FINAL DECISION

Tariff structure statement

South Australia Power Networks

February 2017

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Tel: 1300 585165

Email: aerinquiry@aer.gov.au
AER Reference: 58273

Amendment Record

Version	Date	Pages
1	February 2017	80

Contents

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: *"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".*
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: *"to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to—* *(a) price, quality, safety, reliability and security of supply of electricity; and*

Term	Interpretation
	(b) the reliability, safety and security of the national electricity system".
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 SAPN's 's revised tariff structure statement submitted to us on 4 October 2016,

We consider the move to demand tariffs for residential and small business customers contribute to the achievement of compliance with the distribution pricing principles and other applicable requirements in the Rules.

Stakeholders were generally of the view that demand tariffs were a positive move towards cost reflective pricing.

Our view is 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. We consider the main objective of network tariff reform is that retailers are exposed to the costs of network congestion. Being exposed to these costs will mean that retailers will have an incentive to manage this exposure and take actions that reduce network congestion.

SAPN's initial proposal would have provided strong cost reflective price signals, as more residential and small business customers would have been moved to cost reflective tariffs. In our draft decision, we supported the pace of reform proposed by SAPN. In particular, we approved SAPN's proposed approach to require new residential and small business customers to be assigned to demand tariffs. We also approved SAPN's proposal to require existing residential and small business customers who make alterations to their supply to move to demand tariffs. Further, we approved SAPN's proposal to introduce transitional demand tariffs for these customers as a means of transitioning them to more cost reflective network tariffs.

However, we had concerns with a discrete set of other aspects of SAPN's initial proposal. In particular:

- We did not approve SAPN's proposed 'solar' and 'social' tariffs.
- We also did not approve SAPN's proposal to re-assign to different tariffs those existing residential and small business customers who consume over specified annual consumption thresholds. We were and remain open to initiatives to transfer more existing residential and small business customers onto cost reflective network tariffs. However, we required SAPN to either propose an alternative approach to transfer these customers or provide further justification for its approach.
- We also required SAPN to provide additional information on its long run marginal costs and residual costs because aspects of its initial proposal were unclear or incomplete on these topics.

Accordingly, we did not approve SAPN's initial proposal because we required amendments to these specific topics. We consider addressing these specific matters

could have been done in a manner which did not materially affect the pace of reform that was reflected in SAPN's initial proposal.

SAPN's revised proposal slows the pace of transition for residential customers and small business customers with single phase supply. SAPN have now proposed that residential and small business customers (with single phase supply) will remain on their existing network tariffs. These customers can still choose to "opt-in" to demand tariffs through their retailer, if retailers in South Australia choose to offer these tariffs. Our draft decision did not require SAPN to slow the pace of reform in this way but they have chosen to do so. We are required to assess SAPN's proposal for compliance against the distribution pricing principles (and other Rule requirements) which include consideration of customer impacts and the desirability of transitioning to cost reflective tariffs over more than one regulatory control period. We consider SAPN's revised proposal contributes to the achievement of compliance with the distribution pricing principles. We accept the use of opt-in arrangements by SAPN in this first round of tariff structure statements. However, we expect distributors to move to "opt-out" arrangements for the next round of proposals. We elaborate on our expectations for future tariff statement proposals later in this decision.

SAPN's revised proposal focused on moving small business customers with multi-phase connections to cost reflective tariffs. New multi-phase small business customers and existing customers who make a major alteration to their supply connection will be assigned to a demand tariff, as was initially introduced on 1 July 2016.

SAPN's revised proposal has also responded to the concerns we raised in our draft decision. SAPN has removed the solar and social tariffs, and SAPN updated its long run marginal cost calculation and provided greater clarity on its allocation of residual costs.

SAPN has also removed the tariff arrangements that were to apply to existing residential and small business customers whose annual consumption exceeded specified thresholds. SAPN has chosen, at this time, not to replace these arrangements with an alternative approach to transition more existing customers onto cost reflective tariffs. However, SAPN has stated it will seek to develop an alternative approach for its next tariff structure statement proposal.

Residential and small business customers

We approve SAPN's residential and small business customer tariffs and assignment policy. We are satisfied SAPN's choice of tariffs contributes towards the achievement of compliance with the distribution pricing principles.

In our draft decision, we were satisfied with the pace of reform proposed by SAPN. In particular, we approved SAPN's proposed approach to mandatorily assign new residential and small business customers onto demand tariffs. We also approved SAPN mandatorily assigning existing residential and small business customers who make alterations to their supply onto demand tariffs. However, we were not satisfied the following specific elements of SAPN's initial proposal complied with the distribution pricing principles, nor were compliant with SAPN's distribution determination.

- SAPN's proposed start date for default assignment of 1 July 2017. We considered this change should take effect no earlier than 1 December 2017, so the change occurred at the same time or after the timing of the AEMC metering rule changes.
- SAPN's proposed transitional usage, solar and social tariffs.[1]
- SAPN's proposal to assign customers to demand tariffs based on annual consumption thresholds.[2]

SAPN accepted our draft decision in its revised proposal. SAPN addressed our concerns by removing the solar, social and transitional usage tariffs from its revised tariff statement.

SAPN has made some changes from its initial proposal:

- SAPN removed the transitional kW demand tariff for residential and single phase small business customers
- SAPN replaced the minimum demand charge with a fixed charge on its demand tariffs for residential and small business customers.

We accept these changes in this decision. Our reasoning is discussed in section 4.1.

SAPN's revised proposal slows the pace of transition for residential and single phase small business customers making demand tariffs opt–in.[3] SAPN proposed residential customers will default to an existing flat tariff[4] and single phase small business customers will default to its business two rate tariff. Our draft decision did not require SAPN to slow the pace of reform in this way. Nonetheless, at this initial step in the tariff reform process, in light of the distribution pricing principles' reference to customer impact and transitioning to cost reflective tariffs[5], we consider the approach proposed by SAPN contributes to the achievement of compliance with the distribution pricing principles.

SAPN proposed multi-phase small business customers will be assigned to a transitional kVA demand tariff, with the option to opt-in to a fully cost reflective demand tariff. This is discussed further in section 4.1.2 of our decision.

The majority of stakeholders were supportive of demand tariffs being introduced and that solar PV customers would no longer attract a specific tariff.[6]

---

1 AER, *SAPN tariff structure statement draft decision*, pp. 43-44

2 AER, *SAPN tariff structure statement draft decision*, pp. 70-73

3 SA Power Networks, *Revised tariff structure statement - part B, October 2016,* p.68

4 This tariff is currently an inclining block tariff, however SAPN aims to reduce the price difference between block one and block two over the 2017-2020 period, with the aim to have a single block by 2019.

5 NER, cl. 6.18.5(h)

6 Clean Energy Council, *Submission to AER on SA, ACT, NSW and QLD Tariff Structure Statements*, October 2016, pp. 1-2.

Table 1: Residential and small business customers

Our draft decision	SAPN revised proposal	Our final decision
We approved SAPN's mandatory assignment of new residential and small business customers, subject to changing the date of this assignment policy change to no earlier than 1 December 2017 to align with the timing of changes to the metering rules	SAPN are no longer proposing a mandatory assignment to a cost reflective tariff in the 2017-20 period for residential customers and small business customers. The retailer of these customers can choose to opt-in to demand tariffs.	We approve SAPN's revised proposal.
We approved the use of transitional demand tariffs for new or altered supply customers who are mandatorily assigned to a demand tariff.	SAPN proposed a transitional demand tariff to apply to its small business tariff class for new or altered multi-phase connections. The transitional demand tariff is opt-in for all other small business customers.	We approve SAPN's revised proposal.
We did not approve the inclusion of solar and social tariffs and the mandatory reassignment to these tariffs of existing customers who meet the relevant criteria.	SAPN accepted our decision and removed solar and social tariffs.	We approve SAPN's revised proposal.
We did not approve the inclusion of transitional usage tariffs and the mandatory reassignment to these tariffs of existing customers whose annual consumption is above a certain threshold with accumulation meters.	SAPN accepted our decision and removed transitional usage tariffs.	We approve SAPN's revised proposal.
We approved SAPN's proposed demand charging windows, however, encouraged SAPN to review its charging windows in the 2020-25 regulatory period.	No change from initial proposal.	No change from draft decision

See chapter 4 for our decision on SAPN's residential and small business tariffs.

Large business customers

We approve SAPN's proposed tariffs for its large business customers. We are satisfied that SAPN's proposed tariffs for large low voltage business customers[7], high voltage and major business customers contribute towards the achievement of compliance with the distribution pricing principles. This is because these tariffs are already relatively cost reflective.

SAPN proposed all large low voltage (except remaining customers on type 6 meters), large high voltage and major business customers will be assigned to cost reflective tariffs. SAPN has already made a number of reforms to these tariffs in previous years. SAPN established a tariff class for large low voltage businesses that better reflect their size, consumption characteristics and supply voltage. SAPN has also established a suite of demand tariffs for each tariff class.

In its initial proposal SAPN proposed transitional usage tariffs for large low voltage customers, which reflect the structure of those proposed for the residential and small business tariff classes. As outlined in the draft decision, we considered the transitional usage tariffs were not cost reflective and did not contribute towards the achievement of compliance with the distribution pricing principles. SAPN has accepted this decision in its revised proposal.

Table 2: Large business customers

Our draft decision	SAPN revised proposal	Our final decision
We approved SAPN's proposed demand tariffs for its large low voltage, high voltage and major business tariff classes.	No change from initial proposal.	No change from draft decision
We did not approve SAPN's proposed transitional usage tariffs for its large low voltage customers.	SAPN accepted our decision and removed transitional usage tariffs for its large low voltage customers.	We approve SAPN's revised proposal.
We approved the addition of a new tariff class for large low voltage[8] customers.	No change from initial proposal.	No change from draft decision.

See chapter 5 and 6 for further information on SAPN's large business customer tariffs.

Calculating forward looking costs

[7] SAPN changed the name of this tariff class from 'Distribution transformer business' in the 2015/16 annual pricing proposal.

[8] Referred to as 'distribution transformer business tariff class' in the draft decision.

We approve SAPN's proposed methodology and calculation of long run marginal costs. We are satisfied that SAPN's proposed methodology to calculate its long run marginal costs is consistent with the distribution pricing principles.

In our draft decision we were unable to approve SAPN's long run marginal cost calculation. We were satisfied that SAPN's long run marginal cost methodology, in terms of using the average incremental cost approach and also the types of costs included in the calculation, sufficiently complied with the rules for this first stage of tariff reform. Accordingly, we did not require SAPN to change its methodology. However, we had concerns about SAPN's use of forecasts from 2010 in estimating its long run marginal cost as these numbers were out-of-date.

SAPN's revised proposal updated its long run marginal cost forecast. SAPN proposed a forecast period of 25 years, from 2016/17 to 2039/40, in order to provide a more realistic long run estimate. We accept SAPN's updated long run marginal cost forecast.

SAPN's long run marginal cost forecast also included an additional factor of approximately 7 per cent of its forward looking asset replacement costs. We support SAPN's approach to include some of its expected replacement expenditure in its forward looking long run marginal cost estimate.

Further discussion on forward looking costs can be found in Section 6.1.

Stakeholder engagement

We consider SAPN effectively engaged with customers, retailers and consumer representatives where possible. This helped formulate the design of its cost reflective tariffs.

Feedback to us about SAPN's stakeholder consultation has been positive. Stakeholders submitted they have been given the opportunity to comment on SAPN's proposals for cost reflective tariffs and to influence the tariff structure statement content.

See Appendix A for more detail on stakeholder engagement.

Our process

Table 3 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, SAPN submitted its initial proposed tariff structure statement in December 2015 as required by the Rules.

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

We also took into account stakeholder submissions received on SAPN's tariff structure statement, comments received at our public forum in April 2016 and submissions made

on the revised tariff structure statement. These are considered in the chapters that follow.

Table 3: Tariff structure statement and annual pricing process timeframes

Step	Date
Tariff structure statement process	
SAPN submits proposed tariff structure statement to AER	3 December 2015
AER publishes issues paper	11 March 2016
AER hosts public forum on SAPN's proposal	5 April 2016
Stakeholders' submissions on SAPN's proposal and AER's issues paper closed	28 April 2016
AER publishes draft decision	2 August 2016
SAPN's revised proposal and stakeholders' submissions on AER's draft decision due	4 October 2016
Stakeholders' submissions on SAPN's revised proposal and other stakeholders' submissions due	25 October 2016
AER publishes final decision	28 February 2017
First annual pricing proposal process to apply tariff structure statement	
SAPN 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 SAPN. 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 SAPN'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 SAPN, 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 SAPN to make further improvements in the following areas in the next round of tariff structure statements:

- Greater integration between SAPN'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 6.3)
- Inclusion of replacement capital within SAPN's long run marginal cost estimates (see discussion in section 6.3)
- Reconsideration of the use of a 30 minute window to measure demand (see discussion in section 7.2)
- Refinements to charging windows and the methods used to develop charging windows (see discussion in section 7.2)

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.

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.[9] 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

[9] AEMC, Rule determination—National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014, November 2014.

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.[10]

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.[11] 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 on 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

---

[10] ActewAGL, Re: Issues paper—Tariff structure statement proposal, ActewAGL, Submission to AER, 28 April 2016, p.5.

[11] NER, cl. 6.18.5(a).

(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
- 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.[12]

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 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.

---

[12] 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.

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.[13] Former AGL 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.[14] 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.

---

[13] Energy Networks Association, *Network pricing and enabling metering analysis*, Prepared by ENERGEIA for the Energy Networks Association, November 2014, p.5.

[14] 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.[15]

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

[15] Over the last couple of years, network costs and prices have started to flatten 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.[16] 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.[17] 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.

---

[16] 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.

[17] EMET Consultants Pty Ltd as referenced by solarchoice.net.au.

The Rules require network tariffs to be based on long run marginal cost.[18] 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.[19]

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.

---

[18] NER, cl. 6.18.5(f).

[19] 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.[20] 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.

---

[20] 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.[21] 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.

---

[21] 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.[22] 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.

---

[22] The exemption to this is trial tariffs. Distributors may trial new tariffs that were not approved through the tariff structure statement is 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.[23] 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

[23] 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.[24] 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.

[24] 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:[25]

> …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.[26] 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.[27] The Rules permitted submission of a tariff structure statement outside the regulatory proposal process this time because of the timing of the rule changes.[28]

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.[29] Second, a tariff structure statement must also comply with the distribution pricing principles.[30]

What must a tariff structure statement contain?

The Rules require a tariff structure statement to include:[31]

---

25 NER, cl. 6.18.5(a).

26 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).

27 NER, cl. 6.8.2(a).

28 NER, cl. 11.76.2(a).

29 NER, cl 6.18.1A(a) and (e)

30 NER, cl 6.18.1A(b). The distribution pricing principles are prescribed in cl 6.18.5.

31 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.[32]

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[33]
- 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[34]
- 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[35]
- distributors must consider the impact on customers of tariff changes and may vary from efficient tariffs, having regard to:[36]
    - 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[37]
- tariffs must otherwise comply with the Rules and any other applicable regulatory requirements.[38]

---

32 NER, cl. 6.8.2(d1).
33 NER, cl. 6.18.5(e).
34 NER, cl. 6.18.5(f).
35 NER, cl. 6.18.5(g).
36 NER, cl.6.18.5(h).
37 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.[39]

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.[40] 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.[41] 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.[42] This will set out our reasons for making the decision.[43]

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.[44]

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.[45] Under the Rules, a distributor may only make revisions to its tariff structure statement to address matters raised by our draft decision.[46] We will publish the distributor's revised tariff structure statement and again call for submissions before making a final decision.[47]

---

38 NER, cl. 6.18.5(j); this requirement includes jurisdictional requirements.
39 NER, cl 6.8.2(7) and 6.18.5(c).
40 NER, cl 6.12.3(k).
41 NER, cl. 6.9.3(a).
42 NER, cl. 6.10.2; cl. 11.76.2(a).
43 NER, cl. 6.10.2(a)(3); cl. 11.76.2.
44 NER, cl. 6.12.3(k).
45 NER, cl. 6.10.3(a).
46 NER, cl. 6.10.3(b).
47 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.[48] The distributor must comply with the approved tariff structure statement when setting prices annually for direct control services.[49]

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.[50] 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.[51]

---

[48] 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.

[49] NER, cl. 6.18.1A(c).

[50] NER, cl. 6.18.1B.

[51] NER, cl. 6.18.1B(d).

3 Proposed tariff classes

We approve SAPN's proposed tariff classes for residential, small business large and major business customers. We are satisfied that SAPN's proposed tariff classes contribute towards the achievement of compliance with the distribution pricing rules.[52]

SAPN's proposed tariff classes group similar customers together which take into account their connection to and use of the network. We are satisfied that SAPN's proposed tariff classes are compliant with the distribution pricing principles, and in particular, our distribution determination concerning the assignment and re-assignment of customers to tariff classes.[53]

SAPN proposed five tariff classes for the tariff structure statement period (2017-2020).[54]

- Low Voltage Residential
- Small Low Voltage Business (referred to in initial proposal as Low Voltage Business)
- Large Low Voltage Business (referred to in initial proposal as Distribution Transformer Business)
- High Voltage Business
- Major Business

A description of these tariff classes is in Table 3-1 below.

Table 3-1: Description of tariff classes

Tariff Class	Customer type
Residential	Low voltage residential customers, single phase and three phase
Small LV business	Low voltage businesses consuming less than 160MWh per annum, single phase and multi-phase
Large LV business	Low voltage businesses consuming more than 160MWh per annum
High Voltage business	High voltage businesses generally supplied at 11kV
Major business	High voltage businesses connected to the sub-transmission network or a zone substation

Source: SAPN revised tariff structure statement – Part B

[52] NER, cl.6.18.5(e).

[53] NER, cl. 6.18.5(j) and AER, *SA Power Networks determination 2015–20 , Attachment 14 – Control mechanisms*, October 2015, p.22

[54] SA Power Networks, *Tariff structure statement revised proposal – part B,* October 2016, p.66

The Large Low Voltage Business tariff class[55] is a new tariff class proposed by SAPN. Customers within this tariff class have been separated from the Low Voltage Business tariff class into Small Low Voltage Business tariff class and Large Low Voltage Business tariff class. SAPN submitted customers assigned to the tariff class:

- use less network assets as they are normally connected directly to a transformer
- are generally larger customers
- have load factors and demand profiles that are similar to other large business customers.

We consider the additional tariff class proposed by SAPN reflects the nature of the customer's connection to the network as set out in SAPN's current distribution determination[56] and in compliance with distribution pricing principle 6.18.5(j).

3.1 Standalone and avoidable costs

We approve SAPN's recovery of cost within each of their tariff classes. We are satisfied that for each tariff class, the revenue expected to be recovered lies between;

- the standalone costs of serving the retail customers who belong to that tariff class; and
- the avoidable cost of not serving those retail customers.

The stand alone cost for a tariff class is the cost of supplying the electricity network service to only the tariff class concerned, with all other tariff classes not being supplied. If customers were to pay above the stand-alone cost, then it would be economically beneficial for customers to switch to an alternative provider. 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 from the customer.

We consider this contributes to the achievement of compliance with the distribution pricing principle 6.18.5(e).

In setting network tariffs, SAPN 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 lie between the standalone cost of serving those customers and the avoidable cost of not serving those customers. This prevents large cross subsidies between tariff classes, such as residential and large business customers.

---

[55] Referred to in the draft decision as Distribution Transformer Business tariff class,

[56] AER, *SA Power Networks determination 2015–20 , Attachment 14 – Control mechanisms*, October 2015, p.22

SAPN has provided estimates of the standalone and avoidable costs of serving their customers within each tariff class and explained their approaches to estimating these costs. For these initial tariff structure statements we have assessed whether the expected revenue within each tariff class lies between the standalone and avoidable costs of serving customers within that tariff class. As the initial tariff structure statements are being assessed within a regulatory period we have not reviewed the distributors underlying methodologies for calculating these costs in detail. For future tariff structure statements we are likely to assess in more detail the underlying methodologies of calculating the avoidable and standalone costs.

In Table 3-2 below SAPN provided estimates of the avoidable and standalone costs of serving residential customers, small business customers, large low voltage customers, high voltage business customers and major business customers and explained its approach to estimating these costs.[57]

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

Table 3-2: Stand-alone and avoidable distribution network costs 2017/18 ($ M)

Tariff class	Stand-alone cost	Tariff revenue	Avoidable cost
Major business	$44	$9	$6
HV business	$57	$33	$5
Large LV business	$364	$175	$75
Small business	$560	$142	$103
LV residential	$648	$410	$246

Source: SAPN revised tariff structure statement – Part B

[57] SA Power Networks, *Tariff structure statement revised proposal – part B,* October 2016, p.93

4 Residential and small business customer tariffs

This chapter sets out our assessment of the SAPN's proposed tariff structures, including tariff design and tariff assignment policy, for residential and small business customers. Our assessment of SAPN's proposed charging windows for each tariff class, including residential and small business customers, are set out in chapter 7.

We approve SAPN's residential and small business customer tariffs and assignment policy. We are satisfied SAPN's choice of tariffs and tariff assignment policies contribute towards the achievement of compliance with the distribution pricing principles and other applicable requirements in the Rules.

In our draft decision we approved the following aspects of SAPN's proposal for residential and small business customers.[58]

- mandatory assignment of new customers to transitional demand tariffs
- mandatory assignment of customers who undergo a significant alteration to supply to transitional demand tariffs
- allowing existing customers who do not undergo any significant alteration to supply to stay on their current tariffs, and
- allowing customers to opt-in to a more cost reflective demand tariff.

In our draft decision we were not satisfied the following elements complied with the distribution pricing principles, nor were compliant with SAPN's distribution determination.

- SAPN's proposed start date for mandatory assignment of 1 July 2017. We considered this change should take effect from 1 December 2017, as it aligns with the timing of the AEMC metering rule changes[59]
- SAPN's proposed transitional usage, solar and social tariffs[60]
- SAPN's proposal to assign customers to demand tariffs based on annual consumption thresholds.[61]

SAPN accepted our draft decision in its revised proposal. SAPN has removed the solar, social and transitional usage tariffs from its revised tariff statement. SAPN's revised proposal slows the pace of transition for residential and single phase small business customers making demand tariffs opt–in. We have accepted the use of opt-in assignment policies in this round of tariff structure statements, however we consider each tariff structure statement should show movement towards more cost reflective tariffs, taking into account of possible customer impacts. We note that sole reliance on

---

58 AER, *SAPN tariff structure statement draft decision*, August 2016, p. 64

59 Ibid

60 AER, *SAPN tariff structure statement draft decision*, August 2016, pp. 43-44

61 AER, *SAPN tariff structure statement draft decision*, August 2016, pp. 70-73

opt-in arrangements may not be appropriate into the future as discussed in our future direction overview.

As SAPN has addressed our concerns from the draft decision, we therefore approve the residential and small business tariffs in SAPN's revised proposal.

4.1 Tariff design

We are satisfied that SAPN's proposed suite of small customer tariffs contributes towards the achievement of compliance with the distribution pricing principles. In our draft decision we were not satisfied that the inclusion of the social and solar tariffs, or the transitional usage tariffs contribute towards the achievement of compliance with the distribution pricing principles.[62] SAPN has removed the solar, social or transitional usage tariffs from its revised tariff statement.

SAPN has made some additional changes from its initial proposal:

- SAPN removed the transitional kW demand tariff for residential and single phase small business customers
- SAPN replaced the minimum demand charge with a fixed charge on its demand tariffs for residential and small business customers.

We encourage SAPN to include more cost reflective tariffs as default options in future tariff statement proposals.

Removal of transitional kW demand tariff

SAPN proposed in its revised proposal to remove the transitional kW demand tariff. Residential and single phase small business customers will continue to be assigned to their existing tariff.

SAPN submitted the change reflects a slower pace of change for small customers and the move to an opt-in approach.[63] Residential customers are able to opt-in to the fully cost reflective kW demand tariffs and small business customers are able to opt-in to either the transitional or fully cost reflective kVA demand tariff.

We consider SAPN's initial proposal would have sent strong cost reflective signals. This approach:

- provides customers making new investments with more cost reflective price signals, and
- is consistent with the National Electricity Objective to promote efficient investment.

However, we accept the removal of the transitional kW demand tariff, for the following reasons. Firstly, we consider the transitional kW demand tariff, given SAPN's move to

---

62 AER, *SAPN tariff structure statement draft decision*, August 2016, pp. 43-44

63 SA Power Networks, *Revised tariff structure statement - part B,* October 2016, p.48

an opt-in approach, is no longer necessary as a transitional measure. This is because the customer has a choice through their retailer as to what type of network tariff they will be on. Secondly, SAPN has made these changes in response to stakeholder feedback that additional time was required before exposing customers to cost reflective price signals.[64]

Replacing the minimum demand charge with a fixed charge

SAPN proposed in its revised proposal to replace its minimum demand charge with a fixed charge.

In our draft decision we considered the minimum demand charge effectively worked as a fixed charge; it is a charge that SAPN will recover every month regardless of a customer's actual demand recorded in the demand charging window during the billing period. However, as the demand tariffs had no fixed charges, and the minimum demand charge would be aimed at recovering some residual costs, we sought further information from SAPN in their revised proposal to determine whether SAPN's recovery of residual costs complied with the Rules.

SAPN submitted in its revised proposal stakeholders had concerns regarding the minimum demand charge. SAPN further submitted by replacing the minimum demand charge with a fixed charge it will improve transparency regarding the recovery of residual costs.[65]

Stakeholders have not submitted objections to replacing the minimum demand charge with a fixed charge. A number of stakeholders previously expressed concerns about the use of a minimum demand charge. These concerns are addressed in our draft decision.[66]

We are satisfied that move to fixed charges proposed by SAPN contributes to compliance with the distribution pricing principles. This is because we consider this approach appropriately balances the distribution pricing principles to:

- recover residual costs in a manner which minimises distortions to efficient price signals[67]
- improves transparency regarding the allocation of residual costs[68]
- takes into account the impact on customers—with the fixed charge at a similar level to the minimum demand charge.[69]

---

65 SA Power Networks, *Revised tariff structure statement - part B,* October 2016, p. 58

66 AER, *SAPN tariff structure statement draft decision*, August 2016, pp. 45-46

67 NER, cl. 6.18.5 (g).

68 NER, cl. 6.18.5(i).

69 NER, cl. 6.18.5(h)(1).

4.1.1 Residential tariffs

SAPN proposes that residential customers should be assigned to the residential single rate tariff unless they choose otherwise. These customers will however be able to opt in via their retailer to a cost reflective demand tariff if they so choose. This is a change from SAPN's original proposal. Under this proposal customers were assigned to a transitional demand tariff but were able to opt-in to a fully cost reflective demand tariff. SAPN's default residential tariff is an inclining block usage—the first block applies to consumption up to 4MWh per annum, and the second block applies to consumption in excess of 4MWh per annum. SAPN aims to reduce the price difference between block one and block two over the 2017-2020 period, with the aim to have a single block by 2019. SAPN also offers a controlled load tariff, with a solar sponge option. The secondary tariff reduces customer bills in return for SAPN remotely controlling customer appliances to alleviate demand pressures.[70]

The inclining block tariff design is not cost reflective as the usage charge does not signal times when peak demand puts most stress on the network. Customers are unable to reduce bills by shifting their usage away from peak demand periods to other periods. We note the lack of widespread interval metering at the residential and small business level, however, means that the option for demand or time-of-use tariffs for the majority of customers is limited. We consider a more neutral tariff such as SAPN's proposed move towards a flat tariff, whilst still not sending signals regarding the timing of consumption, would be less distortionary to consumption decisions.

SAPN proposed retailers can opt–in residential customers to a demand tariff comprising a fixed charge, a usage charge and a demand charge, subject to the customer having the necessary metering arrangements. The demand charge has a peak charge (November to March), and a shoulder charge (April to October).[71]

SAPN's opt-in demand tariff is set out in Table 4-1 below.

Table 4-1: Residential demand tariff

Feature	Monthly actual kW demand tariff
Assignment trigger	Retailer requests to be assigned to tariff
Charging parameters	Part 1: Consumption usage component ($/kWh) – single block consumption or consumption with peak and off peak (solar sponge option). Part 2: Demand charge component ($kW/day) set at 100 per cent of estimated long run marginal cost. A higher price applies in the summer period (November to March) than in the winter period (April to October). Part 3: Fixed or standing charge component
Charging windows	Peak charge (November–March).

[70] SA Power Networks, *Revised tariff structure statement - part B,* October 2016, p.71

[71] SA Power Networks, *Revised tariff structure statement - part B,* October 2016, p.72

	Shoulder charge (April–October). Day: peak & shoulder rates apply Mon–Sun. Christmas Day excluded. Time: peak & shoulder demand charges will apply from 12–9pm.
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.

Source: SAPN revised tariff structure statement – Part B

4.1.2 Small business tariffs

SAPN proposed that small business customers with single phase supply should be assigned to its existing business time of use tariff. SAPN introduced a transitional version of their cost reflective kVA tariff for new small business customers with multi-phase supply or those who require an alteration to multi-phase supply. All small business customers are able to opt-in to the fully cost reflective monthly actual kVA demand tariff. This is a change from SAPN's initial proposal where single phase small business customers were mandatorily assigned to a transition kW demand tariff.

We approved the business two-rate tariff in the draft decision, however, in SAPN's initial proposal this tariff was to be closed to new customers. We therefore did not assess the business two-rate tariff against the distribution pricing principles in terms of cost reflectivity in our draft decision. This is discussed further in our draft decision.[72] SAPN's revised proposal has the small business two-rate tariff as its default tariff for single phase small business customers.[73] The business two-rate tariff comprises a fixed charge and a variable usage charge. Peak charges apply work-days 7am to 9pm, all other times including non-work days are off-peak. [74]

As SAPN revised proposal no longer proposes to close the business two-rate tariff to new customers we have considered the business two-rate tariff against the distribution pricing principles in terms of cost reflectivity. In this first round of tariff structure statements, our view is either demand or time-of-use tariffs are acceptable. However, we have concerns with the specific design of SAPN's business time-of-use tariff. We are concerned that the charging windows proposed do not sufficiently match the times of network congestion.[75]

At this initial stage of tariff reform, given SAPN is assigning multi-phase businesses by default to demand tariffs[76], we approve the business two-rate tariff. However, should SAPN include the business two-rate tariff as default in future tariff structure statements, we encourage it to provide information which highlights how the business two-rate tariff reflects its efficient costs of providing services to these customers.

---

72 AER, *SAPN tariff structure statement draft decision*, August 2016, pp. 44-45

73 SA Power Networks, *Revised tariff structure statement - part B,* October 2016*,* p. 74

74 SA Power Networks, *Revised tariff structure statement - part B,* October 2016*,* pp. 74-75

75 NER, cl. 6.18.5(g).

76 NER, cl.6.18.5(h).

For new multi-phase small business customers or those small business customers requiring an alteration of supply to a multi-phase supply, SAPN introduced a transitional version of its cost-reflective kVA demand tariff. This is SAPN's proposed default tariff for small business multiphase customers. These customers have an option to opt-in to a fully cost-reflective kVA demand tariff should they elect to do so. Likewise, existing multi-phase customers on a fully cost-reflective tariff can choose to opt-in to the transitional demand tariff.

SAPN's small business demand tariffs are set out in Table 4-2 below.

Table 4-2: Small business demand tariffs

Feature	Monthly actual kVA demand tariff	Monthly actual kVA demand transition tariff
Assignment trigger	Retailer requests to be assigned to tariff	Default for new multiphase small business customers or existing small business customers who upgrade to a multiphase supply and require a new meter. Single phase customers or existing multiphase customers may request to be assigned to this tariff.
Charging parameters	Part 1: Consumption usage component ($/kWh) – single block consumption Part 2: Demand charge component ($kVA/day) set at 100 per cent of LRMC. A higher price applies in the summer period (November to March) than in the winter period (April to October). Part 3: Fixed or standing charge component ($/day)	Part 1: Consumption usage component ($/kWh) –consumption with peak and off peak Part 2: Demand charge component ($kVA/day) set at approximately 50 per cent of LRMC. A higher price applies in the summer period (November to March) than in the winter period (April to October). Part 3: Fixed or standing charge component ($/day)
Charging windows	Peak charge (November–March). Shoulder charge (all year). Day: peak & shoulder rates apply work days only Time: peak demand charges will apply from 4–9pm; shoulder rates apply from 12–4pm.	Peak charge (November–March). Shoulder charge (all year). Day: peak & shoulder rates apply work days only Time: peak demand charges will apply from 4–9pm; shoulder rates apply from 12–4pm.
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 (that falls within the peak charging window) is used as the electricity quantity to be multiplied by a price. Every month, the calculation is reset.	

Source: SAPN revised tariff structure statement – Part B

SAPN also proposed:[77]

[77] SA Power Networks, *Revised tariff structure statement - part B,* October 2016, p. 68

- New and existing residential customers and small businesses with a single phase supply will default to an existing energy based tariff. These customers can opt-in to a cost reflective tariff if they have the required meter
- The business single rate tariff (closed) has been simplified to a single block from an inclining block tariff
- Electric vehicles with small chargers (<25A) that are hard-wired, are permitted to use the controlled load tariff, and
- Small customers with multiple properties are eligible to apply for a 'can't lose' 12 month trial on cost-reflective prices if the properties are currently on legacy tariffs (e.g. this applies to customers currently assigned to either the business two-rate or business single rate tariffs).

The majority of stakeholders were supportive of demand tariffs.

- The South Australian Department of State Development supported the implementation of demand tariffs as a means to reduce the pressure on the network at peak times, limiting network expansion and therefore minimise electricity prices over time. It stated demand based tariffs provide greater incentive for customers to change their usage during periods of peak demand.[78]
- The Clean Energy Council supported the principle of moving towards cost reflective network pricing. It submitted reducing peak demand and spreading the electricity load more evenly will improve network utilisation, reducing network spending and wholesale electricity costs. The Clean Energy Council notes the key issue for tariff reform is to implement the reforms in ways that build public understanding and support.[79]
- Business SA submitted a joint study undertaken by Business SA / SA Wine Industry Association shows the majority of small business users are likely to be better off under cost reflective tariffs, however there needs to be appropriate mechanisms available for them to predict likely tariff outcomes.[80]
- Origin, Red and Lumo Energy supported demand tariffs, however considered customers need time to understand the impact that their demand profile in order to benefit from a demand tariff. [81]

However, Solar Citizens and the Renewable Energy Policy Group consider demand tariffs are inappropriate for many residential and small business customers. Solar Citizens and the Renewable Energy Policy Group submitted that until more dynamic

---

[78] Government of South Australia - Department of State Development, *Submission on SA Power Networks' revised tariff structure statement*, November 2016, pp.1-2

[79] Clean Energy Council, *Submission to AER on SA, ACT, NSW and QLD tariff structure statements*, October 2016, pp. 1-4

[80] Business SA, *Submission on the AERs draft decision on SA Power Networks proposed tariff structure statement*, October 2016, pp. 1-4

[81] Origin Energy, *Submission on SAPN revised tariff structure statements*, 26 October 2016; Red and Lumo Energy, *Submission on SAPN revised tariff structure statement*, October 2016, pp. 1-3

tariff structures are available, time-of-use tariff structures are the better choice for improving price signals to customers.[82]

Overall, SAPN's proposed demand tariffs incorporate a demand charge based on averaged costs. We agree with Solar Citizens and the Renewable Energy Policy Group that the demand charge may not match when the overall network will be facing its peak. However, we do not agree that time-of-use tariff structures are necessarily a better choice than demand tariffs for improving price signals. We consider that, provided the charging windows are well-chosen, either demand or time of use tariffs can indicate where the network is likely to experience congestion. This will encourage customers to shift their use of electricity to off-peak times.

It is likely that future refinement of tariff structures might enable a more granular tariff application, including perhaps locational tariffs. At present, no distribution network is able to fully match customer and network peak times via a tariff signal.

Our role is to determine whether proposed tariffs comply with the distribution pricing principles. For this first round of tariff structure statements, we have been open to approving either demand or time-of-use tariffs as the more cost reflective tariff design for residential and small business customers. SAPN has proposed demand tariffs as its most cost reflective tariff for residential and small business customers—and we have approved this element of SAPN's proposal as it contributes to compliance with the distribution pricing principles.[83] On the other hand, two of the NSW distributors (Ausgrid and Endeavour Energy) proposed time-of-use tariffs as their most cost reflective tariff for residential and small business customers—as we have approved this element of their proposals as it also contributes to compliance with the distribution pricing principles.[84]

We consider the Rules do not favour any specific tariff design. Tariffs that better reflect distributors' efficient costs are required for compliance with the distribution pricing principles. As SAPN's demand tariffs for residential and small business customers move towards better cost reflectivity in their tariff structures we are satisfied they contribute towards the achievement of compliance with the distribution pricing principles.

4.2 Tariff assignment

We approve the tariff assignment policy proposed by SAPN. In terms of moving towards cost reflective tariffs, SAPN has adopted a relatively cautious approach, compared to its initial proposal. SAPN's revised proposal makes cost reflective tariffs opt–in for residential and single phase small business customers.

---

82 Solar Citizens and SA Renewable Energy Policy Group, *Submission on AER draft decision 2016 TSS proposals of SA Power Networks and NSW DNSPs, October 2016*, pp. 1-6; Solar Citizens and SA Renewable Energy Policy Group, *Submission on SAPN's revised tariff structure statement*, October 2016

83 NER, cl. 6.18.5(g).

84 NER, cl. 6.18.5(g).

SAPN continues to propose new multi-phase customers and existing single phase customers that upgrade to a multi-phase connection will be mandatorily assigned to a demand tariff. We approved this in our draft decision.[85]

SAPN has addressed the issues raised in our draft decision, that is:

- SAPN is no longer proposing to assign residential and small business customers based on annual consumption thresholds and meter type[86]
- SAPN revised its proposed start date for assignment to take effect from 1 December 2017.

We approve these revisions. Our reasoning on these matters is discussed in section 6.2 of the draft decision.

SAPN has changed its assignment policy in its revised proposal. SAPN is no longer proposing that residential customers or single phase business customers be mandatorily assigned to cost-reflective tariffs. These customers will default to an existing energy based tariff and may opt-in to a monthly actual kW demand tariff (residential) or a monthly actual kVA demand tariff (small business).

SAPN submitted it is looking to progress the take up of cost reflective opt-in customers by identifying and advising those customers that will benefit from a demand based tariff and have a retailer that will pass through SAPN's pricing structure.

SAPN is of the view its initial approach would have provided cost reflective signals to customers at the time they are making investment decisions for the future. However, SAPN has reduced the pace of tariff reform for residential and small business (single phase) customers for the following reasons:[87]

- SAPN considered residential and small business customers may require more time to better understand their electricity usage patterns before transitioning to a demand tariff.
- SAPN questioned whether the energy industry is in a position to implement cost reflective pricing for larger volumes of residential and small business customers as billing systems may need to be upgraded.
- Consideration of Australian Energy Market Operator's demand forecast of flat demand for the coming years. This means SAPN can accommodate a slower transition to cost reflective tariffs than originally proposed.

SAPN stated this is in response to its recent stakeholder engagement along with a number of stakeholder submissions to the AER's issues paper.[88] SAPN further submitted that by 2020, given the current rate of smart meter roll-out, there should be a critical mass of data that will assist SAPN in developing cost reflective tariffs for small

---

85 AER, *SAPN tariff structure statement draft decision*, August 2016, pp. 66-70

86 SA Power Networks, *Revised tariff structure statement - part B,* October 2016, pp.70-72

87 SA Power Networks, *Revised tariff structure statement - part B,* October 2016, p.38, pp.46-47

88 SA Power Networks, *Revised tariff structure statement - part B,* October 2016, p.38, pp.40-47

customers. SAPN's view is this supports deferring default tariffs for small customers until 2020.[89]

There was a mixed response from submissions both for and against SAPN's assignment proposal.

- Clean Energy Council notes a slow, steady and successful reform process is preferable to one that is quick, unpopular and unsuccessful. The Clean Energy Council submitted the transition to cost reflective tariffs needs to build public support.[90]
- Origin, Lumo and Red Energy were supportive of SAPN's revised assignment policy. Origin, Lumo and Red Energy considered customers need time to understand their demand profiles. Origin also considered the revised assignment policy will enable SAPN, retailers and other stakeholders to undertake analysis on customer impact and responsiveness develop targeted education campaigns and identify effect methods for reducing peak demand. [91]
- Whereas, SA Department of State Development is disappointed that SAPN has stepped back from its initial proposal regarding customer assignment. SA Department of State Development is concerned:[92]
    - Reliance on an opt-in approach does not provide sufficient incentive for retailers to develop products that send appropriate price signals for customer. Notes SAPN's existing opt-in demand tariff has been available for over two years, with no retailers actively offering a retail product that reflects that tariff structure.
    - Customers making investment decisions will continue on the basis of existing usage only tariff structures without considering the impact of the decisions under new tariffs. Investment decisions about what technology to install are long-term decisions and therefore not sending the appropriate price signals despite an imminent change in tariff structures is not in the long term interest of consumers.

We agree with SA Department of State Development that an opt-in approach does not provide incentives for retailers to develop products that send appropriate price signals. And we do not necessarily agree with all of SAPN's reasons for slowing the pace of tariff reform. However, at this initial step in the tariff reform process, in light of the distribution pricing principles' reference to the desirability of transition periods, impacts on customers[93] and SAPN's implementation of demand tariffs for residential and small

---

89 SA Power Networks, *Revised tariff structure statement - part B,* October 2016, p.33

90 Clean Energy Council, *Submission to AER draft decision on SA Power Networks tariff structure statement*, August 2016, pp.2-3,

91 Origin Energy, *Submission on SAPN revised tariff structure statements*, 26 October 2016; Red and Lumo Energy, *Submission on SAPN revised tariff structure statement*, October 2016, pp. 1-3

92 Government of South Australia - Department of State Development, *Submission on SA Power Networks' revised tariff structure statement*, November 2016, pp.1-2

93 NER, cl. 6.18.5(h)

business customers, we consider the approach proposed by SAPN contributes to the achievement of compliance with the distribution pricing principles. We also emphasis that under the Rules, the AER cannot amend a distributor's tariff structure statement, including their tariff assignment policy, merely because we may have preferred a different outcome. Under the NER, our discretion in assessing tariff structure statements is limited and we must approve a distributor's proposal if we are satisfied it complies with the distribution pricing principles and other Rule requirements. In this sense, the Rules set a minimum baseline that distributors must met to gain approval.

We note reliance on opt-in arrangements may not be appropriate into the future, and that networks should consider as part of their consultation for the 2019 and beyond tariff statement(s), approaches that would result in faster transitions to cost reflective pricing. Given the Rule references to transitioning to cost reflective pricing (including over more than one regulatory control period), we expect distributors to implement further reforms in each subsequent tariff structure statement proposal in order to maintain compliance with the Rules.

4.2.1 Existing customers making no alterations to their supply

SAPN proposed to allow existing customers who do not undertake a major alteration to supply to remain on their existing tariffs. We consider this approach allows customers who have made investment decisions based on current tariffs protection while initial steps towards cost reflective tariffs are taken.[94] We accepted this in our draft decision.

Our draft decision did not approve SAPN initial proposal to mandatorily assign customers to either a transitional usage or demand tariff (depending on meter type) for customers who consume over a specific amount of electricity.

SAPN has accepted our draft decision on this matter and is no longer proposing transitional usage tariffs. SAPN has also addressed the criteria for assignment regarding customers who consume over a specific amount of electricity. Given these changes, we are satisfied that SAPN's treatment of existing customers contributes towards the achievement of compliance with the distribution pricing principles.

Please refer to section 6.2.2 of our draft decision for further reasoning.

4.2.2 New customers and existing customers making new investments

Our draft decision accepted SAPN's initial proposal to mandatorily assign new residential and small business customers, as well as customers who have made significant alterations to supply to demand tariffs.

---

[94] AER, *SAPN tariff structure statement draft decision*, August 2016, pp. 64-66

SAPN is still mandatorily assigning new multiphase or existing multiphase small business customers who alter their supply and require a new meter. SAPN clarified that the alterations to supply/new customers does not include:[95]

- A change in the name of the existing account holder;
- The installation of an interval meter, by either customer choice or by replacement;
- Installing an appliance greater than 25 amps without increasing the supply capacity would not in itself require a meter upgrade, so will not be considered an alteration; and
- The installation of battery storage (unless the customer will export energy to the network which would require a new meter). Whilst battery storage does require an inverter, SAPN does not consider batteries to be an alteration to supply that will increase the cost of supply. SAPN's view is that it is likely that the customer will benefit from the use of cost-reflective tariffs with batteries; however SAPN does not propose to mandate such tariff assignments.

Business SA and the South Australian Wine Industry considered SAPN should revise its proposal for installation of an appliance greater than 25 amps as a significant alteration trigger.[96] Business SA would prefer the trigger be removed or limited to the particular types of equipment know to be key contributors to demand.[97] We note SAPN is no longer proposing the installation of an appliance greater than 25 amps as a trigger for reassignment.[98]

John Herbst, Solar Citizens and the Renewable Energy Policy Group consider that the AER should examine:[99]

- the proposed differentiation between customers with single phase and three phase connection, and.
- the installation of an inverter as a trigger for reassignment.

In our view new multi-phase connections are an appropriate trigger for reassignment to cost reflective tariffs given multiphase connection use more capacity than single phase connections.

Further, we consider new customers, customers upgrading their connection or customers installing an inverter, are appropriate triggers to reassign customers to a cost reflective tariff. In our view these triggers manage customer impact as it targets the customer before they have made their investment.[100] We consider this approach

---

95 SA Power Networks, *Revised tariff structure statement - part B,* October 2016, p.151

96 Business SA, *Submission on the AER's draft decision on SAPN*, p.2; South Australian Wine Industry, *Submission in response to AER's Draft Decision on SA Power Networks' TSS 2017–20*, p.2

97 Business SA, *Submission on the AER's draft decision on SAPN*, p.2

98 SA Power Networks, *Revised tariff structure statement - part B,* October 2016, p.151

99 John Herbst, *Submission on SA Power Networks' revised tariff structure statement,* October 2016, pp. 1-3; Solar Citizens and SA Renewable Energy Policy Group, *Submission on AER draft decision 2016 TSS proposals of SA Power Networks and NSW DNSPs*, October 2016, pp. 1-6

100 NER, cl.6.18.5(h).

allows a customer to consider their new investment with regard to the implications of the new tariff they will be assigned. Please refer to our draft decision section 6.2.1 where we have considered this issue.

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.

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.[101] 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.[102] 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.[103]

---

[101] NER, cl. 6.18.5(e) – (h).

[102] NER, cl. 6.18.5(c).

[103] 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.[104]

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[105] while balancing the customer impact[106] 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'.[107] 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.[108] Significant new investments may include:

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

---

104 NER, cl. 6.18.5(h).
105 NER, cl. 6.18.5(c).
106 NER, cl.6.18.5(h).
107 See our draft decision on SAPN's proposed solar tariff.
108 NER, cl.6.18.5(h).

Some of these upgrades are identifiable to distributors; others may require additional reporting arrangements.[109]

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.[110] 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.[111] 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

---

[109] 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.

[110] NER, cl.6.18.5(h).

[111] 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.[112]

[112] NER, cl. 6.18.5(b) to (d).

5 Large business customer tariffs

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

5.1 Tariff design

5.1.1 Large business customers connected to the LV network

We approve SAPN's proposed tariffs for Large LV business customers.[113] We consider demand tariffs are cost reflective as they signal to customers the times when peak demand constrains network capacity. These price signals can be effective demand management tools. We therefore consider SAPN's proposal contributes to the achievement of the distribution pricing principles.

In their initial proposal SAPN proposed transitional usage tariffs, which reflect the structure of those proposed for the residential and small business tariff classes. As outlined in the draft decision, and discussed in chapter 4 above, we consider the transitional usage tariffs were not cost reflective and did not contribute towards the achievement of compliance with the distribution pricing principles. SAPN has accepted this decision in their revised proposal.

SAPN has already made a number of reforms to these tariffs. SAPN has established a suite of demand tariffs for each tariff class. In 2015 SAPN has also established a tariff class for small businesses and large LV businesses that better reflect their size, consumption characteristics and supply voltage. SAPN submitted this enables more efficient pricing outcomes as small business and large low voltage business customers have different key characteristics. These are outlined below.

- Large low voltage business customers use less network assets as they are normally of a size that warrants connection from a transformer and not from low voltage mains; and
- Large low voltage business customers are generally large customers with similar load factors and diversity of demand to other large customers, whereas, small business customers that generally consume below 160 MWh per annum have poorer individual load factors but greater diversity of demand.

SAPN outlined the following tariffs were available to LV business customers in their revised tariff structure statement[114]:

- Agreed kVA demand[115]

---

[113] SAPN changed the name of this tariff class from 'Distribution transformer business' in the 2015/16 annual pricing proposal.

[114], SA Power Networks, *Revised tariff structure statement - part B,* October 2016, pp.8-9.

- Monthly actual kVA demand
- Actual kVA demand (transition)
- Single rate transition
- Two rate transition

Charging components and tariff assignment for each of these tariffs are shown in below. The single rate transition and two rate transition tariffs are only available to businesses with a type 6 meter. We have not received any further submissions from stakeholders since our draft decision.

Please refer to our draft decision section 4.3.1 for further reasoning.

Charging components for each of the three demand tariffs are presented below.

Table 5-1: Large low voltage customer demand tariffs[116]

	Monthly actual kVA demand	Agreed kVA demand (LV)*	Actual kVA demand (transition)
Demand charging window	Peak demand (Nov-Mar) 4-9pm Shoulder demand (All year) 12-4pm	Peak demand (Nov-Mar) 12-9pm Additional demand > demand required in peak period	Peak demand (Nov-Mar) 12-9pm Additional demand > demand required in peak period
Demand charging period	Work days	Work days	Work days
Demand charge ($/kVA/day)	Peak = 0.358 Shoulder = 0.178	Peak block 1 = 0.286 Peak block 2 = 0.231 Additional = 0.113	Peak = 0.358 Shoulder = 0.178
Supply charge	0.368	10.568	0.368
Usage charge	0.053	0.041	Peak = 0.053 Off-peak = 0.053
Assignment	Default	Opt-in	Closed**

[115] There is a variant of this tariff specifically available for sportsgrounds where annual demand is measured over a different period.

[116] Prices are based on 2019-2020 indicative prices from the tariff structure statement proposal

* SAPN also has two special purpose variants of this tariff. Sportsground annual agreed kVA demand and business annual agreed kVA demand back-up.

** Business actual kVA demand (transition) is used where a customer has been mandatorily assigned to a cost reflective tariff post July 2015 and would otherwise face a larger price increase. It is not an opt-in tariff but customers can be assigned to this tariff by SAPN. Large high voltage and major business customer tariffs.

5.1.2 Large business customers connected to the HV network

We approve SAPN's proposed tariffs for large business customers. We are satisfied they contribute towards the achievement of compliance with the distribution pricing principles. SAPN's large business customer tariffs exhibit relatively strong cost reflectivity. This is discussed further in the draft decision.[117]

SAPN has not proposed any changes to the seven current tariffs, or proposed any additional tariffs, to customers in their high voltage and major business tariff classes. SAPN has accepted our decision to approve the tariffs offered to large high voltage business and major business tariff classes.

No stakeholder comments were received on large high voltage and major business customer tariffs.

The following tariffs are offered to high voltage customers:

- High voltage business monthly actual kVA demand tariff
- High voltage business agreed kVA demand (<400 kVA) tariff
- High voltage business agreed kVA demand tariff

Charging components for each of these tariffs are presented in Table 5-2 below:[118]

Table 5-2: High voltage tariffs - charging components

	Monthly actual kVA demand	Agreed kVA demand (<400 kVA)	Agreed kVA demand
Demand charging window	Peak demand (Nov-Mar) 4-9pm Shoulder demand (All year) 12-4pm	Peak demand (Nov-Mar) 12-9pm Additional demand > demand required in peak period	Peak demand (Nov-Mar) 12-9pm Additional demand > demand required in peak period
Demand charging	Work days	Work days	Work days

[117] Australian Energy Regulator, *Draft Decision Tariff Structure Statement proposal SA Power Networks, August 2016,* pp.56-58.

[118] Prices are based on 2019-2020 indicative prices from the tariff structure statement proposal

period			
Demand charge ($/kVA/day)	Peak = $0.358 Shoulder = $0.178	Peak block 1 = $0.286 Additional = $0.113	Peak = $0.227 Additional = $0.135
Supply charge	$0.368/day	$10.569/day	$72.388/day
Usage charge	$0.051/kWh	$0.039/kWh	$0.028/kWh

The following tariffs are offered to major business customers:

- Zone substation kVA demand tariff (postage stamp TUoS)
- Zone substation kVA demand locational tariff
- Sub-transmission kVA demand tariff (postage stamp TUoS)
- Sub-transmission kVA demand locational tariff

Charging components for each of the these tariffs are presented in Table 5-3 below.

Table 5-3: Major business tariffs - charging components

	Zone substation kVA demand tariff	Zone substation kVA demand locational tariff	Sub transmission kVA demand tariff	Sub transmission kVA demand locational tariff
Demand charging window	Anytime	Anytime	Anytime	Anytime
Demand charging period	7 days a week	7 days a week	7 days a week	7 days a week
Demand charge ($/kVA/day)	Block 1 = $0.173 Additional = $0.104	Block 1 = Differs per customer Additional = $0.104	Block 1 = $0.092 Additional = $0.024	Block 1 = Differs per customer Additional = $0.024
Supply charge	-	Yes – locational	-	Yes - locational
Minimum agreed anytime demand	5,000 kVA	5 MVA	5 MVA	5MVA
Usage charge	$0.016/kWh	$0.006 or $0.020/kWh	$0.012/kWh	$0.002 or $0.017/kWh

We are satisfied SAPN's proposed tariff designs for their major business customers contribute to the achievement of compliance with the distribution pricing principles. They signal to customer's times of network stress whilst giving customers the ability to adjust behaviour and respond. This is discussed further in the draft decision.

5.2 Tariff assignment

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

SAPN has been transitioning their major business, high voltage and large low voltage business customers on to tariffs that better reflect costs over a number of years. In our view this has been a positive move towards cost reflectivity.

We did not receive any comments from stakeholders regarding SAPN's assignment policies for major business, high voltage and large low voltage business customers.

6 Tariff levels

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

The distribution 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.[119] 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.[120] 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, consumers may make more informed choices about their electricity usage. Tariff reform seeks to promote additional investment in the network by distributors only when consumers value increased demand more than the cost of delivering the additional network capacity necessary to meet that demand.

We approve the SAPN's approach to calculating long run marginal costs and passing those costs through to customers in the form of tariff structures. We are satisfied this proposal contributes to the achievement of compliance with the distribution pricing principles.[121] This is because we are satisfied the proposal complies with the rule requirements for tariffs to be based on long run marginal costs.[122]

In our draft decision we were unable to approve SAPN's long run marginal cost calculation. We were satisfied that SAPN's long run marginal cost methodology, in terms of using the average incremental cost approach and also the types of costs included in the calculation, complied with the rules for this first stage of tariff reform. Accordingly, we did not require SAPN to change its methodology. However, we did not approve SAPN's use of 2010 forecasts in estimating its long run marginal cost.

SAPN's revised proposal includes an updated long run marginal cost forecast. A forecast period of 25 years was used, from 2016/17 to 2039/40, in order to provide a more realistic long run estimate. Using the 2015-20 regulatory control period costs forecasts were prepared to 2024/25 and the average of 2020-25 expenditures applied for the remainder of the 25-year analysis period.

---

119 NER, cl. 6.18.5(f).

120 NER, Chapter 10–Glossary.

121 NER, cl. 6.18.5(f).

122 NER, cl. 6.18.5 (f)(1)(2)(3)

SAPN apportioned costs to tariff classes (distribution costs, PV FiT cost recovery and transmissions costs) at the asset level. Some assets were apportioned based on customer numbers, while tariff classes were only charged for asset categories they use. Fifty per cent of asset charges were allocated to the demand charging component of tariffs which is aimed to reflect SAPN's long run marginal cost.

Figure 6-1 below outlines how SA Power Networks allocates the revenue across tariff classes. SAPN submitted this ensures that tariffs reflect the efficient costs incurred in supplying customers using those tariffs.

Figure 6-1: 2017/18 revenue allocation across network elements and to tariff class

Allocation Basis to Tariff Class	Tariff Class				
	Major business	High voltage business	Large LV business	Small business	Residential
Number of Customers (NMI's)	20	192	4,910	92,970	771,000
Diversified Demand (MVA)	149	203	793	644	1,605
Usage GWh (at Pool Exit)	973	931	3,454	1,785	4,253
Distribution (SA Power Networks) $775M					
Sub-transmission lines	9% allocated half demand half usage				
Zone substations	17% allocated half demand half usage				
High Voltage Lines		32% allocated half demand half usage			
Distribution Transformers			20% allocated half demand half usage		
Low Voltage Lines				16% to NMI/demand/usage	
Services				6% NMIs only	
PV FiT Recovery (SA Government Scheme) $88M					
Sub-transmission lines	37% allocated on DUoS proportion				63%
Transmission (ElectraNet) $263M					
Transmission Exit	6% locational price pass-through	10% peak demand allocation			
Transmission Locational		35% peak demand allocation			
Transmission Non-locational		19% allocated on demand		30% allocated on usage	
Transmission Common Service					

Source: SAPN revised proposal – part B, p. 97

SAPN's revised calculation included updates to the forecast growth related capital expenditure, and forecast incremental growth related operating expenditure. SAPN's revised proposal also included approximately 7 per cent of the forward looking asset replacement costs. We support SAPN's approach to include some of its expected replacement expenditure in its forward looking long run marginal cost estimate.

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, 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. Replacement capex and associated opex should be included in long run marginal cost estimates to encourage network capacity to more towards the level that customers value.

We are satisfied SAPN's tariff structure statement proposal is contributes to the achievement of compliance with the distribution pricing principles. The proposed tariff 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.

Mr John Herbst submitted SAPNs annual pricing proposals (the explanatory documents), contain an error in the calculation of LRMC.[123] Principally the error relates to one additional year of inflation included in SAPN's LRMC forecasts.

The error identified by Mr Herbst is not material. The calculation of LRMC in the written proposal is to show how LRMC is allocated to each tariff class. The actual approved increase is determined using price model which calculates annual prices as a weighted average price cap. While the written document shows how LRMC is allocated to tariff classes, that is how some tariff components may be increased or decreased relative to others; it is not the actual approved increase.

The Rules at the time required SAPN to take into account the LMRC for the service. However, the Rules do not explicitly state how a distributor must undertake this requirement. [124] We note SAPN has since revised its LRMC calculation. We do not consider the additional year of inflation included in SAPN's explanatory documents constitutes a material error.

6.2 Recovery of residual costs

We approve SAPN's treatment of residual costs. We are satisfied they contribute to the achievement of compliance with the distribution pricing principles.

In the draft decision we did not accept SAPN's residual cost allocation. We were not satisfied SAPN had sufficiently outlined how it intended to recover its residual costs and from which charging parameter. [125]

In SAPN's revised proposal it explained its residual cost recovery methodologies. SAPN revised its residual cost allocations, in particular for residential demand through the use of a fixed charge in combination with the usage charge and removing the previously proposed minimum kW demand charge for residential demand tariffs.

SAPN submitted after pricing the long run marginal cost signal in the DUoS demand tariff element, the balance of residual costs will be recovered from usage and fixed (supply charge) tariff elements. Table 6-1 below shows the proportion of an average customers distribution charge, recovering either long run marginal cost reflective costs (demand charges) or residual costs (fixed and usage charges). Note that the residential and small business usage tariffs do not have any long run marginal cost demand tariff element.

---

[123] John Herbst, *Submission on SA Power Networks' revised tariff structure statement*, October 2016, pp. 1-3

[124] National Electricity Rules Version 60

[125] AER, *SAPN tariff structure statement draft decision*, August 2016, pp.61-62

Table 6-1: Cost recovery

Tariff element	Major business	HV business	Large LV business	Small business demand	Small business usage	Residential demand	Residential Usage
LRMC demand	69%	50%	46%	48%	-	49%	-
Fixed charges	-	11%	7%	3%	10%	19%	24%
Usage charges	31%	39%	46%	50%	90%	32%	76%

Source: SAPN revised proposal

The residential supply charge applies equally to the demand and usage tariffs. The demand tariff has (on average), a higher usage per annum resulting in a lower fixed charges proportion (19% vs 24%).

Stakeholders questioned the increases to fixed charges.[126] SAPN are proposing a fixed charge in place of a minimum demand charge for residential demand tariffs. SAPN's fixed charge is at a similar level to the previously proposed minimum demand charge. We are satisfied that the changes to the recovery of residual costs proposed by SAPN contribute to compliance with the distribution pricing principles. This is because we consider this approach appropriately balances the distribution pricing principles to recover residual costs in a manner which minimises distortions to efficient price signals and improves transparency regarding the allocation of residual costs.[127] This is explained further below.

Solar Citizens submitted it disagrees with using fixed charges only to recoup additional residual costs. This is for the following reasons:[128]

- recovering residual costs through consumption charges as well, recoups costs relative to a customer's usage of infrastructure, and
- recovery of additional residual costs mainly through fixed charges risks consumers going off-grid.

We note SAPN intends to recover its residual costs through a combination of fixed and usage charges. This is consistent with other distributors' approaches.[129]

A significant proportion of a distributor's revenue requirement is made up of the fixed capital costs of previous investments in network assets. These fixed costs are not

[126] John Herbst, *Submission on SA Power Networks' revised tariff structure statement*, October 2016, pp. 1-3; Solar Citizens and SA Renewable Energy Policy Group, *Submission on AER draft decision 2016 TSS proposals of SA Power Networks and NSW DNSPs*, October 2016, pp. 1-6

[127] NER, cl.6.18.5(i)

[128] Solar Citizens and SA Renewable Energy Policy Group, *Submission on AER draft decision 2016 TSS proposals of SA Power Networks and NSW DNSPs*, October 2016, pp. 1-6

[129] Ergon Energy, Energex, ActewAGL, Jemena, United Energy

affected by current and future consumption decisions. Therefore, from an economic perspective, fixed costs do not provide a basis for signalling the costs of network use.

The relevant costs to signal the costs of network use are marginal (forward looking) costs. However, in the case of natural monopolies, pricing based on marginal cost alone does not provide sufficient revenue to recover a distributor's total efficient costs. There are fixed (or "residual") costs which must be recovered by other means, and the key economic consideration in the rules is reflected in the distribution pricing principle that these residual costs are recovered in a manner which minimises distortions to efficient price signals.

Setting usage charges significantly higher than marginal cost to recover all or most residual costs would be expected to distort consumption decisions because consumers are facing usage charge that are too high. In contrast, recovering a greater proportion of residual costs through fixed charges is expected to lead to smaller distortions, because by their nature, the level of fixed charges has less impact on consumption decisions.

However, there is a balance required here as excessive fixed charges would likely not be consistent with the customer impact distribution pricing principle, especially where increases in fixed charges were significant and occurred over a short period of time.

6.3 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.[130]

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.

[130] NER, cl. 6.18.5(g).

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.

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.[131]

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.[132]

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

[131] For example, the Turvey method.

[132] NER, Chapter 10—Glossary.

‘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.

7 Charging windows

One aim of the pricing Rules is to encourage more cost reflective pricing.[133] If prices were fully cost reflective, tariffs would reflect demand conditions through time and at a local level. Periods of high demand risks assets becoming congested, which may trigger expenditure. One aim of cost reflective pricing is to incentivise customers to shift their use of network services to less congested periods, which would mitigate the need for expenditure. However, there are currently impediments to the full application of cost reflective pricing. In South Australia, for example, the low penetration of interval meters limits the number of customers to whom cost reflective pricing can apply. There are also implementation and equity issues in transitioning to location-based pricing.[134]

Therefore, there is a conflict between charging windows that:

- are simple and uniform—such charging windows are easier for customers to understand and easier for retailers to implement in their own tariffs. [135] However, these charging windows provide dampened signals of network congestion. This may lead to inefficient usage patterns, which ultimately lead to inefficient network expenditure and prices.
- provide accurate signals of network congestion and costs—in combination with appropriate tariff levels, such charging windows promote efficient usage patterns, which ultimately promote efficient network expenditure and prices.[136] However, such charging windows can be hard for customers to understand given that charging has not varied by time of use in the past. Further, retailers may not reflect such charging windows in their own tariffs if there is little benefit in doing so. This may be the case in an environment with low penetration of interval meters.

We are satisfied SAPN's charging windows contribute towards the achievement of compliance with the distribution pricing principles. We consider their charging windows demonstrate an appropriate balance between simplicity and sending accurate signals of congestion for this first round of tariff structure statements.

7.1 Residential and small business customers

We approve SAPN's proposed demand charging windows for residential and small business customers. We are satisfied that SAPN's proposed charging windows contribute towards the achievement of compliance with the distribution pricing principles.

---

133 NER, cl 6.18.5(a).

134 Location-based pricing may increase implementation costs due to increased complexity in tariff structures, for example.

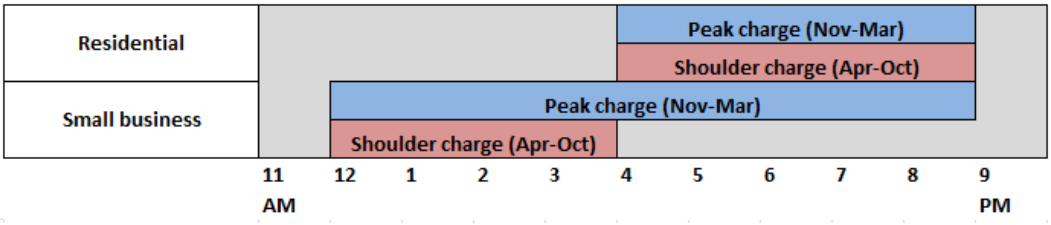
135 NER, cl 6.18.5(h) and (i).

136 NER. Cl 6.18.5(f) and (g).

SAPN has not made any revisions to its proposed charging windows in its revised proposal for its residential and small business customers. However, as SAPN are no longer proposing the kW actual demand tariff that had a 12:00 to 21:00hrs local time, year round window this charging window is no longer applies. SAPN submitted this is due to stakeholder concerns regarding the length of the charging window.[137]

SAPN proposed these customers may access its kVA actual demand tariff which has a 12:00 to 16:00hrs local time, year round shoulder plus a 16:00 to 21:00hrs local time, summer peak period. We approved this tariff in our draft decision.

Figure 7-1: SAPN's proposed demand charging windows



In our draft decision we were satisfied that SAPN's proposed charging windows for residential and small business customers reflected times of overall network stress and incorporated times either side of the peak which aid in avoiding issues surrounding customers shifting load and creating new peaks.[138]

Origin submitted seasonal price fluctuations should be avoided if possible and that a single consistent demand charge is preferable.[139]

SAPN's proposal demonstrated there is a basis for implementing tariffs that signal to consumers the seasons in which it is more costly to provide electricity.[140] We are not convinced Origin has provided a basis to move away from our draft decision on this matter.

Stakeholders have not submitted any additional considerations on our draft decision or SAPN's revised proposal regarding SAPN's residential and small business charging windows.

SAPN has maintained the same charging windows for residential and small business customers as in its original proposal. We approved SAPN's proposed charging windows in our draft decision. We focused on the following components when assessing SAPN's proposed charging windows for residential and small business customers demand tariffs:

- size/time of the charging window

---

137 SA Power Networks, *Revised tariff structure statement - Part B, October 2016,* p.59

138 AER, *SAPN tariff structure statement draft decision*, August 2016, p. 48

139 Origin Energy, *Submission on SAPN revised tariff structure statements*, October 2016, p. 2

140 SA Power Networks, *Revised tariff structure statement - Part B, October 2016,* p.69-70

- the difference in peak and shoulder charges ($) for summer and non-summer months
- the charging period (days of the week)

7.1.1 Size and time of charging windows

SAPN has maintained its proposed charging windows (time) for the residential and small business customers demand tariffs as in its initial proposal We approved SAPN's proposed charging windows (time) in our draft decision.

We did not receive further stakeholder submissions on the size and time of SAPN's charging windows in response to our draft decision and SAPN's revised proposal.

SAPN currently offers kVA demand tariffs to its small business customers. Charging windows for the agreed kVA tariff prior to 2015 were 12-8pm, however due to concerns with co-incident network peaks occurring it was changed to 12-9pm.[141] After further review and consultation with stakeholders SAPN are no longer proposing a separate cost-reflective kW demand tariff for small business customers.[142] For customers opting in to a demand tariff, the existing agreed kVA demand tariff and transition demand tariff will be used. These tariffs have a shoulder (12mths) time window of 12:00 to 16:00 hrs workdays and a separate peak (Nov-Mar) window of 16:00 to 21:00 hrs work days. .

Our views on the size and time of SAPN's draft decision are discussed further in section 4.2.1 of the draft decision.

7.1.2 The difference in peak and shoulder charges for summer and non-summer months

Our final decision is to approve SAPN's proposal. We consider SAPN's proposed charging windows, which contain differences in peak and should charges for summer and non-summer months, will send a stronger, more cost reflective price signal via the demand charge in its opt-in demand tariffs for residential and small business customers. We consider seasonal based charges contribute toward the achievement of compliance with the distribution pricing principles.

SAPN's proposed demand tariffs charge a higher price in summer months (November to March) compared to non-summer months (April to October).

Origin expressed concern about customer confusion in response to SAPN's revised proposal.[143] Seasonality may add a small layer of complexity to the tariff structures,

---

[141] SA Power Networks, *Revised tariff structure statement - Part B*, *October 2016,* pp.48-49.

[142] SA Power Networks, *Revised tariff structure statement - Part B, October 2016, pp.3.*

[143] Origin Energy, *Submission on SAPN revised tariff structure statement, October 2016,* p. 2.

however we consider it to be understandable by customers[144] and minimise distortions to efficient price signals.[145]

As stated in section 4.2.1 of the draft decision that as a first step in cost reflective pricing for residential and the majority of small business customers SAPN have managed customer impacts with an opt-in demand tariff. We consider that SAPN has adequately balanced the requirements of the distribution pricing principles in charging for demand across the entire year. [146]

7.1.3 Workdays and weekends

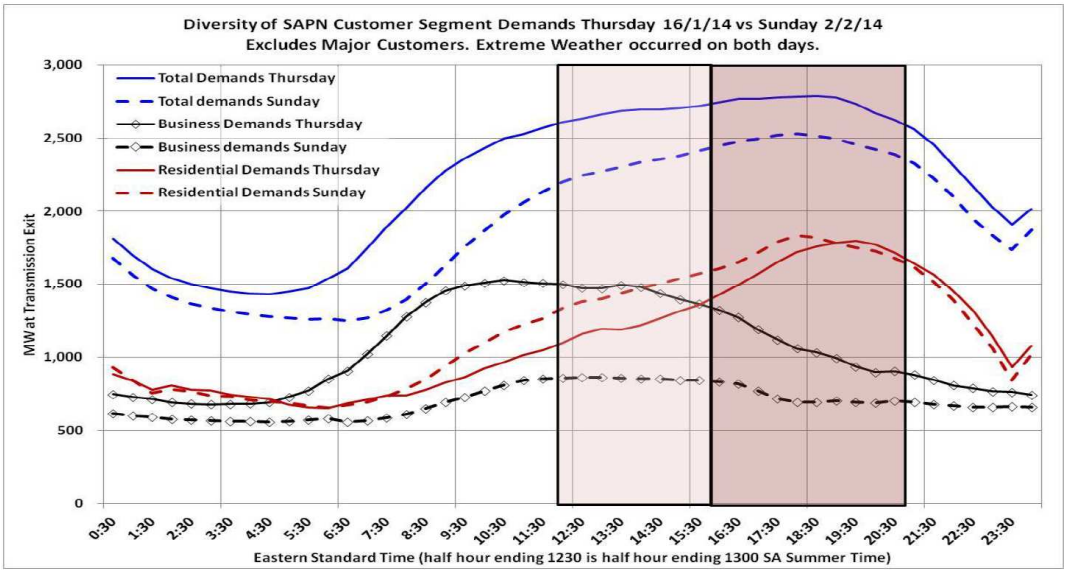
We also approve SAPN's proposed charging periods (days of the week) for the residential and small business customers demand tariffs, which we consider contribute towards the achievement of compliance with the distribution pricing principles.

SAPN's proposed demand charging window period is seven days a week[147] for residential customers and workdays for small business customers.[148]

Figure 7-2 below compares the extreme outcome during the January 2014 heatwave on a workday to a similarly extreme day a fortnight later on a Sunday in February. SAPN submitted that peak demand is as much of a concern on weekends as it is on weekdays as their network has a high proportion of demand serving air conditioners, which partly offsets the reduction in reduced business demand on weekends.

144 NER, cl. 6.18.5(i).
145 NER, cl. 6.18.5(g).
146 AER, *SAPN tariff structure statement draft decision*, August 2016, pp. 54-55
147 Except for Christmas day which is excluded.
148 Workdays does not include weekends or public holidays.

Figure 7-2: Diversity of peak demand by customer segment and day of week



Source: SAPN revised proposal – Part B, p. 31

In the draft decision we outlined the costs of serving a customer depend not only on network peak demand but also on whether localised parts of the network are constrained at peak times that residential customers need to have their demand charged on weekends. Further details can be found in the draft decision[149].

We did not receive further stakeholder submissions on the charging period (days of the week) in response to our draft decision and SAPN's revised proposal

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

7.2 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:[150]

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

We discuss these in turn below.

---

149 AER, *SAPN tariff structure statement draft decision*, August 2016, pp. 54-55

150 NER, cl. 6.18.5(a).

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).[151] 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 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.[152] 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.[153] 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.[154] ActewAGL provided a load profile that showed the maximum demand measured for each half-hour interval for a given year.[155] Ausgrid and Endeavour Energy showed the time of the highest demand points for a given year (using data from several years).[156] Distributors variously provided daily load profiles at system and/or spatial levels.[157]

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

---

151 NER, cl 6.18.5(a) and (h).

152 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.

153 Daily load profiles depict the level of demand for each half-hour interval over 24 hours.

154 See the revised tariff structure statements of Essential Energy, SA Power Networks, ActewAGL, Ergon Energy and Energex.

155 ActewAGL, *Revised tariff structure statement: Explanatory statement*, 4 October 2016, p. 78.

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

157 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.

- graphs showing the frequency of peak times for each half hour interval[158]
- 'heat maps' of demand[159]
- timing of peak demand for individual substations[160]
- load duration curves (see the 'network utilisation information' section below for further discussion).[161]

The distributors provided the information described above in formats showing demand levels only. Such information did not explicitly consider network capacity or utilisation (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.[162] 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.[163] 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.[164]

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

---

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

159 See Energex, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 45.

160 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.

161 See Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, pp. 46–47.

162 With the exception of customer-specific tariffs, which apply to very large customers.

163 NER, cl 6.18.5(h) and (i).

164 NER, cl 6.18.5(a).

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.[165] 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 shoulder period contains the data points between 10 per cent and 20 per cent of the peak demand interval for that year.[166]

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.[167]

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.[168]

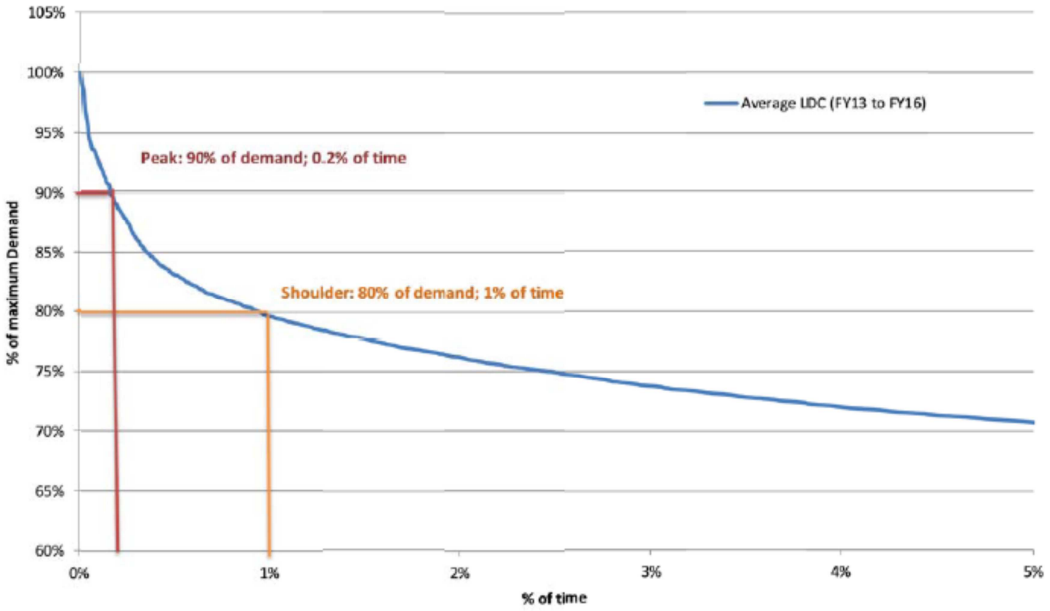
Figure 7-1 Endeavour Energy average network load duration curve

[165] Alternatively, distributors consider expected levels of demand when deciding asset capacity in replacement capital expenditure decisions. See chapter 6 for further discussion.

[166] Endeavour Energy, *Tariff structure statement*, 27 November 2015, p. 72.

[167] Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 46.

[168] Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 46.



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).

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.[169] 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

[169] See section 8.2 of AER, *Final decision: Tariff structure statements: Ausgrid, Endeavour and Essential Energy*, February 2017.

The Energy Networks Association stated it will discuss with its members options for developing charging windows.[170]

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.[171]

The ENA also stated to us it will discuss with its members the prospect of developing an 'industry approach' for charging windows.[172] 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.[173]

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 distributor's proposed charging windows, and the reasons for differences with other distributors' charging windows.[174]

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.

---

170 ENA, *Submission: Australian Energy Regulator draft decision on tariff structure statement proposals*, 7 October 2016, p. 4.

171 NER, cl. 6.18.5(g).

172 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).

173 NER, cl. 6.18.1A(a).

174 NER, cl. 6.18.5(i).

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:[175]

- 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.[176]
- 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

---

[175] NER, cl. 6.18.5(f).

[176] 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).

distributors' proposed measures of demand in this initial phase of tariff reform as they are consistent with the customer impact principle.[177]

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[178]
- enable customers to respond to price signals[179]
- avoid or manage the potential for a customer to face 'bill shock'.[180]

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.[181]

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.[182] Jemena's demand tariffs for existing small businesses charge customers based on the peak demand recorded during the peak charging window from the past two months.[183]

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'.[184]

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.

---

177 NER, cl 6.18.5(h).

178 NER, cl 6.18.5(a).

179 NER, cl 6.18.5(h)(3).

180 NER, cl 6.18.5(h).

181 The distributors whose demand tariffs generally charge on this measure include ActewAGL, Essential Energy, AusNet Services, CitiPower and Powercor.

182 Ausgrid, *Revised tariff structure statement: Appendix A*, 4 October 2016, pp. 112–125.

183 Jemena, *Tariff structure statement*, 29 April 2016, p. 30.

184 Essential Energy, *Tariff structure statement*, 4 October 2016, p. 16.

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 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 SAPN undertook when developing their 2017–20 tariff structure statements and how they responded to customer and stakeholder feedback. The Rules require that distributors consult with their customers in order to help them understand the new tariffs and thereby how they might mitigate the tariffs' impact on them.[185]

We are of the view that SAPN's stakeholder engagement contributes to the achievement of compliance with the distribution pricing principles and the national pricing objective.

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

Distributors must include in their tariff structure statements a description of how they engaged with customers and retailers in developing their proposals, including how they sought to address concerns raised during the engagement.

SAPN has provided this in its revised tariff structure statement. Overall SAPN's engagement seems transparent and thorough. SAPN engaged with numerous stakeholders, providing targeted information and adapted information to suit stakeholders due to the differing levels of knowledge of the electricity market and tariff reform process.

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.

[185] NER, clauses 6.18.5(h)(2) and (3) and 6.18.5(i)(1) and (2).

Table A-1: Stakeholders' messages and SAPN's response

What stakeholders said	How distributors responded
Education is critical	SAPN will continue to engage and educate our customers, Government and stakeholders throughout the tariff reform process.
Complex pricing structures should be made as simple as possible	SAPN have developed tariff classes that reflect our customers' size, consumption characteristics and supply voltage. SAPN have reduced the number of available tariffs in each tariff class and are progressing towards simpler tariff structures. SAPN have simplified our tariff structures and reduced the number of available tariffs.
Customers should be able to choose to go on a fully cost-reflective tariff	SAPN have established a suite of fully cost-reflective opt-in tariffs across all tariff classes excluding Major Business (because they are already on fully cost-reflective tariffs).
Communication in key	SAPN intends to continue customer engagement and communication when developing its 2020-25 TSS.
In recovering residual costs, there are concerns regarding the minimum kW demand charge	SAPN have revised its recovery of residual costs. SAPN are proposing a fixed charge instead of a minimum kW demand charge for residential demand tariffs for improved transparency reasons.
Visibility of retail offers and ghost billing	SAPN have consulted with retailers in the development of our revised TSS and feedback has been passed on to retailers.
Measured and methodical approach to tariff reform	SAPN proposed to slow the pace of tariff reform in South Australia. SAPN have developed opt-in demand tariffs for those small customers who will benefit. SAPN proposed to use 2017-20 as a 'trial' period by learning from prosumers.
Meter change as a trigger will discourage smart meters	SAPN are not proposing meter changes as a trigger for tariff re-assignment except for small business customers where an alteration to supply would require a multi-phase meter change (i.e. no change from 2016/17 current practice).
Customer Impact Principles to guide decision making	SAPN conducted a deliberative process to refine a set of Customer Impact Principles that was used to guide the development of our tariffs for residential and small business customers.
Explore opportunities for demand management and battery storage to address peak demand	SAPN have implemented a Battery Storage Trial in Salisbury to assess the suitability of this technology to

	defer network expenditure. SAPN are undertaking a Regulatory Investment Test for Distribution (RIT-D) process for the Kangaroo Island cable project to see if non-network options are feasible.
Access to data to inform decisions	SAPN have consulted with retailers and advised them of customer concerns regarding access to data. In the 2020-25 TSS we are considering mandating demand based tariffs only after a customer has had access to at least one or two years of advanced interval meter data.
Small business specific	
Do not support mandatory assignment to demand tariffs	SAPN are no longer proposing a mandatory demand tariff for single phase small business customers except where they upgrade to a two/three phase connection (i.e. no change from our 2016/17 current practice). SAPN are no longer proposing mandatory assignment for customers >40MWh.
Charging windows – concerns regarding extent	SAPN propose to review our charging windows for the 2020-25 TSS. SAPN are no longer proposing the kW actual demand tariff that had a 12:00 to 21:00hrs local time, year round window. The kVA actual demand tariff has a 12:00 to 16:00hrs local time, year round shoulder plus a 16:00 to 21:00hrs local time, summer peak period.
Half hour peak demand measurement	SAPN proposed to review the 30 minute demand measure for the 2020-25 TSS.
Residential specific	
Do not support mandatory assignment to demand tariffs	SAPN are no longer proposing a mandatory demand tariff for any residential customers.
Opt-in to a fully cost-reflective kW demand tariff	This tariff already exists. The minimum 1.0kW demand charge is being replaced with a transparent fixed charge.
No support for social tariffs	SAPN are no longer proposing a social tariff in its revised 2017-20 TSS.
Solar PV tariff for customers with Type 6 metering	SAPN are no longer proposing a solar tariff in its revised 2017-20 TSS.
Half hour peak demand measurement	SAPN proposed to review the 30 minute demand measure for the 2020-25 TSS.
Public holidays shouldn't be included	SAPN has not included Christmas Day.

Source: SAPN revised proposal – Part B

B AER consultation

On11 March 2016, we published our issues paper on SAPN's tariff structure statement proposal. The paper summarised key aspects of SAPN's proposal, highlighting issues we consider relevant to our assessment and invited stakeholder submissions. Submissions on the issues paper closed on 28 April 2016. We received submissions from the following stakeholders:

1. AGL
2. Australian PV Institute
3. Business SA
4. Clean Energy Council
5. Consumers SA
6. Department of State Development (South Australia)
7. Energy Australia
8. Energy and Water Ombudsman SA
9. Energy Consumers Australia
10. Energy Networks Association
11. Energy Simplified
12. John Herbst
13. Origin
14. Red & Lumo Energy
15. SA Power Networks
16. Small Business Commissioner of South Australia
17. Solar citizens
18. South Australian Council of Social Services

On 5 April 2016, the AER hosted a public forum on SAPN's tariff structure statement proposal. We highlighted issues we considered relevant to our assessment and invited stakeholder commentary.

On 21 April 2016, we provided SAPN with an information request covering topics such as tariff design, tariff assignment, network demand and constraints and long run marginal cost. On 6 June 2016 SAPN provided a response to our request.

We published our draft decision in August 2016.

We invited submissions on the AER's draft decision which closed on 4 October 2016. We received submissions from:

1. Business SA
2. Clean Energy Council

3. South Australian Wine Industry
4. Solar Citizens and SA Renewable Energy Policy Group
5. Red Energy and Lumo Energy

We received one late submission from the Energy Networks Association.

On 4 October 2016, we received SA Power Networks' revised Tariff Structure Statement proposal.

We invited submissions on SA Power Networks' revised Tariff Structure Statement proposal. The submissions period closed on the 26 October 2016. We received submissions from:

1. Clean Energy Council
2. Mr John Herbst
3. Solar Citizens and SA Renewable Energy Policy Group
4. Origin Energy
5. Red and Lumo Energy

We received one late submission from the Government of South Australia, Department of State Development.

We have held numerous meetings with stakeholders to discuss the tariff structure statement draft decisions, including meeting with retailers, the Energy Networks Association, John Herbst and the Clean Energy Council.

On 28 February 2017, we made a final decision to approve SAPN’s revised tariff structure statement proposal.