period.

However, actual prices for a particular year are likely to be different because NUOS prices are made up of a number of uncertain and potentially volatile inputs, including transmission use of system (TUOS) charges and other elements that are difficult to forecast such as pass through amounts, volumes, and adjustments to take into account for the previous year's under- or over-recovery of revenue. Further, any updates in estimating long run marginal costs, or updated demand information using more detailed sampling, may require us to refine our tariff estimates.

As a result, we encourage our consumers relying on this information to make business or investment decisions should consider the potential volatility between an indicative NUOS price and final outturn price and the risks inherent with relying on them.

All tariffs re in nominal currency, exclusive of GST.

Table A3-1 – Indicative NOUS Tariff Schedule 2017/18

Tariff component	Tariff code	Fixed charge (network access)	Energy consumptions						Peak period Maximum Demand				Anytime Maximum Demand		Capacity
				Less than threshold	Greater than threshold	Peak	Shoulder	off-peak	Win-ter	Spr-ing	Sum-mer	Aut-umn			
Unit		c/day	c/kWh	c/kWh	c/kWh	c/kWh	c/kWh	c/kWh	c/kW/day				c/kVA/day	c/kW/day	c/kVA/day
Charging parameter		Applies to all consumers	All day rate. Applies to consumers on tariffs with flat consumption charge	Block tariff (different rates apply below and above threshold). Applies to tariffs with block energy consumption charges.		o Residential consumers - *Max* : 7am – 9am and 5pm – 8pm every day; *Mid*: 9am – 5pm and 8pm – 10pm every day; *Economy*: All other times. o Commercial LV and HV consumers - *Business Times*: 7am – 5pm weekdays; *Evening Times*: 5pm – 10pm weekdays; o *Off-Peak Times*: All other times.			Daily charge. Based on maximum demand during the residential peak times, for each month.				Daily charge. Based on maximum demand during the last billing period.		Daily charge. Based on maximum demand during the last 12 months.
Tariffs for the Residential Tariff Class															
Residential Basic	10	34	9												
Residential Basic XMC	11	26	9												
Residential TOU	15	34				14	7	4							
Residential TOU XMC	16	26				14	7	4							
Residential 5000	20	56		7	9										
Residential 5000 XMC	21	47		7	9										
Residential with Heat Pump	30	99		6	9										
Residential with Heat Pump XMC	31	91		6	9										
Off-peak (1) Night	60							3							
Off-peak (3) Day & Night	70							4							
Peak period demand	25	34	6						19	19	19	19			
Peak period demand XMC	26	26	6						19	19	19	19			
Tariffs for Commercial LV Tariff Class															
General	40	62		11	14										

General XMC	41	48		11	14										
General TOU	90	62				18	9	4							
General TOU XMC	91	47				18	9	4							
LV TOU Demand	101	172				8	5	2					39		
LV TOU Demand XMC	104	56				8	5	2					39		
LV TOU Capacity	103	172				8	5	2					18		18
LV TOU Capacity XMC	105	56				8	5	2					18		18
LV TOU KW Demand	106	62				8	5	2						45	
LV TOU KW Demand XMC	107	48				8	5	2						45	
Small unmetered loads	135	39	12												
Streetlighting	80	62	9												
Streetlighting XMC	81	48	9												
Tariffs for Commercial HV Tariff Class															
HV TOU Demand	111	2000				7	4	2					16		16
HV TOU Demand – Customer HV	112	2000				7	4	2					15		15
HV TOU Demand Network – Customer LV	121	2000				6	4	2					16		16
HV TOU Demand Network – Customer LV & HV	122	2000				6	4	2					15		15

Table A3-2 – Indicative NOUS Tariff Schedule 2018/19

Tariff component	Tariff code	Fixed charge (network access)	Energy consumptions						Peak period Maximum Demand				Anytime Maximum Demand		Capacity
				Less than threshold	Greater than threshold	Peak	Shoulder	off-peak	Win-ter	Spr-ing	Sum-mer	Aut-umn			
Unit		c/day	c/kWh	c/kWh	c/kWh	c/kWh	c/kWh	c/kWh	c/kW/day				c/kVA/day	c/kW/day	c/kVA/day
Charging parameter		Applies to all consumers	All day rate. Applies to consumers on tariffs with flat consumption charge	Block tariff (different rates apply below and above threshold). Applies to tariffs with block energy consumption charges.		o Residential consumers - *Max* : 7am – 9am and 5pm – 8pm every day; *Mid*: 9am – 5pm and 8pm – 10pm every day; *Economy*: All other times. o Commercial LV and HV consumers - *Business Times*: 7am – 5pm weekdays; *Evening Times*: 5pm – 10pm weekdays; o *Off-Peak Times*: All other times.			Daily charge. Based on maximum demand during the residential peak times, for each month.				Daily charge. Based on maximum demand during the last billing period.		Daily charge. Based on maximum demand during the last 12 months.
Tariffs for the Residential Tariff Class															
Residential Basic	10	35	9												
Residential Basic XMC	11	26	9												
Residential TOU	15	35				14	8	4							
Residential TOU XMC	16	26				14	8	4							
Residential 5000	20	57		7	9										
Residential 5000 XMC	21	48		7	9										
Residential with Heat Pump	30	102		6	9										
Residential with Heat Pump XMC	31	93		6	9										
Off-peak (1) Night	60							3							
Off-peak (3) Day & Night	70							4							
Peak period demand	25	35	6						19	19	19	19			
Peak period demand XMC	26	26	6						19	19	19	19			
Tariffs for Commercial LV Tariff Class															

General	40	65		11	14										
General XMC	41	50		11	14										
General TOU	90	63				18	9	4							
General TOU XMC	91	48				18	9	4							
LV TOU Demand	101	178				8	5	3					39		
LV TOU Demand XMC	104	56				8	5	3					39		
LV TOU Capacity	103	178				8	5	3					18		18
LV TOU Capacity XMC	105	56				8	5	3					18		18
LV TOU KW Demand	106	65				8	5	3						45	
LV TOU KW Demand XMC	107	50				8	5	3						45	
Small unmetered loads	135	40	12												
Streetlighting	80	63	9												
Streetlighting XMC	81	48	9												
Tariffs for Commercial HV Tariff Class															
HV TOU Demand	111	2000				7	4	2					16		16
HV TOU Demand – Customer HV	112	2000				7	4	2					15		15
HV TOU Demand Network – Customer LV	121	2000				6	4	2					16		16
HV TOU Demand Network – Customer LV & HV	122	2000				6	4	2					15		15

Attachment 4 Indicative ACS Tariff Schedule

We are required under the Rules to include indicative ACS prices in our TSS as this will improve transparency and predictability about our network prices through the remainder of our regulatory control period. Table A4-1 provides indicative tariffs for ancillary services and indicative tariffs for metering services are provided in Table A4-2.

Table A4-1 – Indicative Tariff Schedule for Ancillary Services (2017/18-2018/19)

Code	Description	Unit	2017/18	2018/19
Premise Re-energisation – Existing Network Connection -These charges also apply where ActewAGL responds to a customer initiated call out and determines that the premise is energised at the connection point.				
501	Re-energise premise – Business Hours	per visit	$70	$73
502	Re-energise premise – After Hours	per visit	$89	$92
Premise De-energisation – Existing Network Connection				
503	De-energise premise – Business Hours	per visit	$70	$73
505	De-energise premise for debt non-payment	per test	$141	$146
Meter installation				
507	Install single phase, single element manually read interval meter	per meter	$528	$545
508	Install subsequent single phase, single element meter - same location & visit	per meter	$334	$344
509	Install single phase, two element meter	per meter	$642	$662
511	Install subsequent single phase, two element meter - same location & visit	per meter	$448	$462
512	Install three phase meter	per meter	$773	$797
513	Install subsequent three phase meter - same location & visit	per meter	$579	$597
Meter Investigations				
504	Meter Test (Whole Current) – Business Hours	per test	$281	$291
510	Meter Test (CT/VT) – Business Hours	per test	$326	$337
Special metering services				
506	Special Meter Read	per read	$33	$34
Temporary Network Connections				
520	Temporary Builders Supply – Overhead (Business Hours) (excludes meter cost)	per installation	$632	$655
522	Temporary Builders Supply – Underground (Business Hours) (excludes meter costs)	per installation	$1,379	$1,430
New Network Connections				
523	New Underground Service Connection – Greenfield	per installation	$0	$0
526	New Overhead Service Connection – Brownfield (Business Hours)	per installation	$830	$860
527	New Underground Service Connection – Brownfield from Front	per installation	$1,379	$1,430
528	New Underground Service Connection – Brownfield from Rear	per installation	$1,379	$1,430
Network Connection Alterations and Additions				
541	Overhead Service Relocation – Single Visit (Business Hours)	per installation	$792	$821
542	Overhead Service Relocation – Two Visits (Business Hours)	per installation	$1,584	$1,642

Code	Description	Unit	2017/18	2018/19
543	Overhead Service Upgrade – Service Cable Replacement Not Required	per installation	$792	$821
544	Overhead Service Upgrade – Service Cable Replacement Required	per installation	$830	$860
545	Underground Service Upgrade – Service Cable Replacement Not Required	per installation	$1,342	$1,390
546	Underground Service Upgrade – Service Cable Replacement Required	per installation	$1,379	$1,430
547	Underground Service Relocation – Single Visit (Business Hours)	per installation	$1,379	$1,430
548	Install surface mounted point of entry (POE) box	per installation	$638	$661
Temporary De-energisation				
560	Temporary de-energisation – LV (Business Hours)	per occurrence	$422	$437
561	Temporary de-energisation – HV (Business Hours)	per occurrence	$422	$437
Supply Abolishment / Removal				
562	Supply Abolishment / Removal – Overhead (Business Hours)	per site visit	$594	$616
563	Supply Abolishment / Removal - Underground (Business Hours)	per site visit	$1,073	$1,112
Miscellaneous Customer Initiated Services				
564	Install & Remove Tiger Tails – Per Installation (Business Hours)	per installation	$1,395	$1,446
565	Install & Remove Tiger Tails - Per Span (Business Hours)	per installation	$702	$728
566	Install & Remove Warning Flags – Per Installation (Business Hours)	per installation	$1,188	$1,231
567	Install & Remove Warning Flags - Per Span (Business Hours)	per installation	$602	$624
Embedded Generation - Operational & Maintenance Fees				
568	Small Embedded Generation OPEX Fees - Connection Assets	per annum	$0	$0
569	Small Embedded Generation OPEX Fees - Shared Network Asset	per annum	$0	$0
Connection Enquiry Processing - PV Installations				
570	PV Connection Enquiry – LV Class 1 (<= 10kW Single Phase / 30kW Three Phase)	per installation	$0	$0
571	PV Connection Enquiry – LV Class 2 to 5 (> 30kW <= 1500kW Three Phase	per installation	$578	$599
572	PV Connection Enquiry – HV	per installation	$1,155	$1,197
573	Provision of information for Network technical study for large scale installations	per installation	$11,551	$11,970
Network Design & Investigation / Analysis Services - PV Installations				
574	Design & Investigation - LV Connection Class 1 PV (<= 10kW Single Phase / 30kW Three Phase)		$0	$0
575	Design & Investigation - LV Connection Class 2 PV (> 30kW and <= 60kW Three Phase)	per installation	$3,850	$3,990
576	Design & Investigation - LV Connection Class 3 PV (> 60 kW and <= 120kW Three Phase)	per installation	$5,776	$5,985
577	Design & Investigation - LV Connection Class 4 PV (> 120 kW and <=	per installation	$7,701	$7,980

Code	Description	Unit	2017/18	2018/19
	200kW Three Phase)			
578	Design & Investigation - LV Connection Class 5 PV (> 200kW and <= 1500kW Three Phase) – ActewAGL Network Study	per installation	$11,551	$11,970
579	Design & Investigation - HV Connection Class 5 PV (>200kW and <= 1500kW Three Phase) – Customer Network Study	per installation	$14,439	$14,963
Residential Estate Subdivision Services*				
580	URD Subdivision Electricity Distribution Network Reticulation - Multi-Unit Blocks	per block	$0	$0
581	URD Subdivision Electricity Distribution Network Reticulation - Blocks <= 650 m^2	per block	$3,665	$3,798
582	URD Subdivision Electricity Distribution Network Reticulation - Blocks 650 - 1100m^2 with average linear frontage of 22-25 meters	per block	$4,702	$4,873
Upstream Augmentation**				
585	HV Feeder	per KVA	$38	$40
586	Distribution substation	per KVA	$22	$23
Rescheduled Site Visits				
590	**Rescheduled Site Visit – One Person**	**per site visit**	$141	$146
591	**Rescheduled Site Visit – Service Team**	**per site visit**	$594	$616
Trenching charges				
592	Trenching - first 2 meters	per visit	$539	$559
593	Trenching - subsequent meters	per meter	$125	$130
Boring charges				
594	Under footpath	per occurrence	$978	$1,014
595	Under driveway	per occurrence	$1,166	$1,209

Table A4-2 – Indicative Tariff Schedule for Metering (2017/18-2018/19)

Code	Description	Unit	2017/18	2018/19
MP1	**Quarterly basic metering rate**			
	Accumulation and time-of-use meters read quarterly	cents per day per NMI*	4	4
MP2	**Monthly basic metering rate**			
	Accumulation and time-of-use meters read monthly	cents per day per NMI	7	7
MP3	**Time-of-use metering rate**			
	Time-of-use meters read monthly	cents per day per NMI	7	7
MP4	**Monthly manually-read interval metering rate**			
	Interval meters recording at either 15- or 30-minute intervals, read manually and processed monthly	cents per day per NMI	57	60
MP6	**Quarterly manually-read interval metering rate**			
	Interval meters recording at either 15- or 30-minute intervals, read manually and processed quarterly	cents per day per NMI	16	17
MP7	**Quarterly basic metering capital rate**			
	Accumulation and time-of-use meters read quarterly	cents per day per NMI*	8	9
MP8	**Monthly basic metering capital rate**			
	Accumulation and time-of-use meters read monthly	cents per day per NMI	14	15
MP9	**Time-of-use metering capital rate**			
	Time-of-use meters read monthly	cents per day per NMI	14	15
MP10	**Monthly manually-read interval metering capital rate**			
	Interval meters recording at either 15- or 30-minute intervals, read manually and processed monthly	cents per day per NMI	116	122
MP11	**Quarterly manually-read interval metering capital rate**			
	Interval meters recording at either 15- or 30-minute intervals, read manually and processed quarterly	cents per day per NMI	33	35

Attachment 5 On-line survey

Introduction page

ActewAGL Distribution owns and operates the electricity distribution network within the ACT. The network is the poles, wires and other infrastructure required to deliver electricity to your property. The cost of this distribution network is included in your retail electricity bill and varies depending upon which electricity plan you are on.

We are seeking to refine our existing plans or create new electricity plans that are more cost reflective, while also appropriate for the Canberra market. To help us do this we are seeking input from our consumers. We have also issued a consultation discussion paper titled *Pricing Review for the ACT Electricity Network* which can be found at www.actewagl.com.au/consumerengagement.

Survey Questions

Question 1 - Average electricity bill amount

Do you know how much your average annual electricity bill is? Please select from below:

Less than $500

Between $1000 - $2,000

Between $2000 - $5,000

Don't know

Question 2

Electricity bills are made up of network charges, government taxes and charges and retail charges. The distribution charge represents around 20% of your total bill. The retail charge covers the retailer's costs, including the actual cost to purchase the electricity.

Did you know there are separate distribution and retail components to your electricity bill?

Yes

No

Sort of

Question 3 - Your current plan

Electricity can be purchased under several different types of plans (similar to the different plans offered by telephone companies). The following plans are offered by ActewAGL Retail, a separate business to ActewAGL Distribution. Similar plans are offered by other retailers in the ACT.

Do you know what type of electricity plan your home is on?

Home plan (supply fee + usage rate + off-peak rates)

Home saver+ plan (supply fee + usage rate with a higher price for any electricity used beyond 165 kWh per day)

Home time of use plan (supply fee + usage fee with peak, shoulder and off-peak rates)

Don't know

Question 4 - Ranking

To be more cost-reflective, the network charges need to take into consideration how customers' usage patterns affect the cost of operating the network. For instance, customers with alternate energy sources such as solar panels or wind turbines may not use electricity transported by the network most of the time. However, they still need access to the network during high demand periods, which impacts the required capacity and cost of the network.

Moving toward more cost-reflective pricing raises a number of opportunities and potential issues which we are exploring during this consultation process.

To assist us, please provide your feedback on the following:

How important is it to you to understand the network charge component of your overall electricity bill?

How important is it to you that everyone who is connected to the electricity network pays equally for the network distribution costs,

regardless of how much electricity they use?

If a house has alternate energy sources, such as solar panels, and only uses the network to top up their energy needs, how important is it to

you that they pay the same amount for network services as households without solar panels?

How important is it to you that support is provided to vulnerable customers?

How important is it to you that you have choice between the different electricity plans?

How important is it to you that your network charges reflects how much electricity you are using? Such as an energy usage charge?

How important is it to you that your electricity network charges are the same from one quarter to the next?

How important is it to you that you can save money by accessing lower, off-peak electricity charges?

Question 5 Transition page: electricity network charging structures

We're about to show you four examples of electricity network charging structures that are already on offer, or could be offered in the future.
To help us design the most suitable plans for customers in Canberra, we would welcome your feedback on each one.

Click NEXT to proceed to the next section.

Question 5 - A. Flat Plan

A flat plan has two components:

- A fixed fee for accessing the network
- plus a single usage fee that is applied to the amount of electricity used

This plan is similar to the type of plan many of our customers are on now, however to be more cost-reflective it is likely the fixed (supply) fee would need to increase, and the usage fee would decrease compared to current levels

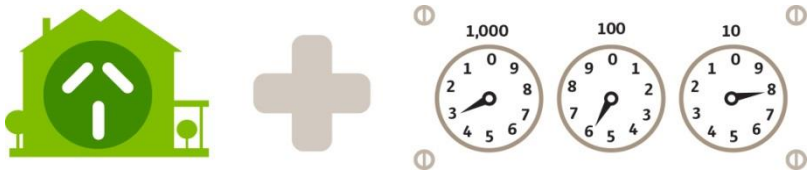
I understand this plan, but don't think it is suitable for the ACT

I understand this plan, and think it might suit the ACT

I understand this plan, and think it is very suitable to the ACT

I don't understand this plan

Question 5 - B. Time of Use plan



A Time of use plan has two components:

- A fixed fee for accessing the network
- plus a usage fee that varies according to the time of day/night that electricity is used.
    - *Peak time is 7-9am and 5-8pm and would have the highest price*
    - *Off-peak is 10pm-7am and would have the lowest price*
    - *Shoulder time would be all other times \and would be charged at a price between peak and off-peak rates.*

Under this plan, the usage fee (except at peak times) is likely to be lower than under the current flat plan. Customers who use a lot of electricity outside of peak hours are likely to be better off under this plan.

I understand this plan, but don't think it is suitable for the ACT

I understand this plan, and think it might suit the ACT

I understand this plan, and think it is very suitable to the ACT

I don't understand this plan

Question 5 - C. Demand-based plan

A demand based plan has three components:

- A fixed fee for accessing the network
- plus a usage fee (flat or time-of-use) that is applied to the amount of electricity used
- plus a demand fee that is based on the customer's peak demand on the network during the billing period.

The demand fee component of this plan signals the extra network costs associated with a customer's peak demand requirements, as this is what drives the need for additional network capacity to be built.

Under this plan, both the demand and usage fees can vary and the usage component is likely to be lower than under other plans because the demand fee has been included

I understand this plan, but don't think it is suitable for the ACT

I understand this plan, and think it might suit the ACT

I understand this plan, and think it is very suitable to the ACT

I don't understand this plan

Question 5 - D. Critical Peak Price plan

A critical peak price plan has three components:

- A fixed fee for accessing the network
- plus a usage fee that is applied to the amount of electricity used
- plus an additional, higher usage fee that is charged for certain times (generally daytime) on no more than 10 critical peak event days during the year, such as when electricity is in high demand for heating or cooling.

Customers would be notified at least the day before any 'critical peak day' that would incur the 'critical peak' usage fee, and the usage fee on other days would be lower than current levels. Customers who are able to reduce their use on critical peak days are likely to be better off under this plan.

I understand this plan, but don't think it is suitable for the ACT

I understand this plan, and think it might suit the ACT

I understand this plan, and think it is very suitable to the ACT

I don't understand this plan

Question 6 - Changing plan

Would you consider changing to one of the plans listed above?

Yes

No

Maybe

NO - I wouldn't change my plan : If Answer is **No** Then Go to **Question 7 - Timeframe for change**

YES - I would change my plan : If Answer is **Yes** Then Go to **Question 6a - Change of plan - type**

Question 6a - Change of plan - type

Which plan would you pick?

Flat plan

Demand based plan

Critical Peak price plan

Not sure

Question 7 - Timeframe for change

As a result of this review and to be in accordance with new national electricity Rules, it is likely there will be some changes to the structure of network pricing plans. Any change will be managed to take into consideration possible impacts on customers.

What timeframe is reasonable for this change to occur?

Within the next 3 – 5 years

Within the next 5 – 8 years

Within the next 8 – 15 years

Question 8 - Consider attending workshop

Thank you for providing us with your thoughts on how we might provide more cost-reflective network charges that are best suited to customers in the ACT.

In mid-September, ActewAGL Distribution is running workshops to gather further feedback about electricity network charges. Would you be interested in attending?

Yes

No

Closing Pages

Thanks for taking the time to complete this survey. Your feedback is valuable and will help us make our business better for you.

Want to have your say on electricity network charges? Attend our **consultation workshop** this month and RSVP here.