



# **FINAL DECISION**

## **Tariff structure statement**

**ActewAGL**

February 2017

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# Glossary

Term	Interpretation
Apparent power	See kVA
CoAG Energy Council	The Council of Australian Governments Energy Council, the policy making council for the electricity industry, comprised of federal and state (jurisdictional) governments.
Consumption tariff	A tariff based on energy consumed (measured in kWh) during a billing cycle. Examples of consumption tariffs are flat tariffs, inclining block tariffs and declining block tariffs.
Declining block tariff	A tariff in which the per unit price of energy decreases in steps as energy consumption increases past set thresholds.
Demand charge	A tariff component based on the maximum amount of electricity (measured in kW or kVA) used within a specified time (e.g. peak charging window) and which is reset after a specific period (e.g. at the end of a month or billing cycle).
Demand tariff	A form of tariff that incorporates a demand charge component.
Fixed charge	A tariff component based on a fixed dollar amount per day that customers must pay to be connected to the network.
Flat tariff	A tariff based on a per unit usage charge that does not change regardless of how much electricity is consumed or when consumption occurs.
Flat usage charge	A per unit usage charge that does not change regardless of how much electricity is consumed or when consumption occurs.
Inclining block tariff	A tariff in which the per unit price of energy increases in steps as energy consumption increases past set thresholds.
Interval and smart meters	In this decision, used to refer to meters capable of measuring electricity usage in specific time intervals and enabling tariffs that can vary by time of day.
kW	Also called real power. A kilowatt (kW) is 1000 watts. Electrical power is measured in watts (W). In a unity power system the wattage is equal to the voltage times the current.
kWh	A kilowatt hour is a unit of energy equivalent to one kilowatt (1 kW) of power used for one hour.
kVA	Also called apparent power. A kilovolt-ampere (kVA) is 1000 volt-amperes. Apparent power is a measure of the current and voltage and will differ from real power when the current and voltage are not in phase.
LRMC	Long Run Marginal Cost. Defined in the National Electricity Rules as follows:  <i>"the cost of an incremental change in demand for direct control services provided by a Distribution Network Service Provider over a period of time in which all factors of production required to provide those direct control services can be varied".</i>
Minimum demand charge	Where a customer is charged for a minimum level of demand during the billing period, irrespective of whether their actual demand reaches that level.
NEO	The National Electricity Objective, defined in the National Electricity Law as follows:  <i>"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—</i>  <i>(a) price, quality, safety, reliability and security of supply of electricity; and</i>

Term	Interpretation
	<i>(b) the reliability, safety and security of the national electricity system".</i>
NER	National Electricity Rules
Power factor	The power factor is the ratio of real power to apparent power (kW divided by kVA).
Tariff	A tariff is levied on a customer in return for use of an electricity network. A single tariff may comprise one or more separate charges, or components.
Tariff structure	Tariff structure is the shape, form or design of a tariff, including its different components (charges) and how they may interact.
Tariff charging parameter	The manner in which a tariff component, or charge, is determined (e.g. a fixed charge is a fixed dollar amount per day).
Tariff class	A class of retail customers for one or more direct control services who are subject to a particular tariff or particular tariffs.
Time of use tariff	A tariff incorporating usage charges with varying levels applicable at different times of the day or week. A time of use tariff will have defined charging windows in which these different usage charges apply. These charging windows might be labelled the 'peak' window, 'shoulder' window, and 'off-peak' window.
Usage charge	A tariff component based on energy consumed (measured in kWh). Usage charges may be flat, inclining with consumption, declining with consumption, variable depending on the time at which consumption occurs, or some combination of these.

## Our final decision

Our final decision is to approve ActewAGL's revised tariff structure statement submitted to us on 4 October 2016, subject to several clarifications made to the statement.

We approve ActewAGL's tariff structure statement. We are satisfied that ActewAGL's tariff structure statement complies with the distribution pricing principles and other applicable requirements in the NER.

We approve the move to demand tariffs for residential and small business customers set out in ActewAGL's revised tariff structure statement. We are satisfied these network tariffs contribute to the achievement of compliance with the distribution pricing principles.

ActewAGL is currently the most advanced distributor in the national electricity market in reforming its tariff structures, having gradually introduced several time of use charging options for both residential and commercial customers over the last several years. Approximately 55 per cent of the total load in the Australian Capital Territory (ACT) is now subject to time of use or controlled load charges, and more than 25 000 residential customers are now on the residential time of use tariff that ActewAGL introduced as the default network tariff for new customers in October 2010.<sup>1</sup> ActewAGL's proposed tariff structure statement continues to place it in the lead in progressing towards cost reflective tariffs and providing opportunities and incentives for demand management.

We received four submissions in response to our draft decision and ActewAGL's revised tariff structure statement. Stakeholders were generally of the view that demand tariffs were a positive move towards cost reflective pricing. They emphasised the importance of building customer support and understanding as well as the need to balance the successful implementation of tariff changes which benefit all customers with a careful transition and implementation program. Origin Energy (Origin) submitted that the challenge for network tariff reform is to develop cost-reflective tariffs that provide a simple and clear signal that retailers are willing to pass through and customers can readily understand.<sup>2</sup> The Clean Energy Council supported the approach to network tariff reform and highlighted the importance of measuring and comparing different transition approaches to determine which are most effective in promoting usage of demand based tariffs.<sup>3</sup> Consumer Mike Buckley submitted that ACT electricity consumers have limited interaction with ActewAGL and are therefore not sufficiently

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<sup>1</sup> ActewAGL, *Tariff Structure Statement*, 27 November 2015, p. 19.

<sup>2</sup> Origin Energy, *Submission on ActewAGL revised tariff structure statement*, 26 October 2016.

<sup>3</sup> Clean Energy Council, *Submission to AER on SA, ACT, NSW and QLD tariff structure statements*, 26 October 2016.

informed about network tariffs.<sup>4</sup> Further, the Energy Networks Association and Buckley raised some concerns in regard to the calculation of long run marginal cost and considered that further analysis will be necessary going forward.<sup>5</sup>

We consider that demand tariffs are more cost reflective compared to flat tariffs or block tariffs that are based only on consumption. Demand tariffs tend to more closely resemble the cost of customers' decisions to utilise the distribution network at times of congestion. Demand tariffs encourage customers to reduce or move their consumption to times when the network is less congested. Reducing consumption during times of peak network congestion means less network investment is necessary to provide reliable electricity supply during those peak times. In the long run, reduced network investment will mean lower prices for customers.

In our draft decision, we were satisfied that most elements of ActewAGL's initial tariff structure statement contributed towards compliance with the distribution pricing principles. However, we did not approve ActewAGL's proposed charging windows for its new residential demand tariff and low voltage commercial kW demand tariff. In its revised tariff structure statement, ActewAGL has amended its charging windows for these network tariffs in response to our draft decision. ActewAGL has adequately addressed our concerns from the draft decision. We therefore approve ActewAGL's changes to its demand charging windows.

ActewAGL has also made amendments in its revised tariff structure statement to its proposed tariff assignment policy to include opt-out provisions for small customers assigned by default to a demand tariff. While we did not require this amendment in our draft decision, we noted in the draft decision that we would also accept this approach if ActewAGL chose to amend its tariff assignment policy in this way.<sup>6</sup> We therefore also approve ActewAGL's changes to its tariff assignment policy.

## Residential customers

We approve ActewAGL's proposed tariff structures for residential customers. Table 1 provides a summary of the major elements of ActewAGL's residential customer tariffs.

**Table 1: Residential customers**

Our draft decision	ActewAGL revised proposal	Our final decision
We approved ActewAGL's proposed mandatory assignment to a demand tariff	ActewAGL has proposed to include opt-out provisions for mandatorily assigned	We approve ActewAGL's revised proposal to allow customers who are

<sup>4</sup> Mike Buckley, *Submission to AER – ActewAGL network tariff proposal*, 7 October 2016, pp. 1.

<sup>6</sup> AER, *Draft decision – ActewAGL tariff structure statement*, 2 August 2016, pp. 11.



<p>for new customers or existing customers who obtain a smart meter after 1 December 2017.</p> <p>ActewAGL indicated that it might include opt-out provisions for mandatorily assigned customers. We did not require this amendment but noted that we would approve it if proposed.</p>	<p>demand tariffs. This means that new customers and customers who obtain a smart meter will be assigned to a demand tariff. However, the retailer of these customers can choose to opt-out the customer to a residential time of use tariff if they wish.</p> <p>New customers refer to residential customers who move into new premises and are connected with a smart meter.</p>	<p>automatically assigned to demand tariffs to opt-out to other cost reflective network tariffs.</p>
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<p>We did not approve ActewAGL's proposed demand charging windows for residential demand tariffs, which included both a morning peak window (7am-9am) and an evening peak window (5pm-8pm). We required that ActewAGL amend its charging windows and noted that removing the morning peak window was one (of several) options that would address our concerns.</p>	<p>ActewAGL undertook analysis of its system profile which showed that the morning peak was not significant for a sample of individual customers. It revised the demand charging windows to apply from 5pm-8pm only.</p>	<p>We approve ActewAGL's revised demand charging windows for residential customers as the changes align with our draft decision and are supported by ActewAGL's analysis. We consider that the revised charging windows are simpler and easier to respond to.</p>
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<p>We approved ActewAGL's proposal that for existing customers who do not obtain a smart meter, the time of use remains the default network tariff. Retailers can choose to opt-out these customers to flat rate and inclining block tariffs (which will be closed to new customers). We considered that ActewAGL's strategy to slowly phase out these network tariffs, by closing the flat rate and block tariffs and making the time of use tariff opt-in for new customers, appropriately balances cost reflectivity with customer impact considerations in the current regulatory period.</p>	<p>No change from the initial proposal.</p>	<p>No change from the draft decision.</p>
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We approved ActewAGL's proposed method for measuring a customer's peak demand as the highest use recorded in a 30 minute period that falls within its peak charging window during the month. We accept this basis of charging in the initial phase of network tariff reform as we consider the approach adequately manages customer impacts.	No change from the initial proposal.	No change from the draft decision.
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We consider ActewAGL's revised tariff structures for residential customers contributes to the achievement of compliance with the distribution pricing principles, including the tariff assignment policy and peak demand charging windows. ActewAGL has responded to the concerns raised in our draft decision and revised its tariff structures accordingly. Stakeholders were supportive of the changes to tariff assignment and charging windows.<sup>7</sup>

### Small to medium business customers

We approve ActewAGL's proposed tariff structures for small business customers, summarised in Table 2. ActewAGL revised its tariff assignment policy and, in response to our position in the draft decision, implemented a specific charging window for small business customers. We are satisfied that the elements of ActewAGL's proposed tariff structure statement relating to this customer class contribute to the achievement of compliance with the distribution pricing principles.

Stakeholders, in particular customer groups, supported the inclusion of opt-out provisions to ActewAGL's tariff assignment policy. They also supported the application of a defined charging window to measure small business customers' peak demand.

**Table 2: Small to medium business customers**

Our draft Decision	ActewAGL revised proposal	Our final decision
We approved ActewAGL's proposed mandatory assignment to a demand tariff	ActewAGL has proposed to include opt-out provisions for mandatorily assigned	We approve ActewAGL's revised proposal to allow customers who are

<sup>7</sup> Origin Energy, *Submission on ActewAGL revised tariff structure statement*, 26 October 2016. Clean Energy Council, *Submission to AER on SA, ACT, NSW and QLD tariff structure statements*, 26 October 2016.

<p>for new customers or customers who obtain a smart meter after 1 December 2017.</p> <p>ActewAGL indicated that it might include opt-out provisions for mandatorily assigned customers. We did not require this amendment but noted that we would approve it.</p>	<p>demand tariffs. This means that new customers and customers who obtain a smart meter will be assigned to a demand tariff but their retailer can choose to opt-out the customer to a time of use. They can also opt-in customers to a kVA demand or capacity tariff.</p> <p>New customers refer to residential customers who move into new premises and are connected with a smart meter.</p>	<p>automatically assigned to demand tariffs to be reassigned to other cost reflective network tariffs.</p>
<p>We did not approve ActewAGL’s proposed ‘anytime’ demand charging window for commercial LV customers.</p>	<p>ActewAGL has proposed a peak demand charging window for commercial LV customers that applies from 7am to 5pm on week days. ActewAGL undertook analysis which shows that most zone substation peaks occur from 7am to 5pm.</p>	<p>We approve ActewAGL’s small business peak demand charging window. We consider the new charging window sends a more cost reflective signal to customers and will enable customers to better respond to these signals.</p>
<p>We approved ActewAGL’s proposal to maintain time of use as the default network tariff for existing commercial customers who do not obtain a smart meter. Retailers can opt-out these customers to ActewAGL’s existing kVA demand and capacity tariffs. We consider that ActewAGL’s strategy to phase out non-demand based commercial LV tariffs, by closing the flat rate and block tariffs and making the time of use tariff opt-in for new customers, appropriately balances cost reflectivity with customer impact considerations in the current regulatory period.</p>	<p>No change from the initial proposal.</p>	<p>No change from the draft decision.</p>
<p>We approved ActewAGL’s proposed method for measuring a customer’s peak demand as the highest use recorded in a 30 minute period</p>	<p>No change from the initial proposal.</p>	<p>No change from the draft decision.</p>

that falls within its peak charging window during the month. We accept this basis of charging in the initial phase of network tariff reform though suggested this approach be revisited in future tariff structure statements.

## Large business customers

We approve ActewAGL's proposed tariff structures for large business customers as we are satisfied that they contribute to the achievement of compliance with the distribution pricing principles. This is consistent with our draft decision. Some key elements of ActewAGL's large business customer tariff structures are outlined in Table 3 below.

ActewAGL made no amendments to its large business customer tariffs between its initial and revised tariff structure statement. In its initial tariff structure statement, ActewAGL's main change was to remove one of its large customer tariffs to simplify its sets of tariffs and because no customers are currently assigned to that network tariff. We did not receive any submissions from stakeholders regarding ActewAGL's large business customer tariff structures. Further, no new information has come to light to cause us to depart from our draft decision position.

ActewAGL noted that a number of its commercial high voltage tariff customers indicated an interest in better communication with ActewAGL to ensure they understood the tariff options and were therefore able to manage their energy consumption accordingly. ActewAGL submitted that direct customer communication will therefore be an important part of future stages of network tariff reform for high voltage customers.

**Table 3: Large business customers**

Our draft decision	ActewAGL revised proposal	Our final decision
We approved ActewAGL's proposal to remove the HV time of use demand network tariff – which has no customers on it – to simplify its tariff schedule.	No change from the initial proposal.	No change from the draft decision.
We approved ActewAGL's proposal to refine the levels of its commercial HV tariffs according to the cost reflectivity principle and to better reflect the long run	No change from the initial proposal.	No change from the draft decision.

marginal cost of supplying these customers.

## Stakeholder engagement

We consider ActewAGL undertook significant consultation processes in developing its tariff structure statement. This helped formulate the design of its cost reflective tariffs with the engagement of customers, retailers and consumer representatives.

See Appendix A for more detail on ActewAGL's stakeholder engagement.

## Our process

Table 4 below sets out how this tariff structure statement draft decision follows on from the Power of Choice reform program and into the first annual pricing approval process.

As outlined below, ActewAGL submitted its initial proposed tariff structure statement in November 2015 as required by the Rules.

As a result, we made a draft decision, in August 2016, that did not approve ActewAGL's November 2015 tariff structure statements. ActewAGL submitted its revised proposal in October 2016.

We also took into account stakeholder submissions received on ActewAGL's tariff structure statement, comments received at our public forum in May 2016 and submissions made on the revised tariff structure statement. These are considered in the chapters that follow.

**Table 4: Tariff structure statement and annual pricing process timeframes**

Step	Date
<b>Tariff structure statement process</b>	
ActewAGL submits proposed tariff structure statement to AER	27 November 2015
AER publishes issues paper	11 March 2016
Stakeholders' submissions on ActewAGL's proposal and AER's issues paper closed	28 April 2016
AER hosts public forum on ActewAGL's proposal	5 May 2016
AER publishes draft decision	2 August 2016
ActewAGL's revised proposal and stakeholders' submissions on AER's draft decision due	4 October 2016
Stakeholders' submissions on ActewAGL's	25 October 2016

revised proposal and other stakeholders' submissions due	
AER publishes final decision	28 February 2017
<b>First annual pricing proposal process to apply tariff structure statement</b>	
ActewAGL submits annual pricing proposal	31 March 2017
AER publishes decision	17 May 2017
New tariffs take effect	1 July 2017

## Future direction

This is the first tariff structure statement submitted by ActewAGL. The move to full cost reflective pricing will take time to implement. The distribution pricing principles require movement towards more cost reflective tariffs with every tariff statement proposal over upcoming regulatory control periods.

There are some elements of ActewAGL's proposal which, while seen as a reasonable first step in meeting the distribution pricing principles, would, in our view, benefit from further consideration in developing future tariff structure statements. We identify these matters to provide guidance to ActewAGL, and the industry more generally, on our views on the direction the industry should be heading in in order to maintain compliance with the distribution pricing principles in the future. Accordingly, we expect distributors to propose additional reforms in each round of tariff structure statements in order to keep progressing towards full cost reflective pricing.

We encourage ActewAGL to make further improvements in the following areas in the next round of tariff structure statements:

- Greater integration between ActewAGL's network pricing, network planning and demand management strategies (see discussion in chapter 1)
- Assignment policies and speed of transition to cost reflective tariffs (see discussion in section 4.3)
- Method for estimating long run marginal cost (see discussion in section 6.4)
- Inclusion of replacement capital within ActewAGL's long run marginal cost estimates (see discussion in section 6.4)
- Reconsideration of the use of a 30 minute window to measure demand (see discussion in section 7.4)
- Refinements to charging windows and the methods used to develop charging windows (see discussion in section 7.4)

We briefly discuss the topic of tariff assignment polices and the pace of reform below, with more detail on this topic found in section 4.3. The other topics listed above are discussed in the sections referenced at the end of each dot point. The following

commentary on assignment policies we have included in each of our February 2017 final decisions on Queensland, NSW, ACT and SA distributors. Given the reforms to tariff assignment policy proposed by ActewAGL in this first tariff structure statement, the following commentary on assignment policies and the pace of reform is less relevant to ActewAGL than to some other distributors. On the other hand, the other areas listed above where we encourage improvements in the next round of tariff structure statements is relevant to both ActewAGL and the other distributors.

### ***Assignment policies and pace of reform***

Currently, a key barrier to the assignment of residential and small business customers to cost reflective network tariffs is the metering technology. Outside Victoria, most residential and small business customers currently have an accumulation meter which measures the total amount of consumption, but not when this consumption occurs. It is therefore not possible to implement cost reflective network tariffs for customers with accumulation meters.

Changes to the metering rules mean that, from 1 December 2017, all new and replacement meters must be a smart meter.<sup>8</sup> Smart meters make the implementation of cost reflective network tariffs possible because they measure both total consumption and when this consumption occurs.

As this metering barrier to tariff reform gradually disappears, a key determining factor of the pace of network tariff reform will be whether customers are assigned to cost reflective network tariffs on a “mandatory”, “opt-out” or “opt-in” basis. While opt-in approaches have been a feature of this first phase of tariff reform in some jurisdictions, they are likely to lead to slower movement towards more cost-reflective tariffs than mandatory or opt-out approaches. This is because continued opt-in arrangements are not likely to encourage sufficient uptake to enable successful tariff reform. Experience of opt-in arrangements demonstrates relying on such arrangements may delay tariff reform implementation. Whereas opt-out arrangements, where trialled, have been more successful. ActewAGL’s experience presents a useful case study of the results from these differing approaches. ActewAGL stated:

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 [ActewAGL] rolled out interval meters, together with opt-in time-of-use tariffs. The consumer response was minimal with only 30 customers opting in to the residential time-of-use 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.<sup>9</sup>

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<sup>8</sup> AEMC, Rule determination—National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014, November 2014.

<sup>9</sup> ActewAGL, Re: Issues paper—Tariff structure statement proposal, ActewAGL, Submission to AER, 28 April 2016, p.5.

The Network Pricing Objective states that the tariffs a distributor charges should reflect the distributor's efficient costs of providing its direct control services to the retail customer.<sup>10</sup> These charges are paid by the customer's retailer. Our view is the price signals faced by the retailer should be cost reflective in order to meet this objective. The retailer will then be in the position to decide whether it passes those costs through to end customers and in what form. In other words, the main objective of network tariff reform is that retailers are exposed to the costs of network congestion or the costs of using the network when it is under the greatest demand pressure. Being exposed to these costs will mean that retailers will have an incentive to manage this exposure and take actions that reduce network congestion, such as setting prices higher in such periods to reduce demand (or the use of non-price measures such as demand management). In the long run, we consider this should be facilitated by assigning all customers to cost reflective network tariffs. We consider the best method to transition to this objective is through an opt-out approach in the next round of tariff structure statements, for customers with appropriate metering technology, and also based on other appropriate tariff assignment criteria which we discuss in this decision.

There are mixed views from stakeholders on whether mandatory or opt-out approaches should be the norm in these initial stages of tariff reform, or whether most reliance should be placed on opt-in approaches. We consider stakeholders would benefit from further information regarding the differing functions of retailers and consumers in relation to network tariff assignments as the pace of reform increases in the lead up to the next tariff statement periods.

Typically end customers are not directly involved in the process of selecting which network tariff they are assigned to. It is the retailer who submits the application to a distributor which determines what type of network tariff an end customer is assigned (where the distributor provides a choice over this assignment). End customers are involved in selecting the type of retail tariff that best meets their requirements.

Network tariff structures are not required by the Rules to be reflected in retail tariff structures, so we do not yet know how retailers will respond to the new cost reflective network tariffs. We consider that even under mandatory or opt-out network tariff assignment policies it is likely end customers, especially residential and small business customers, would continue to have a choice from retailers over their retail tariff structure. Rather, cost reflective network tariffs place an incentive on retailers to respond to these peak price signals, as they are the ones who must pay the network tariffs.

Retailers will choose how they respond to these new price signals. In supplying electricity to customers, retailers manage a number of different input costs, including:

- transmission and distribution network charges
- generation (energy) charges

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<sup>10</sup> NER, cl. 6.18.5(a).



- other costs of providing the service to customers, such as the cost of complying with government environmental policies, marketing and retail billing costs.

Residential and small business customers do not pay these input costs directly. Nor is the structure of these cost inputs necessarily reflected in retail tariff structures. For example, retailers face generation changes which change every five minutes and are averaged over every 30 minutes (spot prices). However, retail tariff structures do not change every 30 minutes. Rather, end customers typically face flat rate retail tariffs. This is because, in developing pricing offers for customers, retailers package all of these input costs and manage the risk of differences between spot prices and the prices paid by customers. Customers then select from a range of different offers from different retailers that best meet their preferences. As the AEMC stated:

The role of the networks is to provide cost-reflective [network] pricing. The retailers' role is to take wholesale costs, network charges and other potential energy services such as distributed generation or energy management systems, and package these up for consumers. In many ways, their job is to be the consumers' agent for dealing with the rest of the system. Successful retailers are those that offer the most attractive packages to consumers. And remember in this new energy environment, the term retailer means any business that comes to market offering energy services. Because consumers are so different, we should expect there to be great diversity in the products, services and tariffs offered and taken up. Consumers choose between fixed and variable mortgages with different terms in the financial sector; and they choose from a range of mobile phone packages in the telecommunications sector.

Network pricing reform in the energy sector is about sending price signals to consumers – and more precisely to competing retailers – about the cost of using the network in different ways and at different times. This means consumers can make the consumption choices they want to, while allowing co-ordination of the various elements of the energy supply chain.<sup>11</sup>

Similarly, we anticipate that even if all end customers were assigned to a cost reflective network tariff structure, this does not mean they will be necessarily required to face a retail tariff that exactly matches the network tariff structure. Retailers may respond to the new network tariffs in different ways: some retailers may fully reflect the new network tariff structures in their own retail tariffs, while others do not. Some retailers may give customers the choice as to whether they want to face a retail tariff that reflects the network tariff structure.

Retailers have a number of tools to help them manage the risk of differences in network and retail price structures and price that risk efficiently. Retailers are in the best position to manage the risks of any mismatch between their offers to customers and the cost structures the retailer faces in terms of network and wholesale electricity

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<sup>11</sup> AEMC, *Ensuring the regulatory framework facilitates competitive and efficient energy markets in a time of technological change: Address at Australian Energy Week 2016*, 21 June 2016, p. 4.

costs. It is unlikely retailers will all respond in exactly the same way in addressing these risks, either in terms of structure or timing. We would also expect further innovation from retailers as network tariff reforms mature and are progressively rolled out. One option retailers have to manage these risks will be to develop retail tariff structures that reflect the network tariff structure—either in full or in a simplified form. Retailers may develop such retail offerings and customers would have a choice as to whether they want to sign up to these offers. However, this is not the only option retailers have to manage this risk. Other options for retailers might include retail offerings which are:

- based on flat rate retail tariffs, but allow the retailer to manage the load of the end customer during times of peak network congestion (and therefore times when the retailer is paying the peak network charges), if the end customer agrees to allow the retailer to manage its consumption in this way (this is a form of non-price or demand management solution)
- based on flat rate retail tariffs, but include a risk premium to compensate the retailer for the risk it faces in the mismatch between the cost reflective network tariffs it pays, and the flat retail tariffs it receives.

These are just some of the possible options open to retailers. When retailers face the costs of network congestion in network tariffs, we expect this will spur retailers and other third parties to develop innovative solutions to manage this cost. While this reform refers to the restructuring of network tariffs, it is equally important for retailers to engage with the tariff reform process and consider what reforms to retail tariffs will be necessary to provide customers with the ability to understand the implications of the changes to network tariffs to make better decisions about their energy choices.

Without cost reflective network pricing, the main option for distributors to manage the risk of congestion on their networks is to “build out” the congestion through investments in network augmentation (or adopt non-price demand management solutions). However, in the absence of cost reflective network tariffs (or other measures to manage demand) this network investment will occur even when it is inefficient. In other words, without cost reflective network tariffs, network investment will occur even when consumers value the added reliability from the investment less than the cost of the investment. The effect of a continued reliance on opt-in arrangements may be that the cost of managing those risks of network congestion is borne by all customers instead of the particular customers whose decisions cause that congestion. This can lead to higher prices for all customers and reduced incentives on retailers to provide innovative tariffs and reduced incentives on retailers and third party providers to provide demand management services.

The Energy Networks Association has estimated that cost reflective tariffs can lead to savings of \$17.7 billion in present value terms over a 20 year period.<sup>12</sup> Former AGL

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<sup>12</sup> Energy Networks Association, *Network pricing and enabling metering analysis*, Prepared by ENERGEIA for the Energy Networks Association, November 2014, p.5.

chief economist Paul Simshauser estimated that hardship customers are among the biggest beneficiaries of cost reflective network tariff reform, with working couples and concession customers (e.g. pensioners) also better off. The study showed that, under current pricing structures, an average customer in a hardship program was most likely to be paying more than the costs they impose on the network for providing them with network services. This is because, on average, customers in a hardship program use a greater proportion of their energy at off-peak times compared with other customer types.<sup>13</sup> Therefore, moving away from network pricing based on the customer's total consumption and towards pricing based on consumption during peak times will benefit these types of customers, even if they make no changes to the total amount of electricity they consume or when they use electricity.

Network tariff reform may also increase the reliability of the grid, by reducing the pressure on the grid during peak times.

For all of these reasons it is vital that we see a substantial effort to accelerate the pace of network tariff reform in the next tariff structure statement period for all distributors—these coincide with their next regulatory control periods. This requires network tariffs to become more cost reflective so that retailers face the costs of network congestion and they are encouraged to develop innovative retail solutions to manage this cost. This will provide customers with the ability to understand the implications of the changes to network tariffs to make better decisions about their energy choices.

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<sup>13</sup> Paul Simshauser and David Downer, *On the inequity of flat-rate electricity tariffs*, AGL Applied Economic and Policy Research, Working Paper No. 41 – Inequity of Tariffs, 2014, pp.10-13; pp.18-19.

# 1 Background

The requirement on distributors to prepare a tariff structure statement arises from a significant process of reform to the National Electricity Rules (the Rules) governing distribution network pricing. The purpose of the reforms is to empower customers to make informed choices by:

- Providing better price signals—tariffs that reflect what it costs to use electricity at different times so that customers can make informed decisions to better manage their bills.
- Transitioning to greater cost reflectivity—requiring distributors to explicitly consider the impacts of tariff changes on customers, and engaging with customers, customer representatives and retailers in developing network tariff proposals over time.
- Managing future expectations—providing guidance for retailers, customers and suppliers of services such as local generation, batteries and demand management by setting out the distributor's tariff approaches for a set period of time.

## Why is network tariff reform important?

Distribution tariffs historically have not varied according to the time when electricity is used. But distribution costs are significantly driven by the peak demand the network must cater for at times of congestion on the network. This means the structure of existing network tariffs don't reflect network costs. Most existing retail tariffs send price signals that don't inform customers about the costs imposed on distribution networks in peak demand periods.

Lifestyle changes, including the use of air conditioners during hot summer periods, means customers now use relatively more of their electricity at peak times, even if overall energy consumption has declined. Network costs have increased over the last decade as distributors invest in additional infrastructure upgrades to meet the higher peak demand. This increased investment has been a factor driving electricity price rises in the last decade.<sup>14</sup>

Given that there is far greater diversity today in how customers use electricity, it is important for customers to understand the value of their choices. Moving to network tariffs that reflect electricity use during peak demand periods will make electricity pricing more transparent.

As such, cost reflective pricing means the network tariffs retailers pay more accurately reflect the way electricity is used by customers. Retailers whose customers use electricity at peak times should pay rates better reflecting the costs created by their

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<sup>14</sup> Over the last couple of years, network costs and prices have started to flattened out or even decrease in some areas. This has been due, in part, to lower financing costs associated with these network investments.

use. Customers who use less electricity in peak demand periods and more at other times should benefit from lower network prices during non-peak times by their retailer offering them lower retail prices during these times. And if customers are given the opportunity to respond to these price signals by their retailer, network investment requirements will be lower than they otherwise would be. This reduces upwards pressure on electricity prices for everyone.

## **What are the key concepts to understand?**

This final decision incorporates concepts which may be unfamiliar to some readers. In this section we provide descriptions of the more commonly used concepts. Readers familiar with electricity network regulation and terminology may choose to skip to the next section.

### ***Difference between demand and consumption***

Electricity consumption is the total amount of electricity consumed (used) over a period of time. For example, a typical Australian household might use between 5,000kWh to 6,000 kWh of electricity over 12 months.<sup>15</sup> Demand means the amount of electricity used at a single point in time. Peak demand is the maximum amount of electricity used at a single point in time over a defined time period, often a day or a year. A typical Australian household might have its yearly peak demand of around 5kW, either on a hot summer afternoon when air conditioning is used, or on a winter evening when electric heating is used.<sup>16</sup> That is, the household's annual peak demand is 5kW.

A good analogy for electricity consumption compared to electricity demand is a river flowing under a bridge. Annual electricity consumption is equivalent to the total water volume flowing under the bridge during a year. Electricity demand is equivalent to the volume of water under the bridge at a single point in time. Peak electricity demand is equivalent to the time when the largest volume of water is flowing under the bridge.

### ***Long run marginal cost and residual costs***

An important feature of this draft decision is the concept of long run marginal cost. Long run marginal cost is equivalent to the forward looking cost of a distributor providing one more unit of service, measured over a period of time sufficient for all factors of production to be varied. Long run marginal cost could also be described as a distributor's forward looking costs that are responsive to changes in electricity demand. This could include replacement of fixed assets at the end of their economic life.

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<sup>15</sup> Total consumption for a 'representative' residential household is estimated to fall between 5,000 kWh and 6,000 kWh in Queensland, NSW and South Australia. Total consumption for a representative residential household is lowest in Victoria (at around 4,000 kWh) and highest in the ACT (at around 7,000 kWh). AEMC, *2016 Residential electricity price trends—Final report*, December 2016, p.xii.

<sup>16</sup> EMET Consultants Pty Ltd as referenced by solarchoice.net.au.

The Rules require network tariffs to be based on long run marginal cost.<sup>17</sup> However, not all of a distributor's costs are forward looking and responsive to changes in electricity demand. Hence, if network tariffs only reflected long run marginal cost, distributors would not recover all their costs. Costs not covered by a distributor's long run marginal cost are called 'residual costs'. The Rules require network tariffs to recover residual costs in a way that minimises distortions to the price signals for efficient usage that would result from tariffs reflecting only long run marginal costs.<sup>18</sup>

### *Types of network tariffs*

A network 'tariff' is the combination of charges that are billed to a customer's retailer in return for the distributor providing network services to that customer. Historically, most residential and small business customers in Australia have been on either a flat tariff or a block tariff (tiered pricing):

- **Flat tariff**—usually consists of a fixed charge and flat usage charge. That is, usage is charged the same price per unit of electricity consumed no matter how much electricity the customer uses.
- **Inclining block tariff**—usually consists of a fixed charge and a series of block charges where the price per unit of electricity consumed changes depending on the size of the customer's total consumption. The first consumption block is charged the lowest price, and each successive block of consumption is charged at higher rates.
- **Declining block tariff**—usually consists of a fixed charge and a series of block charges where the price per unit of electricity consumed changes depending on the size of the customer's total consumption. The first consumption block is charged the highest price, and each successive block of consumption is charged at lower rates. A declining block tariff is the reverse of an inclining block tariff.

Flat tariffs or inclining block tariffs are relatively common. Declining block tariffs are now relatively uncommon in most jurisdictions. Neither flat tariffs nor block tariffs are cost reflective. As explained above, network costs are largely driven by consumption during peak demand periods, with electricity consumption during off-peak periods relatively inexpensive to provide. However, the tariff structures of flat and block tariffs are unrelated to whether the customer is consuming electricity during peak or off-peak periods.

In contrast, time-of-use tariffs, demand tariffs and critical peak pricing are all more cost reflective forms of network tariffs. This is because the tariff structures are related to whether the customer is consuming electricity during peak or off-peak periods. Each of these tariffs is explained further below.

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<sup>17</sup> NER, cl. 6.18.5(f).

<sup>18</sup> NER, cl. 6.18.5(g)(3).

A **time-of-use (TOU) tariff** usually also has a combination of fixed and usage charges (similar to flat and block tariffs). The difference is that time-of-use tariffs apply a different usage charge depending on when the customer consumes electricity. A time-of-use tariff will have defined charging windows when different rates apply. These charging windows might be labelled the 'peak' window, 'shoulder' window, and 'off-peak' window. The highest usage rate applies to consumption during the peak window, and the lowest usage rate applies to consumption during the off-peak window.

A **demand tariff** includes a charge based on the customer's highest measured demand during a specified period of time (e.g. over the billing period). Often, demand charges will be limited to the highest demand measured during peak charging windows. Typically, charging windows will coincide with the peak demand times for the whole network or for specific customer types (e.g. residential or small business customers). Demand tariffs may also include fixed charges and usage charges.

**Critical peak pricing** is another tariff variant and an example of more dynamic tariffs. Under this approach a distributor can specify periods of critical network peak demand, and will set prices particularly high for any demand or consumption that occurs during the specified critical peak event. This approach is generally in use currently only for certain larger business customers who can moderate consumption (e.g. by shutting down part of a production line) or use their own generation assets as a substitute for network electricity.

Distributors sometimes offer combinations of a primary tariff, such as those listed above, with secondary tariffs, such as controlled load tariffs. These controlled load tariffs typically apply a lower rate to electricity used for certain appliances in return for only being able to use those appliances during off peak times. For example, off peak hot water. In other cases, a lower rate may apply to customers who allow a distributor to remotely cycle appliances on and off during peak demand periods. For example, CitiPower and Powercor have tested technology to cycle customers' air conditioning. They are now considering how to trial this technology with customers.<sup>19</sup> Distributors will often limit access to secondary tariffs to customers on specified primary tariffs such as flat tariffs or block tariffs.

In addition to tariffs, distributors sometimes seek to influence demand by offering rebates (partial refunds) to customers in return for demand reductions made by the customer during specific time periods. Rebates may be linked to critical peak demand times or to specific geographic areas or both.

### ***Metering and tariffs***

Flat tariffs or block tariffs can be applied to customers with basic accumulation meters (type 6 meters). This is because to calculate the tariff, it is only necessary to know the customer's total consumption, not when that consumption has occurred.

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<sup>19</sup> CitiPower and Powercor, Email to AER staff, *Remote air-conditioning cycling through meters or other means in Victoria*, 12 August 2016.



In Victoria, all customers with annual consumption of less than 160MWh have advanced metering infrastructure (AMI)—commonly referred to as **smart meters**—since 2009. The installation of these meters was undertaken by the five electricity distributors as part of a State Government mandated rollout. Smart meters can facilitate time-of-use or demand tariffs or more dynamic tariffs. This is because they measure both when, where and how much electricity a customer has consumed, which is necessary to calculate a time-of-use tariff or demand tariff. These meters are read remotely through communications functionality that is included in this metering infrastructure.

Outside Victoria, smart meters will become the standard for residential and small business customers for all new connections and existing premises where the meter must be replaced, from 1 December 2017. This means that in those states and territories outside Victoria that smart meters will gradually become increasingly common over time.

## Degree of choice in network tariff assignment

A constituent element of a tariff structure statement are the policies and procedures a distributor will apply for assigning customers to network tariffs or reassigning customers from one network tariff to another.<sup>20</sup> These policies and procedures should include certainty around whether a tariff is a 'mandatory' tariff, 'opt-out' tariff or 'opt-in' tariff for particular customer types. Among other possibilities, customer types might be based on the connection characteristics and metering arrangements of the customer, as well as whether the customer is a new or existing customer. The differences between these three options are:

- **A mandatory tariff**—means this is the only network tariff available for customers of a particular type. For example, industrial customers connected to the high voltage network and whose annual consumption falls within a particular range may be required to be assigned to a particular demand tariff, and there may be no other tariff options available to their retailer for them to choose from.
- **An opt-out tariff**—means the customer is assigned to this network tariff by default, but the customer (through their retailer) can choose to be re-assigned to a different tariff. For example, a residential customer may by default be assigned to a block tariff, but could (through their retailer) choose to switch to a time-of-use tariff.
- **An opt-in tariff**—means the customer (through their retailer) can choose to be re-assigned to this tariff, but the customer is by default assigned to some other network tariff. This is the opposite of an opt-out tariff. In the previous example, the time-of-use tariff would be described as an opt-in tariff.

It is important that distributors are clear in their tariff structure statements which of their proposed tariffs are mandatory, opt-out and opt-in, and for which customer types.

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<sup>20</sup> NER, cl.6.18.1A(a)(2).



Typically end customers are not directly involved in the process of selecting which *network tariff* they are assigned to. It is the retailer who submits the application to a distributor which determines what type of network tariff an end customer is assigned (where the distributor provides a choice over this assignment). End customers are involved in selecting the type of *retail tariff* that best meets their requirements.

Network tariff structures are not required by the Rules to be reflected in retail tariff structures, so we do not yet know how retailers will respond to the new cost reflective network tariffs. We consider that even under mandatory or opt-out network tariff assignment policies it is likely end customers, especially residential and small business customers, would continue to have a choice from retailers over their retail tariff structure. Rather, cost reflective network tariffs place an incentive on *retailers* to respond to these peak price signals, as they are the ones who must pay the network tariffs.

To assign customers to one of the various tariffs offered by a distributor requires also that the distributor group customers into types, or classes. Customer classes might be based on a customer's connection type or metering arrangements, their annual usage, or whether the customer is a new or existing customer.

## **Elements of a tariff structure**

A tariff structure incorporates the charges that make up a tariff. For example, a demand tariff typically comprises a fixed charge, a usage charge and a demand charge. How those charges are applied to a customer reflect the tariff's charging parameters. The design of a charging parameter might include:

- how frequently a charge is applied to a customer
- the times during which usage or demand is measured to calculate a charge
- variations in charges and how those variations are triggered.

Charging parameters may be varied to match the purpose of the distributor when designing the tariff. For example, the demand charge within a demand tariff may target the time of a distributor's broad network peak, a local regional peak, or a customer class peak (e.g. residential customers).

A group of customers with similar connection and usage characteristics will be grouped into the same tariff class. There can be multiple tariffs within a tariff class to which a customer could be assigned.

## **How does the tariff structure statement fit into the regulatory process?**

Tariff structure statements are a new element of the Rules. Generally, tariff structure statements will be submitted to us by distributors with their regulatory proposals for us to assess and determine how much revenue they are allowed to earn over the next regulatory control period (which is typically a five year period). Within this usual distribution determination process we will publish, assess and invite feedback on a

tariff structure statement along with a distributor's regulatory proposal. An approved tariff structure statement will then apply to the distributors' tariffs for the coming five year regulatory control period.

In this case, for the first round of tariff structure statements for each distributor, the Rules require tariff structure statements be submitted outside the distribution determination process for all distributors, other than TasNetworks. This is because the timing of the introduction of tariff structure statements is occurring midway through the regulatory control period for all distributors other than TasNetworks.

The timing of TasNetworks' distribution determination enabled the Australian Energy Market Commission to specify in the Rules that TasNetworks' tariff structure statement be submitted with its distribution determination. The upcoming distribution regulatory period for TasNetworks is to be only two years long. Hence, TasNetworks' initial tariff structure statement will apply for only two years.

For other distributors the next distribution determination processes are too far into the future for the usual process to be followed. Delaying submission of the initial tariff structure statement for those distributors would unduly delay the tariff reform process. For distributors in South Australia, Victoria, New South Wales, the Australian Capital Territory and Queensland, the Rules required that tariff structure statements be submitted in advance of the next distribution determination. The initial tariff structure statements for these distributors will also apply for abbreviated periods, reflecting the time remaining until their next distribution determination. For ACT and NSW distributors, this is two years, covering the period 1 July 2017 to 30 June 2019. For Queensland and South Australian distributors, this is three years, covering the period from 1 July 2017 to 30 June 2020. For Victorian distributors, this is four years, covering the period from 1 January 2017 to 31 December 2020. For all distributors, their first tariff structure statement comes into effect in 2017.

Once approved, a tariff structure statement will guide a distributor in shaping its annual pricing proposals, submitted to us prior to each regulatory year. The annual pricing proposal is where a distributor translates the total allowed revenue from its distribution determination, and the allowed tariff structures from its tariff structure statement, into prices for individual tariffs.

We check that total expected revenue to be earned in the coming regulatory year is consistent with the annual revenue we determined may be earned in that year. We will now also check that an annual pricing proposal is consistent with a distributor's approved tariff structure statement. For example, a distributor may not propose a tariff which was not included in its approved tariff structure statement.<sup>21</sup> Nor may a distributor vary the parameters of a tariff from that described in its tariff structure statement. This provides retailers, customers and other stakeholders with certainty about the structure of tariffs to be charged in each year of the regulatory control period.

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<sup>21</sup> The exemption to this is trial tariffs. Distributors may trial new tariffs that were not approved through the tariff structure statement if the tariff meets the requirements in cl. 6.18.1C of the Rules.

Tariff structure statements, in principle, address tariffs for both standard control services and alternative control services. However, in practice the tariffs for alternative control services are almost entirely dealt with by our distribution determinations and the annual pricing approval process. There is relatively little regulatory role left for tariff structure statements in the context of alternative control services. For this reason distributors deal with alternative control services in their tariff structure statements relatively briefly. For the same reason our tariff structure statement decisions will focus on standard control services and make relatively little comment on a distributor's alternative control services.

## **How does network pricing reform interact with other reforms?**

Network tariff reform is commencing at the same time as reforms to the provision of metering services and access to customer information. These related reforms have implications for network tariffs, including the pace at which tariffs can evolve to become more cost reflective.

For metering, changes to the Rules will establish new minimum specifications similar to smart meters currently in use. Smart metering is already in use across Victoria as a result of the mandated smart meter rollout. This has resulted in better meter functionality and data flows and facilitates broader use of more cost reflective pricing over time.

Not all consumers might want to use their own detailed consumption data and instead engage an energy services provider or retailer to use this information to recommend bundled energy plans. In recognition of the changing nature of how customer energy usage information might become available and used, reforms were also recently introduced to make it easier to obtain access to this information.<sup>22</sup> Customers will now be able to access their data from their distributor or retailer, and grant access to other parties to do so on their behalf. These reforms will not only help customers but also energy service providers in developing and offering more tailored and innovative energy products and services over time.

## **How does network pricing interact with network planning and demand management?**

Demand pressures can be addressed by sending price signals to encourage customers (and retailers) to reduce demand, consistent with the aims of tariff reform. Alternatively, demand pressures can be addressed by network expenditure, as has been the case in the recent past. Another option, which distributors are required by the Rules to consider, is the use of demand management initiatives. These can include rebates for customers who reduce their consumption. Or distributors can install or utilise generation assets in areas where the associated cost is less than the cost of

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<sup>22</sup> Australian Energy Markets Commission, National Electricity Amendment (Customer access to information about their energy consumption) Rule 2014, Final Determination, 6 November 2014.

network investment to meet local area demand. Distributors can adopt some demand management solutions directly themselves, whereas other demand management solutions must be procured through an affiliated entity or other third party in accordance with the requirements of our ring fencing guideline.

We consider it useful for tariff structure statements to describe the distributor's approach to integrating tariff reform, network investment and demand management. Such discussion will position tariff structure statements within the broader context of how distributors intend to respond to demand and service challenges. Also, while the Rules require distributors to consider the time and location varying nature of network cost drivers, difficulties with locational pricing suggest a larger role for demand management initiatives to address local network demand pressures.

An example of this is United Energy's use of rebates for customers in selected locations within its network, to encourage demand reductions that will limit peak demand.<sup>23</sup> This will alleviate, or postpone, the need for more costly network upgrades to those areas where network constraints may be likely in the near term, and still ensure continuing electricity supply and reliability. CitiPower and Powercor also flagged an intention to trial critical peak rebates and tariffs for similar reasons to United Energy.

As new technologies emerge in energy markets, it is anticipated that distributors will also focus on demand management and other non-network solutions to complement pricing as a means to reduce peak demand (where the cost of meeting that peak demand is higher than the value customers place on electricity use during those times) and delivering electricity efficiently.

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<sup>23</sup> United Energy, *Revised Tariff Structure Statement 2017–20*, 29 April 2016, p. 34-35.

## 2 Rule requirements

The amendments to the pricing provisions of the Rules have three aims, namely to provide:

- better signals of the cost drivers of distribution networks
- explicit consideration of tariff change impacts
- transparency and greater certainty on tariff strategies for a regulatory period.

A new network pricing objective is to be the focus for distributors when developing their network prices. This objective is that:<sup>24</sup>

...the tariffs that a distributor charges for provision of direct control services to a retail customer should reflect the distributors' efficient costs of providing those services to the retail customer

Publication of a tariff structure statement is part of the new tariff arrangements. It should show how a distributor applied the distribution pricing principles to develop its price structures and indicative price levels for the coming five year regulatory period.<sup>25</sup> A distributor must submit its proposed tariff structure statement to us for assessment.

Generally, a distributor will be required to submit its proposed tariff structure statement when submitting its regulatory proposal.<sup>26</sup> The Rules permitted submission of a tariff structure statement outside the regulatory proposal process this time because of the timing of the rule changes.<sup>27</sup>

### Tariff structure statement requirements

There are two distinct sets of requirements for tariff structure statements. First, the Rules set out the elements that an approved tariff structure statement must contain.<sup>28</sup> Second, a tariff structure statement must also comply with the distribution pricing principles.<sup>29</sup>

#### *What must a tariff structure statement contain?*

The Rules require a tariff structure statement to include.<sup>30</sup>

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<sup>24</sup> NER, cl. 6.18.5(a).

<sup>25</sup> This is a reference to the Rules' *pricing principles for direct control services*, alternatively described in this decision as the "distribution pricing principles"; NER, cl. 6.18.5(e)–(j).

<sup>26</sup> NER, cl. 6.8.2(a).

<sup>27</sup> NER, cl. 11.76.2(a).

<sup>28</sup> NER, cl 6.18.1A(a) and (e)

<sup>29</sup> NER, cl 6.18.1A(b). The distribution pricing principles are prescribed in cl 6.18.5.

<sup>30</sup> NER, cl. 6.18.1A(a).

- the tariff classes into which retail customers for direct control services will be divided
- the policies and procedures the distributor will apply for assigning retail customers to tariffs or reassigning retail customers from one tariff to another
- structures for each proposed tariff
- charging parameters for each proposed tariff
- a description of the approach that the distributor will take in setting each tariff in each pricing proposal.

A tariff structure statement must be accompanied by an indicative pricing schedule.<sup>31</sup>

### ***What must a tariff structure statement comply with?***

A tariff structure statement must comply with the distribution pricing principles, which may be summarised as:

- for each tariff class, expected revenue to be recovered from customers must be between the stand alone cost of serving those customers and the avoidable cost of not serving those customers<sup>32</sup>
- each tariff must be based on the long run marginal cost of serving those customers, with the method of calculation and its application determined with regard to the costs and benefits and customer location<sup>33</sup>
- expected revenue from each tariff must reflect the distributor's efficient costs, permit the distributor to recover revenue consistent with the applicable distribution determination and minimise distortions to efficient price signals<sup>34</sup>
- distributors must consider the impact on customers of tariff changes and may vary from efficient tariffs, having regard to:<sup>35</sup>
  - the desirability for efficient tariffs and the need for a reasonable transition period (that may extend over one or more regulatory periods)
  - the extent of customer choice of tariffs
  - the extent to which customers can mitigate tariff impacts by their consumption decisions
- tariff structures must be understandable to customers<sup>36</sup>
- tariffs must otherwise comply with the Rules and any other applicable regulatory requirements.<sup>37</sup>

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<sup>31</sup> NER, cl. 6.8.2(d1).

<sup>32</sup> NER, cl. 6.18.5(e).

<sup>33</sup> NER, cl. 6.18.5(f).

<sup>34</sup> NER, cl. 6.18.5(g).

<sup>35</sup> NER, cl.6.18.5(h).

<sup>36</sup> NER, cl. 6.18.5(i).

For the purpose of achieving compliance with the last three principles, the tariff structure statement may depart from comprehensive compliance with the first three principles. Where the distributor does make such a departure, it must explain its reasons for doing so.<sup>38</sup>

## Tariff structure statement process

### *Our role in approving a distributor's tariff structure statement*

We must approve a distributor's tariff structure statement unless we are reasonably satisfied that the proposed tariff structure statement does not comply with the distribution pricing principles or other applicable requirements of the Rules.<sup>39</sup> We make one holistic determination to approve or refuse to approve the distributor's tariff structure statement. Our analysis on each element of the distributor's tariff structure statement contributes to our overall assessment.

### *What happens when a distributor submits a proposed tariff structure statement?*

The Rules require us to publish the distributor's proposed tariff structure statement and invite submissions.<sup>40</sup> We then assess a proposed tariff structure statement for its compliance with the distribution pricing principles and other applicable requirements of the Rules. Taking into account submissions and any supporting information submitted by the distributor, we will publish a draft decision on the proposed tariff structure statement.<sup>41</sup> This will set out our reasons for making the decision.<sup>42</sup>

Our role is largely one of assessing compliance. We must approve a proposed tariff structure statement unless we are reasonably satisfied that it does not comply with the distribution pricing principles or other applicable requirements of the Rules.<sup>43</sup>

### *What happens if a proposed tariff structure statement is not approved?*

A distributor may submit a revised tariff structure statement no later than 45 business days after we publish our draft decision.<sup>44</sup> Under the Rules, a distributor may only make revisions to its tariff structure statement to address matters raised by our draft decision.<sup>45</sup> We will publish the distributor's revised tariff structure statement and again call for submissions before making a final decision.<sup>46</sup>

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<sup>37</sup> NER, cl. 6.18.5(j); this requirement includes jurisdictional requirements.

<sup>38</sup> NER, cl. 6.8.2(7) and 6.18.5(c).

<sup>39</sup> NER, cl. 6.12.3(k).

<sup>40</sup> NER, cl. 6.9.3(a).

<sup>41</sup> NER, cl. 6.10.2; cl. 11.76.2(a).

<sup>42</sup> NER, cl. 6.10.2(a)(3); cl. 11.76.2.

<sup>43</sup> NER, cl. 6.12.3(k).

<sup>44</sup> NER, cl. 6.10.3(a).

<sup>45</sup> NER, cl. 6.10.3(b).

<sup>46</sup> NER, cl. 6.10.3(d)(e).

### ***What happens after a tariff structure statement is approved?***

Once approved, a tariff structure statement will remain in effect for the relevant regulatory control period.<sup>47</sup> The distributor must comply with the approved tariff structure statement when setting prices annually for direct control services.<sup>48</sup>

We will separately assess the distributor's annual pricing proposals for the coming 12 months. Our assessment of annual pricing proposals will also be to ensure consistency with the requirements of the approved tariff structure statement.

An approved tariff structure statement may only be amended within a regulatory control period with our approval.<sup>49</sup> We will approve an amendment if the distributor demonstrates that an event has occurred that was beyond its control and which it could not have foreseen so that the amended tariff structure statement materially better complies with the distribution pricing principles.<sup>50</sup>

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<sup>47</sup> Tariff Structure Statements may only be amended during a regulatory period, with our approval, if an event occurs that is beyond the distributors' reasonable control and could not reasonably have been foreseeable requires a change.

<sup>48</sup> NER, cl. 6.18.1A(c).

<sup>49</sup> NER, cl. 6.18.1B.

<sup>50</sup> NER, cl. 6.18.1B(d).



### 3 Tariff classes

We approve ActewAGL’s proposed tariff classes. ActewAGL proposed three tariff classes that are consistent with its previous practice and distributor approaches in other jurisdictions. The tariff classes are residential low voltage, commercial low voltage and commercial high voltage. We are satisfied that these tariff classes contribute to the achievement of compliance with the distribution pricing principles.

ActewAGL’s tariff classes are summarised in Table 3-1 below.

**Table 3-1: Description of tariff classes**

Tariff class	Customer description
Residential low voltage	<p>The residential network tariff class is available to installations at private dwellings, excluding serviced apartments, but including:</p> <ul style="list-style-type: none"> <li>• Living quarters for members and staff of religious orders;</li> <li>• Living quarters on farms;</li> <li>• Charitable homes;</li> <li>• Retirement villages;</li> <li>• Residential sections of nursing homes and hospitals;</li> <li>• Churches, buildings or premises which are primarily used for public worship; and</li> <li>• Approved caravan sites.</li> </ul>
Commercial low voltage	Commercial customer taking supply at low voltage (includes small business customers).
Commercial high voltage	Large customers taking supply at high voltage.

Under the high level tariff class structure described in Table 3-1 above, ActewAGL further varies how it groups customers into certain tariffs. These groupings are described in the tariff assignment sections in Chapter 4 (residential and small business customers) and Chapter 5 (large business customers).

Consumer Mike Buckley submitted his view that ActewAGL has not provided compelling evidence to support the division of its low voltage customers into residential and small business customer classes. He stated that while the daily load profile of these customer classes is different, the maximum load they place on the network is broadly comparable.<sup>51</sup> He further argues that commercial customers are paying a disproportionate share towards the recovery of the network’s costs.<sup>52</sup> We do not have objections to ActewAGL separating its low voltage customers into residential and small business customer classes. We consider the design of individual tariffs to be the most

<sup>51</sup> Mike Buckley, *Submission to AER – ActewAGL network tariff statement*, 7 October 2016, pp. 7.

<sup>52</sup> Mike Buckley, *Submission to AER – ActewAGL network tariff statement*, 7 October 2016, pp. 3.

important element in our review of ActewAGL's tariffs, and as such our focus is on ensuring the individual tariffs contribute towards the achievement of compliance with the distribution pricing principles. We respond further to Mr Buckley's concern that commercial customers are paying a disproportionate share towards the recovery of costs in Chapter 6.

### 3.1 Standalone and avoidable costs

In setting tariffs, ActewAGL must comply with the distribution pricing principles, which includes ensuring that there are no cross subsidies between tariff classes. For each tariff class, expected revenue to be recovered from customers must be between the standalone cost of serving those customers and the avoidable cost of not serving those customers.<sup>53</sup> This prevents large cross subsidies between tariff classes, such as residential and business customers.

The standalone cost for a tariff class is the cost of supplying only the tariff class concerned, with all other tariff classes not being supplied. If customers were to pay above the standalone cost, then it would be economically beneficial for customers to switch to an alternative provider. It would also be economically feasible for an alternative service provider to operate. This creates the possibility of inefficient bypass of the existing infrastructure.

The avoidable cost for a tariff class is the reduction in network cost that would take place if the tariff class were not supplied (whilst all other tariff classes remained supplied). If customers were to be charged below the avoidable cost, it would be economically beneficial for the business to stop supplying the customers as the associated costs would exceed the revenue obtained.

ActewAGL provided estimates of the avoidable and standalone costs of serving residential customers, LV commercial customers and HV commercial customers and explained its approach to estimating these costs.<sup>54</sup>

Table 3-2 below compares ActewAGL's estimates for 2017/18 of the expected revenue from each tariff class to the avoidable and standalone costs of supply. The avoidable cost is lower than the DUOS revenue for each tariff class. The standalone cost is greater than the revenue for each tariff class. ActewAGL explains that for residential and LV commercial customers, the standalone cost should be compared to NUOS revenue because customers in these tariff classes are assumed to bypass the electricity grid altogether. The standalone cost of serving HV commercial customers should be compared to DUOS revenue because it is assumed these customers bypass only the distribution network (and connect to the transmission network).<sup>55</sup>

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<sup>53</sup> NER, cl. 6.18.5(e)

<sup>54</sup> ActewAGL, *Tariff structure statement*, 27 November 2015, p.113

<sup>55</sup> ActewAGL, *Tariff structure statement*, 27 November 2015, p.115

As the NUOS and DUOS revenue for each tariff class lies within the lower bound of the avoidable cost and the upper bound of the standalone cost, ActewAGL has complied with clause 6.18.5(e) of the Rules.

**Table 3-2: Avoidable and standalone costs, 2017/18 (\$'000)**

	Avoidable cost	Expected DUOS revenue	Expected NUOS revenue	Standalone cost
Residential	42,296		111,667	608,146
Commercial LV	11,592		128,944	313,103
Commercial HV	3,943	7,957		56,685

## 4 Residential and small business customer tariffs

We approve ActewAGL's revised tariff structures for residential and small business customers and we are satisfied that they contribute to the achievement of compliance with the distribution pricing principles.

In our draft decision, we approved the majority of elements in ActewAGL's proposed tariff structure statement, including the introduction of demand tariffs for residential and small business customers and the assignment of new customers<sup>56</sup> and customers who obtain a smart meter.

We were not satisfied, however, that ActewAGL's proposed peak demand charging windows contribute to the achievement of compliance with the distribution pricing principles. Specifically,

- we were not satisfied that ActewAGL's year-long morning peak demand charging window for residential customers reflects time of congestion and considered that ActewAGL should limit its peak charging window.
- we were not satisfied that an 'anytime' demand tariff that charges small business customers the same demand rate during times of high and low network congestion is cost reflective. We recommended ActewAGL apply a defined peak charging window.

ActewAGL made amendments to its tariff structure statement to reflect our draft decision. Specifically, it removed the morning peak period from its residential morning and evening demand charging windows, and proposed to implement a defined demand charging window for commercial customers. ActewAGL revised its demand charging windows in line with our views in the draft decision and based on its analysis of its system load profiles. Its charging windows are more cost reflective, better reflecting times of network congestion as demonstrated by ActewAGL's analysis. Chapter 7 further discusses our assessment of ActewAGL's charging windows.

ActewAGL also included an opt-out provision in its mandatorily assigned demand tariffs so retailers of new customers or those that obtain a smart meter are able to opt-out these customers from the demand tariff to another cost reflective network tariff. While we did not require ActewAGL to incorporate opt-out provisions for customers mandatorily assigned to demand tariffs, we consider that allowing retailers to re-assign their customers to other cost reflective tariffs contributes to the achievement of compliance with the distribution pricing principles. See section 4.2 for further discussion of ActewAGL's tariff assignment policies.

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<sup>56</sup> New customers are those who move into new premises and are connected with a smart meter.

Stakeholders were generally supportive of ActewAGL's proposed tariff structure statement. Consumer Mike Buckley encouraged more limited demand charging windows to ensure they reflect times of network congestion. Consumer groups submitted a preference for an opt-out arrangement for demand tariffs to promote customer choice.<sup>57</sup>

## 4.1 Tariff design

We accept ActewAGL's suite of small customer tariffs. In our view, the introduction of demand tariffs represents a distinct move towards cost reflective prices and contributes to the achievement of compliance with the distribution pricing principles. This is because demand tariffs are more cost reflective than current flat or consumption based tariffs which do not price demand and incentivise customers to reduce peak demand as effectively as demand based tariffs.

ActewAGL proposed to introduce a residential and small business demand tariff which comprises fixed, usage and demand components, as shown in Table 4-1 and Table 4-2 below. The demand charge reflects 100 per cent of long run marginal cost and is calculated using a customer's single highest 30 minute peak demand recorded between 5pm and 8pm (for residential customers) or 7am to 5pm (for commercial customers).

ActewAGL proposed to assign existing residential and small business customers with manually read interval meters to opt-out time of use tariffs comprising a fixed charge and a variable usage charge. This network tariff will be opt-in for new residential customers (who are automatically assigned to the new demand tariff) and will be closed to new commercial low voltage customers. ActewAGL will also offer controlled load tariffs to existing customers in combination with time of use, inclining block and flat tariffs.

ActewAGL's inclining block tariff will be maintained for existing residential and small business customers, but ActewAGL will not assign new customers to these network tariffs. The inclining block tariff involves a higher connection charge and an inclining block structure whereby the per unit price of energy increases for any subsequent blocks of energy consumed.

As shown in Table 4-1 and Table 4-2 below, ActewAGL does not intend to implement seasonal demand charges in this regulatory period, however submitted that it will consider introducing them in future tariff structure statements. ActewAGL referred to the need to manage customer bill impacts and ensure customers understand the types of network tariffs offered in explaining its decision to refrain from implementing seasonal charges in this period.

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<sup>57</sup> Mike Buckley, *Submission to AER – ActewAGL network tariff statement*, 7 October 2016, pp. 7.  
Clean Energy Council, *Submission to AER on SA, ACT, NSW and QLD tariff structure statements*, 26 October 2016, pp. 1.  
Origin Energy, *Submission on ActewAGL tariff structure statement*, 28 April 2016, pp. 1.

**Table 4-1: ActewAGL's residential demand tariff**

Feature	Monthly actual kW demand tariff
Assignment trigger	Tariff becomes default for new customers and those with smart meters from 1 December 2017
Charging parameters	Part 1: Consumption usage component (c/kWh) Part 2: Demand charge component (c/kW/day) set at 100 per cent of intended level. Seasonal variation in the demand charge likely to be applied in future tariff structure statements, where a higher price would apply in summer. Part 3: Fixed network access charge component (c/day)
Charging windows	Peak times: 5pm – 8pm every day
Calculation	A customer's demand is calculated in 30 minute intervals over a month, and the interval with the highest or maximum level of demand is used as the electricity quantity to be multiplied by a price. Every month, the calculation is reset.

**Table 4-2: ActewAGL's small business demand tariff**

Feature	Monthly actual kW demand tariff
Assignment trigger	Tariff becomes new default tariff for small business customers with a smart meter from 1 December 2017
Charging parameters	Part 1: Consumption usage component (c/kWh) Part 2: Demand charge component (c/kW/day) set at 100 per cent of intended level. Seasonal variation in the demand charge likely to be applied in future tariff structure statements, where a higher price would apply in summer. Part 3: Fixed network access charge component (c/day)
Charging windows	Peak times: 7am – 5pm weekdays
Calculation	Maximum half hourly demand (during peak times) in the billing period

We received several comments from stakeholders regarding ActewAGL's proposed tariff design. Specifically:

- Origin considers that a more conservative approach to network tariff reform would enable ActewAGL and retailers to undertake the analysis required to better understand customer impacts and responsiveness, develop more targeted education campaigns and identify the most effective methods of reducing peak demand.<sup>58</sup>
- The Clean Energy Council supports the general approach to network tariff reform proposed by the AER and the distribution businesses. At the same time, it emphasises the importance of measuring and comparing the different transition approaches put forward and determining which are most effective in promoting the usage of demand based tariffs. The Clean Energy Council considers that this

<sup>58</sup> Origin Energy, *Submission on ActewAGL revised tariff structure statement*, 26 October 2016, pp. 1.

analysis should involve gathering data on customer numbers, consumption patterns, customer attitudes and government assistance measures for customers on demand tariffs. It also suggests that in the future, distributors could consider strategies such as removing opt-in or opt-out provisions and lowering thresholds for mandatory reassignment, in order to further progress the transition to cost reflective tariffs.<sup>59</sup>

Stakeholders did not submit views on ActewAGL's intention to hold off on implementing seasonal demand charges, the 30 minute demand measurement period or ActewAGL's time of use and inclining block tariff structures.

Our final decision is to approve ActewAGL's proposed tariff design, including the time of use and inclining block tariff structures, for the following reasons:

- While we consider demand tariffs to be even more cost reflective, the variable usage charge in time of use tariffs is an improvement on simple usage tariffs and has been a positive step towards cost reflectivity.
- We approve ActewAGL's proposal to maintain the inclining block tariff structure for the current regulatory period, given these tariffs are no longer available to new customers and will be phased out over time. We consider that ActewAGL's move away from an inclining block tariff for new customers appropriately balances cost reflectivity<sup>60</sup> with customer impact considerations<sup>61</sup> in the current period.<sup>62</sup>
- We approve ActewAGL's proposal to apply a single 30 minute demand measurement period in this initial phase of tariff reform. We consider this approach adequately managements customer impact as the demand component is set at a transitional level in the proposed tariff structure statement, which means the impact on a customer's bill is reduced.<sup>63</sup> In section 7.4, we further discuss the use of a 30 minute measurement period and alternatives to this approach.

We are satisfied that the elements of ActewAGL's proposed tariffs contribute to the achievement of compliance with the distribution pricing principles and we therefore approve ActewAGL's proposed tariff design.

## 4.2 Tariff assignment policies

This section sets out our assessment of ActewAGL's policies and procedures for grouping and assigning customers to network tariffs.

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<sup>59</sup> Clean Energy Council, *Submission to AER on SA, ACT, NSW and QLD tariff structure statements*, 26 October 2016.

<sup>60</sup> NER cl. 6.18.5(e)-(g)

<sup>61</sup> NER cl. 6.18.5(h)

<sup>62</sup> NER cl. 6.18.5(c)

<sup>63</sup> NER cl. 6.18.5(h)

We approve the tariff assignment policy proposed by ActewAGL for residential and small business customers. In our draft decision, we approved the following aspects of ActewAGL's proposed assignment policy:

- mandatory assignment of new small business and residential customers to demand tariffs
- default assignment to demand tariffs with an opt-out provision for existing small business customers who obtain a smart meter
- default assignment to demand tariffs with an opt-out provision for existing residential customers who obtain a smart meter.

In the time since we approved ActewAGL's initial assignment policy, the distributor has revised its assignment policy to include opt-out provisions for mandatorily assigned tariffs. In its initial tariff structure statement proposal, ActewAGL proposed to mandatorily assign new residential and small business customers to a demand tariff, but submitted that it intended to review its assignment policy and may include opt-out provisions for these customers. We considered the inclusion of additional opt-out provisions would contribute to the achievement of compliance with the distribution pricing principles because it provides appropriate recognition of customer impacts by allowing retailers to opt customers out of the demand tariff to a time of use tariff. However, we did not require that ActewAGL take this approach. The inclusion of opt-out arrangements would be a trade off in terms of advancing cost reflective pricing<sup>64</sup> and ensuring customers can understand the network tariffs being offered<sup>65</sup>.

From 1 December 2017, ActewAGL will automatically assign new customers and those who get a replacement meter to the demand tariff. This coincides with the introduction of smart meters following a metering rule change which requires all new and replacement meters to be a smart meter from 1 December 2017. Only customers who move into new premises with a smart meter or customers who have a replacement smart meter installed will be assigned to the new peak period demand tariff as their default network tariff. Customers who acquire a smart meter prior to 1 December 2017 will not be automatically assigned to a demand tariff. The retailers of those customers assigned to a demand tariff can choose to opt them out to other cost reflective network tariffs. As discussed in the Overview's future direction section, typically retail customers are not directly involved in selecting which network tariff they are assigned to. It is the retailers who will decide whether to opt customers out of the demand tariff.

We note that if a retailer opts out a customer to a time of use tariff, for example, they will be unable to reassign them to the demand tariff again within 12 months. This is to prevent customers from switching between demand tariffs and time of use tariffs.

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<sup>64</sup> NER cl. 6.18.5(g)

<sup>65</sup> NER cl. 6.18.5(i)



ActewAGL proposed that its opt-out provisions will continue for a two year period (until December 2019), after which time customers will be mandatorily assigned to a cost reflective demand tariff.

We are satisfied that ActewAGL's proposed default assignment of residential and small business customers to demand tariffs is a positive move towards having all customers on tariffs that better reflect the efficient costs of the services they are receiving, as required by the distribution pricing principles.<sup>66</sup> We approve ActewAGL's assignment of new customers and customers who install smart meters to demand tariffs. In our view, while it is important for other existing customers to be provided an opt-out mechanism, we consider these customers in making their investment in new metering technology are likely to have known that they will be exposed to more cost reflective tariffs. As such, they cannot have made assumptions that they would be charged consumption based tariffs. In this way, customer impacts have been taken into account.<sup>67</sup> We consider this assignment policy promotes transition to cost reflective tariffs in a manner consistent with the National Electricity Objective to promote efficient investment in electricity networks.

We also approve aligning the assignment policy with metering changes from 1 December 2017 as this policy is likely to avoid practical difficulties for customers in being able to mitigate the effect of the tariff.<sup>68</sup> The default assignment, from 1 December 2017, of new customers and existing customers who obtain a smart meter aligns with the commencement of the new framework for metering which requires any new or replacement meter to be a smart meter and to be provided on a competitive basis. This means that:

- Those customers assigned by default to a demand tariff will have a meter that is capable of calculating a demand tariff. Accordingly, there will be no technological barrier to assigning these customers to a cost reflective network tariff.
- This change in network tariffs occurs in an environment where the meter is provided by or through a customer's retailer on a competitive basis. The meter will no longer be a regulated service provided by the distributor. While the Rules prescribe minimum functional requirements for these meters, retailers can also offer customers smart meters with a range of additional features. The installation of smart meters by retailers may increase the range of retail services and pricing options that are available to consumers and therefore help consumers respond to retail packages that incorporate the new network tariffs. We consider these changes will also assist this cohort of customers to mitigate the impact of the changes in their network tariffs through their consumption decisions.

During ActewAGL's consultation process, customer groups were in support of an opt-out arrangement for demand tariffs in order to ensure customer choice for those who

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<sup>66</sup> NER, cl. 6.18.5(f).

<sup>67</sup> NER, cl. 6.18.5(h)

<sup>68</sup> NER, cl. 6.18.5(h)

are mandatorily assigned to a demand tariff. In response to the proposed tariff structure statement, Origin Energy supported ActewAGL's decision to align the introduction of cost reflective network tariffs with metering changes on 1 December 2017. However, Origin considered that an assignment policy based on customer choice is preferable to support the reform process, rather than mandatory assignment without opt-out provisions.<sup>69</sup> The Clean Energy Council also supported the opt-out provision for existing customers but considered that automatically assigning new customers to a demand tariff is likely to disproportionately affect certain groups of customers. It suggested the ACT Government could implement some assistance measures for adversely affected groups transitioning to new tariffs.<sup>70</sup>

We consider some of the opposition to mandatorily assigned tariffs might be due to some misunderstanding regarding the differing functions of retailers and consumers in relation to tariff assignment. Where end customers are assigned to a cost reflective network tariff structure, this does not mean they will be required to face a retail tariff that exactly reflects the network tariff structure. Instead, we expect that customers will likely have a choice as to whether they want to face a retail tariff that reflects the network tariff structure or not. This issue is discussed in the Overview section of this decision.

The Energy Networks Association supported the proposal to mandate demand based tariffs for new residential and small business customers. It submitted that ActewAGL's proposed tariff structure statement was developed following close consultation with customers, recognising the need to balance the successful implementation of network tariff changes with a careful transition and implementation program.<sup>71</sup>

ActewAGL considers that its revised assignment policy creates greater choice for customers as retailers of customers who default to the new demand tariff will now have the ability to opt them out to the residential time of use tariff.<sup>72</sup> With these changes, ActewAGL has specifically addressed concerns raised in submissions to the AER by Origin and the Clean Energy Council.

We approve ActewAGL's revised assignment policy for residential and small business customers. While we did not require any changes to its initial tariff assignment policy, we consider that the amendment to incorporate an opt-out provision in mandatorily assigned tariffs demonstrates ActewAGL's consideration of customer impacts and bill management.<sup>73</sup> We consider this approach reflects the distribution pricing principles which seek to advance cost reflective pricing but require consideration of the impact on customers of changes in network tariffs.<sup>74</sup>

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<sup>69</sup> Origin Energy, *Submission on ActewAGL tariff structure statement*, 28 April 2016, pp. 1-2.

<sup>70</sup> Clean Energy Council, *Submission on ActewAGL tariff structure statement*, 28 April 2016, pp.1.

<sup>71</sup> Energy Networks Association, *Submission on AER issues paper on ActewAGL tariff structure statement*, pp. 2.

<sup>72</sup> ActewAGL, *Revised tariff structure statement*, 4 October 2016, pp. 21.

<sup>73</sup> NER, cl 6.18.5(h)

<sup>74</sup> NER, cl 6.18.5(c).

## 4.3 Future direction

In these final decisions, we accepted the use of opt-in assignment policies in moving customers to cost reflective tariffs for this first round of tariff structure statements. However, we also observe that sole reliance on opt-in arrangements may not be appropriate into the future for the reasons outlined in the overview section of this decision. Networks should consider this as part of their consultation for the 2019 and beyond tariff structure statements.

The following commentary we have included in each of our 2017 decisions across Queensland, NSW, ACT and SA. However given the pace of reform proposed by ActewAGL in this first round of tariff structure statements, the following statements are of more relevance to some other distributors.

An opt-in approach to tariff assignment is at one end of the spectrum of possible approaches, including:

- assigning customers to a cost reflective tariff (subject to appropriate metering) by default but allowing opt-out provisions
- leaving existing customers on current tariffs but assigning new customers to cost reflective tariffs (subject to appropriate metering) and allowing opt-out provisions
- mandatorily assigning customers to cost reflective tariffs wherever appropriate metering is available (with no opt-out provisions).

Our current view is that, for the next round of tariff structure statements, default assignment to cost reflective tariffs with opt-out provisions should be adopted over opt-in arrangements as it would better contribute to compliance with the distribution pricing principles by providing more appropriate price signals to retailers. Each tariff structure statement should show movement towards more cost reflective tariffs, taking into account of possible customer impacts.<sup>75</sup> We are also open to considering mandatory tariff assignment arrangement proposals (i.e. no opt-out provisions), as long as distributors have addressed the customer impact principle in the Rules.

In the next round of tariff reform we consider new customers across all networks should be assigned by default to cost reflective tariffs.<sup>76</sup> By 'new' customer, we mean customers in new premises who are connecting their premise to the network for the first time. This is because:

- After 1 December 2017, newly connected premises must have a smart meter installed—this means these customers will have meters which are capable of calculating cost reflective network tariffs.<sup>77</sup>

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<sup>75</sup> NER, cl. 6.18.5(e) – (h).

<sup>76</sup> NER, cl. 6.18.5(c).

<sup>77</sup> Australian Energy Market Commission, *National Electricity Amendment (Expanding competition in metering and related services) Rule 2015*, November 2015.

- These customers are also at a point where they are about to make new investment decisions and they should make these decisions on the basis of cost reflective network tariffs—these decisions may include the energy efficiency of their building design, whether they install solar PV or batteries in their new home or office, and decisions over any new appliances they are buying as part of moving to a new premise.
- Alignment with the metering contestability rule change also means that this change occurs in an environment where the meter is provided by or through a customer's retailer on a competitive basis. The meter will no longer be a regulated service provided by the distributor. While the Rules prescribe minimum functional requirements for these meters, retailers can also offer customers smart meters with a range of other additional features. The installation of smart meters by retailers may increase the range of services and pricing options that are available to consumers, and therefore help consumers respond to retail packages that incorporate the new network tariffs.<sup>78</sup>

On the other hand, existing customers may have made significant investments on the basis of current tariff structures. Further, many existing customers (outside of Victoria) may not have appropriate metering technology in place to enable uptake of more cost reflective network tariff options. However, for existing customers, there are two approaches we consider meet the need to move customers onto cost reflective network tariffs<sup>79</sup> while balancing the customer impact<sup>80</sup> considerations. We encourage distributors to focus on either or both of these approaches. These two approaches are outlined below.

Firstly, for existing customers making significant new investments we consider these customers could be assigned by default to cost reflective network tariffs. This approach should be technology neutral—for example, we did not approve SAPN's proposed 'solar tariff'.<sup>81</sup> We consider the time of making new investments is a good time to transition customers to cost reflective tariffs. This approach gives customers the opportunity to consider their new investment with regard to the implications of the new tariff they will be assigned—that is, the network cost implications of their usage.<sup>82</sup> Significant new investments may include:

- change from single to three phase connection
- new solar photovoltaic connection
- new battery
- new electric vehicle.

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<sup>78</sup> NER, cl. 6.18.5(h).

<sup>79</sup> NER, cl. 6.18.5(c).

<sup>80</sup> NER, cl.6.18.5(h).

<sup>81</sup> See our draft decision on SAPN's proposed solar tariff.

<sup>82</sup> NER, cl.6.18.5(h).

Some of these upgrades are identifiable to distributors; others may require additional reporting arrangements.<sup>83</sup>

In moving to default assignment to cost reflective tariffs in the next tariff structure statement period, distributors are required to address the customer impact provisions of the Rules.<sup>84</sup> One option suggested by SAPN, would be to assign residential and small business customers (with smart meters) to a cost reflective tariff only after at least one or two years of interval metering data is available.<sup>85</sup> Our preliminary view is that we are open to this approach as we expect it would enable the end customer to make more informed decisions over what retail offer they choose because they would have a better understanding of their current consumption patterns.

Secondly, for existing customers who remain on flat rate or block tariffs, we consider the relative levels of these network tariffs compared to more cost reflective tariff options could be increased. This is to encourage customers to choose retail offerings which voluntarily opt-in to cost reflective network tariffs.

In our view all customers should eventually be on cost reflective tariffs as this will provide more appropriate pricing signals to retailers. By cost reflective network tariffs we mean network tariffs which incorporate higher charges during times of network congestion and lower charges during times when the network is not congested. Demand and time-of-use tariffs are examples of tariffs with this feature. In contrast, we consider flat rate, inclining block or declining block network tariffs are not cost reflective. This is because the charges under these tariffs are unrelated to times of network congestion.

### ***Emerging technologies—batteries and electric vehicles***

In the near future some consumers may change their pattern of use by installing battery storage at their premises. The low but increasing popularity of electric vehicles may also have an impact on the grid. If the incentives are right, with appropriate pricing signals, battery storage and electric vehicle adoption could bring many benefits to the electricity network. They have the potential to help manage peak demand, reducing the need to grow the network, ultimately relieving pressure on electricity prices. On the other hand, if the incentives are not right, the increase in batteries and electric vehicles could lead to inefficient investments—both by the network and end customers—with these inefficient costs paid for by end customers.

Customers with batteries and electric vehicles are likely to be beneficiaries of cost reflective tariffs. Even without opt-out arrangements, it is possible these customers may opt-in by choosing retail tariffs based on cost reflective network tariffs. This is because batteries and electric vehicles have the capacity to store energy at off-peak

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<sup>83</sup> i.e. SAPN has used the change from single to three phase and the installation of a new inverter as a trigger for reassignment to cost reflective tariffs.

<sup>84</sup> NER, cl.6.18.5(h).

<sup>85</sup> SAPN, *Revised tariff structure statement proposal – part B*, October 2016, p. 123.

times and inject energy at peak times—this could assist in reducing a household's use of electricity drawn from the grid at peak times.

It would be useful to monitor the extent to which customers with batteries and electric vehicles choose retail tariffs that are based on the more cost reflective network tariffs. If uptake is not forthcoming, changes to reporting arrangements may be desirable to make these customers identifiable to distributors. This could then be used as a basis for default tariff assignment to cost reflective network tariffs in the future if necessary.

We invite distributors and industry, as part of the development of the next phase of tariff structure statements, to consider whether triggers, such as the installation of electric vehicles and batteries should be considered for reassignment. Further:

- What impediments (if any) would need to be addressed to allow this to occur?
- Are additional changes required to incentivise customers to charge or discharge their batteries or electric vehicles at efficient times?

Even with the above changes, it is likely the speed of tariff reform will still be gradual. This is because it will depend on consumer and retailer driven factors, as only a proportion of customers over any given period will be have a new connection to the network or significantly change their connection. Nonetheless the pace of reform will likely be quicker than if chief reliance is placed on an opt-in only approach.

Tariff reform is a long term process. We consider the distribution pricing principles require movement towards more cost reflective tariffs with every tariff structure statement proposal over upcoming regulatory control periods.<sup>86</sup>

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<sup>86</sup> NER, cl. 6.18.5(b) to (d).

## 5 Large business customer tariffs

This chapter sets out our assessment of distributors' proposed tariff structures for large business customers, including tariff design and charging windows.

### 5.1 Tariff design

We approve ActewAGL's commercial high voltage tariff structures. Large customer tariffs are already relatively cost reflective as all large customers are assigned to some form of capacity tariff. We consider capacity tariffs are cost reflective because they are based upon the cost of providing capacity to meet customers' demand and as such they signal to customers the times when peak demand constrains network capacity. These price signals can be effective demand management tools. We therefore consider ActewAGL's proposal contributes to the achievement of the distribution pricing principles.

ActewAGL currently has four network tariffs available in its commercial high voltage tariff class, which incorporate a combination of fixed, time varying usage, capacity and demand charges. It proposed to reduce this to three tariffs, removing the *Consumer HV – TOU Demand* in order to simplify the tariff schedule. As this tariff currently has no customers assigned to it, there is no customer impact from this proposal.

ActewAGL has not proposed changes to the structure of its operational commercial high voltage customer tariffs, however has indicated it intends to trial critical peak pricing for these customers.<sup>87</sup> ActewAGL has not formally proposed a critical peak tariff in this tariff structure statement. Accordingly, if ActewAGL decides to introduce this tariff it will need to be a trial tariff and meet the requirements of the sub-threshold tariffs in the Rules.<sup>88</sup> In principle, we support the proposal to trial critical peak pricing for commercial high voltage customers and encourage ActewAGL to assess customers' ability to understand and respond to critical peaks in order to inform future tariff structure statements.

Table 5-1 below summarises the commercial high voltage tariffs offered by ActewAGL.

**Table 5-1: Commercial HV customer tariffs**

Feature	Commercial HV customers			
	TOU Demand	TOU Demand - Consumer HV (obsolete)	TOU Demand - Consumer LV	TOU Demand - Consumer LV & HV
Assignment	Large customers taking supply at	Large customers taking supply at	Large customers taking supply at	Large customers taking supply at

<sup>87</sup> ActewAGL, *Tariff structure statement*, 27 November 2015, p.33

<sup>88</sup> NER, cl 6.18.1C

trigger	high voltage with a low voltage network owned and maintained by ActewAGL	high voltage with a low voltage network owned and maintained by ActewAGL, where customer owns and is responsible for their high voltage assets	high voltage where customer owns and is fully responsible for its own low voltage network	high voltage where customer owns and is fully responsible for its own low voltage network and where customer owns and is responsible for their high voltage assets
Charging parameters	<p>All tariffs have the following components:</p> <p>Part 1: Fixed charge component (\$/day)</p> <p>Part 2: Demand charge component (\$kVA/day)</p> <p>Part 3: Capacity charge (\$kVA/day)</p> <p>Part 4: Usage charge (\$/kWh)—time of use—</p> <p style="padding-left: 40px;">Peak: 7 AM-5 PM weekdays</p> <p style="padding-left: 40px;">Shoulder: 5-10 PM weekdays</p>			
Charging windows	<p>Demand: Day: Any day; Time: Any time</p> <p>Capacity: Highest demand over previous 12 months</p>			
Calculation	<p>A customer's demand is calculated in 30 minute intervals over a billing cycle, and the interval with the highest level of demand is used as the electricity quantity to be multiplied by a price. Every billing cycle, the calculation resets.</p>			

## 5.2 Tariff assignment

ActewAGL's proposal assigns high voltage and large business customers to certain network tariffs based on their characteristics and the implications these could have on network costs. We are satisfied that ActewAGL's proposed assignment policies for high voltage and large business customers contribute towards the achievement of compliance with the distribution pricing principles.

ActewAGL has been transitioning their high voltage and large business customers on to tariffs that better reflect costs over several years. It submitted the application of peak demand and capacity charges in commercial tariff options has strengthened price signals to its customers, provided incentives to use the network more efficiently and improved customer responses.<sup>89</sup> In our view this has been a positive move towards cost reflectivity.

We did not receive any comments from stakeholders regarding ActewAGL's commercial high voltage tariff structures.

<sup>89</sup> ActewAGL, *Tariff structure statement*, 27 November 2015, pp. 71-73.



Our position in regard to ActewAGL's commercial high voltage tariff design and assignment policy is consistent with the draft decision. As ActewAGL has not made changes to the proposed commercial high voltage tariff structures, we do not see a reason to depart from the draft decision. See pages 41-43 of the draft decision for further discussion.

## 6 Tariff levels

This chapter sets out our considerations of ActewAGL's approach to calculating long run marginal costs, passing those costs through to customers and dealing with residual costs.

We are satisfied that ActewAGL's proposed tariff structure statement contributes to the achievement of compliance with the distribution pricing principles<sup>90</sup>. The proposed tariff structure statement exhibits movement along the cost reflectivity spectrum, incorporating demand based tariff options for small customers and complementing existing cost reflective tariffs for large customers.

The pricing principles in the Rules state that each tariff must be based on the long run marginal cost of providing the services to which it relates to the retail customers assigned to that tariff.<sup>91</sup> A key concept that underpins the distribution pricing principles and the design of efficient network tariffs is the use of long run marginal costs. The Rules define long run marginal cost as the cost of an incremental change in demand over a period of time in which all factors of production can be varied.<sup>92</sup> This is also known as the forward looking cost.

### 6.1 Calculation and recovery of long run marginal cost

When tariffs accurately reflect the marginal or forward-looking cost of increasing demand, customers may make informed choices about their electricity usage. Tariff reform seeks to promote additional investment in the network by distributors only when customers value increased demand more than the cost of delivering the additional network capacity necessary to meet that demand.

Our final decision is consistent with our position in the draft decision. We are satisfied that ActewAGL's approach to estimating long run marginal cost and passing it through to customers contributes to the achievement of compliance with the distribution pricing principles. We note that forward looking price signals will, on average, improve over time as less cost reflective tariffs are progressively phased out. ActewAGL's application of forward looking price signals within its more cost reflective tariff, such as demand tariffs, appropriately matches costs to tariff components.

The Rules do not prescribe a particular method for estimating and calculating long run marginal costs. Historically, electricity distributors in the national electricity market have calculated their long run marginal cost using the average incremental cost approach. This methodology estimates long run marginal cost as the average change in forward looking operating and capital expenditure resulting from a change in demand. It is estimated by:

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<sup>90</sup> NER, cl. 6.18.5

<sup>91</sup> NER, cl. 6.18.5(f).

<sup>92</sup> NER, Chapter 10—Glossary.

- Initially, estimating future operating and capital costs to satisfy expected increases in demand
- Then estimating the anticipated increase in the relevant charging parameter
- Finally, dividing the present value of future costs by the present value of the charging parameter over the time horizon chosen.

'Long run marginal costs' is defined in the NER to mean the cost of an incremental change in demand for direct control services provided by a distributor over a period of time in which all factors of production required to provide those direct control services can be varied. We consider there is no ideal, or correct, "period of time" over which to base these estimates. This is because the longer the estimation period is, the more difficult it becomes to estimate and forecast long run costs. Assumptions about future growth at zone substation and/or terminal stations also become more difficult to forecast with a longer planning horizon.

In setting new tariffs to better reflect costs, ActewAGL estimated the long run marginal cost of its network using the average incremental cost method. We consider this approach contributes to the achievement of compliance with the distribution pricing principles. ActewAGL estimated the long run marginal cost using its forward looking program of augmentation investment, incremental forecast operating costs and costs relating to zone substations and feeders. ActewAGL excluded replacement capex from long run marginal cost estimates. It specified its long run marginal cost calculation is based on a 10 year forecast of its augmentation investment program. We consider this timeframe is long enough to allow a significant number of factors of production to change, such as the level of capacity in the network, and is in line with the long lives of network assets.

The average incremental cost approach is underpinned by ActewAGL'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). Dividing the costs by the increase in demand determines the average long run marginal cost for ActewAGL's distribution network based on \$/kVA. Once adjusted for CPI, the long run marginal cost was calculated to be \$210/kVA in 2017/18 and \$215/kVA in 2018/19. ActewAGL then determines DUOS tariffs based upon long run marginal cost using two basic steps:

1. determine the total amount of the long run marginal cost which is to be recovered in each tariff; and
2. determine the prices to be applied to each component of each tariff so as to recover the long run marginal cost for each tariff.<sup>93</sup>

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<sup>93</sup> ActewAGL, *Revised tariff structure statement*, 4 October 2016, pp. 48.

ActewAGL submitted it was not able to estimate separate long run marginal cost values for the high voltage commercial, low voltage commercial and low voltage residential segments of its network at this point in time. ActewAGL further submitted that in future regulatory periods its estimate of long run marginal cost may be refined according to tariff classes. ActewAGL stated cost estimates will become more accurate over time as it is establishing a process of collecting sample data on an ongoing basis, which will analyse customer load profiles of different tariff classes at different zone substations.<sup>94</sup> We consider this is a positive initiative and should contribute to the achievement of compliance with the pricing principles in future regulatory periods.

ActewAGL proposed that the long run marginal cost relevant to each tariff class will be recovered only by the demand charge component of its demand tariffs with a transition path to fully cost reflective over time. In response to an information request we sent, ActewAGL submitted its demand charge is 100 per cent cost reflective of its current calculation of long run marginal cost, however is subject to change as ActewAGL refines its approach to calculating long run marginal cost.<sup>95</sup> ActewAGL proposed its demand tariffs will gradually be adjusted to reflect long run marginal cost. In principle, we are satisfied that ActewAGL's transition approach contributes to the achievement of compliance with the distribution pricing principles. We note, however, that ActewAGL has provided limited information regarding its transition path. We encourage ActewAGL to provide more detail on its transition path so customers have greater certainty and predictability, thereby taking customer impacts into account<sup>96</sup>.

The ENA submitted the average incremental cost method is incapable of estimating how the long run marginal cost might change where consumption or demand is falling in parts of the network. The ENA did not consider this would be an issue when generating network-wide estimates of long run marginal costs. However, it can become problematic as distributors generate more localised estimates in future tariff reforms. The ENA suggested we devote resources to improve the estimation of long run marginal cost in all circumstances.<sup>97</sup>

The AEMC observed methods to estimate long run marginal cost face a trade-off between:<sup>98</sup>

- ease of implementation due to less stringent information requirements.
- providing more accurate signals of network constraint and long run marginal cost.

Broadly, the AEMC considered it would only be appropriate to apply more sophisticated methods, such as the perturbation method, if the benefits of more

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<sup>94</sup> ActewAGL, *Response to information request (2)*, p. 6

<sup>95</sup> ActewAGL, *Response to information request (2.)* p. 6

<sup>96</sup> NER, cl. 6.18.5(h)

<sup>97</sup> ENA, *Submission: Australian Energy Regulator draft decision on tariff structure statement proposals*, 7 October 2016, p. 3.

<sup>98</sup> AEMC, *Rule determination: National electricity amendment (distribution network pricing arrangements) rule 2014*, 27 November 2014, pp. 129–130.

accurate price signals outweigh the costs of higher information requirements. The AEMC noted NERA's suggestion that distributors apply the perturbation method only in a targeted fashion. For example, distributors could apply the method in those areas of its network where appropriate metering is in place and the distributor judges efficient price signals can lead to the avoidance or deferment of significant network expenditures.<sup>99</sup>

We agree with the ENA that the industry should devote resources to improve the estimation of long run marginal cost. We encourage ActewAGL to make further improvements and refinements to their long run marginal cost methods in future tariff structure statements.

In his submission to the AER on ActewAGL's tariff structure statement, consumer Mike Buckley suggested that the maximum demand charging parameter that is used to recover long run marginal cost is equally suitable for recovering the network's residual costs.<sup>100</sup> He argues that a customer's daily charge should be based on an agreed level of maximum demand and that there should be an incremental maximum demand charge calculated on maximum demand above a specified level. We are not opposed to this type of approach, and have approved a similar tariff structure for SAPN. SAPN offers "agreed" demand tariffs for business customers. The demand tariffs do not include fixed charges. Customers pay for an agreed level of maximum demand and higher demand charges apply where higher levels of demand are required.

While we would support this tariff structure and consider it would contribute to the achievement of compliance with the distribution pricing principles, we must approve ActewAGL's proposed demand tariff structure as in our view it also meets the requirements of the Rules.

Mr Buckley's submission to the AER on ActewAGL's tariff structure statement raised concerns regarding the methodology for calculating long run marginal cost. Specifically, he questioned whether it is appropriate for ActewAGL to base the calculation of long run marginal cost on an assumed 500MW increase in network capacity over the next 10 years. ActewAGL, however, has submitted that it is not intending to factor in a 500MW capacity increase and notes that the cumulative demand forecasts used in the LRMC calculations in the tariff structure statement assume that ActewAGL increases capacity by 115MVA by 2025.

Mr Buckley undertook some analysis that suggested demand on the network is falling as customers are consuming less electricity, and therefore suggested that the increase in long run marginal cost put forward by ActewAGL can only be driven by augmentations to the network. He encouraged the AER to investigate whether these costs would be better met by capital contributions thereby ensuring that existing customers are not cross subsidising augmentations to the network.<sup>101</sup>

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<sup>99</sup> AEMC, *Rule determination: National electricity amendment (distribution network pricing arrangements) rule 2014*, 27 November 2014, p. 129.

<sup>100</sup> Mike Buckley, *Submission to AER – ActewAGL network tariff statement*, 7 October 2016, pp. 7.

<sup>101</sup> Mike Buckley, *Submission to AER – ActewAGL network tariff statement*, 7 October 2016, pp. 8.

ActewAGL noted that it does not distinguish between existing and new customers when offering tariffs and therefore offers the same tariffs to both in order to provide electricity network services in a fair and equitable manner.

Further, the Rules already implement a framework under which new customers connecting to the network make capital contributions so that existing customers do not bear the cost of new connections. Under the Rules, the AER is required to publish guidelines for the development of connection policies by distributors.<sup>102</sup> These guidelines, which are reflected in ActewAGL's Connection Policy, stipulate that small customers connecting to the network are not required to make a capital contribution toward the cost of the standard control connection services. Customers whose consumption exceeds a threshold of 100 amps (being larger customers and real estate developers) may be required to make a capital contribution toward the costs of premises connection assets and network extensions depending on the outcome of an incremental cost-revenue-test.

The AER determined this threshold of 100 amps per phase in accordance with Chapter 5A of the Rules. The AER considered that customers consuming below this level would not normally require augmentation of the network beyond the extension necessary to make the connection, and that the connection is not expected to increase the load on the distribution network beyond a level that the distributor could cope with.<sup>103</sup>

Further, given the provisions around connection charges in the Rules, we do not have the discretion to change how ActewAGL recovers the costs of new customer connections.

Given the above, we do not consider existing customers to be cross-subsidising new connections to ActewAGL's network. Larger customers are required to cover the incremental costs incurred on the network by their connection, and the costs incurred by small customer connections are unlikely to exceed the incremental revenue derived and unduly burden existing customers.

We recognise that until customers have interval or smart metering to enable them to have access to tariffs such as the new demand tariff, ActewAGL will be limited in the extent to which it can:

- allocate an efficient and cost reflective proportion of costs to be recovered via particular tariffs and tariff classes based on their demand characteristics
- calculate individual long run marginal cost for individual tariff classes rather than one for the network as a whole and apportion this to tariff classes.

We approve of ActewAGL linking long run marginal cost to the demand charge within its demand tariffs. However, we have some reservations about ActewAGL's approach to estimating long run marginal cost. We consider there are strong grounds for distributors to include replacement costs in long run marginal cost estimates.

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<sup>102</sup> AER, *Connection charge guidelines for electricity retail customers – Under chapter 5A of the National Electricity Rules*, June 2012.

<sup>103</sup> AER, *Final Decision - Connection charge guidelines: under chapter 5A of the National Electricity Rules*, June 2012, pp. 22.

In the long run, the level of capacity is variable. When assets come to the end of their useful life, distributors have a choice of maintaining their current level of capacity, increasing capacity or decreasing capacity. Distributors should not adopt a default position of maintaining existing capacity levels, especially where existing networks have spare capacity. Replacement capex should be included within long run marginal cost estimates to promote network capacity in the long run being at a level customer's value.

Recognising that this is the first round of tariff structure approvals, we accepted ActewAGL's decision to exclude replacement capex from long run marginal cost estimates. While we approve ActewAGL's method of calculating long run marginal cost, for future tariff structure statements we leave open the option to take a stronger position on this matter.

## 6.2 Recovery of residual costs

We have approved ActewAGL's proposed approach to the recovery of residual costs as we consider that it contributes to the achievement of compliance with the distribution pricing principles.

Not all of a distributor's costs are forward looking and variable. Costs not captured by long run marginal cost estimates are called residual costs. Together, long run marginal costs and residual costs form a distributor's total costs. The distribution pricing principles require total costs be recovered in a way which minimises distortions to price signals for efficient usage resulting from tariffs reflecting long run marginal cost.<sup>104</sup> In this context, non-distortionary tends to mean unresponsive to customer usage. That is, because customers cannot avoid the residual costs they are asked to pay, they should respond to long run marginal cost price signals about their usage. For demand tariffs, to conform to the distribution pricing principles requirements, distributors generally propose recovery of residual costs through a form of fixed charge.

ActewAGL proposed to recover residual costs within its demand tariff through a combination of fixed and usage charges. ActewAGL proposed a different approach to recover residual costs for its non-demand based tariffs, recovering residual costs from fixed charges subject to a transition period. The fixed charge is not distortionary for reasons discussed above. In principle, usage charges may be distortionary. In this case, by splitting residual costs to recover some from fixed charges ActewAGL leaves a smaller amount to be recovered from usage charges. Because at least a low level of usage is to be expected from customers under normal circumstances, risk of price distortions from ActewAGL's proposed approach appears relatively low.

Origin's submission supported the rebalancing of fixed and usage charges as a means to move tariffs towards more cost reflective structures. Origin considered that rebalancing as proposed by ActewAGL is a pragmatic initial step in the reform process

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<sup>104</sup> NER, cl.6.18,5(g)

and should be undertaken over a reasonable time period to avoid unnecessary price shocks.<sup>105</sup>

ActewAGL's proposed recovery of residual costs from fixed charges involves increasing the amount of residual costs which are recovered through fixed charges over time. We consider this will contribute to the achievement of compliance with the pricing principles as long as ActewAGL:

- recovers residual costs in a manner which minimises distortions to efficient price signals<sup>106</sup>
- takes into account the impact on customers of tariff changes from year to year including the desirability for a reasonable transition period towards more cost reflective tariffs.<sup>107</sup>

We note also that retaining usage charges in some form, rather than abolishing usage charges altogether, may be more comfortable for customers. Existing customers are familiar with usage charging components within tariffs. It may also be less distortionary for usage charges to recover some portion of a distributor's residual costs than to disturb the forward looking price signal established by the demand charge.

ActewAGL's approach to the recovery of residual costs has not changed from its initial proposed tariff structure statement and as such we see no reason to depart from the draft decision.

### 6.3 Tariff rebalancing

Moves towards cost reflective pricing invariably involve a change in the relative mix between fixed charges, usage charges and demand charges (where applicable). As the new demand tariff is introduced for residential and commercial low voltage customers, there needs to be a restructure of the charging parameters that existed before the adoption of cost reflective prices. This section sets out our views on ActewAGL's approach to tariff rebalancing.

Our role is to oversee if ActewAGL has complied with the distribution pricing principles in setting the structure of proposed network tariffs. The approved tariff structure statement will set out the tariff structures that will apply for the next two years, and provide indicative tariff levels (the dollar amount). However, our tariff structure statement review will not decide on those levels. These levels are decided through additional processes:

- Approved tariff levels are subsequently determined through an annual pricing review, which is conducted after we set the revenue (based on efficient costs) that ActewAGL may recover from customers.

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<sup>105</sup> Origin Energy, *Submission on ActewAGL tariff structure statement proposal*, April 2016, pp.1-3

<sup>106</sup> NER, cl. 6.18.5(g).

<sup>107</sup> NER, cl.6.18.5(h)



- In annual pricing reviews we examine how ActewAGL applied the revenues set in the determination to the tariff structures set out in their tariff structure statement. Changes in network tariffs reflected in a tariff structure statement will not allow ActewAGL to earn more revenue in total.

ActewAGL proposed to rebalance its tariff charges to align with long run marginal cost. In order to mitigate customer bill impacts, ActewAGL proposed these charges (which recover distributors' residual costs) will be gradually realigned over a number of regulatory periods. ActewAGL submitted the indicative DUOS fixed charges will increase by between 1 and 3 per cent annually, in line with CPI.<sup>108</sup> We are satisfied the moderate increases in fixed charges contributes to the achievement of compliance with the distribution pricing principles. We consider this approach reasonably balances the distribution principles to:

- Recover residual costs in a manner which minimises distortions to efficient price signals.<sup>109</sup>
- Take into account the impact on customers of tariff changes from year to year including the desirability for a reasonable transition period towards more cost reflective tariffs.<sup>110</sup>

In our issues paper we were concerned that ActewAGL was increasing the off peak component of its time of use tariff relative to the peak component. The effect of these changes would be to flatten the time of use signal regarding a customer's peak usage. We received no comments from stakeholders in submissions on this topic, other than a clarification from ActewAGL. Further information received from ActewAGL indicated that this is due to expected changes in the mix of network tariff components over the coming years.<sup>111</sup> In particular, the ACT Government has set a target of 100 per cent renewables by 2020, therefore the Jurisdictional Scheme component of network tariffs is expected to increase from current levels.<sup>112</sup>

Consumer Mike Buckley submitted a concern regarding ActewAGL's rebalancing approach. In his view, making the basic and general tariffs more cost reflective is likely to discourage residential customers from moving to new meters. As such, he does not support this change to charging parameters. However, Mr Buckley considered the following rebalancing ActewAGL is making to be reasonable:

- increasing the fixed daily charge at a greater rate than other charging parameters
- increasing the peak energy usage charge relative to the mid and off peak times
- increasing residential charges relative to commercial charges.<sup>113</sup>

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<sup>108</sup> ActewAGL, *Response to AER information request (1)*, 27 May 2016.

<sup>109</sup> NER, cl. 6.18.5 (g)

<sup>110</sup> NER, cl. 6.18.5(h)(1)

<sup>111</sup> ActewAGL, *Response to AER information request (1)*, 27 May 2016.

<sup>112</sup> ACT Electricity Feed-in (Renewable Energy Premium) Act 2008, Section 8A (2)

<sup>113</sup> Mike Buckley, *Submission to AER – ActewAGL network tariff statement*, 7 October 2016, pp. 6.

We do not consider ActewAGL's non-cost reflective residential and commercial tariffs to be more cost effective than its new cost reflective tariffs. In its revised tariff structure statement, ActewAGL demonstrates that residential and commercial low voltage customers with an average load profile and consumption would in fact be better off on the new demand tariffs compared to a flat or time of use tariff. ActewAGL's analysis shows that only customers with high peak demand are likely to be worse off on a demand tariff, and in this way their bills better reflect the costs that they impose on the electricity network at peak periods.<sup>114</sup> We consider this promotes the network pricing objective that the tariffs that a distributor charges to a retail customer should reflect the distributor's efficient costs of providing the services to the customer.

## 6.4 Future direction

We encourage distributors to continue to refine their methods for estimating long run marginal cost. We consider it is possible for distributors to make further refinements while retaining the average incremental cost method in future tariff structure statements. Alternatively, we would also be open to distributors adopting more sophisticated estimation methods, such as the Turvey method.

We also consider distributors should have the flexibility to calculate and apply long run marginal cost in the way that best suits the characteristics of their networks and customers.<sup>115</sup>

All electricity distributors currently calculate their long run marginal cost using the average incremental cost approach. This approach estimates long run marginal cost as the average change in forward looking capital and operating expenditure resulting from an increase in demand. It is estimated by:

- Initially, estimating future operating and capital costs to satisfy expected increases in demand
- Then estimating the anticipated increase in the relevant charging parameter
- Finally, dividing the present value of future costs by the present value of the charging parameter over the time horizon chosen.

The Energy Networks Association submitted the average incremental cost approach is incapable of estimating how the long run marginal cost might change where consumption or demand is falling in parts of the network.

This appears to stem from the standard specification of the average incremental cost function. It involves taking the ratio of future expenditure required to serve demand (in present value terms) to the additional demand served (also in present value terms). If there is decreasing demand, the average incremental cost approach has an undefined denominator. Hence, it cannot produce estimates of long run marginal cost.

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<sup>114</sup> ActewAGL, *Revised tariff structure statement*, 4 October 2016.

<sup>115</sup> NER, cl. 6.18.5(g).

We suggest distributors explore adapting the average incremental cost approach for situations where demand is decreasing, for example, by using a slightly different concept for the numerator. They can specify the numerator as the avoidable cost due to a demand decrement. This is analogous to the way more advanced methods, such as the Turvey method, are able to estimate long run marginal cost under falling demand conditions. Alternatively, distributors may consider adopting more advanced methods, if they consider it is appropriate to do so.<sup>116</sup>

In addition to refining the specification of the method for estimating long run marginal cost, we encourage distributors to continue refining the way they apply these methods. We expect distributors to utilise inputs that better represent long run marginal cost. In particular we consider long run marginal cost estimates should incorporate certain types of replacement capital expenditure, and associated operating expenditure, in addition to augmentation expenditure (and associated operating expenditure).

The definition of long run marginal costs in the Rules is the cost of an incremental change in demand over a period of time in which all factors of production can be varied.<sup>117</sup>

In the long run, the level of capacity in a distribution network is a factor of production that can be varied. When assets come to the end of their useful life, distributors have a choice of maintaining their current level of capacity, increasing capacity or decreasing capacity, depending on demand and use of the network. Distributors should not adopt a default position of maintaining existing capacity levels, especially where existing networks have spare capacity and where there are changing patterns of use. To promote network capacity in the long run being at a level consumers value, we consider replacement capital expenditure (and associated operating expenditure) should be included within long run marginal cost estimates.

This differs from the approach that most distributors have reflected in their proposals for this first round of tariff structure statements, which have typically excluded replacement capex from long run marginal cost estimates. Distributors generally base their LRMC estimates on augmentation capex alone on the basis that this is the only 'growth' capex. However, this reasoning overlooks that the level of network capacity (whether to increase, maintain or decrease) is not fixed in the long run.

We encourage the distributors to review this element of their long run marginal cost methodology in the lead-up to the next round of tariff structure statements.

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<sup>116</sup> For example, the Turvey method.

<sup>117</sup> NER, Chapter 10—Glossary.

## 7 Charging windows

We approve ActewAGL's revised demand charge windows for residential and business customer tariffs. The analysis undertaken by ActewAGL sufficiently demonstrates that the revised charging windows coincide with system peak demand and are in line with our views in the draft decision.

In our draft decision we were not satisfied that ActewAGL's demand charging windows for its residential and small business tariffs achieves the appropriate balance between greater cost reflectivity and simplicity to enable customer response. We considered the proposed windows were not reflective of costs imposed by customers on the network and would therefore send inefficient signals to customers regarding peak demand.

In its revised tariff structure statement, ActewAGL has responded to our concerns set out in the draft decision by amending its charging windows based on further analysis of its system load profiles. This analysis is discussed in section 7.1 and section 7.2. We approve ActewAGL's revised charging windows for residential and small business customers as we consider the windows reasonably target ActewAGL's network-wide peak demand and are reasonably capable of being understood by customers.<sup>118</sup> As such, we are satisfied that they contribute towards the achievement of compliance with the distribution pricing principles.

### 7.1 Residential charging windows

We approve ActewAGL's revised demand charge window for residential customer tariffs.

ActewAGL initially proposed to apply a morning peak demand (7am-9am) and an evening peak demand (5pm-8pm) charging window for residential customers. In the draft decision, we were not satisfied that ActewAGL had achieved the appropriate balance between greater cost reflectivity<sup>119</sup> and simplicity<sup>120</sup> or customer ability to respond<sup>121</sup> for the following reasons:

- ActewAGL's network does not appear to peak on summer mornings
- it is unclear whether the magnitude of ActewAGL's winter morning peak warrants an additional peak charging window, and
- a single evening peak window will make it easier for customers to move their consumption to shoulder/off-peak periods.

In response to our concerns, ActewAGL carried out further analysis of results from a residential demand study. To align the demand window with network peaks, ActewAGL

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<sup>118</sup> NER, cl. 6.18.5(i)(2)

<sup>119</sup> NER, cl.6.18.5(f)

<sup>120</sup> NER, cl. 6.18.5(h)(3)

<sup>121</sup> NER, cl. 6.18.5(i)

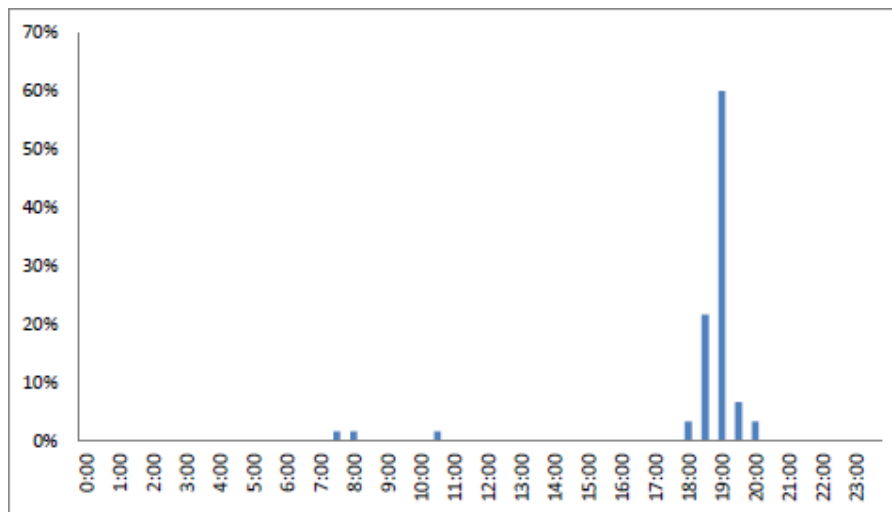
considered the time of day, days of the week and seasons in which the load is highest on the network. ActewAGL also took simplicity and customer understanding into account when refining its approach to demand charging windows.

ActewAGL reviews the time of day at which peaks occur on its network in two different ways:

- at the zone substations that predominantly service residential customers; and
- for individual residential customers using a representative sample of customers.

Figure 7.1 shows that the zone substations that predominantly service residential customers experience the majority of peaks in the evening, when most customers are at home and there is the most household activity.

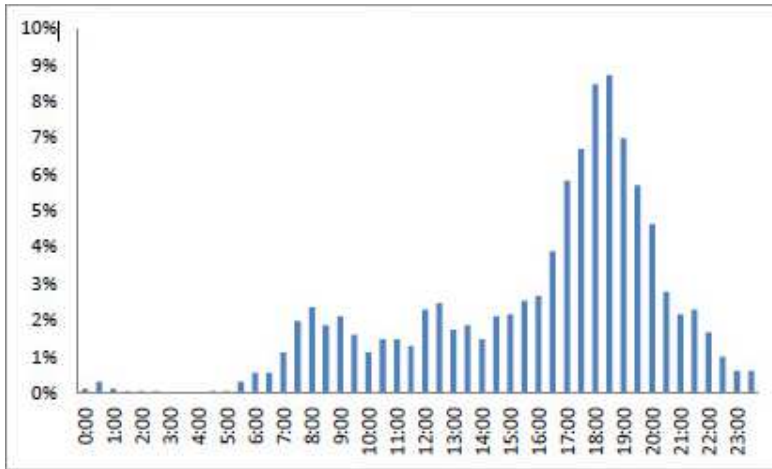
**Figure 7.1: Residential zone substations - Percentage of monthly peak demand events by time of day, 2015**



Source: ActewAGL revised tariff structure statement, p. 15

ActewAGL extended this analysis to individual residential customers. It collected electricity consumption and demand data from around 300 premises in Canberra over the seven months to June 2016. ActewAGL analysed this data to gain a better understanding of customers' usage and demand patterns. Figure 7.2 below shows the time of day at which the representative sample of residential customers peaks. It demonstrates that the majority of individual customers' peak demand occurs between 5pm and 8pm. ActewAGL also concluded that residential peak demand occurs on a spread of weekdays and weekends. As such, it has removed the morning peak demand charging window and intends to apply only the evening window from 5pm to 8pm, seven days a week for residential customers.

**Figure 7.2: Sample of residential customers - Percentage of peak demand events by time of day, 2015-16**



Source: ActewAGL revised tariff structure statement, p. 16

Based on our assessment of ActewAGL’s further analysis, we consider the evening window to be more cost reflective, as ActewAGL’s network peaks in the evening at both a residential and total system level, and in both summer and winter.<sup>122</sup> Further, having a single evening peak window will make it easier for customers to mitigate the impact of changes to network tariffs by moving their consumption to shoulder/off-peak periods.<sup>123</sup> As such, the revised charging window for residential customers aligns with our draft decision. We are satisfied ActewAGL’s revised charging windows for residential customers will contribute to the achievement of compliance with the distribution pricing principles.

ActewAGL’s residential demand analysis demonstrates peak demand does not predominantly occur on weekdays. Rather, about 30 per cent of peak individual demand occurs on weekends. As such, we approve the decision to apply the demand charging window on all days of the week.

Our view on a single evening charging window being simpler for customers to understand and manage their usage in response to network peak demand was shared by Origin. While Origin considered aligning demand charging windows with existing time of use windows would provide continuity, it submitted that a single demand window would be simpler for customers to respond to.<sup>124</sup>

Further, we do not require ActewAGL to introduce a seasonal element to its demand tariff in this tariff structure statement as we agree that the application of a single demand charge rate across the entire year will promote simplicity and customer understanding. ActewAGL has indicated that it will introduce a seasonally varying

<sup>122</sup> NER, cl 6.18.5(g)

<sup>123</sup> NER, cl 6.18.5(h)

<sup>124</sup> Origin Energy, *Submission on ActewAGL tariff structure statement*, 28 April 2016, pp. 2.

demand charge in future. This reflects the fact that the network is mostly summer peaking, so customer demand in summer is more likely to require network augmentation than demand at other times of the year. While a seasonal demand charge would move further towards cost reflectivity, we consider that introducing a single rate in this first regulatory period ensures customers are reasonably capable of understanding the tariff.<sup>125</sup>

## 7.2 Small business charging windows

We approve the revised demand charging window for ActewAGL's commercial low voltage customers as we are satisfied the proposal contributes to the achievement of compliance with the distribution pricing principles.

In our draft decision, we were not satisfied that an 'anytime' demand tariff for low voltage commercial customers was cost reflective.<sup>126</sup> Subsequently, ActewAGL revised this demand charging window based on its analysis of peak times and the timing of the existing small business tariffs' peak period. ActewAGL proposed to apply a peak demand charging window for small business customers of 7am to 5pm on weekdays.

ActewAGL submitted that in future, this window may be refined, particularly as it gathers data on customer responses to the new demand tariff.

An 'anytime' demand charging window means that a customer is charged for their peak demand regardless of the time when that peak demand occurs. In our draft decision, we were not satisfied that customers of the proposed demand tariff should be charged regardless of the time of day or night their peak demand occurs. This is because we consider an anytime demand charging window:

- does not reflect the costs imposed by small business on the network<sup>127</sup>,
- does not give customers opportunity to mitigate the impact of changes in tariffs through their usage decisions<sup>128</sup>, and
- consequently, sends ineffective signals to customers regarding peak demand.

ActewAGL considered the time of the day, days of the week and season in which the commercial load is highest on its network in order to align the charging window with network peaks. To determine the time of day at which the small business demand charging window should apply, ActewAGL began by analysing zone substations within the network that serve predominantly commercial customers. Figure 7.3 below shows that in 2015, the majority of these peaks occurred in the middle of the day, during business hours.

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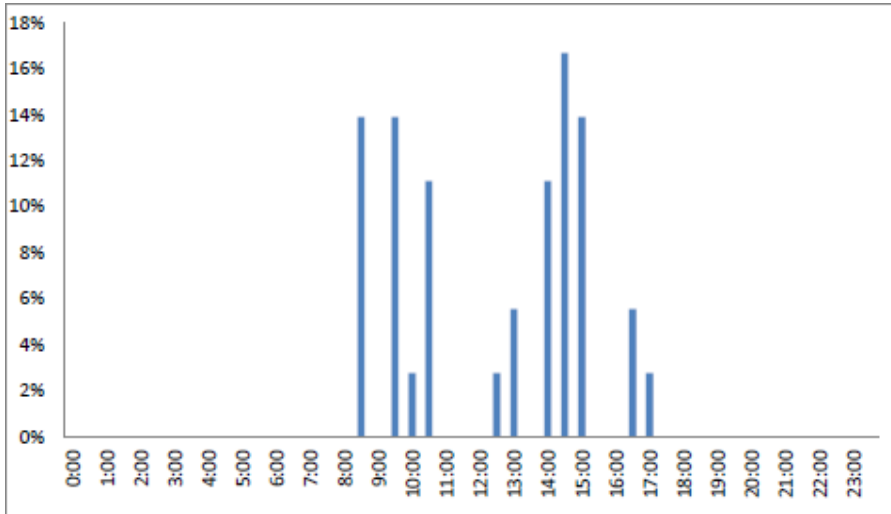
<sup>125</sup> NER cl. 6.18.5(i)

<sup>126</sup> NER cl. 6.18.5(g)

<sup>127</sup> NER cl. 6.18.5(g)

<sup>128</sup> NER cl. 6.18.5(h)

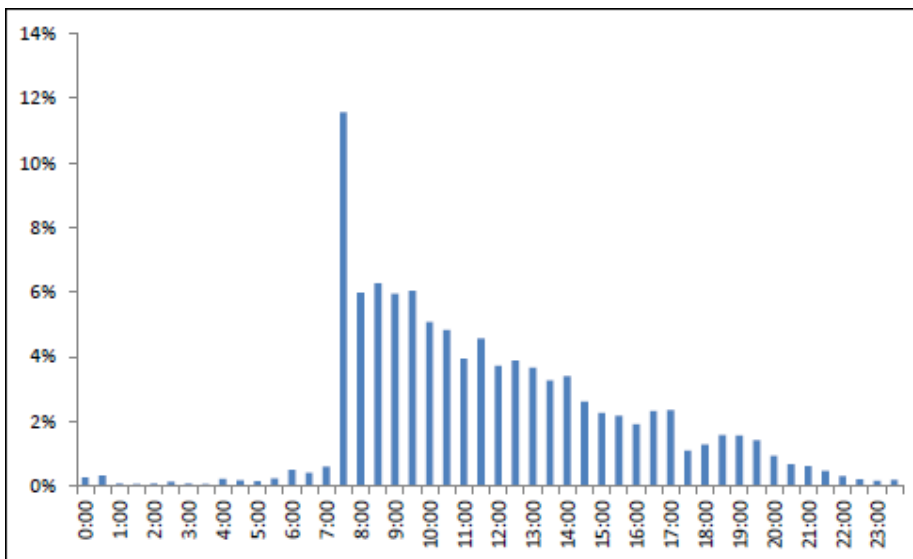
**Figure 7.3: Commercial zone substations - Percentage of monthly peak demand events by time of day, 2015**



Source: ActewAGL revised tariff structure statement, p. 31

ActewAGL also analysed the load profile of 1,200 individual commercial customers from across its network. As shown in Figure 7.4 below, this data demonstrates that the majority of individual commercial customers' peak demand occurs occur between 7am and 5pm, because most commercial customers use their heaters or air conditioners at this time of the day.

**Figure 7.4: Sample of commercial customers - Percentage of peak demand events by time of day, 2015-16**



Source: ActewAGL revised tariff structure statement, p. 32



We consider the revised charging window for small business customers of 7am to 5pm weekdays sets a more efficient signal and will enable better customer response. We consider that confining the demand charge to a defined peak charging window should incentivise commercial low voltage customers to move their peak demand to a less congested time outside a peak window, if they can. This will contribute to reducing network augmentation requirements.

Consumer Mike Buckley's view that the charging windows initially proposed by ActewAGL did not reflect the network load profile and could be made much simpler is in line with our concerns in the draft decision. ActewAGL has addressed this in their revised proposal. Mr Buckley further argues, however, that the differences in residential and commercial charging windows are arbitrary and recommends that to simplify the charging windows the peak charging period should be from 8am to 7:30pm weekdays, with off-peak charges outside those hours and on weekends.<sup>129</sup> Charging windows are designed to signal when demand on the network might be higher, so that demand based tariffs provide an accurate signal of network costs to customers. As such, charging windows need to be:

- wide enough to capture peak demand periods
- not so short as to make it easy to shift demand, simply moving the network peak from one time period to another
- wide enough to ensure customers have an ability to respond to the price signal by spreading their load over the period and thereby allow them to manage their bill.

We consider the charging windows proposed by ActewAGL better meet these requirements than a common window of 8am to 7:30pm. As demonstrated by the analysis earlier in this chapter, the demand from residential customers on ActewAGL's network peaks in the evening. Accordingly, applying a wide charging window (8am to 7.30pm) would not reflect the times of network congestion for the areas of ActewAGL's network that are predominantly residential load.

### 7.3 Large business charging windows

We have accepted ActewAGL's proposal for large customer tariffs not to incorporate charging windows. Rather, the kVA demand charge is based on the customer's highest demand during the relevant period regardless of when it was recorded. The incentive is to minimise the kVA demand, to reduce charges.

ActewAGL has been transitioning their high voltage and major business customers on to more cost reflective tariffs over a number of years. It submitted that the application of peak demand and capacity charges in commercial tariff options has strengthened price signals to its customers, provided incentives to use the network more efficiently and improved customer responses. In our view, this has been a positive move towards cost reflectivity.

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<sup>129</sup> Mike Buckley, *Submission to AER – ActewAGL network tariff statement*, 7 October 2016, pp. 7.

An anytime demand tariff has therefore previously been applied to ActewAGL's larger commercial customers, as their demand can significantly impact the network regardless of the time of day. Large customers are more likely than small customers to have network assets dedicated specifically to their use, or predominantly for their use. Their actions can also heavily impact demand. We consider it is therefore reasonable to base demand tariffs on the highest demand recorded at any time of the day, or year. We are satisfied that this approach contributes to the achievement of the pricing principles, specifically clause 6.18.5(f)(2). As large customers have historically faced demand charging, they are better able to understand and adapt to cost reflective price signals than those customers who have only been charged on the basis of energy volume (in kWh) to date.

We did not receive comments from stakeholders regarding the demand charging windows that ActewAGL applies to large business customers.

Therefore, we are satisfied that ActewAGL's anytime demand charge for large customers contribute towards the achievement of compliance with the distribution pricing principles. This position is consistent with our draft decision. See the draft decision for further discussion.

## 7.4 Future direction

We encourage distributors to continue making refinements to their charging windows in future tariff structure statements to more closely reflect the times of congestion on their particular network. Broadly, we encourage distributors to refine:<sup>130</sup>

- their methods for setting charging windows, and
- the charging windows themselves

We discuss these in turn below.

### *Methods for determining charging windows*

Distributors used varying methods and information to support their proposed charging windows in this first round of tariff structure statements. We therefore assessed each distributor's proposed charging windows on the basis of their individual method. We assessed whether their methods and the information they provided in their tariff structure statements were sufficiently robust (given this early stage of tariff reform).<sup>131</sup> We then assessed whether the resulting charging windows were consistent with the findings of their methods and reasonably signalled the potential timing of congestion on their networks. We regularly consulted with the distributors to better understand the justification for their proposed charging windows. We did this through information requests to the distributors, for example, to get the dataset and models underlying their analysis, or to get their datasets in different formats. We also had discussions and

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<sup>130</sup> NER, cl. 6.18.5(a).

<sup>131</sup> NER, cl 6.18.5(a) and (h).

workshops with the individual distributors to clarify issues identified during our assessment.

We consider the methods and information from each distributor provided sufficient support for their proposed charging windows for this first round of tariff structure statements.<sup>132</sup> However, we consider distributors should continue to explore ways to refine their methods for determining charging windows in future tariff structure statements.

All of the distributors provided some form of daily load profiles to determine or provide justification for their proposed charging windows in this first round of tariff structure statements.<sup>133</sup> For example, Essential Energy provided the 'average weekday' and 'average weekend' load profiles for summer and winter. Several distributors provided the actual load profile for the peak day of the year.<sup>134</sup> ActewAGL provided a load profile that showed the maximum demand measured for each half-hour interval for a given year.<sup>135</sup> Ausgrid and Endeavour Energy showed the time of the highest demand points for a given year (using data from several years).<sup>136</sup> Distributors variously provided daily load profiles at system and/or spatial levels.<sup>137</sup>

Each distributor also provided other types of information to supplement daily load profiles and further support their proposed charging windows, including:

- graphs showing the frequency of peak times for each half hour interval<sup>138</sup>
- 'heat maps' of demand<sup>139</sup>
- timing of peak demand for individual substations<sup>140</sup>
- load duration curves (see the 'network utilisation information' section below for further discussion).<sup>141</sup>

The distributors provided the information described above in formats showing demand levels only. Such information did not explicitly consider network capacity or utilisation

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<sup>132</sup> For our detailed assessment of the distributors' charging windows and methods, see our final decisions for the revised tariff structure statements of distributors in NSW, ACT, South Australia and Queensland.

<sup>133</sup> Daily load profiles depict the level of demand for each half-hour interval over 24 hours.

<sup>134</sup> See the revised tariff structure statements of Essential Energy, SA Power Networks, ActewAGL, Ergon Energy and Energex.

<sup>135</sup> ActewAGL, *Revised tariff structure statement: Explanatory statement*, 4 October 2016, p. 78.

<sup>136</sup> This is a 'semi-complete' load profile as it does not include data points for all half-hour intervals of the day.

<sup>137</sup> Spatial level means the daily load profiles applies to particular assets in the networks, particularly zone substations. System level means the daily load profiles applies to the distributor's network as a whole.

<sup>138</sup> For example, see Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 14.

<sup>139</sup> See Energex, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 45.

<sup>140</sup> See Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 32 and 35; Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 15.

<sup>141</sup> See Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, pp. 46–47.

(Endeavour Energy's approach to using load duration curves indirectly considers network utilisation as we discuss in the next section).

We consider focusing on demand levels only may be reasonable in the first round of tariff structure statements. Tariffs historically applied at the network (rather than regional or local) level and so send averaged signals of the drivers of network costs.<sup>142</sup> The first round of tariff structure statements largely maintained the use of tariffs that apply network-wide, which we consider is consistent with the customer impact principle.<sup>143</sup> The shape of daily load profiles supplemented by other demand-based information as described above can suggest when the network may be experiencing congestion. We consider such information serves to indicate the potential timing of network congestion under tariffs that apply network-wide. Hence, we consider such evidence contributed to the achievement of compliance with the distribution pricing principles in this first round of tariff structure statements.<sup>144</sup>

However, we expect the distributors to transition towards more cost reflective tariff structures in future tariff structure statements, including potentially moving away from network wide tariff approaches. Among other things, this could include charging windows that more accurately reflect times of network congestion than currently. From our assessment of the first round of tariff structure statements, we make several suggestions for distributors to explore to facilitate this transition. We discuss these in turn below.

### ***Network utilisation information***

The evidence the distributors provided generally showed information regarding demand levels only. As we noted earlier, we consider this is reasonable in this first round of tariff structure statements. However, it is network utilisation—the relationship between demand levels and asset capacity—that is a key driver input into distributors' decisions to make investments in the long run. Distributors' long run investment decisions are guided by their expectations of network utilisation. For example, they would invest in additional capacity when they expect demand to exceed the capacity of assets.<sup>145</sup> We therefore encourage distributors to explore whether they can incorporate information on network utilisation to develop and evidence their charging windows in future tariff structure statements.

We consider Endeavour Energy's revised proposal provided a useful starting point for exploring such an approach. Endeavour Energy justified its peak and shoulder hours using the highest demand intervals in recent years. Endeavour Energy stated its peak period contains data points within 10 per cent of the peak demand for each year. The

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<sup>142</sup> With the exception of customer-specific tariffs, which apply to very large customers.

<sup>143</sup> NER, cl 6.18.5(h) and (i).

<sup>144</sup> NER, cl 6.18.5(a).

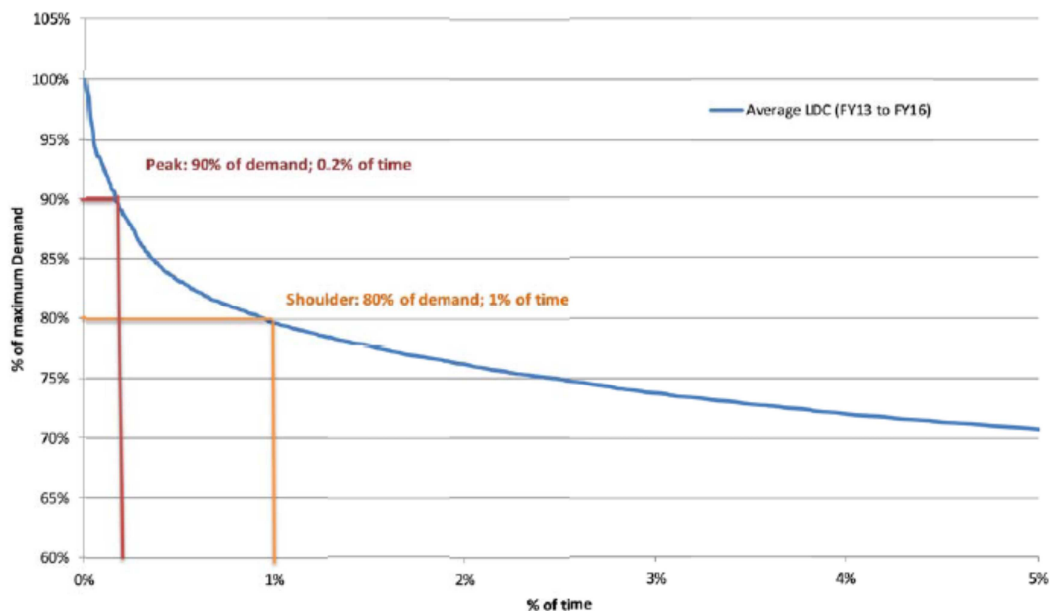
<sup>145</sup> Alternatively, distributors consider expected levels of demand when deciding asset capacity in replacement capital expenditure decisions. See chapter 6 for further discussion.

shoulder period contains the data points between 10 per cent and 20 per cent of the peak demand interval for that year.<sup>146</sup>

Endeavour Energy explained the 10 per cent and 20 per cent thresholds are related to network planning. Endeavour Energy stated its planners begin investigations into an asset when the proportion of time that asset exceeds its firm rating is greater than 1 per cent. This includes considering augmentation capex or demand management options.<sup>147</sup>

Because Endeavour Energy's tariffs apply at a network level, it uses the network load duration curve as indicative of likely demand at an asset level (see Figure 7-1). Figure 7-1 shows Endeavour Energy's highest demand points are within 20 per cent of maximum demand for one per cent of the time. Its highest demand points are within 10 per cent of maximum demand for 0.2 per cent of the time.<sup>148</sup>

**Figure 7-1: Endeavour Energy average network load duration curve**



Source: Endeavour Energy, Tariff structure statement: Explanatory statement, 4 October 2016, p. 47.

Note: The load duration curve above is an average of the annual curves for the 2012–13 to 2015–16 years. Endeavour Energy used the average of multiple years to mitigate the impact of abnormal weather impacts in any given year. Endeavour Energy, Response to information request: Charging windows issues, 24 November 2016.

We consider Endeavour Energy's approach is a useful starting point as it establishes a link between its charging windows and network utilisation (it does this indirectly via its planning criteria).

<sup>146</sup> Endeavour Energy, *Tariff structure statement*, 27 November 2015, p. 72.

<sup>147</sup> Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 46.

<sup>148</sup> Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 46.

In addition, Endeavour Energy's approach uses an objective method to determine the thresholds between peak, shoulder and off-peak hours. By comparison, evidence based on demand levels alone does not provide as clear a guide on the thresholds between the peak, shoulder and off-peak hours. As a result, it was not always clear how distributors determined the thresholds between charging windows, which is not as transparent.

We emphasise Endeavour Energy's approach can be a useful starting point when considering approaches for the next round of tariff structure statements. We encourage Endeavour Energy (and other distributors) to explore ways to improve the use of load duration curves (should distributors adopt or continue to use them) in future tariff structure statements.<sup>149</sup> Alternatively, distributors may choose to explore other approaches to incorporate information on network utilisation to determine charging windows.

### ***Developing an industry approach for charging windows***

The Energy Networks Association stated it will discuss with its members options for developing charging windows.<sup>150</sup>

We support the ENA's initiative to consult with its members regarding methods for establishing charging windows. We consider it is a good opportunity for the industry to discuss and explore ways to improve methods for determining charging windows—including its place in the broad context of tariff reform. This could potentially lead to more rigorous and objective methods to setting charging windows. Distributors may then utilise findings from these discussions to refine their methods to suit their individual circumstance. This could in turn lead to more cost reflective tariffs.<sup>151</sup>

The ENA also stated to us it will discuss with its members the prospect of developing an 'industry approach' for charging windows.<sup>152</sup> This does not mean that all distributors would have the same charging windows. Rather, that a consistent analytical or conceptual approach is used to determine the charging windows specific to each particular network.<sup>153</sup>

At this stage, it is unclear to us whether it is necessary, or even desirable, to develop an industry approach for charging windows. We acknowledge an industry approach has benefits. It could aid stakeholders to more easily understand the reasons for a

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<sup>149</sup> See section 8.2 of AER, *Final decision: Tariff structure statements: Ausgrid, Endeavour and Essential Energy*, February 2017.

<sup>150</sup> ENA, *Submission: Australian Energy Regulator draft decision on tariff structure statement proposals*, 7 October 2016, p. 4.

<sup>151</sup> NER, cl. 6.18.5(g).

<sup>152</sup> ENA, *Submission: Australian Energy Regulator draft decision on tariff structure statement proposals*, 7 October 2016, p. 4; AER, *File note - Non-Victorian TSS - Discussion with ENA*, 17 October 2016 (AER reference: D16/140751).

<sup>153</sup> NER, cl. 6.18.1A(a).

distributor's proposed charging windows, and the reasons for differences with other distributors' charging windows.<sup>154</sup>

On the other hand, adopting a common approach poses the risk of 'settling' into this approach and slowing innovation in this area. As moving from demand based to utilisation based approaches to determining charging windows would be new for most distributors, it may be useful for different distributors to innovate and adopt different methods. The strengths and weaknesses of these different methods could then be assessed at a later stage, with a common industry approach a potential longer term goal which is informed by these earlier innovations. An industry approach should therefore not dampen the incentive for individual distributors from innovating on methods to determine charging windows.

If the ENA and its members consider developing an industry approach is appropriate, they should also keep in mind the transitional nature of the tariff reform process. That is, distributors are at various stages of transition. We consider an industry approach, if developed and adopted, should have the flexibility to accommodate individual distributors' circumstances as well as the dynamic nature of tariff reform.

### ***Charging windows***

Our suggestions on refining charging windows are specific to each distributor. This is because the distributors introduced various levels of reform to their charging windows in their revised tariff structure statements. In addition, they all have slightly different patterns of network utilisation. As examples, the improvements that we would expect to see in some of the distributors' future tariff structure statements include:<sup>155</sup>

- **Narrowing peak windows**—Some stakeholders consider the peak window is too long, so customers have limited opportunity to access lower prices, and less incentive to respond to the peak price signal. We consider there is scope for distributors to narrow their peak hours to better target times of network congestion. For example, many networks show a narrower peak period in winter compared to summer. These networks can consider introducing different peak hours for their winter and summer months.
- **Introducing or expanding seasonal differences**—Many networks exhibit highly seasonal demand patterns. As we noted earlier, many networks have narrower winter peak periods compared to summer. Many networks also show a marked decrease in demand levels in non-summer and non-winter months. However, most distributors are typically summer-peaking and/or winter-peaking. These networks can potentially remove peak hours during those non-summer and non-winter months and only include shoulder and off-peak periods.<sup>156</sup>

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<sup>154</sup> NER, cl. 6.18.5(i).

<sup>155</sup> NER, cl. 6.18.5(f).

<sup>156</sup> To avoid confusion, we do not use the terms 'spring' and 'autumn'. Some distributors define summer as the period between November and March inclusive, which includes months that are 'officially' spring and autumn (see <http://www.australia.gov.au/about-australia/australian-story/austn-weather-and-the-seasons>).



- Introducing locational differences within a network—Currently, most charging windows are based on system wide network data. However, this can mask important regional differences within a network. For example, a network might be summer peaking overall, but contain alpine regions which are winter peaking. In these cases, different charging windows could be applied to the alpine and non-alpine regions. Alternatively, regions within a network which are dominated by residential demand might have very different load characteristics to regions which are dominated by large industrial demand. Distributors should consider whether there is a case for regional differences in their charging windows.

### ***Peak demand measurement in demand charges***

Most distributors proposed some residential or small business tariffs with a demand charge in this first round of tariff structure statements. The distributors proposed different ways to measure a customer's demand for the purposes of calculating demand charges (see our summary below). The measures of demand each distributor proposed are generally consistent with their practices in recent pricing proposals and so represent an incremental change in tariff structures. We therefore accepted the distributors' proposed measures of demand in this initial phase of tariff reform as they are consistent with the customer impact principle.<sup>157</sup>

However, we encourage distributors to investigate alternative measures of demand for the next round of tariff structure statements having regard to each measure's ability to:

- send price signals to customers that are more closely aligned with peak demand and utilisation on the network, rather than aligned with the individual customer's peak demand<sup>158</sup>
- enable customers to respond to price signals<sup>159</sup>
- avoid or manage the potential for a customer to face 'bill shock'.<sup>160</sup>

A measure of demand proposed by several distributors is to charge customers based on the highest use recorded in any 30 minute period during the peak charging window during the month.<sup>161</sup>

Other distributors similarly use the highest recorded demand, but over a longer time period. Ausgrid's demand tariffs charge for certain business customers is based on the peak demand recorded in any 30 minute period during the peak charging window in the previous 12 months.<sup>162</sup> Jemena's demand tariffs for existing small businesses

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<sup>157</sup> NER, cl 6.18.5(h).

<sup>158</sup> NER, cl 6.18.5(a).

<sup>159</sup> NER, cl 6.18.5(h)(3).

<sup>160</sup> NER, cl 6.18.5(h).

<sup>161</sup> The distributors whose demand tariffs generally charge on this measure include ActewAGL, Essential Energy, AusNet Services, CitiPower and Powercor.

<sup>162</sup> Ausgrid, *Revised tariff structure statement: Appendix A*, 4 October 2016, pp. 112–125.



charge customers based on the peak demand recorded during the peak charging window from the past two months.<sup>163</sup>

An alternative approach to using a single peak demand point is to average a customer's top several demand periods during the month (that fall within the peak charging window). We observe Ergon Energy proposed to average the top four highest demand periods as the basis for calculating the demand charge for its residential customers. Essential Energy also has one tariff which calculates the demand charge based on the 'average daily time of use demand for peak, shoulder and off-peak periods for the month'.<sup>164</sup>

As previously stated, we accept the various measures of demand proposed by the distributors in this first round of tariff structure statements, including the use of a single 30 minute period. However, we also consider there are potential benefits in using an averaging approach, such as Ergon Energy's, or other approaches.

We would be interested in working through this issue with the industry and stakeholders in the lead up to the next round of tariff structure statements.

It is not an individual customer's peak demand that drives network costs, but the extent to which that customer's demand contributes to times of network congestion. Several distributors' approaches only record a customer's highest 30 minute demand period if it falls within the peak charging window. However, the individual customer's highest demand may not coincide with the times the network is congested. An averaging approach may increase the probability that a customer's highest demand will coincide with the day, or days, on which the network is congested.

We encourage distributors to collect data during this first tariff structure statement period that demonstrates if the majority of customers' peak demand occurs at the same time the network also experiences congestion. This should provide a useful basis for determining if the second and subsequent tariff structure statements should make a change to averaging a customer's highest demand days, similar to Ergon Energy's approach.

The use of a single period or averaging approach may also have an impact on a customer's ability to respond to price signals. Price signals aim to elicit an informed and considered response by consumers. If a customer has automatic appliances (for example, air-conditioner or battery storage programmed to respond to peak demand periods) then responding to price signals might be straight forward.

In the absence of automatic appliances, it may be more difficult for customers to mitigate the effects of one-off spikes in demand, especially residential and small business customers. This may be the case, especially initially, as customers may need time to become more familiar with demand signals and the amount of electricity

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<sup>163</sup> Jemena, *Tariff structure statement*, 29 April 2016, p. 30.

<sup>164</sup> Essential Energy, *Tariff structure statement*, 4 October 2016, p. 16.

different appliances consume. If a customer's top 30 minute demand window coincides with the peak period in one month, for example if they turn on several appliances at the one time during the peak window, they will have a heightened incentive to understand their electricity usage the following month to avoid a repeat situation. Alternatively, an averaging approach might assist a customer in responding within the month, rather than waiting until the next month. This is because the customer can shift their usage outside the peak period or lower their usage during the peak period for the rest of the month to constrain their average maximum demand. For similar reasons, an averaging approach may also assist a customer to avoid or manage 'bill shock' if the network tariff structure is also reflected in the customer's retail tariff.

## A Distributors' customer consultation and customer impact analysis

This section sets out the consultation process that ActewAGL undertook when developing their 2017–20 tariff structure statements and how they responded to customer and stakeholder feedback. The Rules direct distributors to consult with their customers in order to help them understand the new network tariffs and how they might mitigate the tariffs' impact on them.<sup>165</sup>

The Rules require distributors to describe how they have consulted with their customers and retailers, and explain how they have addressed concerns raised as a result of this engagement.<sup>166</sup> We are of the view that distributors' stakeholder engagement contributes to the achievement of compliance with the distribution pricing principles and the national pricing objective.

In Table A-1 we have set out how distributors responded to what stakeholders asked.

We find that the consultations undertaken over the last few years to develop each distributor's tariff structure statements have been wide ranging, generally clear and understandable and that stakeholders comments have been taken up, where possible, in development of the statements.

With many issues to cover, and in some cases complex material to convey, it is not possible for 100 per cent of issues raised by either stakeholders or the networks to be agreed, much less implemented. Inevitably there are trade-offs between the needs of different customer groups and tariff classes, and within tariff classes.

We consider ActewAGL undertook significant stakeholder consultation processes in developing its tariff structure statement proposal. ActewAGL's customer consultation included:<sup>167</sup>

- Consultation paper: *Pricing review for the ACT electricity network*
- Energy consumer reference council (ECRC)
- Consumer workshops
- Online survey
- Individual meeting with retailers

We note, however, consumer Mike Buckley's disappointment with ActewAGL's consultation process. While outside the scope of our approval process and control, Buckley submitted that limited engagement took place with other stakeholders.

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<sup>165</sup> NER, clauses 6.18.5(h)(2) and (3) and 6.18.5(i)(1) and (2).

<sup>166</sup> NER, cl 6.8.2(c1a)

<sup>167</sup> ActewAGL 2015, *Tariff structure statement*, 27 November 2015, pp. 40-55

Specifically, the dominant retailer in the ACT did not provide a submission and he noted limited submissions from Origin, the Energy Networks Association and the Clean Energy Council.<sup>168</sup>

Table A-1 below outlines ActewAGL's consultation as described in its tariff structure statement.

**Table A-1: Stakeholders' messages and distributors' responses**

Topic	What stakeholders said	How ActewAGL responded
Communication	<p>Need to work with consumers to build a better understanding of the energy market and tariff structures</p> <p>Business community needs time to adjust</p> <p>Communication by retailers is important</p>	<p>Proposed to continue engagement once the proposed TSS is lodged and through to the implementation of tariffs in July 2017.</p>
Consumer impacts	<p>Important that vulnerable consumers are supported</p> <p>Need to understand the impacts of changes on each consumer segment.</p>	<p>Consumers are able to utilise existing schemes offered by retailers.</p> <p>ActewAGL's assessment of impacts of new tariffs and changes to existing tariffs are covered in its TSS</p>
Behaviour change	<p>Important to ensure tariff structure influences behaviour at times of network congestion and recognise where consumers may not have the ability to modify energy consumption.</p>	<p>Designed and proposed to implement new tariffs which considered customer ability to respond.</p>
Transition	<p>Comfortable to move to cost reflective tariffs in the shorter term (3-5) years rather than the longer term.</p> <p>Want to understand the impacts of tariffs becoming cost reflective in the long term on ActewAGL.</p> <p>Interested in seeing trials conducted by ActewAGL as part of implementing changes to tariff</p>	<p>Proposed transition strategy that used technology and assignment policy to drive the speed of transition.</p> <p>Discussed impacts of new tariffs and changes to existing tariffs in TSS proposal.</p> <p>May consider using pilots as a way of determining the extent to which customers can respond.</p>

<sup>168</sup> Mike Buckley, *Submission to AER – ActewAGL network tariff statement*, 7 October 2016, pp. 9.

Topic	What stakeholders said	How ActewAGL responded
Tariff design	<p>structures.</p> <p>Consideration of the impacts of transitioning to remote read interval meters.</p> <p>There is a general understanding and acceptance of the value of more cost reflective tariffs.</p> <p>A number of large customers are comfortable moving to demand tariffs, such as critical peak or seasonal.</p> <p>Low voltage business customers may not have much flexibility to modify consumption behaviour in response to new tariffs.</p> <p>Preference for consistency of structure and terminology with NSW.</p>	<p>Transition strategy is influenced by roll out of cost reflective meters.</p> <p>Submitted transition strategy represents the acceptance of cost reflective tariffs and considers the evolution of tariff components over time.</p> <p>Considered proposed transition strategy for commercial LV consistent with transition to cost reflective tariffs, where a signal is received for costs incurred at times of peak demand.</p> <p>The start point for ActewAGL's 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.</p>
Long run marginal cost	<p>That an average incremental cost of 500 MW, adopting a common distribution charging methodology, be used to calculate the long run marginal cost for determining tariffs.</p> <p>Interested in understanding the need for increased network infrastructure into the future.</p>	<p>ActewAGL acknowledges a range of methodology can be used to estimate long run marginal cost, however has adopted the average incremental cost method for reasons described in its TSS.</p> <p>Submitted that it intends to raise awareness of annual network planning report submitted to AER. Proposed this would enable consumers to understand and respond to its network plans.</p>
Alternate energy sources	<p>Interested in solar and how it relates to network charges, what subsidisation occurs and disadvantages to low income households not able to take up solar.</p> <p>Competitiveness of ACT's low electricity prices may be affected by ACT Government's renewables target.</p>	<p>Proposed tariff structure would apply to residential customers with and without solar PV.</p> <p>ACT renewables scheme may affect the costs passed through to customers. ActewAGL submitted its tariff strategy focuses on ensuring that its network charges minimise distortions to cost reflective signals by jurisdictional schemes.</p>

## B AER consultation

This appendix details our consultation with stakeholders throughout the tariff structure statement approval process.

In March 2016, we published an issues paper on the Tariff Structure Statement proposal submitted by ActewAGL. This summarised key aspects of the proposal and highlighted issues we considered relevant to our assessment. We received written submissions in response to our issues paper from ActewAGL, the Clean Energy Council, the Energy Networks Association and Origin.

In May 2016, we hosted a public forum to discuss ActewAGL's tariff structure statement proposal and invited interested parties to provide their views. Several stakeholders attended including consumer groups, ACT Government representatives and retailers.

We also issued an information request to ActewAGL in May 2016 seeking information required to inform our assessment, for which we received two responses.

On 2 August 2016, we made a draft decision to not approve ActewAGL's proposed tariff structure statement and required ActewAGL to submit a revised tariff structure statement addressing our requirements. Under the Rules, a distributor may only make revisions to its tariff structure statement to address matters raised by our draft decision.

<sup>169</sup>

ActewAGL submitted its revised tariff structure statement in October 2016. We published the revised proposal and invited submissions from stakeholders.<sup>170</sup>

In response to our draft decision and ActewAGL's revised tariff structure statement, Origin, the Clean Energy Council, the Energy Networks Association and consumer Mr Mike Buckley provided written submissions.

We have held numerous meetings with stakeholders to discuss the tariff structure statement draft decisions, including retailers, solar energy representatives, and customers/customer representatives.

On 28 February 2017, we make a final decision to approve ActewAGL's revised tariff structure statement proposal, subject to minor editorial changes made to the document.

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<sup>169</sup> NER, cl. 6.10.3(b)

<sup>170</sup> NER, cl. 6.10.3(b).