



FINAL DECISION

Tariff structure statements

Ausgrid, Endeavour and Essential Energy

February 2017

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Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
Melbourne Vic 3001

Tel: 1300 585165

Email: aer inquiry@ aer.gov.au
AER Reference: 58275

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Glossary

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

Term	Interpretation
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

Ausgrid

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

Endeavour Energy

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

Essential Energy

Our final decision is to not approve Essential Energy's revised tariff structure statement submitted to us on 4 October 2016, as we do not consider it to be fully compliant with the distribution pricing principles and other applicable requirements in the Rules.

We have made an amendment to Essential Energy's tariff structure statement. As required by the Rules, we have made this amendment on the basis of Essential Energy's tariff structure statement and have only departed from Essential Energy's proposal to the minimum extent necessary to enable it to achieve compliance with the Rules. The amendment is to:

- Move back the start date of Essential Energy's tariff assignment policy changes for residential and small business customers from 1 July 2017 to 1 July 2018, so that the timing of these changes occurs after the competition in metering changes to the metering rules takes effect.

In addition, we have clarified aspects of the statement.

In our draft decision, we did not approve any of the three NSW distributors' initial tariff statement proposals. In contrast, our final decision is to approve Ausgrid's and Endeavour Energy's revised proposals. We are satisfied Ausgrid's and Endeavour Energy's revised tariff structure statements comply with the distribution pricing principles and other applicable requirements in the Rules.

We are also satisfied that most elements of Essential Energy's revised tariff structure statement contribute to the achievement of compliance with the distribution pricing principles

and other applicable requirements in the NER, with our concerns limited to one component of Essential Energy's revised proposal—the timing of some of its tariff assignment changes for residential and small business customers.

We consider all three of the NSW distributors' revised tariff structure statements demonstrated considerable improvements over their initial tariff structure statements. Importantly, we consider these improvements addressed most of the concerns we expressed in our draft decision.

Some notable reforms in their revised tariff structure statements include:

- replacing the declining block tariffs with flat tariffs.
- changes to tariff assignment policies that are likely to increase take up of time-of-use tariffs by residential and small business customers. In summary, new customers are assigned to time-of-use tariffs but can opt out to a flat tariff. There are also additional criteria under which some existing residential and small business customers are assigned by default to a time-of-use tariff. The precise criteria differ to a degree between the three distributors. Meanwhile, other existing customers can opt in to a time-of-use tariff.
- Essential Energy's introduction of demand tariffs for residential and small business customers (on an opt-in basis).

We consider these changes contribute to the achievement of compliance with the distribution pricing principles and other applicable requirements in the Rules.

We consider a flat tariff will better promote the pricing principles compared to a declining block tariff. Stakeholders supported the replacement of the declining block tariffs with flat tariffs for this tariff structure statement period. Opposition to the NSW distributors' declining block tariffs was the issue we received the most vocal feedback on from stakeholders through our consultations.

Flat tariffs spread the recovery of residual costs equally across users in proportion to their consumption, whereas the declining block tariff structure allocates more of the recovery of residual costs to the lower consumption blocks. Given the lack of evidence regarding elasticity, as we noted in the draft decision, we consider the flat tariff structure better reflects the network providers' efficient costs than a declining block tariff.¹ Flat tariffs also better enable customers to mitigate the impact of changes through their usage decisions than a declining block tariff structure, where more costs are recovered through the first consumption block.²

We also approve changes that could result in more residential and small business customers assigned to more cost reflective network tariff structures—namely time-of-use tariffs or demand tariffs. We are satisfied these tariffs contribute to the achievement of compliance with the distribution pricing principles. We consider it promotes take up of more efficient tariff

¹ NER, cl 6.18.5(a).

² NER, cl 6.18.5(h)(3).

structures through new customers, while being consistent with the customer impact principle for existing customers.³

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

In addition to these changes, the NSW distributors amended their charging windows in response to our draft decision. Ausgrid, in particular, made significant reforms to its charging windows with the introduction of seasonality for residential time-of-use customers. Ausgrid proposed different peak hours for winter and summer—reflecting the different times of network congestion during those seasons. In addition, Ausgrid proposed no peak hours for residential time-of-use customers for non-winter and non-summer months, which reflects the significant influence of temperature on network usage patterns.

EWON welcomed Ausgrid's proposal to vary the structure of the winter and summer peak times to better reflect consumption patterns.⁴ We consider such reforms result in sharper signals of network congestion, increasing the benefits to customers of shifting usage outside of peak times. Again, this reduces the need to invest in the network, which ultimately means lower prices for customers in the long run.

Residential and small business customers

We approve Ausgrid's and Endeavour Energy's proposed tariffs for residential and small business customers. We are satisfied the tariff designs and tariff assignment policies proposed by Ausgrid and Endeavour Energy in their revised proposals for residential and small business customers contribute to the achievement of compliance with the distribution pricing principles.

We do not approve Essential Energy's proposed tariff assignment for residential and small business customers. We are satisfied Essential Energy's tariff design for its residential customers contribute to the achievement of the distribution pricing principles. We are also satisfied Essential Energy's proposed criteria for assigning new residential and small business connections, meter upgrades and solar PV installations contribute to the achievement of compliance with the distribution pricing principles. We require only one change regarding these assignments. Essential Energy proposed the assignments take effect from 1 July 2017. We require this assignment to take effect from 1 July 2018 so this occurs no earlier than the timing of the AEMC's metering rule changes. This is consistent with the other NSW distributors who proposed their tariff assignment policies for residential

³ NER, cl 6.18.5(a) and (h)(1).

⁴ EWON, *Submission on AER draft decision and revised TSS for the NSW distributors*, 26 October 2016, p. 2.

and small business customers to also come into effect on 1 July 2018. It is also consistent with our draft decision for SAPN's tariff structure statement.⁵

We received a number of submissions from stakeholders regarding residential and small business tariff design and customer assignment. Stakeholders supported the replacement of the declining block tariffs with flat tariffs. Time-of-use tariffs were seen as more cost reflective and the preferred tariff design.⁶ There was some opposition to small customers being mandatorily assigned to time-of-use tariffs, even when they have a new meter installed.⁷ Stakeholders generally considered demand tariffs for residential and small business customers were inappropriate and too complex, especially if not designed well.⁸ Energy Australia supported demand tariffs but considered they should be opt-in only.

Table 1 to Table 3 summarise areas of contention from our draft decision in relation to residential tariffs and small business tariffs. The tables also show each NSW distributor's response to our draft decision, and our final decision.

Table 1: Ausgrid—Residential and small business customers

Our draft decision	Ausgrid revised proposal	Our final decision
We accepted Ausgrid's proposal to introduce opt-in transitional time-of-use tariffs. These tariffs have a time-of-use structure, but have equal rates for the different charging windows. The rates of these tariffs are intended to transition towards Ausgrid's time-of-use tariffs over time.	No change from the initial proposal.	No change from the draft decision.
We did not approve Ausgrid's proposed declining block tariffs for residential and small business customers.	In its revised proposal Ausgrid proposed to replace its existing residential and small business declining block tariffs with flat tariffs.	We approve Ausgrid's revised proposal.
We did not approve Ausgrid's proposed assignment of new residential and small business customers which distinguished between those new customers	In its revised proposal Ausgrid accepted the AER draft decision. From 1 July 2018 all new residential and small business customers	We approve Ausgrid's revised proposal.

⁵ AER, *Draft decision: SAPN tariff structure statement*, p.64

⁶ Energy Australia, Origin Energy, Red and Lumo, EWON, NCOSS, PIAC and Solar Citizens.

⁷ Red and Lumo

⁸ EWON, PIAC and Solar Citizens

with embedded generation and those new customers without embedded generation.

with or without embedded generation will be assigned by default to a time-of-use tariff. These customers will all have the option to opt-out to the transitional residential and small business tariffs.

We did not approve Ausgrid's proposed charging windows for peak, shoulder and off-peak for residential and small business customers on time-of-use tariffs.

We required Ausgrid to either amend its charging windows or provide further justification regarding its proposed charging windows in general.

For residential customers, Ausgrid proposed different peak hours on working weekdays for summer and winter months (2pm–8pm and 5pm–9pm, respectively). Ausgrid also removed the 2pm–8pm peak period on working weekdays for non-summer and non-winter months.

For small business customers, Ausgrid removed the 7am to 10pm shoulder period for weekends and public holidays.

We approve Ausgrid's revised proposed.

Table 2: Endeavour Energy—Residential and small business customers

Our draft decision	Endeavour Energy revised proposal	Our final decision
We did not approve Endeavour Energy's proposed declining block tariff for residential customers.	Endeavour Energy proposed to transition its residential declining block tariff to a flat tariff over the next two years.	We approve Endeavour Energy's revised proposal .
We did not approve Endeavour Energy's 'opt-in' only approach for tariff assignment to time-of-use tariffs for residential and small business customers.	<p>Endeavour Energy proposed that from 1 July 2018:</p> <ul style="list-style-type: none"> All new customers (who will all have smart meters under the metering rule change) be assigned to a time-of-use tariff with the option to opt-out a flat tariff (residential customers) or inclining block tariff (small business customers). Existing customers who modify or upgrade their existing network connection will be assigned to a time-of-use 	We approve Endeavour Energy's revised proposal.

	tariff with the option to opt-out to the non-time-of-use tariff.	
<p>We did not approve Endeavour Energy’s proposed charging windows for peak, shoulder and off-peak hours for residential and small business customers on time-of-use tariffs.</p> <p>We required Endeavour Energy to either amend its charging windows or provide further justification regarding its proposed charging windows, particularly its method for determining peak, shoulder and off-peak hours.</p>	<p>For residential customers, Endeavour Energy removed the 7am–10pm shoulder period on non-business days.</p> <p>Endeavour Energy did not amend its proposed charging windows small business customers.</p> <p>Endeavour Energy provided further explanation regarding its method for determining its peak, shoulder and off-peak hours.</p>	<p>We approve Endeavour Energy’s revised proposal.</p>

Table 3: Essential Energy—Residential and small business customers

Our draft decision	Essential Energy revised proposal	Our final decision
<p>We did not approve Essential Energy’s proposed declining block tariffs for residential and small business customers.</p>	<p>In its revised proposal Essential Energy proposed to replace its existing declining block tariffs with flat tariffs.</p>	<p>We approve Essential Energy’s revised proposal.</p>
<p>We did not approve Essential Energy’s ‘opt-in’ only approach for tariff assignment to time-of-use tariffs for residential and small business customers.</p>	<p>Essential Energy proposed from 1 July 2017:</p> <ul style="list-style-type: none"> To assign all new connections, meter upgrades and solar PV installations for residential and small business customers to the time-of-use tariff appropriate to their metering technology in the first instance, with the option to opt-out to an alternative tariff. To introduce new residential and small business time-of-use tariffs with amended charging windows to address our concerns on 	<p>We are that Essential Energy’s proposed criteria for assigning new residential and small business connections, meter upgrades and new solar PV installations contribute to the achievement of compliance with the distribution pricing principles.</p> <p>The only change we require is that this assignment takes effect from 1 December 2017, rather than 1 July 2017, to align with the timing of the AEMC’s metering rule changes.</p>

Essential Energy's charging windows in our draft decision.		
We did not approve Essential Energy's proposed charging windows for peak, shoulder and off-peak for residential and small business customers on time-of-use tariffs.	Essential Energy removed the morning peak window on weekdays for residential and small business customers.	We approve Essential Energy's revised proposal.
We required Essential Energy to remove its morning peak window (7AM to 9AM) for weekdays. We also required Essential Energy to provide further justification regarding its proposed charging windows in general.	We note that Essential Energy retained the morning peak window on weekdays for residential and small business customers who have a basic accumulation meter with time-of-use capability.	

Medium business customers

We approve Ausgrid's, Endeavour Energy's and Essential Energy's proposed tariffs for medium business customers. We are satisfied the tariff designs and tariff assignment policies proposed by Ausgrid, Endeavour Energy and Essential Energy for medium business customers contribute to the achievement of compliance with the distribution pricing principles.

Table 4 to Table 6 summarise areas of contention from our draft decision in relation to medium business tariffs. The tables also show each NSW distributor's response to our draft decision, and our final decision.

Table 4: Ausgrid—Medium business customers

Our draft decision	Ausgrid revised proposal	Our final decision
We approved Ausgrid's tariff structures for medium business customers, which include time-of-use and capacity tariffs.	No change from the initial proposal (except for timing of charging windows—see last row of this table).	We approve Ausgrid's revised proposal.
We supported Ausgrid's proposal to change from using energy consumption as a basis for allocating medium and large customers with a low voltage connection to particular tariffs.	Ausgrid accepted the AER draft decision and proposed to not assign customers based on CT connection and to continue assigning them based on energy consumption criteria. However, as a result Ausgrid	We approve Ausgrid's revised proposal.

<p>However, we did not approve Ausgrid's proposal to use the current transformer (CT) connection as a basis of allocating such customers to particular tariffs due to some concerns on practical implementation. We required Ausgrid to provide further justification for using the size of the CT connection as the eligibility criteria for assigning customers to tariffs.</p>	<p>also revised its proposal and proposed not to assign customers based on 3 phase connection (which we accepted in our draft decision).</p>	
<p>We did not approve Ausgrid's proposed charging windows for peak, shoulder and off-peak for medium business customers on time-of-use and demand tariffs.</p> <p>We required Ausgrid to either amend its charging windows or provide further justification regarding its proposed charging windows in general.</p>	<p>Ausgrid removed the 7am to 10pm shoulder period for weekends and public holidays.</p>	<p>We approve Ausgrid's revised proposal.</p>

Table 5: Endeavour Energy—Medium business customers

Our draft decision	Endeavour Energy revised proposal	Our final decision
<p>We approved Endeavour Energy's tariff structures for medium business customers, which include time-of-use and capacity tariffs. We also approved Endeavour Energy's tariff assignment criteria for its medium business customers.</p>	<p>No change from the initial proposal.</p>	<p>No change from the draft decision.</p>
<p>In its initial tariff structure statement Endeavour Energy proposed only one change to tariff design and assignment for medium business customers—to offer a low voltage time-of-use transitional demand tariff.</p> <p>In our draft decision we accepted Endeavour Energy's</p>	<p>No change from the initial proposal.</p>	<p>No change from the draft decision.</p>

transitional demand tariff as a mandatory tariff for customers whose annual consumption requires a demand tariff, but who cannot be transferred to it because their meter will not support the tariff, or because the bill impact of transferring the customers would be excessive.

We did not approve Endeavour Energy’s proposed charging windows for peak, shoulder and off-peak for medium business customers on time-of-use and demand tariffs.

We required Endeavour Energy to either amend its charging windows or provide further justification regarding its proposed charging windows, particularly its method for determining peak, shoulder and off-peak hours.

Endeavour Energy did not amend its proposed charging windows for peak, shoulder and off-peak for medium business customers. However, Endeavour Energy provided further explanation regarding its method for determining its peak, shoulder and off-peak hours.

We approve Endeavour Energy’s revised proposal.

Table 6: Essential Energy—Medium business customers

Our draft decision	Essential Energy revised proposal	Our final decision
<p>We approved Essential Energy’s tariff structures for medium business customers, which include time-of-use and capacity tariffs. We also approved Essential Energy’s tariff assignment criteria for its medium business customers.</p>	<p>No change from the initial proposal (except for charging windows—see below).</p>	<p>No change from the draft decision.</p>
<p>In its initial tariff structure statement Essential Energy did not propose any changes to its tariff design for medium business customers.</p>	<p>In its revised proposal Essential Energy proposed a new transitional demand tariff.</p>	<p>We approve Essential Energy’s revised proposal.</p>
<p>Essential Energy did not propose to re-assign its incorrectly assigned customers</p>	<p>In its revised proposal Essential Energy proposed to re-assign approximately</p>	<p>We approve Essential Energy’s revised proposal.</p>

in its initial proposal. Essential Energy made us aware of this issue after they had submitted its initial proposal. In our draft decision we noted that Essential Energy flagged they may introduce transitional tariffs in its revised proposal to address incorrect customer assignment.

2,300 low voltage business customers using more than 100MWh of electricity per annum who are currently assigned to the wrong tariff. To enable re-assignments for those customers incorrectly assigned Essential Energy proposed a new transitional demand tariff for customers moving from the time-of-use tariffs to a demand tariff.

We did not approve Essential Energy's proposed charging windows for peak, shoulder and off-peak for medium business customers on time-of-use and demand tariffs.

We required Essential Energy to remove its morning peak window (7am to 9am) for weekdays. We also required Essential Energy to provide further justification regarding its proposed charging windows in general.

Essential Energy removed the morning peak window on weekdays for medium business customers.

We approve Essential Energy's revised proposal.

Large business customers

We approve the NSW distributors' proposed tariffs for large business customers. We are satisfied the tariff designs and tariff assignment policies proposed by Ausgrid, Endeavour Energy and Essential Energy for large business customers contribute to the achievement of compliance with the distribution pricing principles.

There were no submissions from stakeholders about the NSW distributors' large business customer tariffs.

Table 7 to Table 9 summarise our draft decision in relation to large business tariffs. The tables also show each NSW distributor's response to our draft decision, and our final decision.

Table 7: Ausgrid—Large business customers

Our draft decision	Ausgrid revised proposal	Our final decision
We approved Ausgrid's tariff structures for large business customers, which include time-	No change from the initial proposal (except for charging	No change from the draft decision.

of-use and capacity tariffs. We also approved Ausgrid’s tariff assignment criteria for its large business customers. windows—see below).

<p>We approved Ausgrid’s introduction of the transmission-use-of-system only tariff for customers connected to its transmission network. This will result in greater efficiency as these customers will not incur a distribution-use-of-system charge.</p>	<p>No change from the initial proposal (except for charging windows—see below).</p>	<p>No change from the draft decision.</p>
<p>We did not approve Ausgrid’s proposed charging windows for peak, shoulder and off-peak for large business customers on time-of-use and demand tariffs.</p> <p>We required Ausgrid to either amend its charging windows provide further justification regarding its proposed charging windows in general.</p>	<p>Ausgrid removed the 7am to 10pm shoulder period for weekends and public holidays.</p>	<p>We approve Ausgrid’s revised proposal.</p>

Table 8: Endeavour Energy—Large business customers

Our draft decision	Endeavour Energy revised proposal	Our final decision
<p>We approved Endeavour Energy’s tariff structures for large business customers, which include time-of-use and capacity tariffs. We also approved Endeavour Energy’s tariff assignment criteria for its large business customers.</p>	<p>No change from the initial proposal.</p>	<p>No change from the draft decision.</p>
<p>We did not approve Endeavour Energy’s proposed charging windows for peak, shoulder and off-peak for large business customers on time-of-use and demand tariffs.</p> <p>We required Endeavour Energy to either amend its</p>	<p>Endeavour Energy did not amend its proposed charging windows for peak, shoulder and off-peak for large business customers. However, Endeavour Energy provided further explanation regarding its method for</p>	<p>We approve Endeavour Energy’s revised proposal.</p>

charging windows or provide further justification regarding its proposed charging windows, particularly its method for determining peak, shoulder and off-peak hours.	determining its peak, shoulder and off-peak hours.
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Table 9: Essential Energy—Large business customers

Our draft decision	Essential Energy revised proposal	Our final decision
We approved Essential Energy’s tariff structures for large business customers, which include time-of-use and capacity tariffs. We also approved Essential Energy’s tariff assignment criteria for its large business customers.	No change from the initial proposal (except for charging windows—see below).	No change from the draft decision.
We did not approve Essential Energy’s proposed charging windows for peak, shoulder and off-peak for large business customers on time-of-use and demand tariffs. We required Essential Energy to remove its morning peak window (7am to 9am) for weekdays. We also required Essential Energy to provide further justification regarding its proposed charging windows in general.	Essential Energy removed the morning peak window on weekdays for large business customers.	We approve Essential Energy’s revised proposal.

Calculating forward looking costs

We approve the NSW distributors’ proposed method for calculating their long run marginal costs. Noting there are a number of methods that can be used, we are satisfied their proposed methods to calculate long run marginal costs contributes to the achievement of compliance with the distribution pricing principles at this stage of tariff reform.

The NSW distributors used the average incremental cost approach, which is commonly used by distributors in Australia. We are satisfied this methodology contributes to the achievement of compliance with the distribution pricing principles for this first round of tariff structure statements.

As with our draft decision, we consider it would be beneficial if replacement capital expenditure is included in the estimates of long run marginal cost. This is because replacement capital expenditure is a forward looking cost and is therefore marginal. It can be affected by either demand or the value that customers place on existing, or altered network capacity. We expect distributors to consider the way replacement capital expenditure should be taken into account in future tariff structure statements.

Further discussion on forward looking costs can be found in Section 7.1.

Stakeholder engagement

We consider the NSW distributors effectively engaged with customers, retailers and consumer representatives for their revised tariff structure statements. This helped formulate the design of their cost reflective tariffs.

The NSW distributors sought feedback from stakeholders on the key issues and implications arising from our draft decision. Stakeholders were given the opportunity to comment on the NSW distributors' proposals for cost reflective tariffs through stakeholder workshops and through written submissions. Feedback from stakeholders is that the NSW distributors' consultation process improved since the initial tariff structure statements.⁹ PIAC and NCOSS expressed that for the next round of tariff structure statements, the distributors could make further improvements in regards to genuine deliberative consultation.

See Appendix B for more detail on stakeholder engagement.

Our process

Table 10 below sets out how this tariff structure statement final decision follows on from the Power of Choice reform program and into the first annual pricing approval process.

As outlined below, the NSW distributors submitted their initial tariff structure statements in November 2015 as required by the Rules. We made a draft decision in August 2016 that did not approve the NSW distributors' initial tariff structure statements. The NSW distributors submitted their revised proposals in October 2016.

We took into consideration stakeholder consultation throughout our process, including:

- submissions on our issues paper and our draft decision
- submissions on the NSW distributors' initial and revised tariff structure statements
- comments received at our public forum in April 2016
- comments received at our stakeholder consultations from September to November 2016.

These are considered in the chapters that follow.

⁹ EWON, NCOSS, PIAC.

Table 10: Tariff structure statement and annual pricing process timeframes

Step	Date
Tariff structure statement process	
NSW distributors submit proposed tariff structure statement to AER	27 November 2015
AER publishes issues paper	22 March 2016
AER hosts public forum on NSW distributors' proposal	6 April 2016
Stakeholders' submissions on NSW distributors' proposal and AER's issues paper closed	6 May 2016
AER publishes draft decision	2 August 2016
NSW distributors' revised proposals and stakeholders' submissions on AER's draft decision due	4 October 2016
Stakeholders' submissions on NSW distributors' revised proposals 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	
NSW distributors submit 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 the NSW distributors. 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 the NSW distributors' 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 the NSW distributors, 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 the NSW distributors to make further improvements in the following areas in the next round of tariff structure statements:

- Greater integration between the NSW distributors' network pricing, network planning and demand management strategies (see discussion in chapter 1)
- Assignment policies and speed of transition to cost reflective tariffs (see also discussion in section 4.3)
- Method for estimating long run marginal cost (see discussion in section 7.1)
- Inclusion of replacement capital within the NSW distributors' long run marginal cost estimates (see discussion in section 7.1)
- Reconsideration of the use of a 30 minute window to measure demand (see discussion in section 8.5.2)
- Refinements to charging windows and the methods used to develop charging windows (see discussion in section 8.5.1)

We briefly discuss the topic of tariff assignment policies 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.

We note that each of the NSW distributors improved upon their initial proposals (which were heavily reliant on opt-in approaches), and in their revised proposals introduced opt-out arrangements, particularly for new customers. We have included the following commentary in all of our February 2017 decisions for distributors across Queensland, NSW, the ACT, and South Australia. The commentary on assignment policy below and in section 4.3 of most relevance to the NSW distributors is not the switch from opt-in to opt-out approaches, per se, but rather further expansion of the application of opt-out approaches to more types of residential and small business customers in their next tariff structure statement proposal.

Additionally, the other topics listed above, such as improvements to the estimation of long run marginal costs, are relevant to both the NSW and other distributors.

Assignment policies and pace of reform

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

Changes to the metering rules mean that, from 1 December 2017, all new and replacement meters must be a smart meter.¹⁰ Smart meters make the implementation of cost reflective network tariffs possible because they measure both total consumption and when this consumption occurs.

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

Our experience in implementing tariff reform over the last decade demonstrates that opt-in tariffs are relatively ineffective in migrating consumers to more cost reflective tariffs. Between 2007 and 2010 [ActewAGL] rolled out interval meters, together with opt-in time-of-use tariffs. The consumer response was minimal with only 30 customers opting in to the residential time-of-use tariff. However, when the tariff assignment policy changed to time-of-use tariffs being the default tariffs for new connections, (but with the choice to opt-out), the incidence of opting out has been negligible.¹¹

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.¹² 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.

¹⁰ AEMC, Rule determination—National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014, November 2014.

¹¹ ActewAGL, Re: Issues paper—Tariff structure statement proposal, ActewAGL, Submission to AER, 28 April 2016, p.5.

¹² NER, cl. 6.18.5(a).

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

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

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

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

- transmission and distribution network charges
- generation (energy) charges
- 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.¹³

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

¹³ 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.

customers with the ability to understand the implications of the changes to network tariffs to make better decisions about their energy choices.

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

The Energy Networks Association has estimated that cost reflective tariffs can lead to savings of \$17.7 billion in present value terms over a 20 year period.¹⁴ 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.¹⁵ 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.

¹⁴ Energy Networks Association, *Network pricing and enabling metering analysis*, Prepared by ENERGEIA for the Energy Networks Association, November 2014, p.5.

¹⁵ 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.¹⁶

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 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

¹⁶ 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.

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.¹⁷ 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.¹⁸ 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.

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

¹⁷ 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.

¹⁸ EMET Consultants Pty Ltd as referenced by solarchoice.net.au.

¹⁹ NER, cl. 6.18.5(f).

distortions to the price signals for efficient usage that would result from tariffs reflecting only long run marginal costs.²⁰

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.

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.

²⁰ NER, cl. 6.18.5(g)(3).

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.²¹ 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.

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.

²¹ CitiPower and Powercor, Email to AER staff, *Remote air-conditioning cycling through meters or other means in Victoria*, 12 August 2016.

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.²² 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.

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

²² NER, cl.6.18.1A(a)(2).

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.²³ 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.

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?

²³ The exemption to this is trial tariffs. Distributors may trial new tariffs that were not approved through the tariff structure statement if the tariff meets the requirements in cl. 6.18.1C of the Rules.

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.²⁴ 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 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.

²⁴ Australian Energy Markets Commission, National Electricity Amendment (Customer access to information about their energy consumption) Rule 2014, Final Determination, 6 November 2014.

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.²⁵ 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.

²⁵ 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:²⁶

...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.²⁷ 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.²⁸ The Rules permitted submission of a tariff structure statement outside the regulatory proposal process this time because of the timing of the rule changes.²⁹

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.³⁰ Second, a tariff structure statement must also comply with the distribution pricing principles.³¹

What must a tariff structure statement contain?

The Rules require a tariff structure statement to include:³²

- 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

²⁶ NER, cl. 6.18.5(a).

²⁷ 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).

²⁸ NER, cl. 6.8.2(a).

²⁹ NER, cl. 11.76.2(a).

³⁰ NER, cl 6.18.1A(a) and (e)

³¹ NER, cl 6.18.1A(b). The distribution pricing principles are prescribed in cl 6.18.5.

³² NER, cl. 6.18.1A(a).

- 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.³³

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 customers³⁴
- 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 location³⁵
- 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 signals³⁶
- distributors must consider the impact on customers of tariff changes and may vary from efficient tariffs, having regard to:³⁷
 - 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 customers³⁸
- tariffs must otherwise comply with the Rules and any other applicable regulatory requirements.³⁹

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.⁴⁰

³³ NER, cl. 6.8.2(d1).

³⁴ NER, cl. 6.18.5(e).

³⁵ NER, cl. 6.18.5(f).

³⁶ NER, cl. 6.18.5(g).

³⁷ NER, cl.6.18.5(h).

³⁸ NER, cl. 6.18.5(i).

³⁹ NER, cl. 6.18.5(j); this requirement includes jurisdictional requirements.

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.⁴¹ 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.⁴² 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.⁴³ This will set out our reasons for making the decision.⁴⁴

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.⁴⁵

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.⁴⁶ Under the Rules, a distributor may only make revisions to its tariff structure statement to address matters raised by our draft decision.⁴⁷ We will publish the distributor's revised tariff structure statement and again call for submissions before making a final decision.⁴⁸

⁴⁰ NER, cl 6.8.2(7) and 6.18.5(c).

⁴¹ NER, cl 6.12.3(k).

⁴² NER, cl. 6.9.3(a).

⁴³ NER, cl. 6.10.2; cl. 11.76.2(a).

⁴⁴ NER, cl. 6.10.2(a)(3); cl. 11.76.2.

⁴⁵ NER, cl. 6.12.3(k).

⁴⁶ NER, cl. 6.10.3(a).

⁴⁷ NER, cl. 6.10.3(b).

⁴⁸ 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.⁴⁹ The distributor must comply with the approved tariff structure statement when setting prices annually for direct control services.⁵⁰

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.⁵¹ 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.⁵²

⁴⁹ 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.

⁵⁰ NER, cl. 6.18.1A(c).

⁵¹ NER, cl. 6.18.1B.

⁵² NER, cl. 6.18.1B(d).

3 Tariff classes

In our draft decision we approved the tariff classes proposed by each of the NSW distributors. The NSW distributors proposed tariff classes that are consistent with their previous practice and distributor approaches in other jurisdictions. The NSW's distributors' tariff classes group similar customers together taking into account their connection to and use of the network. We are satisfied that the NSW distributors' proposed tariff classes are compliant with the rule requirements on the assignment and re-assignment of customers to tariff classes and contribute to the achievement of compliance with the distribution pricing principles.

The tariff classes proposed by each of the NSW distributors are mostly consistent, as summarised below.

Table 3-1 NSW distributors tariff classes

	Ausgrid	Endeavour Energy	Essential Energy
Transmission Connected	X		
Sub-transmission	X	X	X
High voltage	X	X	X
Low voltage demand	X	X	X
Low voltage energy		X	X
Inter-distributor transfer demand	X	X	X
Unmetered	X	X	X

A description of the tariff classes is set out in Table 3-2 below.

Table 3-2: Description of tariff classes

Tariff class	Customer description
Transmission connected	Industrial customers Applicable to any site that is connected to the transmission network.
Sub-transmission	Industrial / sub-transmission customers Applicable to connections to the sub-transmission network.
High voltage	Industrial customers Applicable to connections to the high voltage network
Low voltage demand	Larger commercial and light industrial customers Applicable to low voltage connections

	Total electricity consumption is greater than 160MWh per annum.
Low voltage energy	Residential customers and small to medium enterprise businesses. Applicable to low voltage connections
Inter distributor transfer demand	Distributors Distributor transfer
Unmetered	Public lighting, traffic lights

Under the high level tariff class structure described above, the NSW distributors further vary how they group customers into certain network tariffs. Assignment to individual network tariffs within these tariff class groupings are described in the tariff assignment sections in Chapter 4 (residential and small business customers), Chapter 5 (medium business customers) and Chapter 6 (large business customers).

3.1 Standalone and avoidable costs

We approve the NSW distributors' 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.

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

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

In setting network tariffs, the NSW distributors 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.⁵³ This prevents large cross subsidies between tariff classes, such as residential and large business customers.

The NSW distributors have each 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.

The tables below compare each of the NSW distributors' estimates of the expected revenue from each tariff class to the avoidable and standalone costs of supply. These tables show that the avoidable cost is lower than the DUOS revenue recovered for each tariff class. The standalone cost is greater than the revenue recovered for each tariff class.

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

Table 3-3 Ausgrid estimates of avoidable cost, expected revenue and standalone cost by tariff class FY2017-18(\$m)

Tariff class	Avoidable cost	Expected Revenue	Stand alone cost
Low voltage	250.05	1,367.38	1,397.45
High voltage	5.97	37.04	467.92
Sub-transmission voltage	3.08	26.88	452.89
Unmetered	0.28	8.95	440.60

Source: Ausgrid, Appendix A Revised Tariff Structure Statement October 2016, p.71
Statement October 2016, p.71

⁵³ NER, cl. 6.18.5(e)

Table 3-4 Endeavour Energy estimates of avoidable cost, expected revenue, and stand alone cost by tariff class 2015-16 (\$m)

Tariff class	Avoidable cost	Expected Revenue	Stand alone cost
Low voltage energy	366	561	725
Low voltage demand	33	168	392
High voltage demand	13	35	285
Sub-transmission demand	11	26	105
Inter-Distributor transfer	3	5	97
Unmetered	-	9	359

Source: Endeavour Energy, Tariff Structure Statement Explanatory Statement, October 2016 p.50

Table 3-5 Essential Energy estimates of avoidable cost, expected revenue, and stand alone cost by tariff class 2017-18 (\$m)

Tariff class	Avoidable cost	Expected Revenue	Stand alone cost
Low voltage residential and small business	107	692	904
Low voltage demand	13	197	811
High voltage demand	4	47	523
Sub-transmission demand including inter-distributor transfer	13	14	133
Unmetered	1	9	400

Source: Essential Energy, Addendum to our tariff structure statement, Explanations and Reasoning 4 October 2016, p.22

4 Residential and small business customer tariffs

This chapter sets out our assessment of the NSW distributors' proposed tariff designs and tariff assignment policies for residential and small business customers. Residential and small business customers are assigned to the low voltage tariff classes, though the particular title of the tariff class differs between distributors. Small business customers are those whose consumption is less than 160MWh per annum.

The NSW distributors have proposed similar tariffs and assignment policies for their residential and small business customers. However, there are some differences in the timing of the charging windows between residential and small business customers. Charging windows are discussed in chapter 8.

We approve the tariff designs and tariff assignment policies proposed by Ausgrid and Endeavour Energy. We are satisfied that the tariff designs and assignment policies proposed by Ausgrid and Endeavour Energy for residential and small business customers contribute to the achievement of compliance with the distribution pricing principles. We consider the proposed tariffs reflect efficient costs and the assignment policies promote the efficient recovery of those costs from the customers contributing to the cost of providing the service.

We also approve Essential Energy's tariff designs for its residential and small business customers. We are satisfied the proposed tariffs recover efficient costs and contribute to the achievement of the distribution pricing principles. However, we do not approve all aspects of Essential Energy's proposed assignment policies.

We approve the criteria, but not the timing of Essential Energy's proposed changes to its assignment policies for residential and small business customers. Essential Energy proposed to assign all new customers, and existing customers who upgrade their meter or who install solar PV to time-of-use tariffs from 1 July 2017. To meet the requirements of Essential Energy's distribution determination, we have amended the timing of Essential Energy's tariff assignment policy changes to take effect from 1 July 2018. This better aligns with the timing of the AEMC's metering rule changes which take effect from 1 December 2017. We have determined this change on the basis of Essential Energy's tariff structure statement and amended from that basis only to the extent necessary to enable it be approved in accordance with the Rules. This issue is discussed in section 4.2.

In our draft decision we did not approve the following elements of the NSW distributors' tariff structure statements for residential and small business customers:

- Ausgrid's, Endeavour Energy's and Essential Energy's declining block tariffs,
- Ausgrid's proposed assignment criteria which distinguished between new customers with embedded generation and new customers without embedded generation,
- Endeavour Energy's and Essential Energy's 'wait and see' approach to tariff design and opt-in only approach to customer assignment for time-of-use tariffs under which no new residential tariffs or assignment criteria was proposed to better progress cost reflective tariff reform.

In the revised tariff structure statements, the NSW distributors modified their proposals to address our concerns from the draft decision. They proposed to replace their declining block tariffs with flat tariffs, introduce new time-of-use tariffs and revise their tariff assignment criteria to better promote cost reflectivity. Essential Energy proposed an opt-in demand tariff for residential and small business customers. We are satisfied that the proposed tariff designs and assignment criteria in the revised proposals for residential and small business customers better promote cost reflectivity, and are satisfied this contributes to the achievement of compliance with the distribution pricing principles.

We received a number of submissions from stakeholders regarding residential and small business tariff design and customer assignment. Stakeholders supported the replacement of the declining block tariffs with flat tariffs for this tariff structure statement period. Time-of-use tariffs were seen as more cost reflective and the preferred tariff design.⁵⁴ There was some opposition to small customers being mandatorily assigned to time-of-use tariffs, even when they have a new meter installed.⁵⁵ Stakeholders generally considered demand tariffs for residential and small business customers were inappropriate and too complex, especially if not designed well.⁵⁶ Energy Australia supported demand tariffs but considered they should be opt-in only.

4.1 Tariff design

The NSW distributors proposed a range of tariff designs at the residential and small business customer level which reflect metering capabilities. These include flat tariffs, time-of-use tariffs and opt-in demand tariffs (Essential Energy only). We consider the proposed tariff designs progress cost reflective tariff reform.

Each of the NSW distributors proposed tariff assignment policies which assign new customers by default to time-of-use tariffs. These are designed to progressively have fewer customers on flat tariffs and more customers on time-of-use tariffs. We consider this approach which first transitions those customers best able to benefit from time-of-use tariff structures promotes the pricing principles and cost reflective pricing.

Essential Energy's proposed demand tariff could be more effectively designed. However, as it is opt-in only we consider the customers choosing it will be well informed and able to benefit from the pricing structure. We also consider the proposed demand charge is a first step to gaining a better understanding of customer consumption patterns and behavioural responses to demand based pricing. This will better enable distribution businesses to design more effective demand charges for future tariff structure statement periods. We are satisfied the tariff designs proposed by the NSW distributors contribute to the achievement of compliance with the distribution pricing principles. Our reasoning on accepting the tariff designs is linked to our consideration of the distributors' tariff assignment policies in section 4.2.

⁵⁴ Energy Australia, Origin Energy, Red and Lumo, EWON, NCOSS, PIAC and Solar Citizens.

⁵⁵ Red and Lumo

⁵⁶ EWON, PIAC and Solar Citizens

The NSW tariff designs for residential customers are set out in Table 4-1.

Table 4-1 Tariff designs for residential customers

	Ausgrid	Endeavour Energy	Essential Energy
Flat Tariff	X	X	X
Time-of-use (opt-in for existing customers)	X ⁵⁷	X ⁵⁸	X ⁵⁹
Transitional tariff for existing customers with interval meters	X		
Time-of-use interval with morning peak removed			X ⁶⁰
Demand tariff			X ⁶¹

Each NSW distributor also proposed two controlled load customer tariffs in the low voltage tariff class level.

The proposed tariff designs for small business customers are set out in Table 4-2.

Table 4-2 Tariff designs for small business customers

Tariff	Ausgrid	Endeavour Energy	Essential Energy
Flat Tariff	X	X	X
Time-of-use (opt-in for existing customers)	X ⁶²	X ⁶³	X ⁶⁴
Transitional for existing customers with interval meters	X		
Time-of-use interval with morning peak removed			X ⁶⁵
Inclining block tariff		X	
Demand tariff			X ⁶⁶

⁵⁷ Ausgrid opt-in for existing residential customers with interval meters after 1 July 2018, default for new residential connections

⁵⁸ Endeavour Energy opt-in for existing residential customers with interval meters and default for new residential customers

⁵⁹ Essential Energy opt-in for existing residential customers with interval meters (has legacy morning peak window)

⁶⁰ Essential Energy default for new residential customers

⁶¹ Essential Energy opt-in for residential customers with interval meters

⁶² Ausgrid opt-in for existing small business customers with interval meters after 1 July 2018, default for new small business connections

⁶³ Endeavour Energy opt-in for existing small business customers with interval meters and default for new small business customers

⁶⁴ Essential Energy opt-in for existing small business customers with interval meters (has legacy morning peak window)

⁶⁵ Essential Energy default for new small business customers

4.1.1 Flat tariffs

We approve Ausgrid's and Essential Energy's revised proposals to replace their existing residential and small business declining block tariffs with flat tariffs and Endeavour Energy's revised proposal to transition its residential declining block tariff to a flat tariff over the next two years.⁶⁷ We consider each of these revised proposals contribute to each of the distributor's respective tariff structure statements achieving compliance with the distribution pricing principles.

In our draft decision we suggested given the lack of interval metering that a neutral tariff, such as a flat tariff, is a preferred option to a declining block tariff. In the initial proposals the distributors proposed declining block tariffs because they considered it was the least distortive way to recover residual costs. In our draft decision we considered:

- The distributors should justify the recovery of residual costs from the fixed charge and first block of the declining block tariff by providing evidence on price elasticity.
- In the absence of supporting evidence on price elasticity the least distortive method to recover the residual costs would be through a consistent mark-up to the usage rates (i.e. through a flat tariff).
- A flat tariff will ensure that high and low usage customers will pay for residual costs in proportion to their use of electricity.
- Customers are better able to mitigate the impact of changes through their usage decisions through a flat tariff compared to a declining block tariff where more costs are recovered through the fixed charge and first consumption block charge.
- A flat tariff, whilst not sending signals regarding the timing of consumption would reduce any risk of over incentivising consumption during peak periods compared to a declining block tariff which incentivises higher electricity consumption.

In response to our draft decision Ausgrid and Essential Energy proposed to replace their existing residential and small business declining block tariffs with flat tariffs. Endeavour Energy also proposed to replace its declining block tariff for residential customers with a flat tariff, but would transition to it over a two year period.

The distributors did not provide evidence to support that customers consuming in the first consumption threshold are less elastic than larger customers. Ausgrid submitted that it supports the AER's view on replacing the declining block tariff with a flat tariff and

⁶⁶ Essential Energy opt-in for small business customers with interval meters.

⁶⁷ In its initial tariff structure statement Endeavour Energy proposed to continue its inclining block tariff for its small business customers. We approved this in our draft decision. This resulted in the threshold between the first and second blocks of Endeavour Energy's inclining block tariff being increased from 10MWh to 120MWh. This essentially made it a flat tariff for the majority of its small business customers (97.8 per cent). Our reasoning for approving this tariff is discussed in section 4.1 of our draft decision. Endeavour Energy proposed no further changes in its revised proposal and we received no submissions in response to this decision from stakeholders.

stakeholders' preference for moving away from declining block structures.⁶⁸ Essential Energy submitted that declining block tariffs do represent a cost reflective option for the majority of customers in their network area. However, in response to stakeholder preferences Essential Energy is now proposing a flat tariff structure in place of the declining block tariff.⁶⁹ Essential Energy considered the flat rate structure is easy for its customers to understand, will ensure that both high and low usage customers pay for residual costs in proportion to their use of electricity and is generally better aligned with retailer offerings.⁷⁰

Stakeholders supported the flat tariff. NCOSS and PIAC noted the lack of price signals of flat tariffs and expressed concern regarding cost reflectivity. However, they supported the flat tariff until the next tariff structure statement period.⁷¹

Red and Lumo supported the NSW distributors' proposals to submit flat tariffs. Overall Red and Lumo supported a longer term approach to transitioning to cost reflective tariffs. It will facilitate a smoother transition and reduce the probability of tariff shock.⁷²

EWON submitted,

EWON welcomes Ausgrid and Essential Energy's current proposals to end their declining block tariffs and replace them with flat tariffs. This will see an end to the current subsidising of high use customers by customers with low consumption, many of who are vulnerable and in hardship. We note that Endeavour Energy is proposing to do the same over a 2 year period and EWON questions this approach, while noting that Endeavour Energy's transitional approach is designed to minimise bill shock.⁷³

The acceptance of flat block tariffs, which NCOSS believes have similar issues to declining block tariffs, in providing little price signal or incentive to reduce consumption or move to more reflective tariffs. Further, like the initial proposal for declining blocks, low usage customers are disproportionately burdened with the recovery of residual costs under this structure.⁷⁴

We consider that for this tariff structure statement period, until interval metering becomes more widespread, a flat tariff instead of a declining block tariff better contributes to the achievement of the pricing principles. The flat tariff proposed by distributors spreads the recovery of residual costs equally across users (whereas the declining block tariff structure spreads the recovery of residual costs between the fixed charge and the first consumption block). Given the lack of evidence regarding elasticity we are satisfied that the flat tariff structure contributes to the achievement of compliance with the pricing principle 6.18.5(a) to reflect the network providers efficient costs than a declining block tariff.

⁶⁸ Ausgrid, Overview, Revised Tariff Structure Statement, October 2016 p. 9

⁶⁹ Essential Energy, Addendum, p.12

⁷⁰ Essential Energy, Addendum, p.12

⁷¹ PIAC, Submission 26 October, p.6

⁷² Red and Lumo, Submission 27 October, p1

⁷³ EWON, Submission 26 October, p.2

⁷⁴ NCOSS, Submission, 26 October. p.1

A flat tariff also better enables customers to mitigate the impact of changes through their usage decisions (6.18.5(h)(3)) than a declining block tariff structure, where more costs are recovered through the fixed charge and the first consumption block.

Endeavour Energy proposed a two-year transition period for its residential declining block tariff because this would achieve a flat tariff in the second year of this two year tariff structure statement period, whilst mitigating the impact on customers' bills.

To change the declining block tariff to a flat tariff it is necessary to adjust the second and third consumption block charges upwards. Accordingly, transitioning to a flat tariff will most impact larger customers consuming in the second and third blocks. The current price differential between the consumption blocks thresholds is not significant. The impact on larger customers consuming in these blocks is unlikely to be significant, particularly for Ausgrid and Essential Energy. For example, at current levels customers in Ausgrid's network consuming in the third block only pay an additional 62 cents per 100kWh consumed compared to the second block. In Essential Energy's network the difference is 49 cents per 100kWh consumed compared to the second block. However, for Endeavour Energy the difference per 100kWh consumed between the second and third block is \$1.33.

Endeavour Energy proposed that under its two year transition, no customer receives an annual increase in bills by more than 8 per cent, whilst under a one year transition some larger customers would have an annual bill increase of over 14 per cent.⁷⁵ Stakeholders were not opposed to Endeavour Energy's proposed two year transition period.

Endeavour Energy's proposal to transition its declining block tariff to a flat tariff over the next two years takes into account the impact of the change in tariff on larger customers. Clause 6.18.5(c) allows tariffs to vary from complying with the pricing principles to the extent necessary to give effect to 6.18.5 (h)(3) which considers the customer's ability to mitigate the changes in tariffs through their usage decisions. We are satisfied Endeavour Energy's proposal to transition its declining block tariff to a flat tariff over a two year period contributes to the pricing principles.

4.1.2 Time-of-use tariffs

We approve the NSW distributors' proposals for time-of-use tariff structures. At this stage of tariff reform in NSW, we consider time-of-use tariffs are sufficiently cost reflective for residential and small business customers. Demand tariffs, if designed correctly, are more cost reflective than time-of-use tariffs because peak demand is a principal driver of network investment. However, time-of-use tariffs send signals regarding the timing of consumption and provide an incentive for customers to shift their energy usage from times of network constraint. We consider a structure which reflects times of constraint (peak) and times of greater capacity (off-peak) contributes to the achievement of compliance with the pricing principles:

- that prices should reflect efficient costs (6.18.5(a)) and

⁷⁵ Endeavour Energy, Tariff Structure Statement explanatory. P.54

- reflects the additional costs likely to be associated with meeting demand at times of greatest utilisation (6.18.5(f)(2))

Each of the NSW distributors proposed time-of-use tariffs for their residential and small business customers. The proposed time-of-use tariffs vary across the distributors with respect to the timing of the charging windows (discussed in chapter 8) and customer assignment criteria. For example, Ausgrid and Essential Energy proposed different time-of-use tariffs for their customers depending on whether they are existing customers with interval meters currently on a non-time-of-use tariff or newly connected customers with interval meters.

The different types of time-of-use tariffs proposed by each distributor are set out in the tables below.

Table 4-3 Ausgrid proposed time-of-use tariffs

	Assignment policy	Structure
Residential time-of-use tariff	<p>Default for residential customers currently on time-of-use tariffs.</p> <p>From 1 July 2018 default for all new residential customers.</p> <p>Able to opt-out to residential transitional tariff.</p>	Fixed charge, peak, shoulder and off-peak usage charges
Small business time-of-use tariff	<p>Default for small business customers currently on time-of-use tariffs.</p> <p>From 1 July 2018 default tariff for all new small business customers</p> <p>Able to opt-out to small business transitional tariff.</p>	Fixed charge, peak, shoulder and off-peak usage charges
Residential transitional tariff	<p>From 1 July 2018, existing residential customers on non-time-of-use tariffs that have an interval meter – including due to meter upgrade – will be re-assigned to the residential transitional tariff.</p> <p>From 1 July 2018 new residential customers can opt-in to this tariff from the residential time-of-use tariff.</p>	Fixed charge, same rate applies to peak, shoulder and off-peak charging windows. For this tariff structure statement period, this tariff is effectively a flat rate tariff.
Small business transitional tariff	<p>From 1 July 2018, existing small business customers on the non-time-of-use tariffs that have an interval meter – including due to meter upgrade – will be re-assigned to the small business transitional tariff.</p> <p>From 1 July 2018 new small business customers can opt-in to this tariff from the small business time-of-use tariff.</p>	Fixed charge, same rate applies to peak, shoulder and off-peak charging windows. For this tariff structure statement period, this tariff is effectively a flat rate tariff.

Table 4-4 Endeavour Energy proposed time-of-use tariffs

	Assignment policy	Structure
Residential time-of-use tariff	<p>Opt-in for residential customers with interval meters currently on non-time-of-use tariffs.</p> <p>From 1 July 2018 default tariff for new residential customers, with the option to opt-out to the flat tariff.</p>	Fixed charge, peak, shoulder and off-peak usage charges
Small business time-of-use tariff	<p>Opt-in for small business customers with interval meters currently on non-time-of-use tariffs.</p> <p>From 1 July 2018 default tariff for new small business customers, with the option to opt-out to the flat tariff.</p>	Fixed charge, peak, shoulder and off-peak usage charges

Table 4-5 Essential Energy proposed time-of-use tariffs

	Assignment policy	Structure
Residential opt-in time-of-use tariff	Opt-in for residential customers with interval meters currently on non-time-of-use tariffs.	Fixed charge, peak, shoulder and off-peak usage charges
Small business opt-in time-of-use tariff	Opt-in for small business customers with interval meters currently on non-time-of-use tariffs.	Fixed charge, peak, shoulder and off-peak usage charges.
Residential interval time-of-use tariff	From July 2018 default tariff for new residential customers, meter upgrades and solar PV customers.	Fixed charge, peak, shoulder and off-peak usage charges.
Small business interval time-of-use tariff	From July 2018 default tariff for new small business customers, meter upgrades and solar PV customers.	Fixed charge, peak, shoulder and off-peak usage charges.

We consider the proposed time-of-use tariff structures which have peak, shoulder and off-peak charging windows enable the NSW distributors to send signals regarding times of constraints when the costs to provide electricity are greater and times of capacity when the costs are less. We are satisfied that the time-of-use tariff structures contribute to the distribution pricing principles, particularly 6.18.5(g) to reflect the distributors total efficient costs of serving customers that are assigned to the tariff. By providing signals to customers regarding times of constraint and capacity customers are better informed of the costs of the

network and can be encouraged to shift consumption to make more efficient use of the network. This better enables customers to manage their bills through changing their consumption behaviour (6.18.5(h)(3)).

Stakeholders, such as retailer Origin Energy, supported the introduction of time-of-use tariffs.

The introduction of non-business day off-peak rates by Essential Energy and Endeavour Energy provides real incentives for customers to change their consumption patterns and thus gain benefits from time-of-use tariff.

Origin considers that the introduction of volumetric time-of-use tariffs represents a pragmatic step along the spectrum to cost reflectivity. We believe volumetric time-of-use tariffs are relatively well understood by customers and therefore are more likely to deliver an informed consumption response.⁷⁶

4.1.3 Ausgrid's transitional tariffs

In our draft decision we approved Ausgrid's proposed transitional residential and small business tariffs. Ausgrid's approach to adopt a time-of-use structure with peak, shoulder and off-peak windows and to apply the same rate across all windows for a transitional period will provide customers with important information about their time-of-use consumption patterns, but without imposing bill shocks. We consider this will help customers make a decision as to whether they want to opt-in to the more cost reflective time-of-use tariff. It also allows customers time to adjust their consumption patterns without any price impacts before transitioning to the more cost reflective time-of-use tariff. We approve Ausgrid's residential and small business transitional tariffs. We are satisfied that this approach is a step towards more cost reflective pricing as it provides important information to customers about their consumption profile. We also consider such an approach contributes to the achievement of the pricing principles that the impact on customers must be considered (6.18.5(h)) and the tariff must be reasonably capable of being understood (6.18.5(i)).

4.1.4 Demand tariffs

In its revised tariff structure statement Essential Energy proposed opt-in demand tariffs for its residential and small business customers. Ausgrid and Endeavour Energy did not propose demand tariffs for their residential and small business customers.

Essential Energy's opt-in demand tariffs

We approve Essential Energy's new opt-in demand tariffs for residential and small business customers. Demand tariffs are more cost reflective than time-of-use tariffs because peak demand is a principal driver of network investment. We are satisfied that Essential Energy's new opt-in demand tariffs for its residential and small business customers contribute to the

⁷⁶ Origin, Submission 26 October, p.2

achievement of the distribution pricing principles. We consider the proposed demand tariffs could be further refined to better reflect costs to the network, however we are satisfied that a tariff structure which includes a demand charge progresses tariff reform. Further as the proposed demand charges are opt-in only we consider those customers electing demand tariffs are likely to be well informed. We consider that this approach during the initial tariff structure statement period will provide important information to Essential Energy regarding customer take up and response to demand pricing. We consider this will better enable Essential Energy to refine its demand tariffs for future tariff structure statement periods.

Essential Energy's proposed opt-in demand tariffs for residential and small business customers consists of a fixed charge (\$/per annum), peak, shoulder and off-peak usage charges (cents/kWh) and a monthly maximum demand charge (\$/kVA/month).

Essential Energy proposed that its demand tariffs:

- are opt-in for customers that meet the eligibility criteria.
- Consist of one peak window for the demand charge that covers both peak and shoulder periods (7am to 10pm weekdays) and one off-peak window (every other time)
- For residential customers the demand charge is set slightly below LRMC to encourage customer take up – with the intent to raise this up to LRMC over time to be more cost reflective.⁷⁷

PIAC considered demand tariffs more cost reflective, however submitted that it is important to design them so as to target maximum demand on the system.

While customers do have daily consumption peaks, there is little correlation between a customer's individual daily peak and network peak. A customer may have maximum daily peak at 11pm, but this is not necessarily when the system peak occurs. A customer should not be charged peak prices when their household peak use does not contribute to the system peak.⁷⁸

Essential has introduced a simple maximum demand charge for residents. This is based on the highest half hour of consumption in a month that occurs in either the peak or shoulder period...PIAC does not consider it an effective tariff, as there is little price signalling. PIAC recommends that the networks consider a similar demand tariff to that of Ergon in Queensland.⁷⁹

PIAC also suggested exploring options of better targeting the demand charge. For example, maybe it should only apply in summer or to the few half hour intervals in a year where system utilisation is at its highest. PIAC suggested considering 'critical peak pricing' where customers are informed the day ahead of a peak capacity day.⁸⁰

⁷⁷ Essential Energy, Addendum, p. 18

⁷⁸ PIAC, Submission 26 October, p.7

⁷⁹ PIAC, Submission 26 October, p.7

⁸⁰ PIAC, Submission 26 October, p.7

It will be incumbent on retailers, who offer this product to their customers, to ensure that there is a clear understanding of this new tariff structure. Information about this tariff needs to ensure that customers understand, not just its potential benefits, but also the implications of intermittent high consumption which would impact total consumption for that billing period.⁸¹

For a demand charge to be effective it needs to send signals regarding system maximum demand. An important element to setting a cost reflective demand charge is to ensure that customers are not charged a peak demand when they are not contributing to it. We consider demand charges should send signals to customers when their usage or peak consumption matches the peak on the network. For example, a customer who uses energy at midnight is unlikely to be contributing to a future constraint and would in fact be improving the utilisation of the network

Essential Energy's proposed charging window for its demand charges could be better targeted. However, for this tariff structure statement period we consider Essential Energy's demand charge is a first step to designing a cost reflective efficient demand tariff. In the future a more carefully designed and cost reflective demand charge may be to set it so customers are only charged for demand during the peak season / summer months. Or that the charge is only applied to the customer on the peak days (for example the top 10 local system peaks in the period). Such a tariff would also require the distributor to notify 24 hour in advance of the peak day.

As the new demand tariff is opt-in it is more likely to be understood by the customers on it. That is, we expect that a customer would only be assigned to the demand charge by the retailer if the retailer has explained the charge to the customer and the customer has agreed to be assigned to it. As it is customer choice to be on this tariff we consider it is consistent with pricing principle 6.18.5(h) (3) that customers can mitigate the changes in tariffs through their usage decisions.

We further note that Essential Energy has set the demand charge component for residential customers below LRMC initially so that residential customers opting-in to this tariff will have a transitional period during which they can adjust their load profiles and become accustomed to the tariff. We consider this is also consistent with pricing principle 6.18.5(h) (3).

Ausgrid and Endeavour Energy

Both Ausgrid and Endeavour Energy did not propose demand charges for their residential and small business customers.

Ausgrid considered that the implementation of demand charges would necessitate extensive consultation and detailed analysis of the price stability and customer bill implications and that this would be challenging for this tariff structure statement period. However, Ausgrid noted that it will include options for a demand charge for the next tariff structure statement period.⁸²

⁸¹ EWON, Submission 26 October. p.3

⁸² Ausgrid, Revised Tariff Structure Statement Options paper, 30 August 2016, p2

Endeavour Energy decided not to introduce a demand charge for residential customers in this tariff structure statement period for the following reasons:

- Demand based charging can have a substantive impact on individual customers, particularly more vulnerable customers who have limited flexibility to change the time they use electricity
- Lack of interval metering means that the detailed information which would be needed to design appropriate demand tariffs is not currently available.
- By waiting Endeavour Energy will be able to build on the experience of the Victorian Retailers.⁸³

Endeavour Energy suggested considering other options to reduce demand, such a peak time rebate where the demand charge is structured as a reward rather than a penalty, i.e. the customer obtains a rebate for reduced peak consumption rather than paying a higher charge for consumption at times of peak demand.⁸⁴

Demand based tariffs are more cost reflective than time-of-use tariffs because peak demand is a principal driver of network investment. However, we recognise that the design of a cost reflective and effective demand tariff relies on information on load profiles and detailed analysis of customer impact. At this stage of tariff reform in NSW, we consider time-of-use tariffs are sufficiently cost reflective for residential and small business customers and are an appropriate transition to more cost reflective demand tariffs. Time-of-use tariffs signal times when the network is likely to experience congestion and enable customers shift their usage outside of peak times. Demand tariffs may be more appropriate for future tariff statement proposals, as a further tariff reform step towards cost reflective pricing. Accordingly, we are satisfied that Ausgrid's and Endeavour Energy's proposals to continue to use time-of-use tariffs for this tariff structure statement (and not introduce demand tariffs) for their residential and small business customers is appropriate for this first round of tariff reform.

4.2 Tariff assignment policies

This section sets out our assessment of the NSW distributors' policies and procedures for grouping and assigning residential and small business customers to tariffs.

In our draft decision we did not approve the following elements of the distributors' tariff assignment policies:

- Ausgrid's proposed assignment criteria which distinguished between new customers with embedded generation and new customers without embedded generation,
- Endeavour Energy's and Essential Energy's opt-in only approach to customer assignment for time-of-use tariffs.

⁸³ Endeavour Energy, Tariff structure statement, explanatory statement p.9

⁸⁴ Endeavour Energy, Tariff structure statement, explanatory statement p.56

Residential and small business customers are grouped in the low voltage tariff classes. In this section we discuss the proposed tariff assignment for residential and small business customers.

We approve Ausgrid and Endeavour Energy's revised tariff assignment policies. We consider the proposed assignment policies promote the efficient recovery of costs from those customers contributing to the cost of providing the service. We are satisfied that Ausgrid's and Endeavour Energy's proposed tariff assignment criteria for residential and small business customers contributes to the achievement of compliance with the distribution pricing principles.

We approve Essential Energy's tariff assignment policies for residential customers and small business customers, except for Essential Energy's proposed tariff assignments for new connections, meter upgrades and solar PV installations to take effect from 1 July 2017. We consider the assignment of these customers should begin no earlier than 1 December 2017. This will align with the commencement of the new framework for metering which requires any new or replacement meter be provided on a competitive basis.⁸⁵

Our distribution determination for Essential Energy allows assignment of customers to be based on a customer's metering arrangements only if that metering was provided as a result of a regulatory obligation or requirement.⁸⁶ Essential Energy's proposed assignment will become compliant with its distribution determination through aligning the tariff assignment change with the commencement of the metering contestability rule change, which provides the requisite regulatory obligation.

In their revised proposals each of the NSW distributors made changes to their tariff assignment criteria in response to our draft decision:

- Ausgrid accepted the AER's draft decision that all new residential and small business customers with or without embedded generation should be treated equally and be assigned by default to the same residential time-of-use tariff.
- Compared to the initial proposals both Endeavour Energy and Essential Energy have moved from their opt-in only approach to time-of-use tariffs for residential customers. We consider the revised proposals to assign new residential and small business customers by default to time-of-use tariffs comply with the distribution pricing principles and other applicable requirements in the NER, namely Attachment 14 to our respective distribution determinations for each distributor.

Ausgrid's and Endeavour Energy's proposed re-assignment policies take effect from 1 July 2018. Whereas Essential Energy proposed that its re-assignment policy takes effect from 1 July 2017.

⁸⁵ Australian Energy Market Commission, *National Electricity Amendment (Expanding competition in metering and related services) Rule 2015*, November 2015.

⁸⁶ AER, *Final Decision – Essential Energy determination 2015-16 to 2018-19, Attachment 14 - Control mechanism*, April 2015, pp.26

The NSW distributors proposed tariff assignment policy for residential and small business customers is set out below.

Ausgrid proposal

In its revised tariff structure statement Ausgrid proposed that from 1 July 2018:

- All new residential and small business customers with or without embedded generation will be assigned by default to the cost reflective time-of-use tariff. These customers will all have the option to opt-out to the transitional tariff. In the initial proposal Ausgrid proposed that new customers with embedded generation would be assigned by default to the cost reflective time-of-use tariff and new customers without embedded generation would be assigned to the transitional time-of-use tariff.
- To assign no more residential and small business customers to non-time-of-use network tariffs, i.e. non-time-of-use network tariff will become closed and opt-out only.
- To assign existing residential and small business customers with an interval (or better) meter, that are currently assigned to a non-time-of-use tariff, to a transitional tariff, with the option to opt-in to a more cost reflective tariff.⁸⁷
- Existing residential and small business customers with a basic accumulation meter currently assigned to the flat tariff will remain assigned to their current tariff from 1 July 2018, unless they change their meter.
- Existing residential and small business customers with basic accumulation meters who change their meter to an interval or better meter from 1 July 2018 will be assigned to the transitional tariff. These customers will have the option to opt-in to the cost reflective time-of-use tariff.⁸⁸

Endeavour Energy proposal

In its revised tariff structure statement Endeavour Energy proposed that from 1 July 2018:

All new residential and small business customers will be assigned to a time-of-use tariff with the option to opt-out to a non-time-of-use tariff. (In its initial tariff structure statement Endeavour Energy proposed these customers could opt-in to the time-of-use tariff).

- Existing customers who chose to modify or upgrade their existing network connection from single to three phase will be assigned to the default time-of-use tariff (if their metrology allows) with the option to opt-out to the non-time-of-use tariff.
- Existing residential and small business customers with interval meters currently assigned to the non-time-of-use tariff remain assigned to this tariff with the option to opt-in a time-of-use tariff.

⁸⁷ Ausgrid, Revised tariff structure statement, October 2016, p.16

⁸⁸ Ausgrid, Revised tariff structure statement, October 2016, p.20

Endeavour Energy considers that its proposed assignment will lead to an additional 10 per cent to 20 per cent of residential and small business customers being on a time-of-use tariff by end of the next tariff structure statement period.⁸⁹

Essential Energy proposal

In its revised tariff structure statement Essential Energy proposed the following tariff assignment criteria for residential and small business customers:

- From 1 July 2018 all new connections, meter upgrades and solar PV installations for residential and small business customers will be assigned by default to the time-of-use tariff, with the option to opt-out to an alternative tariff if they satisfy the necessary eligibility requirements.⁹⁰ (In its initial tariff structure statement Essential Energy proposed these customers could opt-in to the time-of-use tariff).
- New customers with accumulation meters installed prior to 1 December 2017 will be assigned to the flat tariff.
- Existing customers with basic accumulation meters currently on a non-time-of-use tariff will remain on their current tariff (now flat tariff).
- Existing customers who already have interval meters as at 1 July 2017 and who are currently on a non-time-of-use tariff will not be moved to new tariffs.⁹¹

As noted above, Essential Energy has some small business customers who are currently on the incorrect tariff and should be assigned to a different tariff. This is discussed in chapter 5 medium business customers.

Red and Lumo did not support the mandatory assignment to cost reflective tariffs for residential and small business customers, even when they have a new meter installed.

EWON submitted,

In the end, mandating time-of-use tariffs on a few customers in the middle of the current regulatory period will not change the impact on network cost drivers.⁹²

Where opt-out tariff assignment is offered by networks this choice will be communicated to customers by retailers. It is critical that communication between networks, retailers and customers is clear and easily understood so that customers really do have choice. It is not EWON's experience that this has always been effectively done in the past.⁹³

⁸⁹ Endeavour Energy, tariff structure statement, explanatory statement, October 2016, p.6

⁹⁰ This differs from the initial proposal in which Essential Energy proposed that new connections, solar PV installations and meter upgrades for residential customers would be assigned in the first instance to the declining block tariff but could opt-in to a time-of-use tariff.

⁹¹ Essential Energy advised that it currently does not have the capacity to re-assign customers who already have interval meters to new tariffs, but it is something they plan to do in the coming years.

⁹² Red and Lumo, Submission 27 October, p.2

⁹³ EWON, Submission 26 October, p.2

Our decision for each of the NSW distributors tariff assignment policies are set out below:

AER decision Ausgrid

We approve Ausgrid's revised proposal that all new residential and small business customers (those with embedded generation and those without embedded generation) be assigned in the first instance to the cost reflective time-of-use tariff, with the option to opt-out to a transitional tariff.

We are satisfied that Ausgrid's revised tariff structure statement to treat all new customers equally contributes to the achievement of compliance with the distribution pricing principles. We consider this approach:

- Provides customers making new investments with more cost reflective price signals and that this will better inform them of the type of investments they can make with respect to appliances and energy efficiency measures.
- Is consistent with the National Electricity Objective to promote efficient investment as time-of use pricing allows customers to make more informed decisions about when and how to use electricity and may encourage more efficient use of the network and hence more efficient investment.
- Is an appropriate way to take into account customer impacts, as it recognises that these customers are in a better position to respond to the introduction of more cost reflective tariffs through their choice of appliances, technology and other measures.

Ausgrid has included an option for new customers to opt-out to the transitional tariff. By including this option Ausgrid is cognisant of customer impact and is providing customers with greater choice and ability to manage their bills. We consider this is consistent with distribution pricing principle of 6.18.5(h)(3).

AER decision Endeavour Energy

We approve Endeavour Energy's revised proposal that from 1 July 2018 all new customers be assigned to a time-of-use tariff with the option to opt-out to the non-time-of-use tariff.

We also approve Endeavour Energy's proposal that existing customers who chose to modify or upgrade their existing network connection from single to three phase be assigned to a time-of-use tariff (if their metrology allows) with the option to opt-out to the non-time-of-use tariff.

It was not clear from Endeavour Energy's proposal that existing customers who modify or upgrade their network connection would have the same default time-of-use tariff assignment (with opt-outs) as applies to new customers. It also was not clear what modify or upgrade meant. We clarified this issue with Endeavour Energy. Endeavour Energy confirmed that modify or upgrade their network means an upgrade from a single phase connection to a three phase connection.

We consider that Endeavour Energy's revised tariff structure statement to assign all new customers and existing customers who modify or upgrade their existing network connection to a time-of-use tariff better progresses tariff reform. New customers and customers making an investment decision about their network connection are best placed to benefit from more

cost reflective time-of-use tariffs. This differs from Endeavour Energy's initial proposal, which we did not approve in our draft decision, to continue an 'opt-in' only approach to time-of-use tariffs for residential and small business customers. We considered the opt-in approach, despite being in place for a number of years had resulted in very little take up. Given the lack of success of Endeavour Energy's current assignment policy to progress tariff reform we considered the proposal to maintain the current policy did not contribute to the achievement of compliance with the distribution pricing principles.

Endeavour Energy's revised proposal which includes the option to opt-out from the time-of-use tariff to a non-time-of-use tariff shows that Endeavour Energy is cognisant of customer impact. As discussed above for Ausgrid we consider customers making new investments are well placed because they will be able to observe different prices for peak and off-peak times through time-of-use pricing therefore better able to direct their investments. We are satisfied that Endeavour Energy's revised proposal that from 1 July 2018 all new customers and existing customers that modify or upgrade their network connection be assigned to a time-of-use tariff with the option to opt-out to the non-time-of-use tariff is contributes to the distribution pricing principles.

Endeavour Energy's proposed tariff assignment policy takes effect from 1 July 2018 and, consistent with our decision for Ausgrid, this aligns with the metering rule changes from 1 December 2017.⁹⁴

AER decision Essential Energy

We approve the following elements of Essential Energy's revised tariff structure statement for the assignment of residential customers:

- New customers with accumulation meters installed prior to 1 December 2017 are assigned to the flat tariff. For those customers with basic accumulation meters this is the most appropriate tariff.
- Existing customers with basic accumulation meters currently on the declining block will remain on their current tariff (now flat tariff). This is consistent with Ausgrid and Endeavour Energy's proposal.
- Existing customers who already have interval meters remain on their current (declining block) tariff. This is similar to Endeavour Energy's proposal. While less progressive than Ausgrid's proposal to assign existing customers with interval meters to the transitional (flat) time-of-use tariff, we accept Essential Energy's proposal for this tariff structure statement period.

We do not approve Essential Energy's proposal that from 1 July 2017 all new connections, meter upgrades and solar PV installations for residential and small business customers will be assigned by default to the time-of-use tariff, with the option to opt-out to an alternative tariff. Essential Energy's proposal is similar to Ausgrid and Endeavour Energy except the

⁹⁴ AEMC, Rule determination – National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014, November 2014.

timing of when the policy takes effect being 1 July 2017 compared to 1 July 2018 (Ausgrid and Endeavour Energy).

To satisfy compliance with the Rules we have determined on the basis of Essential Energy's tariff structure statement and amended from that basis only to the extent necessary to enable it be approved in accordance with the Rules that the proposed assignment take effect from 1 December 2017. This aligns with the timing of the AEMC's metering rule changes which requires any new or replacement meter be provided on a competitive basis.⁹⁵ This is consistent with the other NSW distributors and our draft decision for SAPN's tariff structure statement.⁹⁶

We consider the commencement date should align with the metering rule change. Our distribution determination for Essential Energy allows assignment of customers to be based on a customer's metering arrangements only if that metering was provided as a result of a regulatory obligation or requirement.⁹⁷ We consider that Essential Energy's assignment proposal will become compliant with its distribution determination through aligning the tariff assignment change with the commencement of the metering contestability rule change, which provides the requisite regulatory obligation.

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.⁹⁸

Essential Energy's new residential and small business interval meter time-of-use tariffs will only apply to new customers who have suitable metering installed at their time of connection. The assignment of new customers to a time-of-use tariff ensures that new customers are on cost reflective tariff. As discussed above under our decision for Ausgrid and Endeavour Energy, we consider new customers are best placed to benefit from more cost reflective time-of-use tariffs. The option to opt-out to an alternative tariff also shows that Essential Energy is cognisant of customer impact.

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 (where these have only recently been introduced). However, we also observe that sole reliance on

⁹⁵ Australian Energy Market Commission, *National Electricity Amendment (Expanding competition in metering and related services) Rule 2015*, November 2015.

⁹⁶ AER, Draft Decision – SAPN Tariff Structure Statement, p.64

⁹⁷ AER, *Final Decision – Essential Energy determination 2015-16 to 2018-19, Attachment 14 - Control mechanism*, October 2015, p.26

⁹⁸ NER, cl. 6.18.5(h).

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.

We note that each of the NSW distributors improved upon their initial proposals (which were heavily reliant on opt-in approaches), and in their revised proposals introduced opt-out arrangements, particularly for new customers. We have included the following commentary in all of our February 2017 decisions for distributors across Queensland, NSW, the ACT, and South Australia. The commentary here of most relevance to the NSW distributors is not the switch from opt-in to opt-out approaches, per se, but rather further expansion of the application of opt-out approaches to more types of residential and small business customers in their next tariff structure statement proposal.

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.⁹⁹ 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.¹⁰⁰ 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.¹⁰¹
- 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

⁹⁹ NER, cl. 6.18.5(e) – (h).

¹⁰⁰ NER, cl. 6.18.5(c).

¹⁰¹ Australian Energy Market Commission, *National Electricity Amendment (Expanding competition in metering and related services) Rule 2015*, November 2015.

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.¹⁰²

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 tariffs¹⁰³ while balancing the customer impact¹⁰⁴ 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'.¹⁰⁵ 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.¹⁰⁶ Significant new investments may include:

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

Some of these upgrades are identifiable to distributors; others may require additional reporting arrangements.¹⁰⁷

¹⁰² NER, cl. 6.18.5(h).

¹⁰³ NER, cl. 6.18.5(c).

¹⁰⁴ NER, cl.6.18.5(h).

¹⁰⁵ See our draft decision on SAPN's proposed solar tariff.

¹⁰⁶ NER, cl.6.18.5(h).

¹⁰⁷ 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.

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.¹⁰⁸ 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.¹⁰⁹ 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 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

¹⁰⁸ NER, cl.6.18.5(h).

¹⁰⁹ SAPN, *Revised tariff structure statement proposal – part B*, October 2016, p. 123.

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.¹¹⁰

¹¹⁰ NER, cl. 6.18.5(b) to (d).

5 Medium business customer tariffs

This chapter sets out our assessment of the NSW distributors' proposed tariff structures, including tariff design and tariff assignment, for medium business customers. Medium business customers are those whose consumption exceeds 160MWh per annum and are connected to the low voltage network. Medium business customers are assigned to the low voltage demand tariff class.

We approve the tariff designs and assignment policies proposed by the NSW distributors for medium business customers. We are satisfied that the proposed tariff designs and assignment policies for medium business customers contribute to the achievement of compliance with the distribution pricing principles.

The charging windows for medium business tariffs are discussed in chapter 8.

5.1 Tariff design

The NSW distributors proposed tariffs which include demand charges in addition to the fixed charge and peak, shoulder and off-peak usage charges. The design of the demand charge varies between distributors. Each distributor also proposed more than one type of demand tariff for its medium business customers.

Consistent with our draft decision we consider tariffs which include peak, shoulder and off-peak usage charges and a demand charge progress cost reflective pricing. Demand charges allow direct recovery of the costs associated with the capacity/size of the assets required to provide electricity and signal to customers to better manage their peak demand and/or invest in efficiency measures. This is a more efficient signal to those customers placing a greater burden on the grid, than through higher fixed charges and usage charges to all customers. We are satisfied that the demand tariffs proposed by the NSW distributors contribute to the achievement of compliance with the distribution pricing principles and other applicable requirements in the NER.

The following tables summarise each of the NSW distributors proposed tariffs and assignment policies for their medium business customers.

Table 5-1 Ausgrid medium business tariffs

	Assignment policy	Structure
LV time-of-use capacity 40-160 MWh	Default tariff for all business distribution customers with a low voltage connection with 40-160MWh per annum. Customers assigned to this tariff need a type 5 or better meter	Fixed charge, peak, shoulder and off-peak usage charges and a peak KW demand charge applied to the maximum kW demand recorded in any half hour interval during the peak period in the previous 12 months.
LV time-of-use capacity 160-750MWh	Default tariff for all business distribution customers with a low voltage	Fixed charge, peak, shoulder and off-peak usage charges and a peak kVA

	connection with 160-750MWh per annum. Customers assigned to this tariff need a type 3 or better meter	demand charge applied to the maximum kVA demand recorded in any half hour interval during the peak period in the previous 12 months.
LV time-of-use capacity >750MWh	Default tariff for all business distribution customers with a CT connection of greater than 1600 Amps. Customers assigned to this tariff need a type 3 or better meter	Fixed charge, peak, shoulder and off-peak usage charges and a peak kVA demand charge applied to the maximum kVA demand recorded in any half hour interval during the peak period in the previous 12 months.

Table 5-2 Endeavour Energy medium business tariffs

	Assignment policy	Structure
LV time-of-use demand tariff	Default tariff for business customers who consume more than 160MWh per annum.	Fixed charge, peak, shoulder and off-peak usage charges and a seasonal kVA demand charges. The high season is applied to the maximum kVA demand between 13:00 to 20:00 on business days November to March and June to August. The low season includes September to October and April to May inclusive.
LV time-of-use transitional tariff	Mandated tariff for business customers whose annual consumption requires a demand based tariff, but who cannot be directly transferred to the LV time-of-use demand tariff due to lack of metering capable of supporting this tariff or where the expected bill impact of a direct transition to the LV time-of-use demand tariff is deemed excessive.	Fixed charge, peak, shoulder and off-peak usage charges.

Table 5-3 Essential Energy medium business tariffs

	Assignment policy	Structure
Business time-of-use average daily demand	Business customers who consume more than 160MWh p.a. Monthly load factor greater than 60% for at least 4 of the most recent 12 months coinciding with a minimum on season anytime monthly demand of 1500kVA. Intended for customers with a seasonal demand. Interval capable meter.	Fixed charge, peak, shoulder and off-peak usage charges. Demand charge calculated on the average daily time-of-use demand for peak, shoulder and off-peak periods for the month.
Business time-of-use three rate demand	Business customers with a low voltage connection, where consumption exceeds 160MWh per year. Interval capable meter.	Fixed charge, peak, shoulder and off-peak usage charges. Demand charge based on the highest measured half hour kVA demand registered in each of the peak, shoulder and off-peak

		periods during the month.
Business time-of-use demand alternative	Business customers with a low voltage connection where consumption exceeds 160MWh per year. Interval capable meter.	Fixed charge, peak, shoulder and off-peak usage charges. Demand charge based on the highest measured half hour kVA demand registered in each of the peak or shoulder periods during the month.
Transitional demand tariff	Customer on a declining block tariff or time-of-use tariff at 30 June 2017, but no longer meets the associated eligibility requirements for that tariff from 1 July 2017 and is worse off under the applicable low voltage time-of-use three rate demand tariff at that date. Business customers with a low voltage connection where consumption exceeds 160 MWh and interval capable meter.	Fixed charge, peak, shoulder and off-peak usage charges. Demand charge based on the highest measured half hour kVA demand registered in each of the peak, shoulder and off-peak periods during the month.

5.2 Tariff assignment policies

This section sets out our assessment of the NSW distributors' tariff assignment policies for medium business customers. In this section we discuss the proposed tariff assignment for medium business customers.

We approve the NSW distributors' proposed assignment policies for medium business customers. We are satisfied that the proposed tariff assignment policies, as per the revised tariff structure statements, contribute to the achievement of the distribution pricing principles.

In the initial tariff structure statements only Ausgrid and Endeavour Energy proposed changes to their tariff assignment criteria for medium business customers. Essential Energy did not propose to change its tariff assignment criteria for medium business customers, but did flag after submitting their initial proposal that they were aware of a number of customers who should be on either demand or time-of-use tariffs, but are currently assigned to the wrong tariff.

In our draft decision we,

- did not accept Ausgrid's proposal to change the eligibility criteria for medium sized business customers from a criteria based on energy consumption to a criteria based on the size of the current transformer connection.
- accepted Endeavour Energy proposed assignment criteria for its low voltage time-of-use transitional demand tariff.

In the revised tariff structure statement Ausgrid accepted our decision and proposed to maintain its current assignment criteria for medium business customers. Endeavour Energy did not propose any further changes for its tariff assignment criteria for medium business customers.

Ausgrid

We approve Ausgrid's revised proposal to maintain energy consumption criteria to assign medium business customers. Accordingly medium business customers will continue to be assigned according to consumption based criteria. By using energy consumption as criteria a customer's assignment reflects the load placed on the system to service the customer. Load is a driver of cost. We are satisfied this contributes to the achievement of the distribution pricing principles that tariffs reflect the efficient costs of providing services to customers (6.18.5(a)).

Ausgrid currently assigns its medium business customers to one of three of its demand tariffs depending on the customer's level of consumption (40-160MWh, 160-750MWh and 750MWh+). These tariffs differ with respect to the level of the charging components. The fixed charges being higher for the larger customers and the usage charges lower than for the smaller customers.

In its initial tariff structure statement Ausgrid proposed to change the eligibility criteria for medium sized business customers from criteria based on energy consumption to criteria based on the size of the current transformer connection. We did not accept this in our draft decision as we were not convinced how the use of current transformer size to assign customers to tariffs better complies with the distribution pricing principles than current energy consumption based approach. Consideration of this is set out in our draft decision section 6.2.

Endeavour Energy

We approve Endeavour Energy's tariff assignment policies for medium business customers. In our draft decision we approved Endeavour Energy's proposal to offer a low voltage time-of-use transitional demand tariff. Endeavour Energy did not propose any further changes in its revised tariff structure statement to its tariff assignment policy for medium business customers.

In its initial tariff structure statement Endeavour Energy proposed one change to its customer assignment policies for medium business customers. This was to introduce a low voltage transitional demand tariff as a mandatory tariff for customers whose annual consumption requires a demand tariff, but who cannot be transferred to it because their meter will not support the tariff, or because the impact of transferring the customers would be excessive. This low voltage time-of-use transitional demand tariff does not have a demand charge component and the peak, shoulder and off-peak usage charges are higher than the default demand charge. The fixed charge is the same as the default demand charge.

Essential Energy

We approve Essential Energy's proposed assignment of customers to medium business tariffs.

In its initial tariff structure statement Essential Energy did not propose any changes to its tariff assignment policies for medium business customers. However, after submitting the initial tariff structure statement Essential Energy advised the AER that it was aware of a number of small business and medium business customers who should be on either time-of-use tariffs or demand tariffs. In its revised tariff structure statement Essential Energy proposed to re-assign these customers currently on the incorrect tariff to the correct tariff.

This is discussed in section 5.3 below. Essential Energy did not propose any further changes to its assignment policies for medium business customers.

5.3 Essential Energy—treatment of customers currently assigned to the wrong tariff

As part of its review for the tariff structure statement Essential Energy identified approximately 2,300 low voltage business customers using more than 100MWh of electricity per annum who are currently assigned to the wrong tariff and who should be re-assigned to a different tariff for consistency with Essential Energy's tariff assignment policy. The movements required comprise the following:

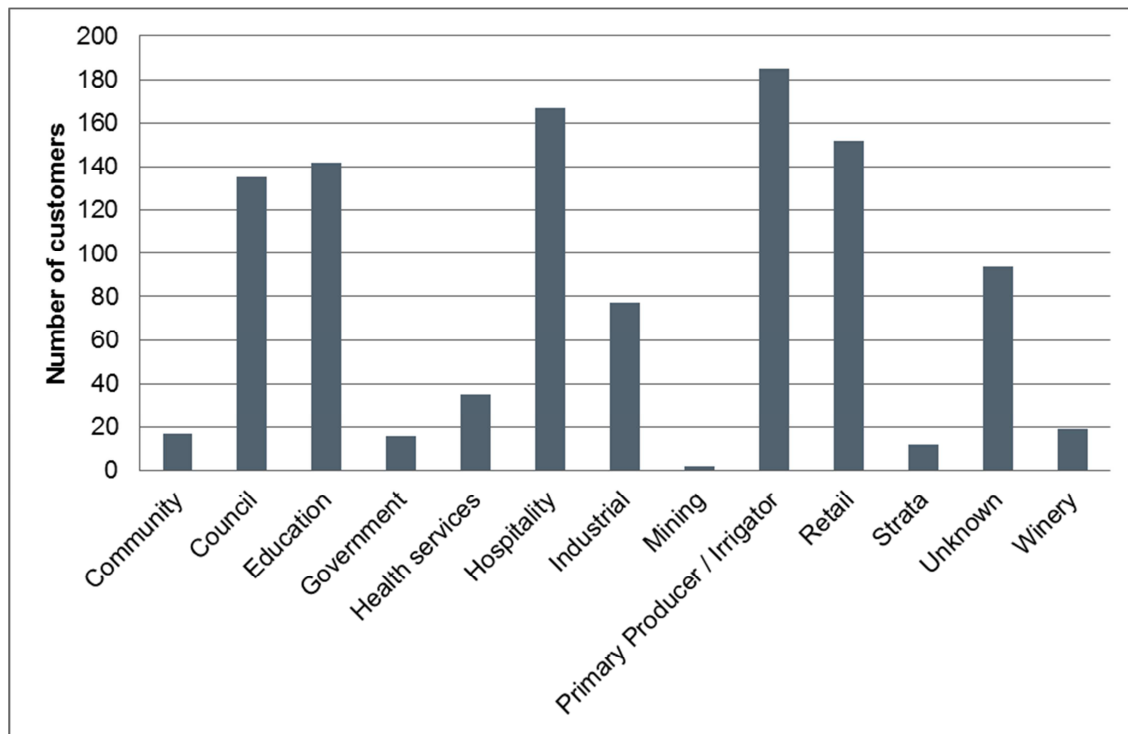
- Customers who are meant to be assigned to a time-of-use tariff for customers consuming less than 100MWh per annum—but are currently assigned to the declining block tariff
- Customers who are meant to be assigned to a time-of-use tariff for customers consuming between 100MWh and 160MWh per annum—but are currently assigned to either the declining block tariff or a time-of-use tariff which is only meant for customers consuming less than 100MWh per annum, or
- Customers who are meant to be assigned to a demand tariff for customers consuming more than 160MWh per annum—but are currently assigned to either the declining block tariff or to one of the time-of-use tariffs which are only meant for customers consuming less than 100MWh or between 100MWh and 160MWh per annum, respectively.

Essential Energy proposed that all customers in the above three cases should eventually be assigned to a correct tariff that matches their consumption characteristics. For some customers, Essential Energy proposed to re-assign them immediately to a correct tariff. For other customers, Essential Energy proposed transitional arrangements.

We support Essential Energy's goal of eventually having all customers assigned to a tariff that matches their consumption characteristics because this outcome is cost reflective and therefore contributes to the achievement of compliance with the distribution pricing principles. We have reviewed Essential Energy's proposed re-assignments of its incorrectly assigned customers with respect to managing customer impact. Our analysis of Essential Energy's proposal is discussed in detail below.

Figure 5-1 below shows the types of customers currently on incorrect tariffs.

Figure 5-1 Customers currently on incorrect tariffs



Source: AER analysis of Essential Energy response to information request 9 November 2016.

Transitional arrangements

To assist with transitioning customers to the correct tariffs Essential Energy undertook analysis of its customers' current tariffs and the impact to these customers in moving to the correct tariff. To do this Essential Energy used customer load profile data of those incorrectly assigned customers who have interval meters and applied the new tariff. The analysis did not forecast any changes to the customers load profile. To assist with this transition Essential Energy proposed a new transitional demand tariff.

Essential Energy's transitional approach applies to customers who consume more than 160MWh per annum and are currently on either the small business declining block tariff or one of the time-of-use tariffs.. Essential Energy proposed that its approach to transitioning customers to the transitional demand tariff is to adjust the tariff components by 1/5th each year (using the current time-of-use >100MWh tariff level as the starting point and the default demand tariff as the end point). After 5 years the levels of the transitional demand tariff would be the same as the default demand tariff and customers would no longer be on the transitional tariff.

Analysis of Essential Energy's proposed re-assignments is discussed below.

Re-assignment from small business declining block tariff to time-of-use >100MWh tariff

We are satisfied that Essential Energy's proposal to re-assign those customers currently on the small business declining block tariff¹¹¹ who consume between 100MWh and 160MWh to the time-of-use tariff >100MWh contributes to the achievement of compliance with the distribution pricing principles. Analysis shows customer impact is minimal. We consider this is consistent with pricing principle 6.18.5(3)(h) that customers are able to mitigate the impact of changes in tariffs through usage decisions. We also consider this achieves an appropriate balance between cost reflectivity and customer impact as the customer will be moved to an appropriate tariff for its size thereby contributing to the cost of the network.

Essential Energy proposed that some customers currently on the small business declining block tariff need to move to the business time-of-use tariff as their consumption is over 100MWh and less than 160MWh. These customers are not being moved to a demand tariff because the demand tariff only applies to those customers who consume more than 160MWh.

Table 5-4 shows Essential Energy's indicative 2017-18 prices for the customers who need to be re-assigned from their current declining block tariff to the time-of-use tariff >100MWh. This shows the fixed charge for the time-of-use tariff is significantly higher than the fixed charge for the declining block. However, the peak, shoulder and off-peak usage charges are less. The off-peak usage charge is less than half that of the declining block usage charges. The off-peak charge applies to all weekend and from 10pm to 7am on weekdays.¹¹²

Table 5-4 Small business declining block tariff and Time-of-use tariff >100MWh

2017-18 DUoS prices		Access charge	Energy block 1	Energy block 2	Energy Peak	Energy shoulder	Energy off-peak
		\$/year	c/kWh	c/kWh	c/kWh	c/kWh	c/kWh
Current assignment	Business Declining block (now flat rate) (BLNN1AU)	295.26	11.4518	11.4518			
Re-assignment	Business Time-of-use >100MWh (BLNT1AO)	2,353.22			10.4602	9.4640	4.1739

Note: From July 2017 Essential Energy's declining block tariff will become a flat tariff (i.e. the same usage rates will apply in block 1 and block 2).

¹¹¹ From July 2017 Essential Energy's declining block tariff will become a flat tariff (i.e. the same usage rates will apply in block 1 and block 2).

¹¹² The shoulder period applies from 7am to 5pm on weekdays and the peak period applies from 5pm to 8pm on weekdays.

Our analysis, based on information provided to us by Essential Energy shows that the majority of customers currently on the small business declining block tariff who need to move to the business time-of-use tariff >100MWh will be better off (85.7 per cent).¹¹³ This is most likely because of their consumption profile and the lower off-peak usage rate, which is less than half that of the declining block tariff. For the remaining customers, 9.6 per cent do not have interval meters so an analysis could not be undertaken and 4.8 per cent are worse off.¹¹⁴ Our analysis shows that all but one of those worse off will experience an increase in their annual bill by less than \$1,000, with one customer experiencing an increase of \$1,600.¹¹⁵ This analysis assumes no change in the customers' consumption patterns. In reality, the impact is likely to be less than this because assigning these customers to a time-of-use tariff will encourage energy efficiency measures and/ or adjusting consumption patterns to shoulder or off-peak times.

Re-assignment from small business declining block tariff to demand tariff

We approve Essential Energy's proposed re-assignment of customers currently on the small business declining block tariff who consume more than 160MWh per annum. We are satisfied this proposed assignment contributes to the achievement of compliance with the distribution pricing principles. This is because we consider Essential Energy's proposal to introduce a transitional demand tariff for those customers who are worse off in moving directly to the default demand tariff achieves an appropriate balance between cost reflectivity and customer impact.

In its revised tariff structure statement Essential Energy proposed to reassign those customers currently on the small business declining block tariff who consume more than 160MWh to either:

- the default demand tariff (if they are better off through this re-assignment), or
- to the new transitional demand tariff (if they are worse off through being re-assigned to the default demand tariff).

Essential Energy proposed to move customers that will be better off under the correct demand tariff to the appropriate tariff on 1 July 2017, unless they elect to move earlier. For the remaining impacted customers, Essential Energy proposed a transitional demand tariff that will allow for the transition to the full demand tariff over a five year period.

In our review of Essential Energy's proposed re-assignments, we were most concerned about the impact on this group of customers. This is because, under Essential Energy's proposal, we considered the change from a declining block structure to a time-of-use demand structure to be a significant change.

Table 5.5 shows the charges for the declining block tariff, the default demand tariff and the transitional demand tariff.

¹¹³ Based on AER analysis of Essential Energy email 20.01.2017

¹¹⁴ Based on AER analysis of Essential Energy email 20.01.2017

¹¹⁵ Essential Energy, email 20.01.2017

Table 5-5 Small business declining block tariff and demand tariffs

2017-18 DUoS prices	Access charge \$/year	block 1 c/kWh	block 2 c/kWh	peak c/kWh	shoulder c/kWh	off-peak c/kWh	Peak demand \$/kVA/month	Shoulder demand \$/kVA/month	Off-peak demand \$/kVA/month
Declining block	295.26	11.4518	11.4518						
Default demand tariff - time-of-use demand 3 rate	5,329.90			0.7282	0.6589	0.1733	9.9783	9.0280	2.1720
Transitional demand	2,948.56			8.5138	7.7030	3.3738	1.9957	1.8056	0.4344

We also considered the majority of these customers are primary producers/ irrigators and NSWIC submission:

Demand based tariffs severely impact our irrigators and growers who may only turn their pumps on for a period of two days but are charged for their peak use for the entire month despite having no further volumetric consumption...the introduction of demand based pricing has been responsible for the 300 per cent increases in electricity pricing over the previous five years and is forcing many of our growers to consider switching off their electric pumps to avoid these unsustainable price increases.¹¹⁶

Our analysis of customer information provided by Essential Energy showed that by introducing the transitional demand tariff the impact on customers is mitigated. Our analysis showed that there are currently 126 customers on the small business declining block tariff that consume over 160MWh. Of these Essential Energy has interval data for 63 customers.¹¹⁷ Our analysis of those 63 customers with interval meters shows that 26 customers would be worse off if they were moved immediately to the default demand tariff.

The table below shows the dollar impact to those customers worse off if assigned immediately to the default demand tariff.

¹¹⁶ NSWIC and Cotton Australia, submission 26 October, p.3

¹¹⁷ Essential Energy, Response to information request, email of 18.11.2016

Table 5-6 Immediate transition from declining block tariff to default demand tariff

Dollars (\$)	Number of customers
0-1000	4
1000-5000	13
5000-10,000	6
10,000-11,000	3
>11,000	1

AER analysis of information provided by Essential Energy 18.11.2017

However, if those customers who are worse off on the default demand tariff are moved first to the transitional demand tariff, as Essential Energy proposed, the majority would be better off. Only two would be worse off if they are re-assigned to the transitional demand tariff, but this impact is less than \$800.¹¹⁸

We consider Essential Energy's proposal to assign those customers who are worse off on the default demand tariff to the transitional demand tariff adequately deals with customer impact. This is consistent with pricing principle 6.18.5(3)(h) that customers are able to mitigate the impact of changes in tariffs through usage decisions. We also consider this achieves an appropriate balance between cost reflectivity and customer impact as the customer will be moved to an appropriate tariff for its size thereby contributing to the cost of the network.

It should be noted, however, that over the five year period it is likely that many of the customers that experience a decrease in their bill in the first year (when moved to the transitional tariff) will experience an increase in subsequent years. This is because over the five year period the transitional tariff levels will need to increase towards the cost reflective default demand tariff levels. It may be undesirable for customers to experience a decrease in bill in the first year only to receive increases in subsequent years. However, we consider that the decreased bill in the first year will assist customers in transitioning to a very different tariff structure and help them to mitigate the change in tariff as they become more accustomed to the new charging structure.¹¹⁹ It will also allow them time to install energy efficiency measures and/ or change their consumption behaviour. By allowing these customers a period of transition, it may also encourage those remaining customers currently on a declining block tariff, who consume more than 160MWh and who do not yet have an interval meter, to install interval meters.

Re-assignment from time-of-use tariffs to a demand tariff

We approve Essential Energy's proposed re-assignment of customers currently on either the time-of-use <100MWh tariff and the time-of-use>100MWh tariff who consume more than

¹¹⁸ AER analysis of information provided by Essential Energy, email of 18.11.2016

¹¹⁹ Cl.6.18.5(h)(3)

160MWh. We are satisfied this proposed assignment contributes to the achievement of compliance with the distribution pricing principles. This is because we consider Essential Energy’s proposal to introduce a transitional tariff for those customers who are worse off in moving to directly to the default demand tariff achieves an appropriate balance between cost reflectivity and customer impact.

In its revised tariff structure statement Essential Energy proposed to reassign those customers currently on the time-of-use <100MWh and the time-of-use>100MWh who consume more than 160MWh to either:

- the default demand tariff (if they are better off through this re-assignment), or
- to the new transitional demand tariff (if they are worse off through being re-assigned to the default demand tariff).

Essential Energy proposed to move customers that will be better off under the correct demand tariff to the appropriate tariff on 1 July 2017, unless they elect to move earlier. For the remaining impacted customers, Essential Energy proposed a transitional demand tariff that will allow for the transition to the full demand tariff over a five year period. Table 5.7 sets out the time-of-use tariffs and the demand tariffs.

Table 5-7 Change in tariff from time-of-use to demand

2017-18 DUoS prices	Access charge \$/year	peak c/kWh	shoulder c/kWh	off-peak c/kWh	Peak demand \$/kVA/mnth	Shoulder demand \$/kVA/mnth	Off-peak demand \$/kVA/mnth
Time-of-use<100MWh	1,800	10.4602	9.4640	4.1739			
Time-of-use>100MWh	2,353.22	10.4602	9.4640	4.1739			
Default demand tariff - time-of-use demand 3 rate	5,329.90	0.7282	0.6589	0.1733	9.9783	9.0280	2.1720
Transitional demand	2,948.56	8.5138	7.7030	3.3738	1.9957	1.8056	0.4344

Based on information submitted to us from Essential Energy, they have 837 customers with interval meters who would move to a demand tariff because they consume over or nearly over 160MWh. These customers can be distinguished as follows:

- 103 of these customers are on the time-of-use <100MWh—17 of these customers will be better off moving straight to the default demand tariff.

- 676 of these customers are on the time-of-use<100MWh—99 of these customers will be better off moving straight to the default demand tariff. On the transitional tariff 129 customers will be better off.¹²⁰

We note that as the transitional tariff comprises several components and will be phased in over five years, the impact on each customer will vary depending on their demand and usage profile. That is one customer may experience a bill decrease in the first two years, but an increase in the third.

We considered whether the transitional period could be lengthened to mitigate customer impact. However, analysis of those customers who are worse off on the default demand tariff shows that by moving to the transitional demand tariff, the dollar impact is reduced. We consider the transitional demand tariff strikes an appropriate balance between cost reflectivity and customer impact. The tables below show the dollar impact on the worse off customers if they move from their current time-of-use tariffs straight to the default demand tariff. They also show the impact if instead these worse off customers move to the transitional demand tariff. The analysis shows that if moved to the transitional demand tariff, the majority of customers will experience an annual increase of less than \$5,000. If they are moved to the default demand tariff, however, the majority of customers would experience bill increases of more than \$5,000, with the worse off experiencing more than \$100,000.

Table 5-8 Customers moving from time-of-use <100MWh to a demand tariff

Immediate transition - default demand tariff		Gradual transition - transitional demand tariff	
\$	Customers	\$	Customers
0-1000	6	0-1000	21
1000-5000	26	1000-5000	55
5000-10000	24	5000-10000	7
10000-15000	13	10000-15000	2
15000-20000	7	15000-20000	1
20000-30000	4		
30000-40000	3		
40000-50000	1		
50000-60000	2		
Total	86	Total	86

¹²⁰ AER analysis of information provided to us in email from Essential Energy 18.11.2016

Table 5-9 Customers moving from time-of-use >100 MWh to a demand tariff

Immediate transition - default demand tariff		Gradual transition - transitional demand tariff	
\$	customers	\$	customers
0-1000	33	0-1000	252
1000-5000	195	1000-5000	252
5000-10000	195	5000-10000	33
10000-15000	63	10000-15000	4
15000-20000	30	15000-20000	4
20000-40000	49	20000-40000	1
40000-60000	10		
60000-80000	1		
80000-100001	1		
100000+	1		
Total	578		546

Essential Energy submitted that its five-year transitional demand tariff will assist customers moving to the demand tariff. Essential Energy submitted this will enable affected customers to gradually adjust to the higher consumption cost and provide time for them to implement any technology and energy saving measures to mitigate the impact.¹²¹ Such as introducing efficiency measures or alternative solutions like solar PV or improving power factors.

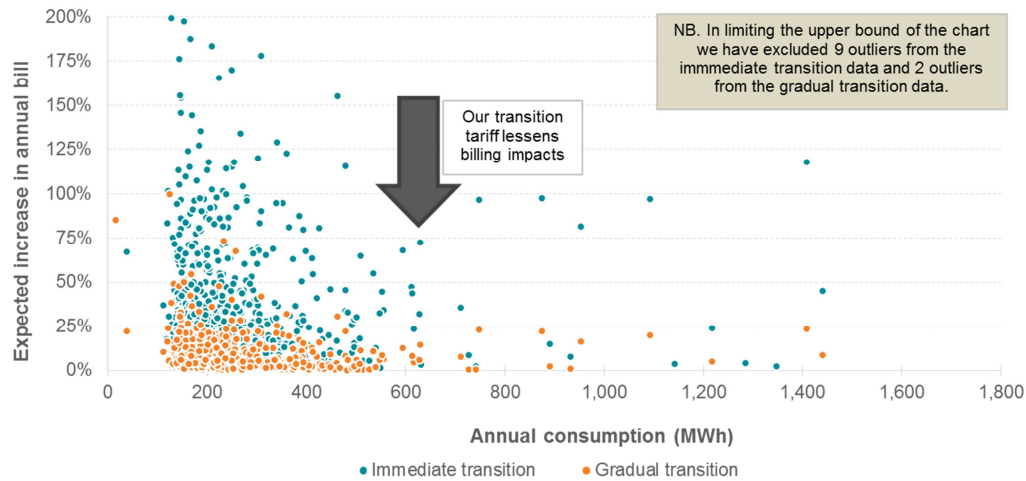
Essential Energy submitted that without their proposed transitional tariff, many of these customers would face immediate bill shock. Essential Energy does not have data for all impacted customers, as 225 do not currently have the interval metering required to assess the associated billing impact. However, based on data for the 837 known impacted customers, 432 customers (52 per cent) would face bill increases of 20 per cent or more.¹²² In its revised proposal Essential Energy submitted that its transitional tariff means only 53 (six per cent) customers will experience a bill increase of more than 20 per cent in the first year.¹²³

¹²¹ Essential Energy, Addendum. P32

¹²² Essential Energy, Addendum p. 38

¹²³ Essential Energy, Addendum p. 39

Figure 5-2 Worse of customers based on first year billing—with and without transitional arrangements



Source: Essential Energy, Addendum to our tariff structure statement, explanations and reasoning, 4 October 2016, p. 40

Stakeholders did not fully support Essential Energy’s proposal to re-assign customers on the incorrect tariff.

NSW Irrigators and Cotton Australia submitted,

We ask the AER to be mindful of the impact of demand pricing regime on irrigated agriculture as it may ultimately lead to in many growers and irrigators walking away from the grid supplied energy due to the significant costs imposts – clearly this is an outcome that is not in the broad interest of electricity consumers.¹²⁴

Essential Energy has proposed a tariff assignment process which appears to primarily inform retailers of tariff reallocations instead of directly engaging with impacted consumers...NSWIC and Cotton Australia strongly support our growers and irrigators maintaining the right to veto over any tariff reassignment process.¹²⁵

Due to the exposure of some of our larger growers and irrigators to demand based charges, we estimate that the tariff reassignment project, particularly for those placed on demand tariffs, will lead to a doubling or tripling of bills with no associated change in energy consumption. Given our members are price takers, there is no ability to pass on these price increases. These additional costs of production therefore result in a reduced bottom line profit for our growers and irrigators, limiting their ability to reinvest back in to their business and continually drive productivity and profitability.¹²⁶

NSWIC and Cotton Australia requested in relation to the tariff reassignment project:

¹²⁴ NSW Irrigators Council and Cotton Australia, submission 26 October, p1.

¹²⁵ NSWIC and Cotton Australia, submission 26 October, p.2

¹²⁶ NSWIC and Cotton Australia, submission 26 October, p.2

To avoid the transition of growers and irrigators to demand based tariffs. Demand based tariffs severely impact our irrigators and growers who may only turn their pumps on for a period of two days but are charged for their peak period of use for the entire month despite having no further volumetric consumption. The introduction of demand based pricing has been responsible for the 300 per cent increases in electricity pricing over the previous five years and is forcing many of our growers to consider switching off their electric pumps to avoid these unsustainable price increases.¹²⁷

The transition of our members to a demand based tariff will severely impact on the productivity and profitability, and may ultimately result in those who currently use electricity walking away from the grid and a suite of stranded assets for Essential Energy.¹²⁸

The NSW Business Chamber recommends that this transitional period be extended for significantly longer than five years, with the exact duration to be determined following further consultation with impacted customers. Businesses require a significant period of time to investigate and implement opportunities to use less energy or change their time-of-use to reduce their energy bill. The businesses that are faced with this increase use a significant amount of energy (e.g. manufacturing firms) and are therefore likely to have already investigated and implemented energy efficiency initiatives that can be classified as low hanging fruit. Finding additional energy savings will take time, incur significant cost and may require securing finance which can often be difficult for small businesses.¹²⁹

We consider that for the next TSS more options to address stakeholder concerns regarding demand tariffs should be considered. For example, distributors should consider whether there are different designs for demand tariffs which may better reflect costs, but also allow for the efficient recovery of costs. An example may be a demand or critical peak charge which is only applied during the peak season / summer months and is only charged to the customer on the peak days (for example the top 10 local system peaks in the period). So if the customer maximum demand is reached on one of the peak days it is charged. If not, then it is not charged. This tariff would require the distributor to notify 24 hour in advance of the peak day.

¹²⁷ NSWIC and Cotton Australia, submission 26 October, p.3

¹²⁸ NSWIC and Cotton Australia, submission 26 October, p.3

¹²⁹ NSW Business Chamber, Submission 26 October, p.2

6 Large business customer tariffs

This chapter sets out our assessment of the distributors' proposed tariff structures and tariff assignment for large business customers. Large business customers are assigned to the high voltage demand tariff class and the sub-transmission tariff class.

We approve the tariff designs and assignment policies for large business customers. We consider the proposed tariffs reflect efficient costs and that the assignment policies promote the efficient recovery of costs from those customers contributing to the cost of providing the service. We are satisfied that the tariff designs and assignment policies proposed by the NSW distributors in their revised proposals for large business customers contribute to the achievement of compliance with the distribution pricing principles.

We received no submissions from stakeholders regarding large customer tariff design or tariff assignment policies.

The NSW distributors have proposed similar tariffs and assignment policies for their large business customers. This chapter discusses both large business tariff designs and assignment policies. The charging windows for large business customers are discussed in chapter 8.

6.1 Tariff design

We approve the tariff designs proposed by the NSW distributors for their large business customers. We are satisfied that the proposed tariffs contribute towards the achievement of compliance with the distribution pricing principles. The NSW distributors' large business tariffs include high fixed charges and low usage charges (differentiated to reflect peak, shoulder and off-peak periods).

The NSW distributors' large business tariffs (with high fixed charges and low usage charges) exhibit strong cost reflectivity. The costs of running the network consist of both fixed and marginal costs. A significant proportion of a distributor's revenue requirement is made up of the fixed capital costs of previous investment in network assets. 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 costs, which makes up a smaller proportion of the total costs to run a network. We consider an efficient recovery of costs would be to recover the fixed cost (residual cost) through an access charge (fixed charge) and marginal costs through usage charges. Setting usage charges higher than marginal cost to recover all or most residual costs would distort cost reflective price signals. Accordingly, we consider the NSW distributors' large business tariff structures which include high fixed charges and lower usage charges reflect the efficient recovery of costs.

All the NSW distributors' tariffs for large business customers include a demand charge. Demand charges allow direct recovery of the costs associated with the capacity/ size of the assets required to provide electricity and signal to customers to better manage their peak demand and or invest in efficiency measures. This is a more efficient recovery of costs from those large users placing a burden on the grid. We consider this contributes to the pricing

principle that the tariff has regard to the additional costs likely to be associated with meeting demand from customers that are assigned to that tariff at times of greatest utilisation.¹³⁰

A demand charge for large customers can incentivise them to shift their consumption. Large customers are in a better position to invest in battery storage and appliances to reduce their peak load, than smaller customers as they usually have more to gain and a better revenue stream than small and medium business customers. By encouraging larger customers to reduce their load factors and shift their peak consumption the improved utilisation and load factors at peak times will reduce overall future infrastructure costs. We consider this contributes to the efficient use and costs of the network.¹³¹

For the period covered by the proposal (2017-2020), Endeavour Energy and Essential Energy have not proposed changes to their large business tariffs.

In its initial tariff structure statement Ausgrid proposed a new tariff for transmission connected customers, which we approved in our draft decision. We accepted this in our draft decision as it will result in greater efficiency as these customers will not incur distribution use of system charges when they do not contribute to the costs of that segment of the network.

Table 6-1 to Table 6-3 set out each of the NSW distributors large business tariffs.

Table 6-1 Ausgrid large business tariffs

	Assignment policy	Structure
High voltage time-of-use capacity (system)	Default tariff for high voltage customers with type 3 or better metering	Fixed charge, peak shoulder and off-peak usage charges and monthly demand charge.
High voltage time-of-use capacity (substation)	An optional tariff for high voltage customers which have an exclusive dedicated feeder connection to a Transmission node identity or substation, with a type 3 or better meter.	Fixed charge, peak shoulder and off-peak usage charges and monthly peak demand charge.
Sub-transmission time-of-use capacity (system)	Default tariff for sub-transmission customers with type 3 or better metering	Fixed charge, peak shoulder and off-peak usage charges and monthly peak demand charge.
Sub-transmission time-of-use capacity (substation)	An optional tariff for sub-transmission customers which have an exclusive dedicated feeder connection(s) to a Transmission node identity or substation, with a type 3 or better meter.	Fixed charge, differentiated peak shoulder and off-peak usage charges, and monthly peak demand charge.
Transmission tariff (new)	From 1 July 2018 the transmission tariff will be the default tariff for new transmission connected customers. Customers require a type 3 or better	Peak shoulder and off-peak usage charges, and monthly peak demand charge.

¹³⁰ NER, cl.6.18.5(f)(2)

¹³¹ NER, cl.6.18.5(g)(1)

meter.

<p>Individually calculated tariffs</p>	<p>Available to all customers that either:</p> <ul style="list-style-type: none"> • Satisfy the eligibility criteria to be assigned to the transmission connected tariff class; or • Satisfy the eligibility criteria to be assigned to the high voltage or sub-transmission voltage tariff class and consume more than 40GWh per annum or have a maximum demand in excess of 10MW. 	<p>Individually calculated tariffs may comprise of fixed charge, peak, shoulder and off-peak usage charges and monthly peak demand charge</p>
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Table 6-2 Endeavour Energy large business tariffs

	Assignment policy	Structure
<p>High voltage time-of-use demand</p>	<p>Default tariff for high voltage customers</p>	<p>Fixed charge, peak shoulder and off-peak usage charges, and peak and off-peak monthly demand charges.</p>
<p>Individually calculated tariffs for high voltage customers</p>	<p>Customer specific tariff where the customers –</p> <ul style="list-style-type: none"> • electricity consumption has been equal to or greater than 100GWh in total for 36 months preceding the application, or • electricity consumption has been equal to or greater than 40 GWh per annum in each of the two financial years preceding the application, or • monthly peak demand has been equal to or greater than 10 MVA for 24 of the 36 months preceding the application. 	<p>Time-of-use demand tariff</p>
<p>Sub-transmission time-of-use demand</p>	<p>Default tariff for sub-transmission customers.</p>	<p>Fixed charge, peak shoulder and off-peak usage charges, and peak and off-peak monthly demand charges.</p>
<p>Individually calculated tariffs for sub-transmission customers</p>	<p>Customer specific tariff where the customers –</p> <ul style="list-style-type: none"> • electricity consumption has been equal to or greater than 100 GWh in total for 36 months preceding the application, or • electricity consumption has been equal to or greater than 40 GWh per annum in each of the two financial years preceding the application, or • monthly peak demand has been 	<p>Time-of-use demand tariff</p>

equal to or greater than 10 MVA for 24 of the 36 months preceding the application.

Table 6-3 Essential Energy medium business tariffs

	Assignment policy	Structure
High voltage time-of-use average daily demand	Default tariff for high voltage customers.	Fixed charge, peak shoulder and off-peak usage charges, and peak, shoulder and off-peak monthly demand charges.
High voltage time-of-use monthly demand	Available to high voltage customers who have a monthly load factor greater than 60 per cent for at least 4 of the most recent 12 months coinciding with a minimum on season anytime monthly demand of 1500 kVA.	Fixed charge, peak shoulder and off-peak usage charges, and peak, shoulder and off-peak monthly demand charges.
Sub-transmission – three rate demand	Default tariff for sub-transmission customers.	Fixed charge, differentiated peak shoulder and off-peak usage charges, and differentiated peak, shoulder and off-peak monthly demand charges.
Individually calculated tariffs for sub-transmission customers	Customer specific tariffs	Time-of-use demand

6.2 Tariff assignment policies

In our draft decision we approved the NSW distributors’ proposed tariff assignment criteria for large business customers. The NSW distributors’ did not propose any changes to tariff assignment for large customers in their revised tariff structure statements. Consistent with our draft decision we approve the NSW distributors’ proposed tariff assignment criteria. We consider it contributes to the achievement of compliance with the distribution pricing principles.

For each of the NSW distributors existing large business customers and new large business customers in the high voltage or sub-transmission tariff classes will be assigned to a default time-of-use demand tariff. In addition to the default tariff each NSW distributor also offers individually calculated network tariffs.

Ausgrid

Ausgrid offers individually calculated network tariffs to all existing high voltage and sub-transmission customers that either:

- Satisfy the eligibility criteria to be assigned to the transmission connected tariff class; or

- Satisfy the eligibility criteria to be assigned to the high voltage tariff class or sub-transmission voltage tariff class and consume more than 40 GWh per annum or have a maximum demand in excess of 10MW.

Ausgrid reviewed its cost reflective network tariff class (CRNP). As a result Ausgrid has been transitioning its large customers from an extent of usage basis to a connection characteristic basis assignment. As a consequence of this change, since early 2015-16 Ausgrid has put into effect the following re-assignments:

- Re-assigning customers connected to the high voltage level of Ausgrid's electricity distribution network, as measured at the metering point, from the CRNP tariff class to the high voltage tariff class.
- Re-assigning customers connected to the sub-transmission voltage level of Ausgrid's electricity network, as measured at the metering point, from the CRNP tariff class to the sub-transmission voltage tariff class.
- Customers connected to Ausgrid's electricity transmission network remaining assigned to the CRNP tariff class. This tariff class has been renamed the "Transmission connected" tariff class.¹³²

Endeavour Energy and Essential Energy

Endeavour Energy and Essential Energy offer mandated individually calculated high voltage time-of-use tariffs for customers where:

- Electricity consumption has been equal to or greater than 100 GWh in total for the 36 months preceding the application; or
- Electricity consumption has been equal to or greater than 40 GWh per annum in each of the financial years preceding the application; or
- Monthly peak demand has been equal to or greater than 10 MVA for 24 of the 36 months preceding the application.

¹³² Ausgrid, Appendix A, p.15

7 Tariff levels

This chapter sets out our considerations of the NSW distributors' approach to:

- calculating long run marginal costs,
- how the distributors have reflected those marginal costs in their tariff structures, and
- how the distributors are seeking to recover residual costs in their tariff structure.

We are satisfied the distributors' tariff structure statement proposals contribute to the achievement of compliance with the distribution pricing principles.¹³³ The proposed tariff structure statements exhibit movement along the cost reflectivity spectrum, incorporating time-of-use tariff options for small customers and complementing existing cost reflective tariffs for large customers.¹³⁴

The distribution pricing principles 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.¹³⁵ A key concept that underpins the distribution pricing principles and the design of efficient network tariffs is the use of 'long run marginal cost'. 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.¹³⁶ This is also known as the forward looking cost.

Section 7.1.1 contains our assessment of the NSW distributors' methods for estimating long run marginal cost. Section 7.1.2 discusses the extent to which the NSW distributors' indicative price schedules reflect these estimates. Section 7.2 discusses the NSW distributor' allocation of residual costs; it also discusses general tariff levels.

7.1 Calculation and recovery of long run marginal cost

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

7.1.1 Calculation of long run marginal cost

We are satisfied the NSW distributors' methods for estimating long run marginal cost contributes to the achievement of the distribution pricing principles.¹³⁷

The estimation of long run marginal costs involves three key steps, which are to:

¹³³ NER, cl.6.18.5.

¹³⁴ Essential Energy also proposed demand based tariff options for its small customers.

¹³⁵ NER, cl. 6.18.5(f).

¹³⁶ NER, Chapter 10—Glossary.

¹³⁷ NER, cl. 6.18.5(f).

- choose the overall approach (the two principal choices are the Turvey approach and the average incremental cost approach)
- define what costs are considered ‘marginal’ vs. what costs are considered ‘residual’, and
- define what timeframe is considered the ‘long run’.

As we summarise in the following sections, the NSW distributors used similar methods to estimate long run marginal cost.

Ausgrid

Ausgrid used the average incremental cost approach to calculate long run marginal cost estimates. Ausgrid applied this approach at a system-wide level using an assessment period of 15 years.¹³⁸ The inputs that Ausgrid used included:¹³⁹

- its forward looking network augmentation costs by voltage level
- associated forecast operating costs
- forecast demand over the same period.

Ausgrid calculated its long run marginal cost estimates as the ratio of the present value of augmentation and operating costs to the present value of growth in demand.¹⁴⁰ Table 7-1 summarises Ausgrid's estimates of long run marginal cost for each of its voltage levels.

Ausgrid divided the estimates in Table 7-1 by the number of peak hours assigned to a tariff to derive the peak energy charges for its time-of-use tariffs (in c/kWh). Ausgrid assumed there is a 100 per cent probability peak demand would occur within its peak charging window.¹⁴¹ Similarly, Ausgrid divided the estimates in Table 7-1 by the number of hours in a year to derive the ‘anytime’ charges for its non-time-of-use tariffs (also in c/kWh).¹⁴²

Table 7-1 Ausgrid’s long run marginal cost estimates by tariff class

Tariff class	LRMC (\$/kW)
Low voltage	164
High voltage	53
Sub-transmission voltage	8

Source: Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 24.

¹³⁸ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 24.

¹³⁹ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 24; Ausgrid, *Tariff structure statement*, 27 November 2015, pp. 40–41.

¹⁴⁰ Ausgrid, *Tariff structure statement*, 27 November 2015, p. 41

¹⁴¹ Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 26–27; Ausgrid, *Revised tariff structure statement: Appendix A*, 4 October 2016, pp. 27–29.

¹⁴² Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 26–27; Ausgrid, *Revised tariff structure statement: Appendix A*, 4 October 2016, p. 29.

Note: The estimates of LRMC above are cumulative. That is, the LRMC estimate for the sub-transmission voltage is \$8/kW. The LRMC estimate for the high voltage class, \$53/kW, incorporates the \$8/kW estimate for the sub-transmission voltage. The LRMC estimate for the low voltage class, \$164/kW, incorporates the individual LRMC estimate for each voltage class. This is because customers on lower voltage classes generally also use the assets on higher voltage classes.

Note: Ausgrid's long run marginal cost estimate for its unmetered class is equal to the long run marginal cost estimate for the low voltage tariff class.

Endeavour Energy

Endeavour Energy used the average incremental cost approach to calculate long run marginal cost estimates. Endeavour Energy stated the average incremental cost approach has superior cost and benefit outcomes to other methods at this point in time as it relies on readily available information.¹⁴³ Endeavour Energy applied this approach at a system-wide level using an assessment period of 5 years.¹⁴⁴ Endeavour Energy estimated long run marginal cost by:¹⁴⁵

- projecting future operating and capital costs attributable to expected increases in demand
- forecasting future load growth for the relevant network asset or assets
- dividing the present value of projected costs by the present value of expected increases in demand.

Table 7-2 summarises Endeavour Energy's estimates of long run marginal cost for each of its voltage levels.

To derive charges based on long run marginal cost, Endeavour Energy first converted the figures in Table 7-2 into \$/kW/annum using a power factor.¹⁴⁶ Endeavour Energy divided these estimates by the number of peak hours assigned to a tariff to derive the peak energy charges for its time-of-use tariffs (in c/kWh). Similarly, Endeavour Energy divided these estimates by the number of shoulder hours assigned to a tariff to derive the shoulder energy charges for its time-of-use tariffs (in c/kWh). Endeavour Energy assumed a non-zero per cent probability that peak demand would occur within either its peak charging window or shoulder charging window.¹⁴⁷ Endeavour Energy also divided the estimates in Table 7-2 (converted into \$/kW/annum) by the number of hours in a year to derive the 'anytime' charges for its non-time-of-use tariffs (also in c/kWh).¹⁴⁸

¹⁴³ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 80.

¹⁴⁴ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, p. 87.

¹⁴⁵ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 80.

¹⁴⁶ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 82.

¹⁴⁷ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, pp. 82–83.

¹⁴⁸ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 82.

Table 7-2 Endeavour Energy’s long run marginal cost estimates by tariff class

Tariff class	LRMC (\$/kVA/annum)
Low voltage	133
High voltage	26
Sub-transmission voltage	17

Source: Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 81.

Note: The estimates of LRMC above are cumulative. That is, the LRMC estimate for the sub-transmission voltage is \$17/kVA/annum. The LRMC estimate for the high voltage class, \$26/kVA/annum, incorporates the \$17/kVA/annum estimate for the sub-transmission voltage. The LRMC estimate for the low voltage class, \$133/kVA/annum, incorporates the individual LRMC estimate for each voltage class. This is because customers on lower voltage classes generally also use the assets on higher voltage classes.

Essential Energy

Essential Energy used the average incremental cost approach to calculate long run marginal cost estimates. Essential Energy applied this approach at a system-wide level using an assessment period of 4 years.¹⁴⁹ The inputs that Essential Energy used included:¹⁵⁰

- growth-related capex and opex forecasts—Essential Energy used its estimated growth-related capex, and assumed growth opex is two per cent of growth related capex over the time horizon.
- demand forecasts—Essential Energy used forecasts of system-wide coincident maximum demand, with a 50 per cent probability of exceedance.

Essential Energy estimated long run marginal cost by:¹⁵¹

- projecting future operating and capital costs attributable to expected increases in demand
- forecasting future load growth for the relevant network asset or assets
- dividing the present value of projected costs by the present value of expected increases in demand.

Table 7-3 summarises Essential Energy’s estimates of long run marginal cost for each of its voltage levels.

¹⁴⁹ Essential Energy, *Tariff structure statement: Attachment 7: Updated long run marginal cost model*, 4 October 2016 (CONFIDENTIAL).

¹⁵⁰ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 22; HoustonKemp, *Estimation of long run marginal cost and other concepts related to the distribution pricing principles - prepared for Essential Energy*, November 2015.

¹⁵¹ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 22; HoustonKemp, *Estimation of long run marginal cost and other concepts related to the distribution pricing principles - prepared for Essential Energy*, November 2015, pp. 9–10.

To derive charges based on long run marginal cost, Essential Energy first converted the figures in Table 7-3 into \$/kW/annum using a power factor.¹⁵² Essential Energy divided these estimates by the number of peak hours assigned to a tariff to derive the peak energy charges for its time-of-use tariffs (in c/kWh). Essential Energy performed a similar calculation to derive shoulder and off-peak energy charges. Essential Energy assumed a non-zero per cent probability that peak demand would occur within either its peak charging window or shoulder charging window.¹⁵³ Essential Energy also divided the estimates in Table 7-2 (converted into \$/kW/annum) by the number of hours in a year to derive the ‘anytime’ charges for its non-time-of-use tariffs (also in c/kWh).¹⁵⁴

Table 7-3 Essential Energy’s long run marginal cost estimates by tariff class

Tariff class	LRMC (\$/kVA/annum)
Low voltage	328
High voltage	172
Sub-transmission voltage	34

Source: Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 23.

Note: The estimates of LRMC above are cumulative. That is, the LRMC estimate for the sub-transmission voltage is \$34/kVA/annum. The LRMC estimate for the high voltage class, \$172/kVA/annum, incorporates the \$34/kVA/annum estimate for the sub-transmission voltage. The LRMC estimate for the low voltage class, \$328/kVA/annum, incorporates the individual LRMC estimate for each voltage class. This is because customers on lower voltage classes generally also use the assets on higher voltage classes.

AER assessment

Our final decision is consistent with our position in the draft decision.¹⁵⁵ We consider some elements of the NSW distributors' methods to estimate long run marginal cost contribute to compliance with the distribution pricing principles better than other elements. That said, taken as a whole, we are satisfied each NSW distributors' method contributes to the achievement of compliance with the distribution pricing principles for this initial round of tariff reform.¹⁵⁶ We are satisfied the proposals comply with the rule requirements for tariffs to be based on long run marginal costs.¹⁵⁷

¹⁵² Essential Energy, *Tariff structure statement: Attachment 7: Updated long run marginal cost model*, 4 October 2016 (CONFIDENTIAL).

¹⁵³ Essential Energy assumed a non-zero probability that peak demand could occur during its off-peak charging window to derive the off-peak demand charge for its new demand tariffs for small businesses. Essential Energy, *Tariff structure statement: Attachment 7: Updated long run marginal cost model*, 4 October 2016 (CONFIDENTIAL).

¹⁵⁴ Essential Energy, *Tariff structure statement: Attachment 7: Updated long run marginal cost model*, 4 October 2016 (CONFIDENTIAL).

¹⁵⁵ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 85–86.

¹⁵⁶ NER, cl. 6.12.3(k).

¹⁵⁷ NER, cl. 6.18.5(f).

Accordingly, we have not made any changes to their methods for this first round of tariff structure statements. Nonetheless, we elaborate here on the elements of their methods we consider are less reflective of the distribution pricing principles. We do so to provide guidance to the NSW distributors, and the industry more generally, on our views on the direction the industry should be heading to maintain compliance with the distribution pricing principles in the future. Tariff reform is a long term project, and we expect a trend towards greater cost reflectivity over time. Accordingly, in each round of tariff structure statements, we envisage distributors would likely need to propose additional reforms in order to be compliant with the Rules. In the second round of tariff structure statements, we encourage the NSW distributors to make further improvements to their long run marginal cost methods.

We consider the choice of overall approach or method each NSW distributor used at this early stage of tariff reform—the average incremental cost approach—is compliant with the distribution pricing principles. On the other hand, the elements of their methodology which we consider could be improved in the future to better promote the distribution pricing principles are:

- The NSW distributors' definition of 'marginal' costs does not capture all major types of marginal costs as it excludes replacement capital expenditure and related costs
- The NSW distributors' timeframe over which they forecast costs is too short to be considered 'long term' (this applies to Endeavour Energy and Essential Energy, in particular).

Average incremental cost method

All distributors in the National Electricity Market used the average incremental cost approach to estimate long run marginal costs in this first round of tariff structure statements. We consider this approach contributes to the achievement of compliance with the distribution pricing principles for this first round of tariff structure statements.

On the other hand, we encourage distributors to continue to refine and improve their methods for estimating long run marginal cost so their tariffs better reflect their efficient costs of providing direct control services. This may entail modifying the average incremental cost approach to suit the distributor's particular stage in the tariff reform process. Alternatively, distributors may choose to adopt more sophisticated approaches, such as the Turvey approach, to estimate long run marginal cost in future tariff structure statements if they consider it appropriate.

The ENA submitted the average incremental cost approach is incapable of estimating how long run marginal cost might change where consumption or demand is falling in parts of the network. The ENA noted this is particularly relevant to the potential inclusion of replacement capex in long run marginal cost estimates (see our discussion in the 'definition of marginal cost' section below). The ENA did not consider this would be an issue when generating network-wide estimates of long run marginal costs. However, the ENA considered it can become problematic as distributors generate more localised estimates in future tariff

reforms. The ENA suggested we devote resources to improve the estimation of long run marginal cost in all circumstances.¹⁵⁸

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

This process of improving estimates of long run marginal cost was envisioned during the rule change process for distribution pricing. The Australian Energy Market Commission (AEMC) noted the Rules do not prescribe a particular method for estimating long run marginal costs. Rather, the Rules focus on providing guidance in terms of sending efficient pricing signals. This approach allows distributors to decide whether the benefits of using particular methods exceed the costs, depending on the stage of tariff reform.¹⁵⁹ For example, the AEMC noted the average incremental cost approach has relatively low information requirements, so distributors can implement it more readily. On the other hand, it produces highly averaged estimates of long run marginal cost and so may not signal network congestion as well as other approaches. More sophisticated approaches, such as the Turvey approach, can produce long run marginal cost estimates that better signal network congestion. However, such approaches have greater information requirements and are not as easily implemented.¹⁶⁰

On estimation approaches under falling demand, we note NERA's report to the AEMC also considered the average incremental cost method cannot estimate long run marginal cost under such conditions.¹⁶¹ This appears to stem from the way NERA specified the calculation of long run marginal cost using this method. 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).¹⁶² Under this specification, NERA stated the denominator is undefined if there is decreasing demand.¹⁶³

By comparison, the Turvey approach compares the optimal expenditure required under the status quo demand condition with the optimal expenditure required under an alternative demand condition (all in present value terms).¹⁶⁴ Accordingly, NERA considered the Turvey approach can be applied where there is falling demand, as well as where there is increasing

¹⁵⁸ ENA, *Submission: Australian Energy Regulator draft decision on tariff structure statement proposals*, 7 October 2016, p. 3.

¹⁵⁹ AEMC, *Rule determination: National electricity amendment (distribution network pricing arrangements) rule 2014*, 27 November 2014, pp. 129–130.

¹⁶⁰ AEMC, *Rule determination: National electricity amendment (distribution network pricing arrangements) rule 2014*, 27 November 2014, pp. 129–130.

¹⁶¹ NERA, *Economic concepts for pricing electricity network services: A report for the Australian Energy Market Commission*, 21 July 2014, p. 32.

¹⁶² NERA, *Economic concepts for pricing electricity network services: A report for the Australian Energy Market Commission*, 21 July 2014, p. 15.

¹⁶³ NERA, *Economic concepts for pricing electricity network services: A report for the Australian Energy Market Commission*, 21 July 2014, p. 32.

¹⁶⁴ NERA, *Economic concepts for pricing electricity network services: A report for the Australian Energy Market Commission*, 21 July 2014, pp. 14–15.

demand. If there is a demand decrement, we would expect the optimal expenditure to be lower than under the status quo, so the estimate of long run marginal cost is positive.¹⁶⁵

We note NERA stated the following regarding the estimation of avoidable cost:¹⁶⁶

To estimate the avoidable cost, a distributor should consider the forward looking costs that could be avoided if demand from the class of customers was to be reduced. Conceptually this is no different to applying the average incremental cost methodology with a decrement to demand.

This appears to be analogous to the measurement of long run marginal cost under the Turvey approach when there is a decrement in demand. It also suggests distributors may be able to adapt the average incremental cost method for situations where demand is decreasing by using a slightly different concept for the numerator (such as avoidable cost due to a demand decrement).¹⁶⁷ This may be useful in cases where there is falling demand but the costs of implementing more sophisticated approaches like Turvey still outweigh the benefits.

In any case, the key message here is we expect distributors to refine their methods to estimate long run marginal cost in future tariff structure statements. As we noted above, we consider the way the distributors used the average incremental cost approach in this first round of tariff structure statements contributes to the achievement of compliance with the distribution pricing principles. However, this may not be the case in future tariff structure statements. We would expect the estimation methods to evolve as tariff reform progresses.

Definition of marginal costs

We encourage the NSW distributors to further refine their definition of marginal costs in future tariff structure statements. As we discussed in our draft decision, we consider the NSW distributors should investigate including replacement capex relevant to long run network planning in their estimates of long run marginal cost.

The Rules define long run marginal costs as the cost of an incremental change in demand over a period of time in which all factors of production can be varied.¹⁶⁸ In the long run, the level of capacity in a distribution network is a variable factor of production. 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. We consider long run marginal cost estimates should include

¹⁶⁵ NERA, *Economic concepts for pricing electricity network services: A report for the Australian Energy Market Commission*, 21 July 2014, p. 15.

¹⁶⁶ NERA, *Economic concepts for pricing electricity network services: A report for the Australian Energy Market Commission*, 21 July 2014, p. 16.

¹⁶⁷ Whether the resultant method is still strictly the average incremental cost method is another matter.

¹⁶⁸ NER, Chapter 10—Glossary.

replacement capital expenditure and associated operating expenditure. This would promote network capacity in the long run to be at a level that consumers value.

This differs from the NSW distributors' approach in this first round of tariff structure statements. The NSW distributors included augmentation capex plus operational costs associated with those upgrades to establish long run marginal cost estimates. However, the NSW distributors did not include replacement capex in long run marginal cost estimates.¹⁶⁹ The NSW distributors based their LRMC estimates on augmentation capex alone on the basis that this is the only 'growth' capex. However, this reasoning overlooks the point made above that the level of network capacity (whether to increase, maintain or decrease) is not fixed in the long run.

The ENA agreed distributors should not maintain existing capacity levels as the default position in replacement planning decisions. However, the ENA submitted it is not appropriate to treat all replacement capex decisions equally. There are multiple drivers and circumstances within which asset replacement decisions are made.¹⁷⁰ For example, the ENA considered long run marginal cost estimates should not include replacement capex specifically required by regulatory obligations.¹⁷¹

We agree that distributors should not include all types of replacement capex in their estimates of long run marginal cost. Long run marginal costs are forward looking costs required to meet an incremental change in demand. Certain types of regulatory obligations, such as those requiring retro-fitting of specific types of assets for safety purposes, are not forward looking. They are also not required to meet an incremental change in demand. We agree distributors should classify such capex as residual costs. On the other hand, this does not mean all capex required under 'regulatory obligations' should automatically be part of residual costs. For example, capex required to meet reliability standards can be forward looking and can be required to meet an incremental change in demand. Such capex should be part of long run marginal costs. We would add that neither should distributors include all types of augmentation capex in these marginal cost estimates. Rather for both augmentation and replacement capex, expenditure required to meet certain regulatory obligations should be treated as residual costs, and other augmentation and replacement capex treated as marginal costs.

Distributors have scope to optimise other types of replacement capex with respect to expected levels of demand (and other factors). We note augmentation capex also has different triggers besides demand growth. Hence, distributors should also not include all types of augmentation capex in estimates of long run marginal cost. Where capex—whether

¹⁶⁹ Ausgrid, *Revised tariff structure statement: Appendix A: Further information*, 4 October 2016, p.21; Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 80; Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 21; Essential Energy, *Tariff structure statement: Attachment 4: Estimation of long run marginal cost and other concepts related to the distribution pricing principles: Prepared for Essential Energy*, November 2015, pp. 11–12.

¹⁷⁰ ENA, *Submission: Australian Energy Regulator draft decision on tariff structure statement proposals*, 7 October 2016, p. 2.

¹⁷¹ AER, *File note - Non-Victorian TSS - Discussion with ENA*, 17 October 2016 (AER reference: D16/140751).

augmentation or replacement—contribute to forward looking costs, we consider distributors should include them in estimates of long run marginal cost.

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

Definition of long run

We encourage Endeavour Energy and Essential Energy to investigate the definition of 'long run' in their long run marginal cost methods for the next round of tariff structure statements. We discuss this aspect in more detail below.

As noted above, the Rules define long run marginal costs as the cost of an incremental change in demand over a period of time in which all factors of production can be varied.¹⁷²

In the long run, the level of capacity in a distribution network is variable. Accordingly, the 'long run' would match the life of the assets. Some distribution network assets have very long lives (in excess of 60 years). However, it would be impractical to produce accurate forecasts over such a long horizon. The longer the estimation period is, the more difficult it becomes to estimate and forecast long run costs. Assumptions about future growth at zone substation and/or terminal stations also become more difficult to forecast with a longer planning horizon.

We therefore consider there is no ideal, or correct, timeframe on which to base these estimates and we accept a range of timeframes would be compliant with the Rules. However, the timeframe must be long enough to allow a significant number of factors of production to change—and a key factor of production is the level of capacity in the network.

Distributors have typically used timeframes of between 10 and 40 years to estimate long run marginal costs.¹⁷³ The timeframes proposed by distributors outside NSW are more in line with the long lives of network assets. Ausgrid used an assessment period of 15 years to estimate long run marginal cost, consistent with their initial proposal.¹⁷⁴ We consider this captures the essence of 'long run'.

Endeavour Energy and Essential Energy, on the other hand, appear to have proposed timeframes of around or less than 5 years.¹⁷⁵ This is out of step with the rest of the industry and appears too short to allow a significant number of factors of production to change.

The PIAC previously submitted network assets have a long lifespan. Hence, the timeframes the NSW distributors used to estimate long run marginal cost is not sufficient to send signals

¹⁷² NER, chapter 10—Glossary.

¹⁷³ For example, Ausgrid, ActewAGL, SAPN, CitiPower, Powercor, AusNet Services and United Energy.

¹⁷⁴ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 24; Ausgrid, *Tariff structure statement*, 27 November 2015, p. 41.

¹⁷⁵ HoustonKemp, *Estimation of long run marginal cost and other concepts related to the distribution pricing principles - prepared for Essential Energy*, November 2015, pp.11-12; HoustonKemp, *Estimation of long run marginal cost and other concepts related to the distribution pricing principles - prepared for Endeavour Energy*, November 2015, pp.11-12.

that reflect the marginal costs of supplying electricity to consumers.¹⁷⁶ Similarly, the ECA submitted such short time horizons are not consistent with periods over which all network inputs are variable and would hinder the intent of tariff reform.¹⁷⁷

We consider the timeframes over which Endeavour Energy and Essential Energy have forecast their costs do not reflect the 'long term' as well as most other distributors' proposals.

As noted above, we do not require the NSW distributors to change their long run marginal cost methods to comply with the Rules for this first round of tariff structure statements. The NSW distributors emphasised the long run marginal cost estimates in this first round of tariff structure statements only act to provide guidance. They are not meant to be definitive estimates of long run marginal cost.¹⁷⁸ We consider this is appropriate in this first round of tariff structure statements. In particular, we accept the move toward cost reflective tariffs will require a transition period to manage customer impact.¹⁷⁹ Section 7.1.2 discusses in more detail the extent the NSW distributors' the indicative pricing schedules reflect their long run marginal cost estimates.

However, we encourage Endeavour Energy and Essential Energy, in particular, to review this element of their long run marginal cost methods for the next round of tariff structure statements. We note Essential Energy stated it will revisit its method to estimate long run marginal cost, including the timeframe, in its next tariff structure statement.¹⁸⁰

7.1.2 Note on signalling long run marginal cost

The NSW distributors generally agree that an efficient 'reference' tariff would signal long run marginal cost through the usage and/or demand component, particularly during times of network congestion. They also agree this efficient reference tariff would recover residual costs through fixed charges (see section 7.2 for a more detailed discussion of residual costs).¹⁸¹

The NSW distributors acknowledge their current tariff levels do not reflect those of an efficient reference tariff. Our analysis indicated the NSW distributors' proposed tariff levels differ from their long run marginal cost estimates to varying degrees. In some cases, the

¹⁷⁶ In their submission to our issues paper, the PIAC understood the NSW distributors proposed a three-year period to calculate the LRMC. See PIAC, *Reflecting the long-term interest of consumers in tariff designs: Response to the AERs issues paper: NSW TSS*, 6 May 2016, p. 2.

¹⁷⁷ In their submission to our issues paper, ECA understood from consultation with the NSW distributors that calculations of LRMC for each distributor used a time horizon of four years. ECA, *NSW tariff structure statements: Submission to the Australian Energy Regulator*, 10 May 2016, p. 4.

¹⁷⁸ Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 43–45; Endeavour Energy, *Response to information request*, 9 December 2016; Essential Energy, *Tariff structure statement*, 4 October 2016, p. 21.

¹⁷⁹ NER, cl 6.18.5(f) and (h).

¹⁸⁰ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 44.

¹⁸¹ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 43; Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 2; Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 20.

prices in the indicative price schedule are higher, and in other cases lower. In some cases, the differences are significant, but not in others.¹⁸²

We understand from consultation with the NSW distributors that moving from current tariff levels to fully cost reflective levels would have significant customer impact. To manage this impact, they proposed to transition towards more cost reflective tariff levels with each round of tariff structure statements.¹⁸³ We consider this transition in this first round of tariff structure statements contributes to the achievement compliance of the distribution pricing principles.¹⁸⁴

In assessing whether the NSW distributors' tariffs are based on long run marginal cost, we noted a difference in their calculation methods.

As we discussed in section 7.1.1, the NSW distributors all used the average incremental cost method to estimate long run marginal cost. Using this method, the distributors estimated the cost of marginal demand (in \$/kW or \$/kVa) for each of their tariff classes. The NSW distributors' more efficient tariff structures generally incorporate a time-of-use component. Hence, they converted their long run marginal cost estimates to measure usage (in c/kWh) at times of peak demand. However, the NSW distributors used different assumptions in this conversion:

- Ausgrid based its conversion on 'a fully cost reflective tariff' which Ausgrid considers 'may involve a localised dynamic peak energy charge.'¹⁸⁵ Ausgrid's efficient reference tariffs therefore signal long run marginal cost during the peak window only (see also section 8.1.2.3).¹⁸⁶
- Endeavour Energy and Essential Energy based their conversion on the assumption that network peak demand had non-zero probabilities of occurring at both the peak and shoulder charging windows. Their efficient reference tariffs therefore signal long run marginal cost in both peak and shoulder windows (see also section 8.3.2.3).¹⁸⁷

It is important to be aware of these different conversion methods when assessing whether usage charges in the indicative price schedule are based on long run marginal cost.¹⁸⁸ It is also important to be aware of these different conversion methods when assessing how the

¹⁸² Ausgrid, *Tariff structure statement: Appendix 22: Pricing model*, 27 November 2015 (CONFIDENTIAL); Endeavour Energy, *Response to information request: LPMC by charging parameter*, 9 December 2016 (CONFIDENTIAL); Essential Energy, *Tariff structure statement: Attachment 7: Updated long run marginal cost model*, 4 October 2016 (CONFIDENTIAL).

¹⁸³ Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 43–45; Endeavour Energy, *Response to information request*, 9 December 2016; Essential Energy, *Tariff structure statement*, 4 October 2016, p. 21.

¹⁸⁴ NER cl 6.18.5(h).

¹⁸⁵ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 26.

¹⁸⁶ Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 26–27; Ausgrid, *Tariff structure statement: Appendix 22: Pricing model*, 27 November 2015 (CONFIDENTIAL).

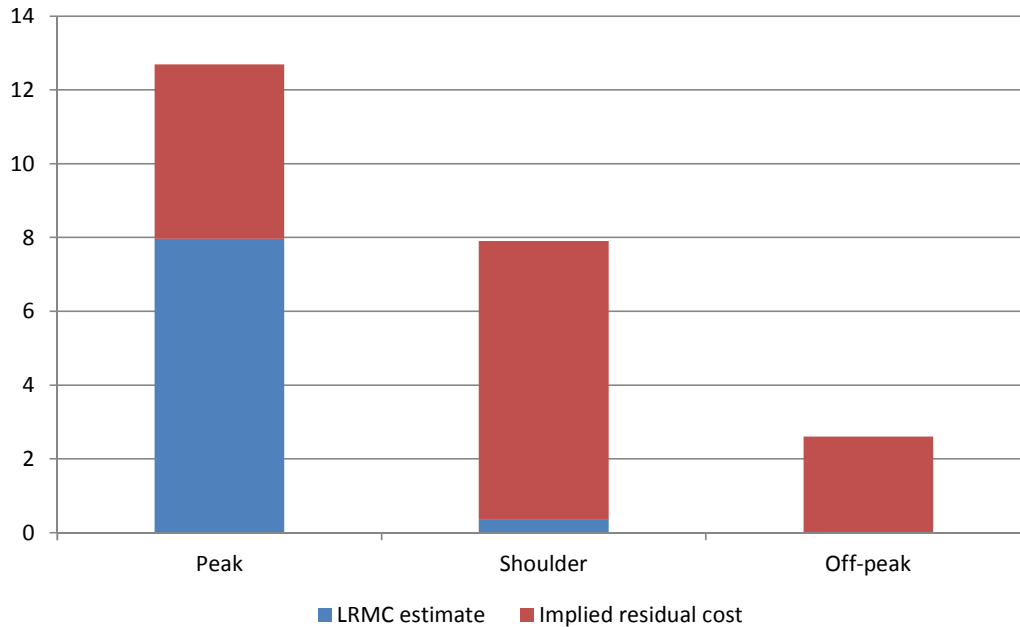
¹⁸⁷ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, pp. 82–83; Endeavour Energy, *Response to information request: LPMC by charging parameter*, 9 December 2016 (CONFIDENTIAL); Essential Energy, *Tariff structure statement: Attachment 4: Estimation of long run marginal cost and other concepts related to the distribution pricing principles: Prepared for Essential Energy*, November 2015, p. 13; Essential Energy, *Tariff structure statement: Attachment 7: Updated long run marginal cost model*, 4 October 2016 (CONFIDENTIAL).

¹⁸⁸ NER, cl. 6.18.5(f).

NSW distributors allocated residual costs (we discuss residual costs in more detail in section 7.2).

For example, Figure 7-1 contains the indicative prices for the usage components of Endeavour Energy’s small business time-of-use tariff. It shows the long run marginal cost estimate Endeavour Energy assigned to the peak and shoulder periods are below the levels in their indicative price schedule. Hence, Endeavour Energy’s peak and shoulder charges also contain residual costs. The off-peak charge for this tariff comprises purely residual costs.

Figure 7-1 Indicative DUOS prices for Endeavour Energy’s General Supply (small business) TOU tariff (c/kWh)



Source: AER analysis; Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 83; Endeavour Energy, *Response to information request: Indicative price schedule in Excel format*, 15 November 2016.

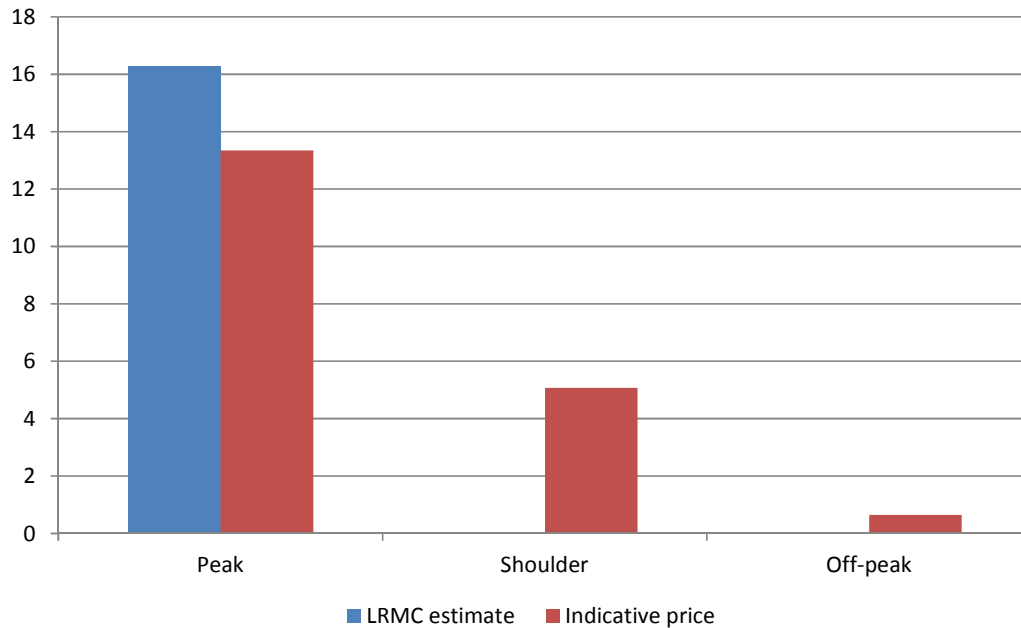
Note: The indicative prices are for the 2017–18 regulatory year.

By comparison, Ausgrid’s long run marginal cost estimate for its small business time-of-use tariff is above the indicative price for the peak window (see Figure 7-2). This implies Ausgrid did not allocate any residual costs to the peak charge. The shoulder and off-peak charges for this tariff comprises purely residual costs under Ausgrid’s conversion method.

Taken at face value, Figure 7-2 implies Ausgrid should increase the peak charge for its small business time-of-use tariff over time until it is equal to the long run marginal cost estimate. Conversely, Figure 7-1 implies Endeavour Energy should decrease the corresponding peak charge over time until it is equal to the long run marginal cost. As we noted in section 7.1.1,

the NSW distributors emphasised the long run marginal cost estimates only act to provide guidance in this first round of tariff structure statements. They are not meant to be definitive estimates of long run marginal cost.¹⁸⁹ This underscores the importance of continually refining and improving methods to estimate long run marginal cost for future tariff structure statements.

Figure 7-2 Indicative DUOS prices for Ausgrid’s Small Business TOU tariff (c/kWh)



Source: AER analysis; Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 27; Ausgrid, *Revised tariff structure statement: Appendix B: Indicative DUOS pricing schedule*, 4 October 2016, p. 1.

Note: The indicative prices are for the 2017–18 regulatory year.

7.2 Recovery of residual costs and tariff re-balancing

Not all of a distributor's costs are forward looking and variable. Costs that long run marginal cost estimates do not capture are called residual costs. Together, long run marginal costs and residual costs form a distributor's total costs. The Rules require total costs be recovered in a way which minimises distortions to price signals for efficient usage resulting from tariffs reflecting long run marginal cost.¹⁹⁰ In this context, non-distortionary tends to mean unresponsive to customer usage.

¹⁸⁹ Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 43–45; Endeavour Energy, *Response to information request*, 9 December 2016; Essential Energy, *Tariff structure statement*, 4 October 2016, p. 21.

¹⁹⁰ NER, cl. 6.18.5(g)(3).

In this section, we assess the NSW distributors' proposals on recovery of residual costs through:

- Fixed charges—The NSW distributors proposed to moderately increase their fixed charges in order to recover a greater portion of their residual costs through fixed charges.
- Usage rates—The design of their time-of-use usage rates also appears connected to their residual cost recovery methodology.

7.2.1 Note on principles of residual cost recovery

The NSW distributors' tariff structure statements set out the principles they follow to allocate residual costs between and within tariffs (we summarise these below). On the other hand, we note the NSW distributors emphasise the customer impact principle in this first round of tariff structure statements. Hence, their residual cost allocation in practice relied significantly on judgement. We consider this is reasonable in this first round of tariff structure statements. Monitoring the efficient allocation of residual costs between tariffs and tariff components—and their impact on customers—will be an ongoing point of focus in our assessment of future tariff structure statements.

Consistent with its initial proposal, Ausgrid stated it allocated residual costs using the principles of economic efficiency, fairness and gradualism.¹⁹¹ That is, Ausgrid aimed to preserve the efficiency of pricing signals, balanced with the principle of delivering stable prices. Ausgrid allocated residual costs to charging parameters based on relative forecast volume growth/risk, which Ausgrid considers is a reasonable proxy for price responsiveness.¹⁹² Broadly, Ausgrid increased its allocation of residual costs to fixed charges and decreased the allocation to energy charges. For time-of-use tariffs, Ausgrid will recover a significant portion of residual costs through the shoulder and off-peak energy charges.¹⁹³

Ausgrid provided mathematical representations for its method of allocating residual costs between and within tariffs. However, Ausgrid noted it would exercise professional judgement in the final residual cost allocation in cases where factors, such as abnormal temperature events, result in distorted pricing signals.¹⁹⁴

Similarly, Endeavour Energy stated it allocated more residual costs to tariffs with less efficient structures (so as to incentivise customers to move to the more efficient tariff structures).¹⁹⁵

Essential Energy stated it allocated a greater proportion of residual costs to its least efficient tariffs (those tariffs that least reflect long run marginal cost estimates). For example,

¹⁹¹ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 39.

¹⁹² Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 41–42.

¹⁹³ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 42.

¹⁹⁴ Ausgrid, *Revised tariff structure statement: Appendix A: Further information*, 4 October 2016, pp. 37–47.

¹⁹⁵ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 87.

Essential Energy allocated more residual costs to flat tariffs than time-of-use tariffs. This allocation provides the least distortion to customers' usage decisions and incentivises customers to take up more efficient tariff structures.¹⁹⁶ Within tariffs, Essential Energy similarly allocated a greater proportion of residual costs to the least efficient parameters (those parameters that least reflect the drivers of cost such as fixed charges).¹⁹⁷

7.2.2 Re-balancing towards fixed charges

As we discussed in the draft decision, we consider a re-balancing of residual costs towards fixed charges would reduce any distortion to the price signal of a tariff's usage and/or demand charge. On the other hand, a distributor should also consider the customer impact of such a rebalancing.¹⁹⁸

We are satisfied the moderate increases in fixed charges the NSW distributors proposed contribute to the achievement of compliance with the distribution pricing principles. We consider this approach appropriately balances the distribution pricing principles to:

- Recover residual costs in a manner which minimises distortions to efficient price signals.¹⁹⁹
- Take into account the impact on customers of tariff changes from year to year including the desirability for a reasonable transition period towards more cost reflective tariffs.²⁰⁰

Fixed capital costs from previous investments in network assets make up a significant proportion of a distributor's revenue requirement. Current and future consumption decisions do not affect these fixed costs. Therefore, from an economic perspective, fixed costs do not provide a basis for signalling the costs of network use.

Origin submitted it is more efficient to recover residual costs through the fixed charge rather than the variable charges.²⁰¹ However, NCOSS was concerned that higher fixed charges would disproportionately burden low-usage consumers.²⁰² Similarly, PIAC was concerned higher fixed charges would impact low income and vulnerable customers.²⁰³ PIAC and NSWIC submitted higher fixed charges would reduce customers' incentive to manage their bills through their usage decisions.²⁰⁴

¹⁹⁶ Essential Energy, *Tariff structure statement*, 4 October 2016, p. 22; Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 24.

¹⁹⁷ Essential Energy, *Tariff structure statement*, 4 October 2016, p. 23; Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, pp. 24–25.

¹⁹⁸ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 88–89.

¹⁹⁹ NER, cl. 6.18.5 (g).

²⁰⁰ NER, cl. 6.18.5(h)(1).

²⁰¹ Origin, *Submission: Networks NSW tariff structure statements*, 10 May 2016, p. 2.

²⁰² NCOSS, *Submission: NSW electricity distribution business tariff structure statement (TSS) proposals*, 26 October 2016, p. 1.

²⁰³ PIAC, *Submission: Reflecting the long-term interest of consumers in tariff designs: Response to the AERs issues paper, NSW TSS*, 6 May 2016, p. 2.

²⁰⁴ PIAC, *Submission: On the road to cost reflective pricing*, 26 October 2016, p. 3; NSWIC, *Submission: Essential Energy tariff structure statement*, 26 October 2016, p. 4.

The relevant factor to signal the costs of network use are marginal (forward looking) costs. However, in the case of natural monopolies that have significant sunk costs, 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. The key economic consideration in the Rules is that these residual costs are recovered in a manner which minimises distortions to efficient price signals.²⁰⁵ That is, recovery minimises distortions compared with the situation where network prices are based on marginal cost alone. Setting usage charges higher than marginal cost to recover residual costs could distort consumption decisions because it could send inefficient signals on network congestion. In contrast, recovering a greater proportion of residual costs through fixed charges would lead to smaller distortions, because fixed charges have less impact on consumption decisions.²⁰⁶ Accordingly, the NSW distributors' modest re-balancing towards fixed charges is consistent with the efficiency considerations in the distribution pricing principles. There is a balance as excessive fixed charges would likely not be consistent with the customer impact principle, especially where increases in fixed charges were significant and occurred over a short period of time.²⁰⁷ We are satisfied that the NSW distributors' proposals reflect an appropriate balance between these principles.

While the tariff structure statement determines the structure of tariffs, the revenue determination is also important as the allowed revenue influences the level of prices. Our recent distribution determinations significantly reduced the total revenue requirements for the NSW distributors compared with the previous regulatory period. This has a significant influence on the NSW distributors' proposed tariff re-balancing, and tariff levels in general. Despite the re-balancing towards fixed charges, fixed charges will not be significantly higher than they were in the previous regulatory control period. We consider this means the re-balancing will have less of an impact on customers, than if the re-balancing occurred at a time when revenue was not falling or was increasing.

In the draft decision, we noted the fixed charges in the NSW distributors' initial indicative price schedules were generally in line, if not lower, than in previous pricing proposals.²⁰⁸ The revised indicative price schedules are consistent with this trend—for many tariffs, fixed charges are even lower than in the initial indicative price schedule.²⁰⁹

While indicative price schedules are not binding, the distributors must justify any significant departures in their annual pricing proposals.²¹⁰ Further, Ausgrid and Endeavour Energy included a re-balancing constraint formula within their tariff statement proposals which will be binding on annual pricing proposals.

²⁰⁵ NER, cl. 6.18.5 (g).

²⁰⁶ Although they could impact customers' decisions connect to or disconnect from the network.

²⁰⁷ NER, cl. 6.18.5(h)(1).

²⁰⁸ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 89–91.

²⁰⁹ AER analysis.

²¹⁰ NER, cl.6.18.2(b)(7A).

In the draft decision, we noted there could be complications with applying a re-balancing constraint on tariffs given the uncertainty surrounding the NSW distributors' appeal on our 2015 distribution determinations.²¹¹ We consider the changes Ausgrid and Endeavour Energy's made in their revised tariff structure statements address these concerns.

Ausgrid proposed to apply a re-balancing constraint on the proportion of revenue it allocates to each tariff, which in turn will limit increases in fixed charges.²¹² Ausgrid also made definitional changes to the re-balancing constraint that make it (the constraint) more general than the definitions in its initial tariff structure statement.²¹³ We consider these amendments address the concerns we raised in the draft decision regarding uncertainty in revenue requirements due to the appeal on our distribution determination.

Similarly, Endeavour Energy will limit increases in fixed charges for residential customers to the greater of the average annual price movement plus 2.5 per cent, or the inflation rate.²¹⁴ Endeavour Energy clarified that its re-balancing constraint applies to the fixed charge at the DUOS level only.²¹⁵ We consider their definition also addresses the concerns regarding uncertainty due to the appeal on our distribution determination.

We note the Rules set out the side constraints on tariff classes for standard control services. This constraint allows for an annual adjustment to the expected weighted average revenue from a tariff class within the regulatory period of CPI-X+2 per cent or CPI+2 per cent, whichever is greater.²¹⁶ This is a much looser constraint than Ausgrid's or Endeavour Energy's re-balancing constraint as it applies to the whole tariff class. This means a distributor can adjust any component of any tariff within that class by any amount as long as the expected weighted average revenue of the whole tariff class only increases by the prescribed constraint. Ausgrid's and Endeavour Energy's respective constraints are more stringent as they apply to a specific component of specific tariffs. The Rules require distributors to consider the impact on customers of changes in tariffs from one regulatory year to the next, and permits distributors to address this customer impact in several ways including incorporating a reasonable transition path towards more cost reflective tariffs. Ausgrid's and Endeavour Energy's proposed re-balancing constraint appears to be part of the way they are seeking to address the customer impact principle. We consider this is a reasonable approach to address the customer impact principle.

²¹¹ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 91–92.

²¹² Ausgrid, *Revised tariff structure statement: Appendix A: Further information*, 4 October 2016, pp. 64–65.

²¹³ The revised tariff structure statement refers to a general change in allowed DUOS revenue, whereas the initial proposal included references to X factors (among other factors from our distribution determination). We consider the former definition would incorporate outcomes from the NSW distributors' revenue smoothing rule change proposal (see www.aemc.gov.au), whereas the latter cannot incorporate such outcomes.

²¹⁴ Endeavour Energy, *Tariff structure statement*, 4 October 2016, p. 21; Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 53.

²¹⁵ That is, the re-balancing constraint does not apply to the fixed charge at the NUOS level, which also includes designated pricing proposal charges and amounts related to jurisdictional schemes. See Endeavour Energy, *Response: AER amendment log to Endeavour Energy revised TSS*, 20 February 2017.

²¹⁶ NER, cl.6.18.6.

Unlike Ausgrid and Endeavour Energy, Essential Energy did not propose to apply a re-balancing constraint on its fixed charges. Essential Energy's indicative price schedule shows its fixed charges will increase between 2.5 and 7.9 per cent per annum to 2018–19.²¹⁷ We consider these indicative price movements reasonably balance the customer impact principle and re-balancing towards fixed charges. The exception to this is the fixed charge for Essential Energy's Transitional Demand tariff, which is expected to increase by approximately 25 per cent between 2017–18 and 2018–19. We discuss Essential Energy's Transitional Demand tariff in chapters 4 and 5.

Consistent with the draft decision, we consider an efficient allocation of residual costs would be to allocate more residual costs to the less efficient tariff (and less residual costs to the more efficient tariff). This would encourage take up of the more efficient tariff during the transition to more cost reflective prices.²¹⁸ We consider time-of-use tariffs are the more efficient structure than 'anytime' usage structures as they are better able to signal times of network congestion. We would therefore expect greater allocation of residual costs to anytime usage tariffs than the time-of-use tariffs for the same customer. In assessing the relative levels of the NSW distributors' fixed charges, we noted several instances that were not consistent with this allocation principle.

Figure 7-3 shows the indicative fixed charge for Ausgrid's residential time-of-use tariff is higher than for the residential non-time-of-use tariff by approximately 8 c/day. Ausgrid acknowledged higher fixed charges for its residential non-time-of-use tariff is more appropriate than the levels proposed in the indicative pricing schedule.²¹⁹ However, Ausgrid did not apply a larger increase to the residential non-time-of-use fixed charge due to concerns over the potential impact on residential consumers.²²⁰ We consider this is reasonable for this first round of tariff structure statements.

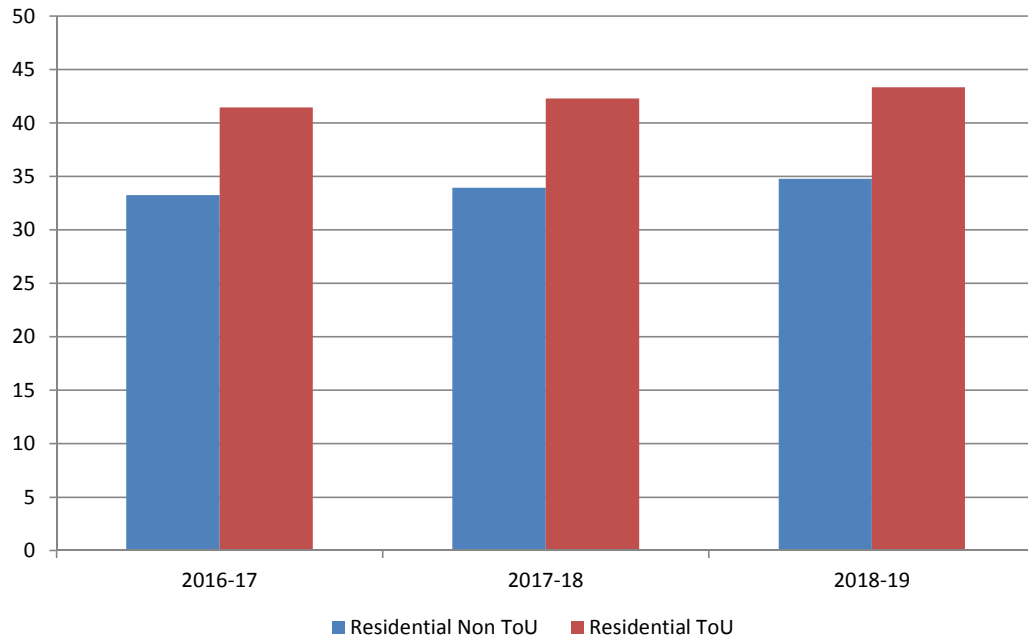
²¹⁷ The fixed charge for the LV TOU <100MWh Cent Urban tariff is proposed to decrease by approximately 24 per cent between 2016–17 and 2018–19.

²¹⁸ AER, *Draft decision: Tariff structure statement proposal: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 95–96.

²¹⁹ AER, *File note: Ausgrid: Discussion on revised TSS*, 17 November 2016; Ausgrid, *Tariff structure statement*, pp. 72, 73.

²²⁰ AER, *File note: Ausgrid: Discussion on revised TSS*, 17 November 2016.

time-of-useFigure 7-3Fixed charges for Ausgrid’s residential tariffs

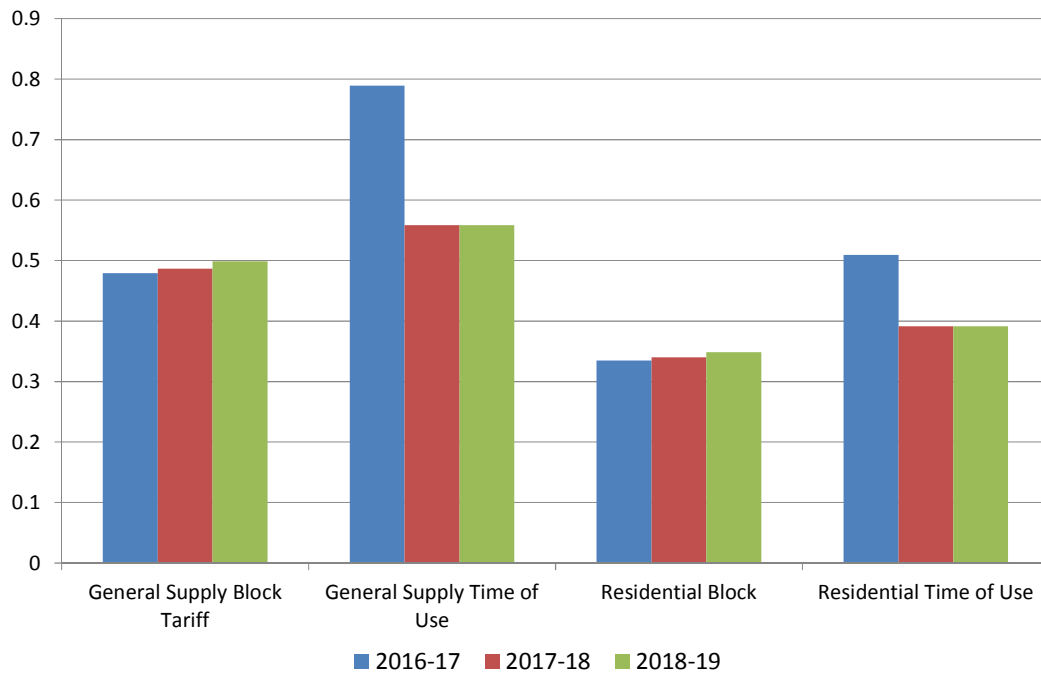


Source: Ausgrid, *Revised tariff structure statement: Appendix B: Indicative DUOS pricing schedule*, 4 October 2016.

Similarly, Figure 7-4 shows the indicative fixed charge for Endeavour Energy's time-of-use tariffs for small customers (Residential TOU and General Supply TOU) are higher than for the corresponding anytime tariffs (Residential Block and General Supply Block). Endeavour Energy confirmed it intends to gradually increase the fixed charges of the anytime tariffs until they are equal to the fixed charges of time-of-use tariffs. The fixed charges for all of its small business tariffs would then move together thereafter.²²¹

²²¹ AER, *File note: Endeavour Energy: Discussion on revised TSS*, 16 November 2016.

Figure 7-4 Fixed charges for Endeavour Energy LV tariffs (\$/day)



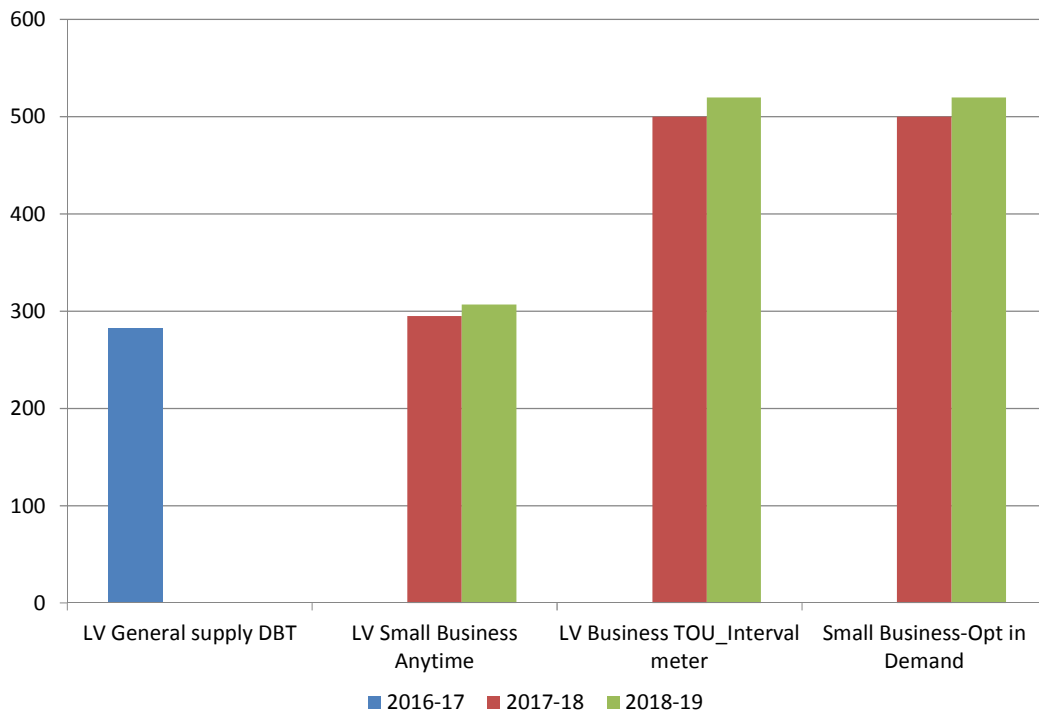
Source: Endeavour Energy, *Response to AER information request: Indicative pricing schedule in Excel format*, 15 November 2016.

Lastly, Figure 7-5 shows the indicative fixed charges for Essential Energy’s small business time-of-use tariffs are higher than for the small business ‘anytime’ tariff by approximately \$200/year.²²² Essential Energy stated it recognizes its tariffs require adjustment to more efficient levels. However, the adjustment will take place over time as Essential Energy must also consider impact on customers. Essential Energy stated it would make downward adjustments to the fixed charge of the small business time-of-use and demand tariffs in the next tariff structure statement. At the same time, Essential Energy would adjust the fixed charge of the small business anytime tariff upward.²²³ We note the fixed charges are equal for Essential Energy’s residential time-of-use and anytime tariffs.

²²² AER, *File note: Ausgrid: Discussion on revised TSS*, 17 November 2016.

²²³ AER, *File note: Essential Energy: Discussion on revised TSS*, 14 November 2016.

Figure 7-5 Fixed charges for Essential Energy’s small business tariffs



Source: Essential Energy, *Response to AER information request: Indicative pricing schedule in Excel format*, 7 November 2016.

Ausgrid noted the draft decision’s position on the relative allocation of residual costs may be more relevant when there is low penetration of more efficient tariff structures, such as those with a time-of-use component.²²⁴ The greater allocation of residual costs to less efficient tariffs can act as an incentive for customers to switch to more efficient tariffs. As penetration increases, however, Ausgrid considered the need to allocate residual costs in this manner diminishes. Ausgrid even considers there is a point in which maintaining ‘discounts’ on time-of-use tariffs becomes distortionary.²²⁵

We agree in principle with Ausgrid’s points above. When the penetration of customers on tariffs with efficient structures is sufficiently high, keeping the discounts on such tariffs can affect the efficient utilisation of the network—to the extent the discounts move such tariffs away from efficient levels.

At this stage of tariff reform, however, we consider allocating more residual costs to less efficient tariffs is generally reasonable. This is particularly the case for smaller customers where efficient tariff structures generally have low penetration. The case to reduce or remove the discounts on efficient tariff structures may become important over time,

²²⁴ AER, *File note: Ausgrid: Discussion on revised TSS*, 17 November 2016.

²²⁵ AER, *File note: Ausgrid: Discussion on revised TSS*, 17 November 2016.

particularly with the changes to the metering Rules. We will monitor this issue in future tariff structure statements.

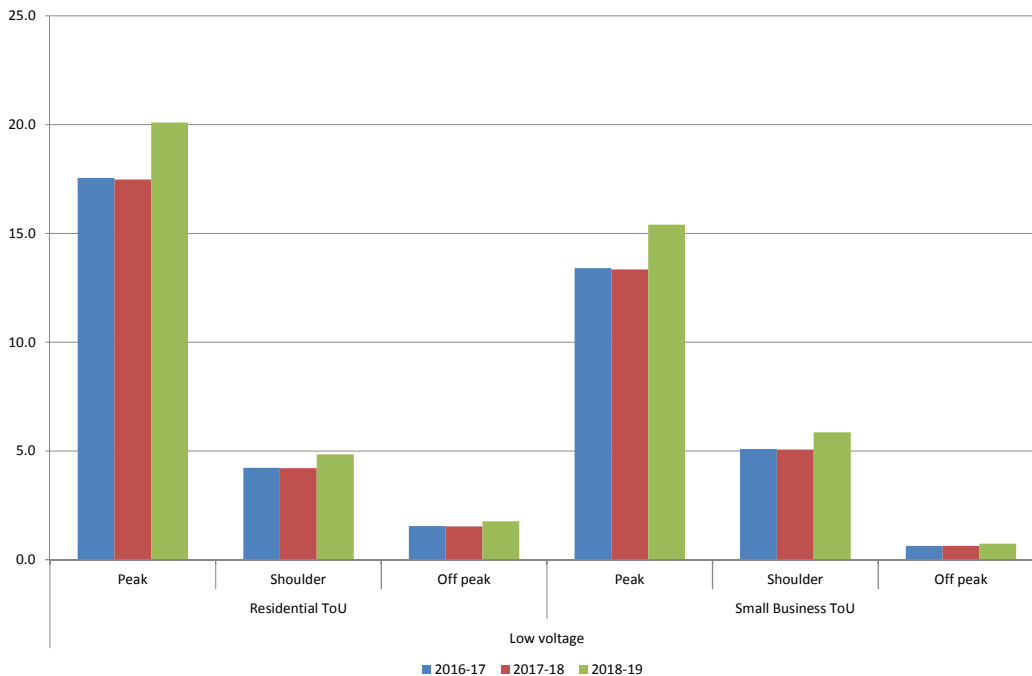
7.2.3 Usage and demand charges

As we discussed in section 7.1.2, the NSW distributors acknowledge their tariffs currently do not fully reflect the levels suggested by their estimates of long run marginal costs. They proposed to transition towards cost reflective levels with each round of tariff structure statements to manage customer impact, which we consider is reasonable.

On the other hand, we consider tariff levels should still send some signal of network congestion in this first round of tariff structure statement. To enable this, we consider the differences in the levels of peak, shoulder and off-peak prices should be sufficiently large to incentivise customers to shift usage out of times of network congestion

We consider Ausgrid allocated residual costs reasonably to the usage components of its tariffs. As noted in section 7.1.2, Ausgrid proposed to recover a significant portion of residual costs through the shoulder and off-peak energy charges. We consider the relative levels of peak, shoulder and off-peak charges provide appropriate signals of network congestion in the transition toward cost reflective prices. Figure 7-6 shows the peak charges for Ausgrid's residential and small business TOU tariffs are significantly higher than shoulder and off-peak charges, with the differential increasing in the 2018–19. This differential is also evident in Ausgrid's other time-of-use tariffs.

Figure 7-6 Usage charges of Ausgrid's LV TOU tariffs (c/kWh)

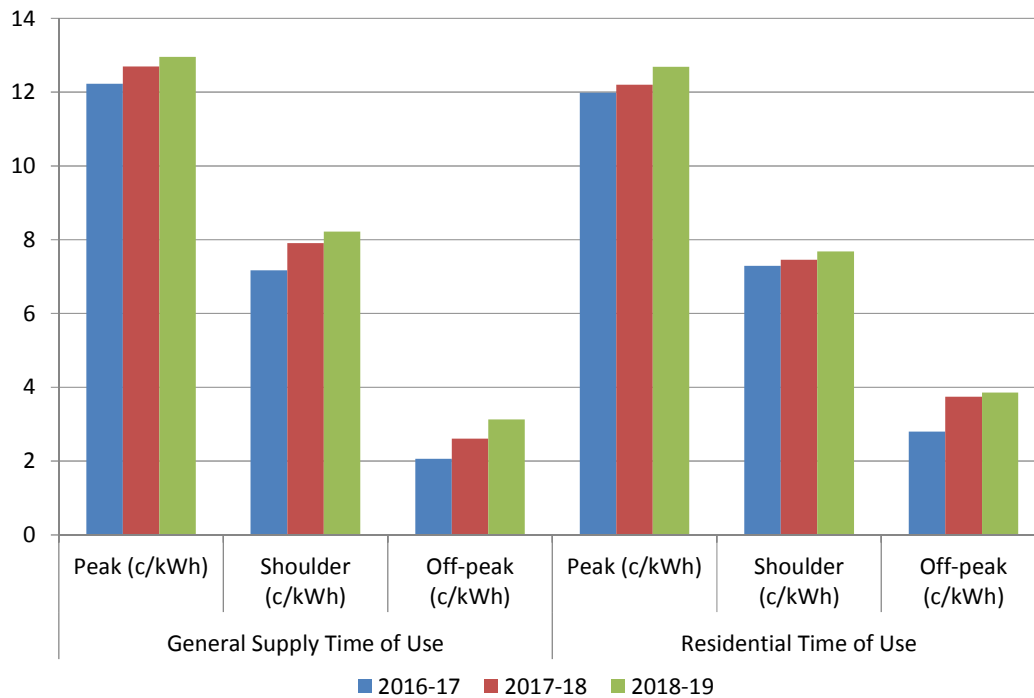


Source: AER analysis; Ausgrid, *Response to AER information request: Indicative pricing schedule in Excel format*, 8 November 2016.

We also consider Endeavour Energy allocated residual costs reasonably to the usage components of its tariffs. We consider the relative levels of peak, shoulder and off-peak charges provides appropriate signals of network congestion in the transition toward cost reflective prices. Figure 7-7 shows the peak charges for Endeavour Energy's residential and small business time-of-use tariffs are significantly higher than shoulder and off-peak charges. This differential is also evident in Endeavour Energy's other time-of-use tariffs.

On the other hand, Ausgrid's peak and shoulder rates demonstrate a greater differential than Endeavour Energy's. We consider Endeavour Energy has scope to increase the differential between its peak and shoulder rates in order to provide a stronger signal of network congestion. Figure 7-1, for example, suggests Endeavour Energy could reduce the amount of residual costs it allocates to the shoulder charge of its General Supply TOU tariff. This would increase the differential between that tariff's peak and shoulder charges.

Figure 7-7 Usage charges of Endeavour Energy's LV TOU tariffs (c/kWh)



Source: AER analysis; Endeavour Energy, *Response to AER information request: Indicative pricing schedule in Excel format*, 15 November 2016.

We consider the differential between Essential Energy's peak and shoulder charges are too small as exemplified in Figure 7-8.²²⁶ This is especially the case in comparison with Ausgrid and Endeavour Energy (see Figure 7-6 and Figure 7-7). The NSW Irrigators' Council

²²⁶ While Figure 7-8 shows only tariffs for the LV tariff class, other Essential Energy tariffs with a time-of-use component also display a small differential between peak and shoulder charges.

(NSWIC) noted the peak and shoulder charges are identical for some tariffs, which effectively expands the peak charging windows (see section 8.3 for our assessment of Essential Energy's charging windows).²²⁷ Essential Energy's time-of-use tariffs may not provide adequate incentive for customers to shift usage outside of peak hours. Further, EnergyAustralia submitted retailers would not pass through tariff changes where the difference between charging windows is not sharp enough.²²⁸

Essential Energy acknowledged it can further increase the gap between its peak and shoulder rates, but chose not to in order to manage customer impact. Essential Energy anticipates it will further increase the gap between peak and shoulder rates in future tariff statements to send improved pricing signals.²²⁹ We accept the need to manage customer impact in the transition to more cost reflective tariffs.

We also note Essential Energy has already begun the process of increasing the differential between its peak and shoulder charges for all tariffs with a time-of-use or demand component. Figure 7-8 shows the low voltage tariff class' peak rates are increasing while shoulder rates are decreasing for each year of the tariff structure statement period.²³⁰ Further, all of Essential Energy's tariffs with a time-of-use or demand component exhibited increasing differential between peak and shoulder charges. Comparison of the indicative pricing schedules from the initial and revised proposals confirms this is the case. Several tariffs saw an increase in the peak rate and decreases in the shoulder and off-peak rates (usage and/or demand). Where all windows saw increases in rates, the peak window tended to have the largest increase.²³¹

²²⁷ NSWIC, *Submission: Essential Energy tariff structure statement*, 26 October 2016, p. 4.

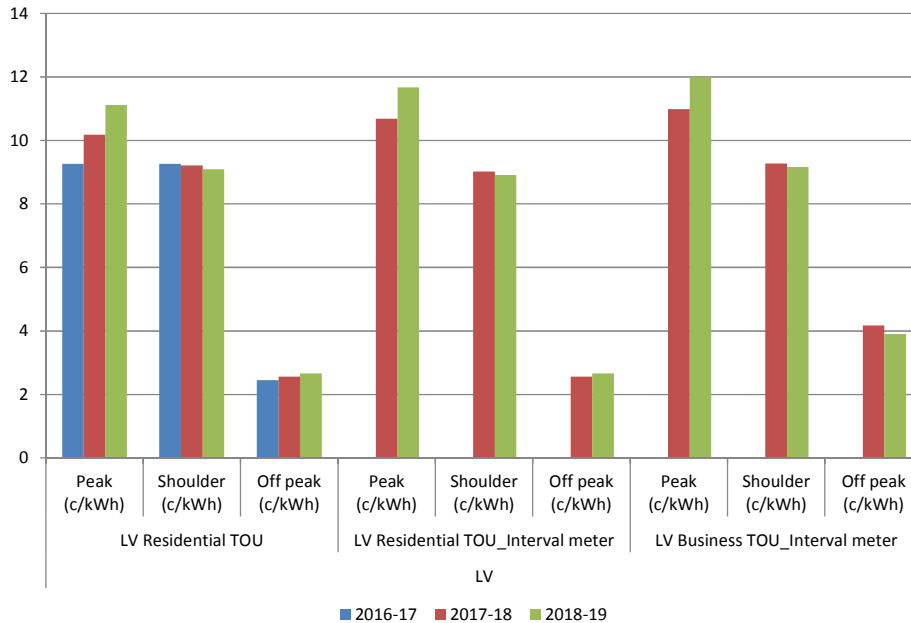
²²⁸ EnergyAustralia, *Submission: Draft decision: NSW electricity distribution networks 2017–2020 tariff structure statement proposals*, 4 October 2016, p. 2.

²²⁹ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 18.

²³⁰ AER analysis; Essential Energy, *Response to AER information request: Indicative tariff schedule in Excel format*, 7 November 2016.

²³¹ AER analysis; Essential Energy, *Response to AER information request: Indicative pricing schedule in Excel format*: 7 November 2016, 7 November 2016.

Figure 7-8 Usage charges of Essential Energy’s LV TOU tariffs



Source: AER analysis; Essential Energy, *Response to AER information request: Indicative tariff schedule in Excel format*, 7 November 2016.

7.2.4 Submissions on unmetered public lighting tariffs

The Southern Sydney Regional Organisation of Councils (SSROC) submitted that public lighting load is approximately 80 per cent off-peak and is entirely predictable. The SSROC stated that Ausgrid’s unmetered public lighting tariff appears to be 50–350% more than other tariffs when considering the time profile. In addition, the SSROC stated public lighting faces lower reliability standards, so public lighting customers are cross-subsidising other network customers.²³² We note Ausgrid’s unmetered public lighting tariff consists of a non-TOU usage charge with no fixed charge.

Central NSW Councils (Centroc) made a similar submission regarding Essential Energy’s unmetered public lighting tariffs. Centroc stated public lighting faces lower reliability standards, so public lighting customers are cross-subsidising other network customers. As such, the public lighting tariffs should have lower rates.²³³

We raised the councils’ concerns with Ausgrid and Essential Energy through information requests. We also spoke with Ausgrid staff to discuss the matter.

Ausgrid considered it is economically justified to continue to recover the current level of residual costs from the unmetered tariffs. Ausgrid considered it will likely need to introduce a

²³² SSROC, *Submission to AER on Ausgrid’s tariff structure statement*, 5 May 2016, pp. 1–2.

²³³ Centroc, *Submission to AER on Essential Energy’s tariff structure statement*, 6 May 2016, pp. 1–2.

fixed charge to enable to recovery of residual costs if it introduces a time-of-use price signal to these sites.²³⁴ Ausgrid also noted customers would not be able to respond to time-of-use price signals through usage patterns; although customers can respond through investment decisions.²³⁵ On the other hand, Ausgrid stated it will consider reforming the structure of unmetered tariffs from an anytime structure to a time-of-use structure in the next tariff structure statement.²³⁶

We consider the structure and levels of Ausgrid's unmetered public lighting tariff is reasonable for this first round of tariff structure statements. The usage charge for this tariff is lower than those of Ausgrid's other low voltage (residential and small business) block tariffs.²³⁷ Further, those block tariffs include a fixed charge, whereas the unmetered public lighting tariff comprise only of the usage charge.

Essential Energy noted its unmetered public lighting tariff is a time-of-use tariff only and is generally charged to councils. Essential Energy stated this tariff is based on its long run marginal cost estimate for small business customers. Essential Energy clarified its unmetered public lighting tariff recover the costs of providing supply to customer through common assets. It is therefore subject to the same reliability standards and requirements of all other customers connected to its network. Essential Energy noted these charges should not be confused with street-lighting use of system (SLUOS) charges which are invoiced directly to councils for the maintenance (and capital if applicable) of specific street-lighting assets.²³⁸

We consider the structure and levels of Essential Energy's unmetered public lighting tariff is reasonable for this first round of tariff structure statements. Our analysis of Essential Energy's indicative price schedule indicates the peak charge of the unmetered public lighting tariff is a close approximation of the long run marginal cost estimate. However, the shoulder and off-peak charges are significantly higher than the long run marginal cost estimates. As we noted in section 7.2.3, Essential Energy is transitioning its tariff toward more efficient levels over time. We would therefore expect the shoulder and off-peak charges of the unmetered public lighting tariffs to move towards long run marginal cost estimates in subsequent tariff structure statements.

7.3 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.

²³⁴ Ausgrid, *Response to AER information request*, 17 November 2016.

²³⁵ AER, *File note: Ausgrid: Discussion on revised TSS*, 17 November 2016.

²³⁶ Ausgrid, *Response to AER information request*, 17 November 2016.

²³⁷ The unmetered public lighting usage charge is approximately 8c/kWh. The usage charge for the residential and small business block tariffs are approximately 11c/kWh.

²³⁸ Essential Energy, *Response to information request: Unmetered public lighting tariffs*, 7 December 2016.

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.²³⁹

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

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

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

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

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.²⁴⁰

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.²⁴¹

²³⁹ NER, cl. 6.18.5(g).

²⁴⁰ For example, the Turvey method.

²⁴¹ NER, Chapter 10—Glossary.

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

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

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

8 Charging windows

One aim of the pricing Rules is to encourage more cost reflective pricing.²⁴² If prices were fully cost reflective, tariffs would reflect demand conditions through time and at a local level. Periods of high demand risk 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 NSW, 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.²⁴³

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.²⁴⁴ 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.²⁴⁵ However, such charging windows can be hard for consumers to understand, given a history of anytime usage charges. 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.

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).²⁴⁶ 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.

²⁴² NER, cl 6.18.5(a).

²⁴³ Location-based pricing may increase implementation costs due to increased complexity in tariff structures, for example.

²⁴⁴ NER, cl 6.18.5(h) and (i).

²⁴⁵ NER, Cl 6.18.5(f) and (g).

²⁴⁶ NER, cll 6.18.5(a) and (h).

We are satisfied the NSW distributors' 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.

Sections 8.1, 8.2 and 8.3 discuss our consideration of each of the NSW distributors' charging windows.

8.1 Ausgrid

We are satisfied Ausgrid's charging windows contribute to the achievement of compliance with the distribution pricing principles.

We consider Ausgrid's tariff levels provide appropriate signals of network congestion for this first round of tariff structure statements, and give effect to its charging windows. Section 7.2.3 details our consideration of Ausgrid's tariff levels.

8.1.1 Revised proposal

Ausgrid's revised tariff structure statement introduced a number of changes to its charging windows in response to our draft decision. Notably, Ausgrid introduced a seasonal element to their charging windows for residential customers. Ausgrid also removed the weekend and public holiday shoulder period for business customers, so such customers face off-peak rates only on those days.

Figure 8-1 and Figure 8-2 summarise the charging windows in Ausgrid's revised proposal and initial tariff structure statements, respectively.

Figure 8-1 Charging windows in Ausgrid's revised tariff structure statement

DNSP	Tariff	Type of day	Season	12 ----> 6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11		
				AM						PM													
Ausgrid	Residential time of use	Working weekday	Summer	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Peak	Peak	Peak	Peak	Peak	Peak	Peak	Shoulder	Shoulder	Off peak	Off peak	
		Working weekday	Winter	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Off peak
		Working weekday	Other	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Off peak
		Weekend, Public holiday	All	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Off peak
Ausgrid	All other tariffs	Working weekday	Summer, Winter	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Peak	Peak	Peak	Peak	Peak	Peak	Peak	Shoulder	Shoulder	Off peak	Off peak	
		Working weekday	Other	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Off peak	
		Working weekday	Other	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Off peak	
		Weekend, Public holiday	All	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder	Off peak



 Peak


 Shoulder

 Off peak

Source: Ausgrid, *Revised tariff structure statement*, 4 October 2016.

Figure 8-2 Charging windows in Ausgrid’s initial tariff structure statement

DNSP	Tariff	Type of day	Season	12 ---> 6											
				AM						PM					
Ausgrid	Residential time of use	Working weekday	Summer, Winter, Other	Off peak	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Peak	Peak	Peak	Shoulder	Off peak	
		Weekend, Public holiday	All	Off peak	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Peak	Peak	Peak	Shoulder	Off peak	
Ausgrid	All other tariffs	Working weekday	Summer, Winter	Off peak	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Peak	Peak	Peak	Shoulder	Off peak	
		Working weekday	Other	Off peak	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Peak	Peak	Peak	Shoulder	Off peak	
		Weekend, Public holiday	All	Off peak	Off peak	Shoulder	Shoulder	Shoulder	Shoulder	Peak	Peak	Peak	Shoulder	Off peak	



■ Peak
■ Shoulder
■ Off peak

Source: Ausgrid, *Tariff structure statement*, 27 November 2015.

8.1.2 AER assessment

Ausgrid made some of the more significant reforms to charging windows in the first round of tariff structure statements. We consider Ausgrid's proposed charging windows are a positive step toward the development of cost reflective tariffs, and we consider Ausgrid provided reasonable evidence to support the charging windows.

In our draft decision, we considered Ausgrid’s charging windows required the following amendments to contribute to the achievement of compliance with the distribution pricing principles:

- amend its peak and shoulder hours to better reflect network congestion, having regard to seasonality.²⁴⁷
- removal of the weekend shoulder period.²⁴⁸

Sections 8.1.2.1 and 8.1.2.2 set out our assessment of Ausgrid’s response to these respective requirements from the draft decision.

We also required Ausgrid to explain in more detail how it determined the thresholds between peak, shoulder and off peak hours.²⁴⁹ Section 8.1.2.3 sets out our assessment of Ausgrid’s response to this requirement.

As we discuss below, we consider Ausgrid sufficiently addressed our concerns from the draft decision.

8.1.2.1 Seasonality

²⁴⁷ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 66–70 and 78–79.

²⁴⁸ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 81–83.

²⁴⁹ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, p. 66.

Ausgrid's initial tariff structure statement had proposed to apply a weekday peak period of 2PM to 8PM for all customers in all seasons (see Figure 8-2). In the revised tariff structure statement, Ausgrid proposed to introduce seasonality to the charging windows for residential customers by:

- removing the peak period on weekdays in non-summer and non-winter months.²⁵⁰
- changing the winter peak period on weekdays to 5PM–9PM.

We consider these changes contribute to the achievement of compliance with the distribution pricing principles.

Removal of the peak period in non-summer and non-winter months appropriately signals that Ausgrid's network does not experience significant congestion during those months. This is consistent with evidence that temperature is the primary driver of peak demand on Ausgrid's network. Specifically, the highest half hourly peak demands on Ausgrid's network have only occurred in winter or summer months in the past six financial years.²⁵¹

Regarding the residential winter peak, Ausgrid provided evidence that the majority of its winter-peaking substations were congested within the 5PM to 9PM period.²⁵² Ausgrid also provided evidence showing residential load is the major driver of winter peak demand.²⁵³ EWON welcomed Ausgrid's proposal to vary the structure of the winter and summer peak times to better reflect consumption patterns.²⁵⁴ We consider the residential winter peak window Ausgrid proposed is generally consistent with the times of congestion on Ausgrid's network, both at the system-wide and local levels. We are therefore satisfied the introduction of the residential peak window contributes to the achievement of the distribution pricing principles.²⁵⁵

Ausgrid maintained the winter peak period for business customers of 2PM–8PM on weekdays (consistent with the summer peak period). Ausgrid noted business customers have a flatter profile and the uplift in their demand during a peak winter day compared to a typical winter day is not as pronounced as for residential customers.²⁵⁶ We consider the times of network congestion, and not customer load profiles in themselves, are the more important determinants of charging windows.²⁵⁷ Ausgrid appeared to acknowledge it could

²⁵⁰ To avoid confusion, we do not use the terms 'spring' and 'autumn'. Ausgrid defines summer as the period between 1 November and 31 March inclusive, which includes months that are 'officially' spring and autumn. Ausgrid defines winter as 1 June to 31 August, which is consistent with the 'official' definition of winter (see Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 29 and <http://www.australia.gov.au/about-australia/australian-story/austn-weather-and-the-seasons>).

²⁵¹ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 28–29.

²⁵² See figure 8 in Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 35.

²⁵³ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 36; Ausgrid, *Response to AER information request*, several emails received 2 June 2016, 8 June 2016 and 9 June 2016.

²⁵⁴ EWON, *Submission on AER draft decision and revised TSS for the NSW distributors*, 26 October 2016, p. 2.

²⁵⁵ NER, cl 6.18.5(a).

²⁵⁶ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 36; Ausgrid, *Response to AER information request*, several emails received 2 June 2016, 8 June 2016 and 9 June 2016.

²⁵⁷ If a network asset experiences congestion between 5PM and 8PM, then setting the peak window for all customers at that time would signal the state of congestion to all customers regardless of their individual load profiles. Customers whose

further reform the winter peak period for business customers, but considered the customer impact requires greater analysis.²⁵⁸ Ausgrid proposed to consider reforming the winter peak period for business customers as part of its next tariff structure statement. We consider this is reasonable for this first round of tariff structure statements given business customers are not the major driver of winter peak load.

In our draft decision, we suggested Ausgrid could narrow the summer peak period for weekdays.²⁵⁹ Ausgrid's revised tariff structure statement maintained the summer peak period for all customers (2PM–8PM on weekdays). We consider Ausgrid provided reasonable explanations for maintaining this weekday peak period for this first round of tariff structure statements.

Ausgrid showed demand on its zone substations peak during various times of the day (there is a much greater variation in peak times in summer than winter).²⁶⁰ In determining its peak period, Ausgrid sought to find the balance between having a peak period that is:²⁶¹

- sufficiently broad to capture the diversity in the timing of network congestion
- not so broad that it weakens the peak price signal.

Without locational pricing, Ausgrid stated narrowing the summer peak period at this stage may have adverse impacts because it may not capture the diversity of times different parts of the network is congested.²⁶² It may also have an unacceptable impact on customer bills as it would require an increase in the peak charge (since long run marginal cost is spread over fewer hours). This in turn may require an increase in the fixed, shoulder and/or off-peak charge to recover residual costs.²⁶³

8.1.2.2 Weekend shoulder period

Regarding Ausgrid's application of shoulder windows from 7AM to 10PM on non-business days, our draft decision considered the evidence suggested off-peak rates should apply at all times for non-business days.²⁶⁴

peak demand coincides with the peak window would experience higher bill impacts and so would benefit by responding through their usage and/or investment decisions. Customers whose peak demand occur outside the peak window would experience lower bill impacts and so are less likely to respond through their usage and/or investment decisions.

²⁵⁸ Ausgrid considered reforming the winter peak period for business customers will affect peak prices and residual cost allocation. Further, there are interrelationships between the peak period and capacity charges that require careful analysis. Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 37.

²⁵⁹ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 66–69.

²⁶⁰ See figure 7 in Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 32.

²⁶¹ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 32.

²⁶² This leads to inefficient price signals and may exacerbate congestion in some parts of the network. With narrower peak periods, there is a greater chance that certain parts of the network experience congestion outside of the designated peak window. Customers in those parts of the network may shift usage to times of congestion. See Ausgrid's case study in Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 33–34.

²⁶³ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 35.

²⁶⁴ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 81–83.

Ausgrid removed the shoulder window on weekends (7AM to 10PM) for business customers and replaced it with an off-peak window. Business customers will, therefore, have off-peak pricing only on weekends. Ausgrid stated there is limited merit in a weekend shoulder period for small business customers. Hence, removal of the shoulder period for small businesses would make it consistent with the treatment of the weekend period for medium and large business customers in previous pricing proposals.²⁶⁵

Ausgrid proposed to maintain the weekend shoulder period for residential customers. We are satisfied Ausgrid provided reasonable justification. Ausgrid stated it assists in recovering residual costs and enables lower fixed, peak and off peak charges. It also provides a dampened price signal to residential customers, whose peak demands are driven primarily by cooling or heating needs on extreme weather days (whether weekday or weekend).²⁶⁶

8.1.2.3 Threshold for peak, shoulder and off-peak hours

We are satisfied Ausgrid's method to determine thresholds for peak, shoulder and off-peak hours contribute to the achievement of compliance with the distribution pricing principles in this first round of tariff structure statements. Ausgrid determined its peak charging windows by considering various indicators of congestion at both network and spatial levels. We consider Ausgrid's method—and the resulting peak hours (see Figure 8-1)—achieve an appropriate balance between the transition toward cost reflective tariffs and the customer impact principle.²⁶⁷ It is less clear how Ausgrid determined the threshold between its shoulder and off peak hours; although Ausgrid maintained the threshold that it applied in previous regulatory years (see Figure 8-1). We consider this is reasonable in this first tariff structure statement as it is consistent with the customer impact principle.²⁶⁸ We encourage Ausgrid to continue refining its methods for determining the threshold between peak, shoulder and off-peak hours in future tariff structure statements (see also section 8.5.1).

Ausgrid's analysis focused on the length of the peak period (which by implication addressed our suggestion to discuss the threshold between peak and shoulder periods).²⁶⁹

Ausgrid appeared to have determined its peak window by observing the times the network experiences peak demand in summer and winter. Load profiles on network peak demand days appeared to be a major input into this process. Ausgrid also looked at the times of daily network peaks as further support of its peak window.²⁷⁰

In addition to peak demand information at the network-wide level, Ausgrid also considered times of peak demand at local levels in setting charging windows. As we noted in section 8.1.2.1, Ausgrid's zone substations peak during various times of the day, particularly in

²⁶⁵ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 52; Ausgrid, *Initial pricing proposal for the financial year ending June 2016*, May 2015, p. 14.

²⁶⁶ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 52.

²⁶⁷ NER, cl 6.18.5(g) and (h).

²⁶⁸ NER, cl 6.18.5(h).

²⁶⁹ Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 29–38.

²⁷⁰ Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 33 and 36; Ausgrid, *Tariff structure statement*, 27 November 2015, p. 49.

summer. This was one of the reasons Ausgrid proposed to maintain the summer weekday peak period 2PM to 8PM.²⁷¹

We consider it is reasonable that localised demand and congestion factored into Ausgrid's determination of its peak periods. As Ausgrid stated, it is localised congestion that ultimately drives future costs.²⁷²

What is not clear from its revised tariff structure statement is how Ausgrid determined the threshold between its shoulder and off-peak periods. We therefore encourage Ausgrid to provide further analysis on the threshold between its shoulder and off-peak periods in its next tariff structure statement.

Ausgrid appeared to treat the shoulder and off-peak periods purely as mechanisms to recover residual costs.²⁷³ Hence, it appears Ausgrid proposed its 7AM to 10PM shoulder window (with peak periods within) and its overnight off-peak window for simplicity and continuity, as it is largely consistent with recent pricing proposals.

It is arguable the thresholds between the shoulder and off-peak periods can be discretionary if they are purely mechanisms to recover residual costs. However, we consider the shoulder (and even off-peak) windows can signal network congestion, especially in the current environment of network-wide, rather than locational, tariffs (see our discussion in section 7.2.3). Ausgrid appeared to acknowledge this when it maintained the shoulder weekend period for residential customers because it provides a dampened signal of potential peak periods on weekends (see section 8.1.2.2). We therefore encourage Ausgrid to further investigate and clarify how it determines the thresholds between shoulder and off-peak periods in its next tariff structure statement.

8.2 Endeavour Energy

We are satisfied Endeavour Energy's charging windows contribute to the achievement of compliance with the distribution pricing principles for this first round of tariff structure statements.

Further, we consider Endeavour Energy's tariff levels provide appropriate signals of network congestion for this first round of tariff structure statements, and give effect to its charging windows. Section 7.2.3 details our consideration of Endeavour Energy's tariff levels.

Endeavour Energy did not introduce significant reform to its charging windows in this first round of tariff structure statements. However, Endeavour Energy acknowledged amendments to its charging windows would improve the efficiency of its time-of-use and

²⁷¹ Ausgrid, *Revised tariff structure statement*, 4 October 2016, pp. 30–34.

²⁷² Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 30.

²⁷³ Ausgrid, *Revised tariff structure statement*, 4 October 2016, p. 42; Ausgrid, *Revised tariff structure statement: Appendix A: Further information*, 4 October 2016, pp. 44–46. We noted in section 8.1.2.2 that Ausgrid maintained the shoulder weekend period for residential customers because it, among other things, provided a dampened signal of potential peak periods on weekends.

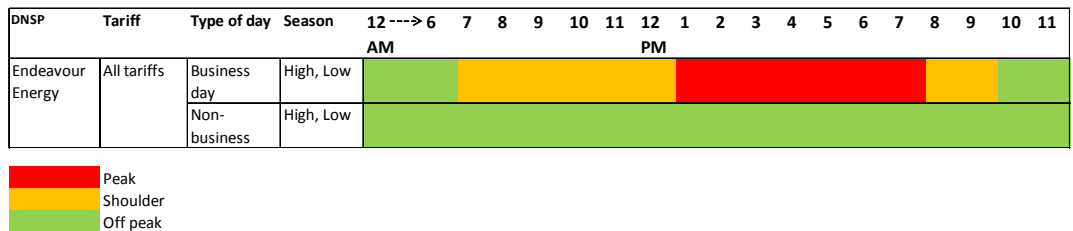
demand tariffs. We, therefore, encourage Endeavour Energy to introduce more significant reforms to its charging windows in its next tariff structure statement.

8.2.1 Revised proposal

In its revised tariff structure statement, Endeavour Energy removed the shoulder period on non-business days for residential customers, so all customers now face off-peak rates only on those days. Endeavour Energy made no other changes to its charging windows between its initial and revised tariff structure statements.

Figure 8-3 and Figure 8-4 summarise the charging windows in Endeavour Energy's revised proposal and initial tariff structure statements, respectively.

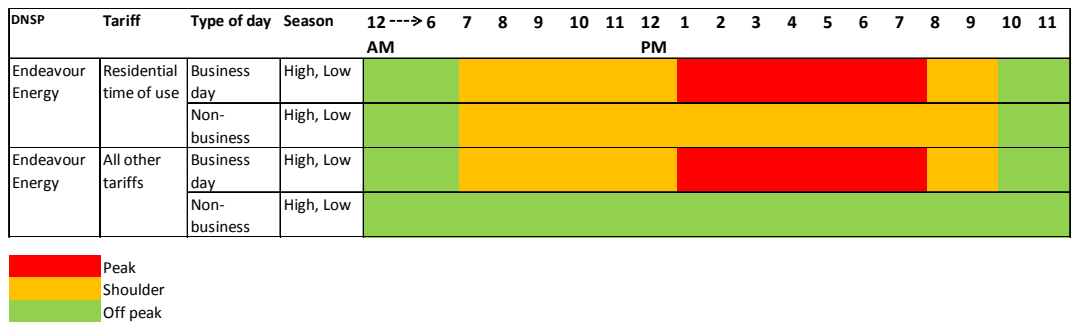
Figure 8-3 Charging windows in Endeavour Energy's revised tariff structure statement



Source: Endeavour Energy, *Tariff structure statement*, 4 October 2016, pp. 10–15.

Note: Endeavour Energy's 'high' and 'low' seasons apply only to the demand component of certain tariffs.

Figure 8-4 Charging windows in Endeavour Energy's initial tariff structure statement



Source: Endeavour Energy, *Tariff structure statement*, 27 November 2015.

Note: Endeavour Energy's 'high' and 'low' seasons apply only to the demand component of certain tariffs.

8.2.2 AER assessment

Endeavour Energy did not introduce significant reform to its charging windows. However, we accept Endeavour Energy's proposal to defer more significant reform to the next tariff structure statement to mitigate customer impact. Further, we consider Endeavour Energy provided reasonable evidence to support its charging windows for the remainder of the current regulatory control period.

In our draft decision, we considered Endeavour Energy's charging windows required the following amendments to contribute to the achievement compliance with the distribution pricing principles:

- removal of the shoulder period for non-business days.²⁷⁴
- amend its peak and shoulder hours on business days to better reflect network congestion, having regard to seasonality.²⁷⁵

Section 8.2.2.1 sets out our assessment of Endeavour Energy's response to these requirements from the draft decision.

We also required Endeavour Energy to provide evidence and reasoning to justify its method for determining the threshold between peak, shoulder and off peak hours.²⁷⁶ Section 8.2.2.2 sets out our assessment of Endeavour Energy's response to this requirement.

As we discuss below, we consider Endeavour Energy sufficiently addressed our concerns from the draft decision.

8.2.2.1 Charging windows

Endeavour Energy removed the shoulder charging window (7AM to 10PM) for residential customers on non-business days. Endeavour Energy stated this was achievable in the current regulatory control period because it has only a limited number of customers on time-of-use tariffs, and so had limited impact on tariff rebalancing.²⁷⁷ It provides residential customers greater access to off-peak rates. This gives them greater scope to mitigate the impact of tariff changes through usage decisions.²⁷⁸ EWON supported this change and considered it 'provides real incentives for customers to change their consumption patterns and thus gain benefits from a time-of-use tariff.'²⁷⁹

Endeavour Energy did not amend its peak and shoulder hours on business days, but acknowledged 'a change in charging windows to reflect the seasonal nature of demand would improve the efficiency of [its] TOU tariffs'.²⁸⁰ As we discuss below, we consider this is reasonable for this first round of tariff structure statement as it is consistent with the customer impact principle.²⁸¹

Endeavour Energy stated widespread change (including seasonality) to charging windows will impact small business, commercial and industrial customers on time-of-use tariffs.

²⁷⁴ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, p. 83.

²⁷⁵ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 72–74 and 79–81.

²⁷⁶ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 72–75.

²⁷⁷ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 48.

²⁷⁸ NER, cl 6.18.5(h)(3).

²⁷⁹ EWON, *Submission on AER draft decision and revised TSS for the NSW distributors*, 26 October 2016, p. 2.

²⁸⁰ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 48.

²⁸¹ NER, cl 6.18.5(h).

Endeavour Energy estimated this would require a one-off rebalancing of \$40 million in revenue across its existing time-of-use tariff customer base.²⁸² We understand from discussions with Endeavour Energy that re-balancing this amount requires significant consideration and stakeholder consultation; otherwise, it could have a significant one-off impact on customer bills.²⁸³ Endeavour Energy proposed to defer substantial changes to its charging windows to the next tariff structure statement. This would provide more time to review impacts, seek stakeholder feedback and, if necessary, prepare a communication strategy before implementation.²⁸⁴

Endeavour Energy further noted there was general consensus among stakeholders that 'there should be a shorter peak window in winter, weekends, with off-peak in autumn and spring.'²⁸⁵ However, stakeholders accepted such a significant change requires more careful consideration and stakeholder input.²⁸⁶

We note \$40 million equates to approximately 11 per cent of annual revenues, which we consider is a material impact.²⁸⁷ An important consideration is how Endeavour Energy allocates that amount amongst its customer base. For example, does Endeavour Energy restrict the allocation to its time-of-use and demand tariff customers only?²⁸⁸ Or, does Endeavour Energy re-allocate some (or all) of that amount to customers on less efficient tariff structures? Given these considerations, we accept the potential impact of more substantial changes to its charging windows requires more careful consideration and consultation. We therefore consider it is reasonable to defer the introduction of such changes to the next tariff structure statement.

8.2.2.2 Endeavour Energy method

In the initial tariff structure statement, Endeavour Energy stated it determined its charging windows by observing the times in which the highest measured demand points occurred in previous years. Endeavour Energy stated its peak period contains demand data that were 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.²⁸⁹ In the draft decision, we requested Endeavour Energy to provide further explanation for using the 10 per cent and 20 per cent thresholds for determining its peak and shoulder windows, respectively.²⁹⁰

²⁸² Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 48; AER, *File note - Endeavour Energy - Discussion of revised TSS*, 16 November 2016 (AER reference: D16/155647).

²⁸³ Endeavour Energy, *Response to information request: Charging windows issues*, 24 November 2016.

²⁸⁴ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 48.

²⁸⁵ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 31.

²⁸⁶ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 48.

²⁸⁷ Endeavour Energy, *Response to information request: Charging windows issues*, 24 November 2016.

²⁸⁸ The \$40 million figure translates to an average of approximately \$6,400 per customer for the one-off re-allocation of revenue. The actual re-allocation towards cost reflective may produce 'winners and losers' depending on how far off current tariffs are from theoretically efficient tariffs.

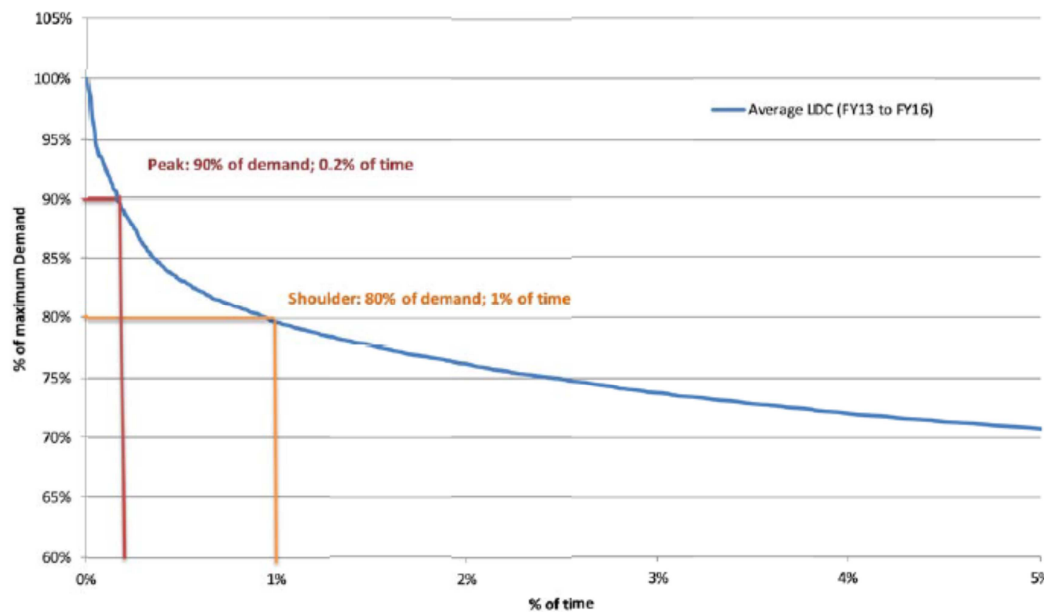
²⁸⁹ Endeavour Energy, *Tariff structure statement*, 27 November 2015, p. 72.

²⁹⁰ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 72–75.

In the revised tariff structure statement, 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.²⁹¹

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. Figure 8-5 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.²⁹²

Figure 8-5 Endeavour Energy average network load duration curve



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

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

We consider Endeavour Energy's method for determining the peak, shoulder and off-peak windows is reasonable, particularly in the transition towards more cost reflective pricing. Endeavour Energy's method demonstrated the relationship between times of highest demand on the network and the triggers for considering options to address network constraints. Importantly, it provided a clear explanation of how Endeavour Energy determined the thresholds between peak, shoulder and off-peak hours.

²⁹¹ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 46.

²⁹² Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 46.

The PIAC submitted the load duration curve is the most appropriate format to communicate the impact of network capacity and peak periods. Load duration curves communicate the fact that the highest demand points occur for only a very small percentage of time each year. Daily consumption profiles, which distributors often use to support their charging windows, create the impression such demand points occur every day. The PIAC expressed concern that tariffs derived from daily consumption profiles will charge marginal prices for consumption that does not place constraints on the system.²⁹³ In their submission to the Ergon tariff structure statement, Canegrowers and its consultant, Sapere Research Group, also considered daily consumption profiles are misleading when used to determine charging windows. Hence, Canegrowers and Sapere also support the use of load duration curves to determine charging windows.²⁹⁴

We agree with PIAC that load duration curves are a useful tool for setting charging windows as they communicate the proportion of time per year the network experiences congestion. Load duration curves can also indicate the 'peakiness' of demand and hence indicate the width of peak, shoulder and off-peak windows. On the other hand, load duration curves by themselves provide no information on which times of the day to set the peak, shoulder and off-peak windows. We consider load duration curves, in conjunction with other information such as load profiles, can be useful in setting the times of day for the peak, shoulder and off-peak windows.²⁹⁵ We consider the way in which Endeavour Energy used load duration curves contributes towards the transition to cost reflective tariffs in this first round of tariff structure statements.²⁹⁶

We also consider Endeavour Energy can still improve on the format of the load duration curve (should Endeavour Energy continue to use it in future tariff structure statements). Endeavour Energy's load duration curve in Figure 7-1 looks at demand points as a percentage of the peak demand. We consider this is reasonable where tariffs apply at a network, rather than a local, level (see our discussion in section 8.5).²⁹⁷ However, it is network constraints—the relationship between demand levels and asset capacity—that drive investment decisions. If Endeavour Energy continues to utilise load duration curves in future tariff structure statements, we encourage Endeavour Energy to investigate how it can incorporate network capacity into the curves, rather than just demand levels in isolation. We consider this could progress the transition towards cost reflective tariffs in future tariff structure statements.²⁹⁸ As noted, this would provide a better indication of utilisation. This in turn could assist in producing more accurate estimates of long run marginal cost, which ultimately would produce better signals of Endeavour Energy's efficient costs.

²⁹³ PIAC, *Submission: On the road to cost reflective pricing*, 26 October 2016, pp. 4–5.

²⁹⁴ Canegrowers, *Sapere report: Review of AER draft decision; Tariff structure statement proposals, Energex and Ergon, August 2016*, 6 October 2016, p. 26; Canegrowers, *Sapere report: AER draft decision on Ergon tariff statement (plus revisions): Review and comments for Canegrowers*, November 2016, p. 9.

²⁹⁵ By the same token, load profiles by themselves do not provide a clear guideline on the times for peak, shoulder and off-peak periods as they do not indicate at which demand levels the network is 'congested'.

²⁹⁶ NER, cl 6.18.5(g).

²⁹⁷ In both cases, the peak demand can act as a proxy for capacity in the network.

²⁹⁸ NER, cl 6.18.5(g).

8.3 Essential Energy

We are satisfied Essential Energy's charging windows contribute to the achievement of compliance with the distribution pricing principles for this first round of tariff structure statements.

However, charging windows are one aspect of signalling network congestion to customers. The tariff levels associated with each window are the other aspect and provide the strength of the incentive to shift usage to different times. As we discussed in section 7.2.3, the difference between Essential Energy's peak and shoulder rates are small compared with the other NSW distributors. We consider they provide a relatively weak incentive for customers to manage the effects of tariff reform through their usage decisions.²⁹⁹ On the other hand, we acknowledge Essential Energy has begun the process of increasing the difference between its peak and shoulder rates (see section 7.2.3). We consider this is consistent with the customer impact principle.³⁰⁰ We encourage Essential Energy to continue improving the signals their tariff levels provide in the next round of tariff structure statements.

Essential Energy did not introduce significant reform to its charging windows in this first round of tariff structure statements. On the other hand, Essential Energy has by far the shortest peak hours out of the NSW distributors. This gives its customers the greatest scope to shift usage to shoulder and off-peak hours and so mitigate the impact of tariff changes through their usage decisions (notwithstanding our concerns with the differential between its peak and shoulder rates).³⁰¹ As we discuss below, we encourage Essential Energy to continue exploring ways it can reform its charging windows such that it better reflects network congestion.

8.3.1 Revised proposal

In its revised tariff structure statement, Essential Energy removed the morning peak window (7AM to 9AM) for nearly all customers on weekdays and extended the shoulder period into this time period. Essential Energy retained the morning peak window for customers currently on the 'Residential TOU' and 'Business TOU' (for small business) tariffs. We discuss these tariffs in section 8.3.2.

Essential Energy made no other changes to its charging windows between its initial and revised tariff structure statements.

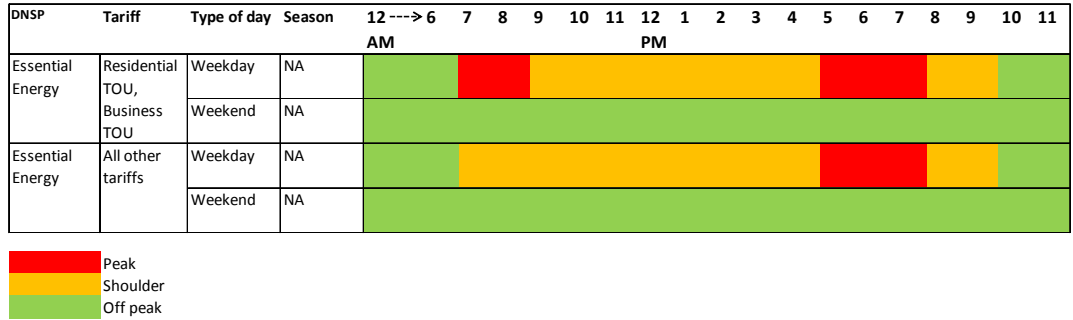
Figure 8-6 and Figure 8-7 show the charging windows in Essential Energy's revised proposal and initial proposal, respectively.

²⁹⁹ NER, cl 6.18.5(h)(3).

³⁰⁰ NER, cl 6.18.5(h).

³⁰¹ NER, cl 6.18.5(h)(3).

Figure 8-6 Charging windows in Essential Energy’s revised tariff structure statement

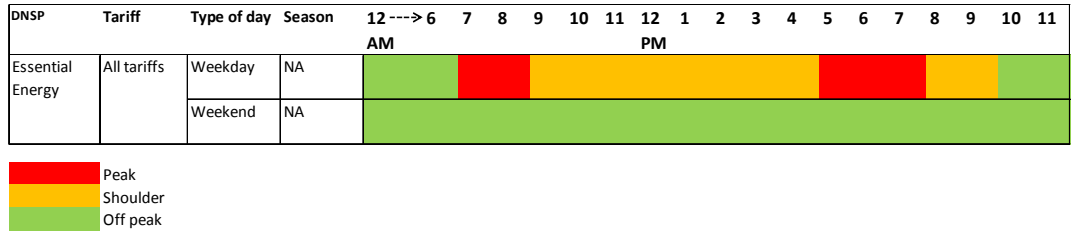


Source: Essential Energy, *Tariff structure statement*, 4 October 2016, pp. 12–19.

Note: 'Residential TOU' and 'Business TOU' refer to the tariffs for existing small customers who currently have basic accumulation meters with TOU capability.³⁰²

Note: 'Business TOU' applies to Essential Energy's small business customers.

Figure 8-7 Charging windows in Essential Energy’s initial tariff structure statement



Source: Essential Energy, *Tariff structure statement*, 27 November 2015.

8.3.2 AER assessment

We consider the charging windows in Essential Energy’s revised tariff structure statement contributes to the achievement of compliance with the distribution pricing principles for this first round of tariff structure statements. The removal of the morning peak window better reflects the patterns of congestion on Essential Energy’s network and so results in more efficient signals of the costs of providing distribution services.³⁰³ Essential Energy also has the shortest peak window among the NSW distributors.³⁰⁴ This provides Essential Energy’s customers greater opportunity to shift usage outside of peak periods and so mitigate the impact of tariff changes through their usage decisions.³⁰⁵ Further, we consider Essential

³⁰² Essential Energy, *Tariff structure statement*, 4 October 2016, pp. 12–13.

³⁰³ NER, cl 6.18.5(g)(1).

³⁰⁴ Noting that Ausgrid’s peak hours only apply for summer and winter months (see Figure 8-1).

³⁰⁵ NER, cl 6.18.5(h)(3).

Energy provided reasonable evidence to support its charging windows for this first round of tariff structure statements.

In our draft decision, we considered Essential Energy's charging windows required the following amendments to contribute to the achievement compliance with the distribution pricing principles:

- removal of the morning peak window for weekdays.³⁰⁶
- amend its peak and shoulder hours on business days to better reflect network congestion, having regard to seasonality.³⁰⁷

Sections 8.3.2.1 and 8.3.2.2 set out our assessment of Essential Energy's response to these requirements from the draft decision.

We also required Essential Energy to explain in more detail how it determined the thresholds between peak, shoulder and off peak hours.³⁰⁸ Section 8.3.2.3 sets out our assessment of Essential Energy's response to this requirement.

8.3.2.1 Morning peak window

In its revised tariff structure statement, Essential Energy proposed two new tariffs each for residential and small business customers with interval or higher capability meters.³⁰⁹ Customers with these new tariffs will not face a morning peak window. Essential Energy also removed the morning peak window for all of its other customers (medium and large businesses). Essential Energy stated there is 'sufficient evidence to support changing the morning peak to shoulder rates (but not off peak).'³¹⁰ Essential Energy further stated the removal of the morning peak window was a 'clear request from [its] stakeholders'.³¹¹ We support the removal of the morning peak window on weekdays as we consider it better reflects network congestion. It also reduces complexity for customers and provides greater opportunity to shift usage outside of peak hours.

However, Essential Energy proposed to retain the morning peak window for existing customers on the 'Residential TOU' and 'Business TOU' (for small business) tariffs (see Figure 8-6).

³⁰⁶ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, pp. 75–77.

³⁰⁷ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, p. 81.

³⁰⁸ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, p. 75.

³⁰⁹ These new tariffs are: 'Residential TOU - Interval', 'Residential - Demand', 'Business TOU - Interval' and 'Business - Demand'.

³¹⁰ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 13.

³¹¹ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 10.

Essential Energy explained these existing customers mostly have accumulation meters with time-of-use capability.³¹² Essential Energy estimated the costs of reprogramming these meters to be between \$10 million and \$20 million.³¹³ As an alternative measure, Essential Energy also investigated developing software for use in conjunction with each meter's smartphone and meter reading probe. Essential Energy estimated this to cost at least \$2 million and would not be operational until June 2017.³¹⁴

We agree with Essential Energy that the benefits of implementing these options may not outweigh the costs, particularly in light of the impending changes to the metering Rules. Essential Energy anticipates many of its Solar Bonus Scheme customers will upgrade their meters once the scheme ends 31 December 2016. Essential Energy also anticipates many customers will upgrade to smart meters following the introduction of metering contestability on 1 December 2017. Hence, Essential Energy considers these factors would shorten the timeframe for achieving benefits from reprogramming the current stock of meters.³¹⁵ Essential Energy stated stakeholders were not supportive of reprogramming the current stock of meters due to the costs and the impending introduction of metering contestability.³¹⁶

We also note that retaining the morning peak for these customers could incentivise them to upgrade their meters. This would further lower the net benefit of reprogramming the current stock of meters.

8.3.2.2 Seasonality

Regarding seasonality, Essential Energy proposed to apply common charging windows throughout the year. We consider this contributes to the achievement of compliance with the distribution pricing principles for this first round of tariff structure statements. We consider common charging windows throughout the year provides reasonable signals of the patterns of congestion on Essential Energy's network.³¹⁷ Essential Energy noted its peak window captured a significant proportion of the daily network peaks, regardless of whether it occurred in winter or summer. Based on 2015–16 data, Essential Energy noted 89.9 per cent of daily summer peaks and 100 per cent of daily winter peaks, respectively, fall within the proposed summer and winter peak windows.³¹⁸

Further, Essential Energy stated the majority of its customers and stakeholders favoured simplicity in tariff design. They considered seasonality would introduce complexity that

³¹² Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 16.

³¹³ Essential Energy assumed reprogramming times of 15 minutes and 30 minutes, respectively.

³¹⁴ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 16.

³¹⁵ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 16.

³¹⁶ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 17.

³¹⁷ NER, cl. 6.18.5(g)(1).

³¹⁸ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 14.

should be avoided if possible. In addition, seasonality may increase seasonal bill fluctuations.³¹⁹ Hence, we consider deferring the introduction of seasonality to Essential Energy's charging windows is consistent with the customer impact principle.³²⁰

While we are satisfied Essential Energy's charging windows contributes towards compliance for this first round of tariff structure statements, we encourage Essential Energy to investigate introducing seasonality in future tariff structure statements. We also encourage Essential Energy to consult with stakeholders about this potential change as part of future tariff structure statements to increase understanding of its benefits and costs.

As we noted in our draft decision, Essential Energy's network peaks occur at slightly different times between seasons (based on the 2014–15 data in the initial tariff structure statement). Specifically, the network tends to peak at an earlier time in summer than in winter. The load profile from 2014–15 also suggests the peak window in winter could be much narrower than in summer.³²¹ Essential Energy's revised tariff structure statement provided similar data for seven regulatory years. We consider this adds further evidence to the seasonal pattern of network peaks on Essential Energy's network (although the times of the summer peaks appear to have shifted closer to the times of winter peaks in recent years).³²²

We also note Essential Energy did not discuss the potential to remove the peak period in non-summer and/or non-winter months.³²³ Doing so could better enable Essential Energy to increase the difference between its peak and shoulder rates during summer and/or winter months. In turn, this would increase the incentives to shift usage from peak to shoulder hours (see our discussion on tariff levels in section 7.2.3). We therefore encourage Essential Energy to explore this option as part of its next tariff structure statement.

8.3.2.3 Threshold between peak, shoulder and off-peak hours

We are satisfied Essential Energy's method to determine thresholds for peak, shoulder and off-peak hours contribute to the achievement of compliance with the distribution pricing principles in this first round of tariff structure statements. Essential Energy determined its peak charging windows by considering various indicators of congestion at both network and spatial levels. We consider Essential Energy's method—and the resulting peak hours (see section Figure 8-6)—achieve an appropriate balance between the transition toward cost reflective tariffs and the customer impact principle.³²⁴ It is less clear how Essential Energy

³¹⁹ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, pp. 10 and 17.

³²⁰ NER, cl 6.18.5(h).

³²¹ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, p. 81.

³²² Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 13.

³²³ Endeavour Energy flagged their consideration of this change during consultation for this final decision (see Endeavour Energy, *Response to information request: Charging windows issues*, 24 November 2016). As we discussed in section 8.1.2.1, Ausgrid already removed their peak windows in non-summer and non-winter months.

³²⁴ NER, cll 6.18.5(g) and (h).

determined the threshold between its shoulder and off peak hours; although Essential Energy maintained the threshold that it applied in previous regulatory years (see Figure 8-6). We consider this is reasonable in this first tariff structure statement as it is consistent with the customer impact principle.³²⁵ We encourage Essential Energy to continue refining its methods for determining the threshold between peak, shoulder and off-peak hours in future tariff structure statements (see also section 8.5.1).

Essential Energy appeared to have determined its peak window by observing the times the network experiences peak demand in summer and winter.³²⁶ Load profiles on network peak demand days appeared to be a major input into this process. Essential Energy also looked at the times of daily network peaks as further support of its peak window. As we noted earlier, 89.9 per cent of daily summer peaks and 100 per cent of daily winter peaks, respectively, fell within Essential Energy's proposed peak windows.³²⁷

From its pricing model, Essential Energy appears to view its peak and shoulder periods as probabilistic indicators of network peak demand.³²⁸ That is, Essential Energy expects the network to have the highest probability of experiencing congestion during peak periods. Essential Energy assigns a lower, but non-zero, probability of network congestion during shoulder periods.³²⁹

In addition to peak demand information at the network-wide level, Essential Energy also considered times of peak demand at local levels in setting charging windows. Figure 8-8 shows Essential Energy's zone substations experience non-coincident peak demand at various times of the day.³³⁰ Essential Energy stated a significant number of its zone substations do not peak during the 5PM to 8PM window in both summer and winter, with some zone substations peaking as early as 6AM and others peaking as late as 9PM. On the other hand, Essential Energy also pointed out the peak demand period for many zone substations fall within the evening charging window.³³¹

On balance, Essential Energy considered the evidence it provided in its revised tariff structure statement—at both the network and spatial levels—supports removing the morning

³²⁵ NER, cl 6.18.5(h).

³²⁶ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 13.

³²⁷ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 14.

³²⁸ Essential Energy, *Tariff structure statement: Attachment 4: Estimation of long run marginal cost and other concepts related to the distribution pricing principles: Prepared for Essential Energy*, November 2015, p. 13; Essential Energy, *Tariff structure statement: Attachment 7: Updated long run marginal cost model*, 4 October 2016 (CONFIDENTIAL).

³²⁹ Endeavour Energy appeared to treat the peak and shoulder periods in a similar manner (Endeavour Energy, *Response to information request: LPMC and indicative price schedule*, 9 December 2012). As we discussed in section 8.1.2.3, Ausgrid appeared to treat the shoulder period primarily as a mechanism to recover residual costs.

³³⁰ Non-coincident peak demand is a zone substation's peak demand, regardless of the time or state of the network. By comparison, coincident demand is a zone substation's demand at the time of network-wide demand.

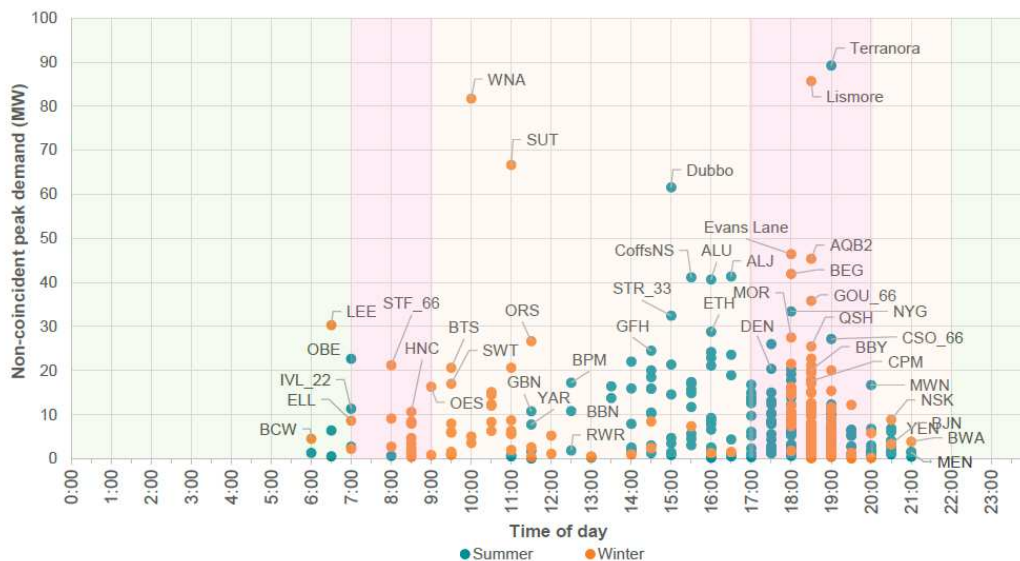
³³¹ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 15.

peak window and extending the shoulder window to cover it.³³² This appears consistent with its treatment of the peak and shoulder windows as probabilistic indicators of peak demand in that congestion could occur outside of the network peak times.

We consider it is reasonable that localised demand and congestion factored into Essential Energy's determination of its charging windows. As Essential Energy stated, it is localised congestion that ultimately drives investment decisions.³³³

Hence, it appears Essential Energy proposed its 7AM to 10PM shoulder window (with peak periods within) on the basis that there is a non-zero probability its network can experience congestion within that time at either the network or local level. It also appears Essential Energy proposed these times for simplicity and continuity, as it is largely consistent with recent pricing proposals. For this first round of tariff structure statements, we consider this achieves an appropriate balance between the transition toward cost reflective tariffs and the customer impact principle.³³⁴

Figure 8-8 Non-coincident peak demand by season and zone substation (2014–15)



Source: Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 15.

8.4 Note on consistency between NSW distributors

³³² Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, pp. 13 and 16.

³³³ Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 15.

³³⁴ NER, cl 6.18.5(g) and (h).

In the draft decision, we noted submissions from some stakeholders advocating the benefits of harmonising the NSW distributors' charging windows.

EnergyAustralia reiterated the desirability of consistent charging windows between the NSW distributors.³³⁵ Red Energy and Lumo Energy acknowledged aligning charging windows might not be appropriate if constraints occur at different times on the different networks. Red Energy and Lumo Energy encouraged the NSW distributors to align their charging windows to the extent that they can without compromising the cost reflectivity of the tariffs.³³⁶

As with the draft decision, we are still not convinced the benefits of harmonising charging windows are greater than the costs, particularly where the pattern of network congestion may differ between distribution networks. We consider distributors should amend their charging windows so they are more cost reflective (that is, they better reflect the level of congestion in their respective networks). If the load profile is different on each network, it follows that cost reflective charging windows would also differ.

In the draft decision, we noted stakeholder submissions did not quantify or discuss in detail the savings that consistent charging windows would produce.³³⁷ The submissions to the revised proposals also did not provide such evidence.

We therefore do not consider consistent charging windows between the NSW distributors, in itself, contribute to achieving compliance with any of the distribution pricing principles. We therefore do not require the NSW distributors to have consistent charging windows in this first round of tariff structure statements.³³⁸

It is also unclear whether differing charging windows between the NSW distributors lead to significant costs. We noted in the draft decision that retailers have already invested in systems to manage multiple charging windows in different networks in the NEM.³³⁹ Further, we consider the charging windows of the NSW distributors currently display a good degree of consistency. Figure 8-9 shows each NSW distributor has:

- shoulder periods from 7AM to 10PM on weekdays and/or business days, with different peak hours within this shoulder period
- an overnight off-peak period of 10PM to 7AM on weekends and/or business days
- off-peak all day for weekends and/or public holidays (except for Ausgrid's residential TOU customers, who also have a 7AM to 10PM shoulder period)

³³⁵ EnergyAustralia, *Submission: Draft decision NSW electricity distribution networks 2017–20 tariff structure statement proposals*, 4 October 2016, p. 4.

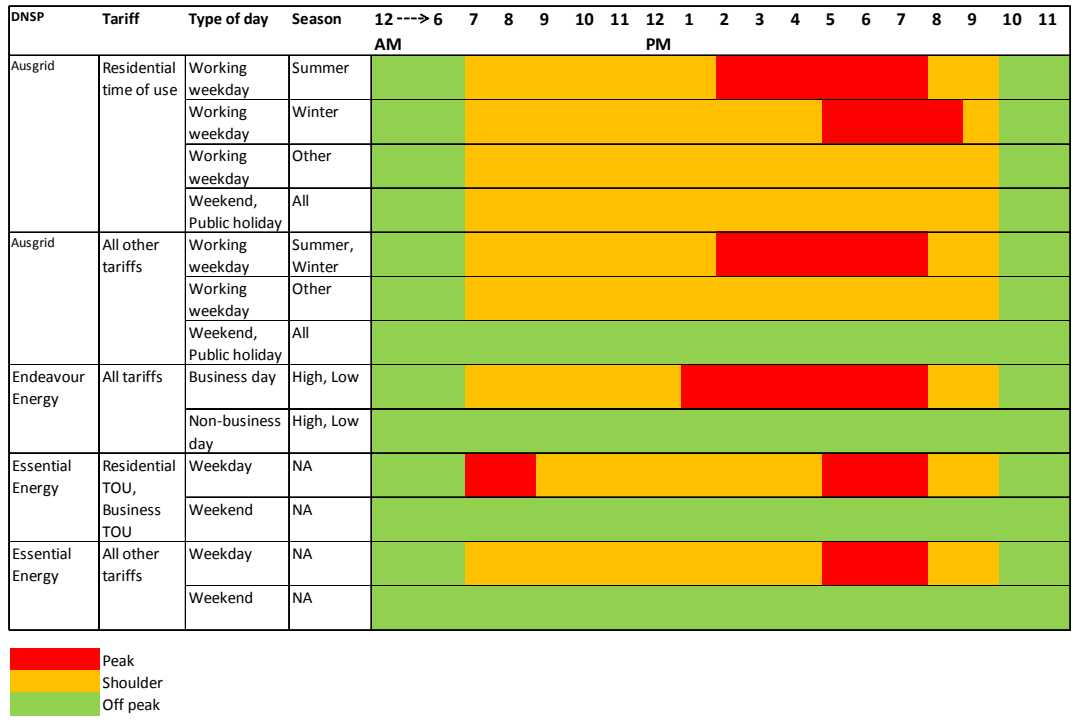
³³⁶ Red Energy and Lumo Energy, *Submission on NSW revised tariff structure statements*, 27 October 2016, pp. 1–2.

³³⁷ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, p. 84.

³³⁸ Unless the charging windows that provide efficient signals happen to be consistent for the NSW distributors.

³³⁹ AER, *Draft decision: Tariff structure statement proposals: Ausgrid, Endeavour Energy, Essential Energy*, August 2016, p. 84.

Figure 8-9 NSW distributors' charging windows from the revised tariff structure statements



Source: Ausgrid, *Revised tariff structure statement*, 4 October 2016; Endeavour Energy, *Tariff structure statement*, 4 October 2016, pp. 10–15; Essential Energy, *Tariff structure statement*, 4 October 2016, pp. 12–19.

8.5 Future direction

8.5.1 Refinements to charging windows

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:³⁴⁰

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

We discuss these in turn below.

8.5.1.1 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

³⁴⁰ NER, cl. 6.18.5(a).

assessed whether their methods and the information they provided in their tariff structure statements were sufficiently robust (given this early stage of tariff reform).³⁴¹ 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.³⁴² 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.³⁴³ 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.³⁴⁴ ActewAGL provided a load profile that showed the maximum demand measured for each half-hour interval for a given year.³⁴⁵ Ausgrid and Endeavour Energy showed the time of the highest demand points for a given year (using data from several years).³⁴⁶ Distributors variously provided daily load profiles at system and/or spatial levels.³⁴⁷

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

- graphs showing the frequency of peak times for each half hour interval³⁴⁸
- 'heat maps' of demand³⁴⁹
- timing of peak demand for individual substations³⁵⁰

³⁴¹ NER, cl 6.18.5(a) and (h).

³⁴² 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.

³⁴³ Daily load profiles depict the level of demand for each half-hour interval over 24 hours.

³⁴⁴ See the revised tariff structure statements of Essential Energy, SA Power Networks, ActewAGL, Ergon Energy and Energex.

³⁴⁵ ActewAGL, *Revised tariff structure statement: Explanatory statement*, 4 October 2016, p. 78.

³⁴⁶ This is a 'semi-complete' load profile as it does not include data points for all half-hour intervals of the day.

³⁴⁷ 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.

³⁴⁸ For example, see Essential Energy, *Tariff structure statement: Attachment 8: Addendum to our tariff structure statement: Explanations and reasoning*, 4 October 2016, p. 14.

³⁴⁹ See Energex, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 45.

³⁵⁰ 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.

- load duration curves (see the ‘network utilisation information’ section below for further discussion).³⁵¹

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.³⁵² 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.³⁵³ 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.³⁵⁴

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

Network utilisation information

The evidence the distributors provided generally showed information regarding demand levels only. As we noted earlier, we consider this is reasonable in this first round of tariff structure statements. However, it is network utilisation—the relationship between demand levels and asset capacity—that is a key driver input into distributors’ decisions to make investments in the long run. Distributors’ long run investment decisions are guided by their expectations of network utilisation. For example, they would invest in additional capacity when they expect demand to exceed the capacity of assets.³⁵⁵ 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

³⁵¹ See Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, pp. 46–47.

³⁵² With the exception of customer-specific tariffs, which apply to very large customers.

³⁵³ NER, cl 6.18.5(h) and (i).

³⁵⁴ NER, cl 6.18.5(a).

³⁵⁵ Alternatively, distributors consider expected levels of demand when deciding asset capacity in replacement capital expenditure decisions. See chapter 7 for further discussion.

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.³⁵⁶

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.³⁵⁷

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 8-5). Figure 8-5 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.³⁵⁸

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.³⁵⁹ Alternatively, distributors may choose to explore other approaches to incorporate information on network utilisation to determine charging windows.

Developing an industry approach for charging windows

The Energy Networks Association stated it will discuss with its members options for developing charging windows.³⁶⁰

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

³⁵⁶ Endeavour Energy, *Tariff structure statement*, 27 November 2015, p. 72.

³⁵⁷ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 46.

³⁵⁸ Endeavour Energy, *Tariff structure statement: Explanatory statement*, 4 October 2016, p. 46.

³⁵⁹ See section 8.2 of AER, *Final decision: Tariff structure statements: Ausgrid, Endeavour and Essential Energy*, February 2017.

³⁶⁰ ENA, *Submission: Australian Energy Regulator draft decision on tariff structure statement proposals*, 7 October 2016, p. 4.

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.³⁶¹

The ENA also stated to us it will discuss with its members the prospect of developing an ‘industry approach’ for charging windows.³⁶² 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.³⁶³

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.³⁶⁴

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.

8.5.1.2 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:³⁶⁵

- 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

³⁶¹ NER, cl. 6.18.5(g).

³⁶² 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).

³⁶³ NER, cl. 6.18.1A(a).

³⁶⁴ NER, cl. 6.18.5(i).

³⁶⁵ NER, cl. 6.18.5(f).

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.³⁶⁶

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.

8.5.2 Peak demand measurement in demand charges

Most distributors proposed some residential or small business tariffs with a demand charge in this first round of tariff structure statements. The distributors proposed different ways to measure a customer's demand for the purposes of calculating demand charges (see our summary below). The measures of demand each distributor proposed are generally consistent with their practices in recent pricing proposals and so represent an incremental change in tariff structures. We therefore accepted the distributors' proposed measures of demand in this initial phase of tariff reform as they are consistent with the customer impact principle.³⁶⁷

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 demand³⁶⁸
- enable customers to respond to price signals³⁶⁹
- avoid or manage the potential for a customer to face 'bill shock'.³⁷⁰

³⁶⁶ 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>).

³⁶⁷ NER, cl 6.18.5(h).

³⁶⁸ NER, cl 6.18.5(a).

³⁶⁹ NER, cl 6.18.5(h)(3).

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.³⁷¹

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.³⁷² 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.³⁷³

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'.³⁷⁴

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

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

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

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

³⁷⁰ NER, cl 6.18.5(h).

³⁷¹ The distributors whose demand tariffs generally charge on this measure include ActewAGL, Essential Energy, AusNet Services, CitiPower and Powercor.

³⁷² Ausgrid, *Revised tariff structure statement: Appendix A*, 4 October 2016, pp. 112–125.

³⁷³ Jemena, *Tariff structure statement*, 29 April 2016, p. 30.

³⁷⁴ Essential Energy, *Tariff structure statement*, 4 October 2016, p. 16.

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 NSW distributors' customer impact analysis

This chapter sets out the customer impact analysis the three distributors undertook when developing their revised tariff structure statements.

In our draft decision, we stated the distributors, particularly Endeavour Energy and Essential Energy, could improve their customer impact analysis. Specifically, we asked the distributors to include a comparison between all their tariffs, which considers the consumption profile of customers on non-time-of-use tariffs and time-of-use tariffs, and the absolute dollar impacts of the proposed changes. We noted that the analysis should demonstrate to customers how changing their behaviour can influence their bill.

The distributors' revised tariff structure statements significantly improve on their customer impact analysis. Essential Energy in particular, made notable advances in providing the level of detail we requested in the AER draft decision.

Ausgrid

Ausgrid's analysis shows the average annual bill impact in percentage terms, by customer type, over the course of the 2017–19 regulatory period. The analysis shows bill impacts on residential customers³⁷⁵ and small and large business customers.³⁷⁶

Figure A–1 shows the bill impact on Ausgrid's residential customers factoring in the re-assignment from a declining block tariff to a flat tariff. The majority of Ausgrid's residential customers (over 93 per cent) on a flat tariff are expected to receive a bill increase broadly in line with the RBA's inflation target of between 2 per cent to 3 per cent. Large residential customers are expected to receive a larger bill increase due to the re-assignment from a declining block tariff to a flat tariff—as previously a large part of these customers' electricity consumption was in the cheapest consumption block of the declining block tariff.

³⁷⁵ Ausgrid, *Revised Tariff Structure Statement*, October 2016, pp. 59–60.

³⁷⁶ Ausgrid, *Revised Tariff Structure Statement, Appendix A*, October 2016, p. 77.

Figure A–1 Ausgrid’s bill impact analysis for residential customers on a flat tariff (EA010)

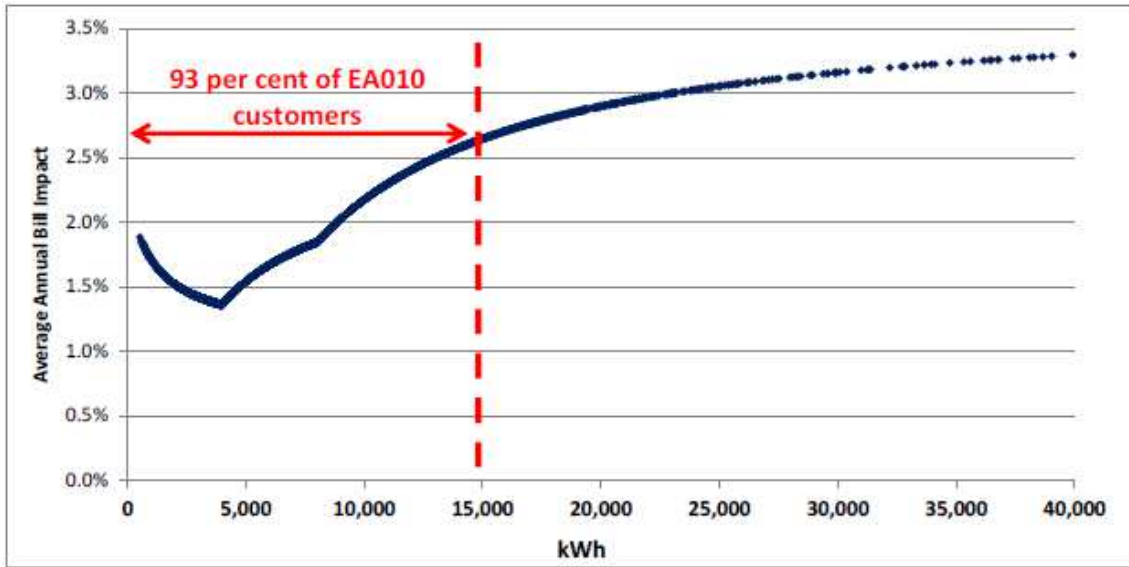


Figure A–2 shows the bill impact on residential customers on a time-of-use tariff. Approximately 60 per cent of these customers are expected to receive a bill reduction and the majority of the remaining customers are expected to receive a bill increase in line with expected inflation. This is assuming no response to price signals. Ausgrid noted that customers can realise even greater bill reductions if they change their usage patterns in response to price signals.

Figure A–2 Ausgrid’s bill impact analysis for residential customers on a time-of-use tariff (EA025)

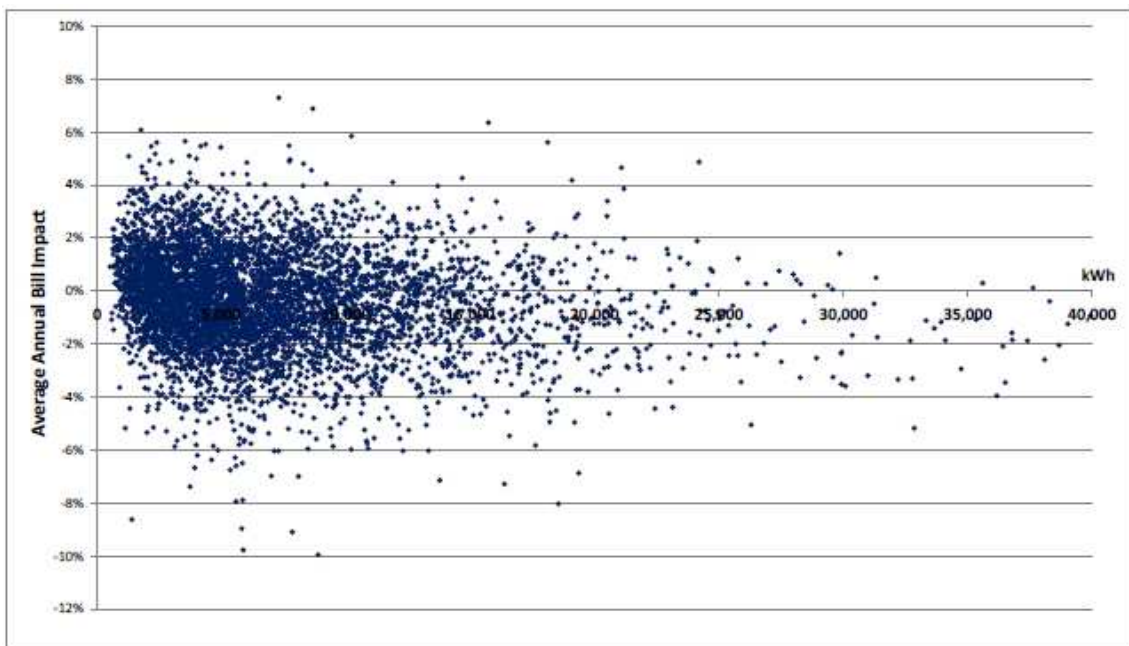


Figure A–3 shows that the majority of Ausgrid’s residential customers on a flat tariff would be financially better off on a time-of-use tariff. Analysis of a sample of 5000 customers suggests those consuming around 5000 kWh per year in 2018–19 can save between 530 dollars and 750 dollars. Ausgrid noted that the cost savings is attributable to changing customer usage patterns.³⁷⁷

Figure A–3 Ausgrid’s bill differential between residential time-of-use and flat tariff (EA010 v EA025)

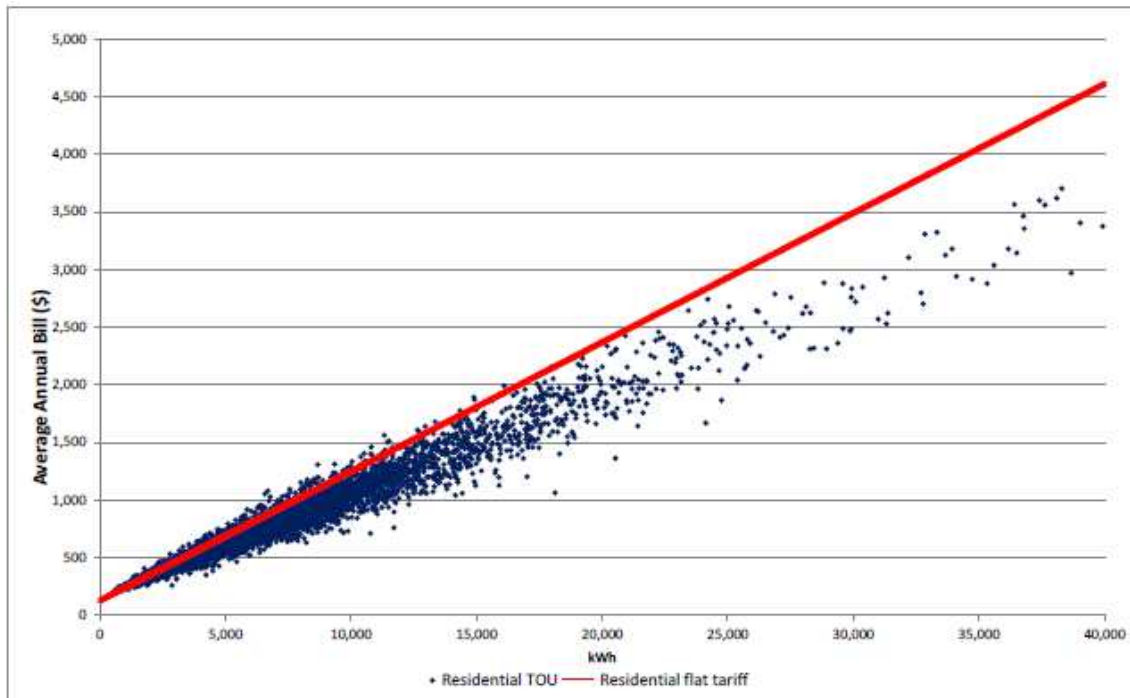


Figure A–4 shows the bill impact on Ausgrid’s small business customers factoring in the re-assignment from a declining block tariff to a flat tariff. All of Ausgrid’s small business customers on a flat tariff are expected to receive a bill increase in line with expected inflation.

³⁷⁷ Ausgrid, *Revised Tariff Structure Statement*, October 2016, p. 60.

Figure A–4 Ausgrid’s bill impact analysis for small business customers on a flat tariff (EA050)

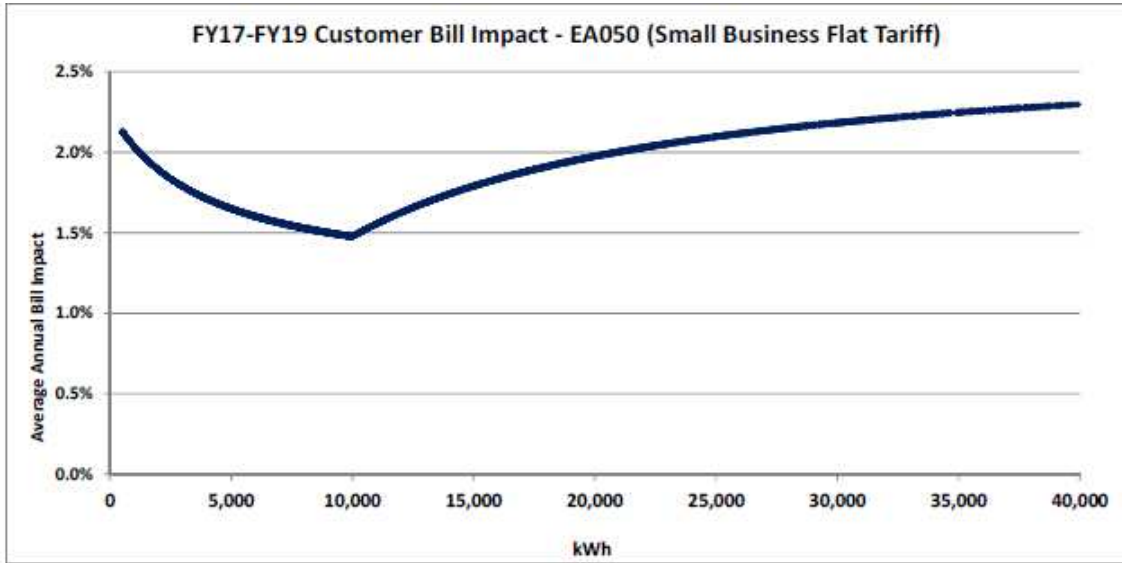
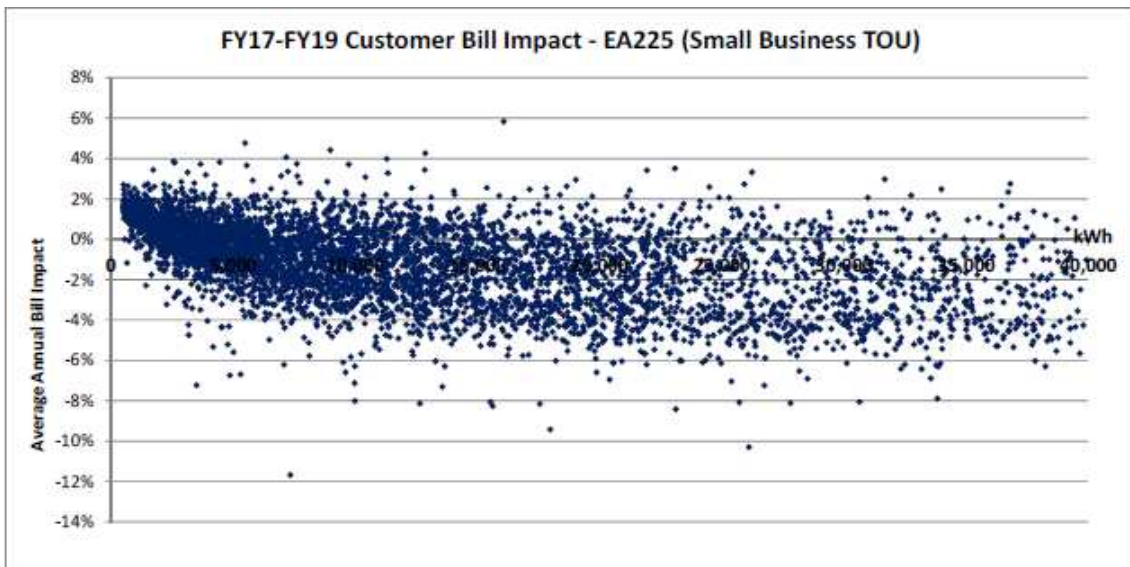


Figure A–5 shows the bill impact on small business customers on a time-of-use tariff. The large majority of these customers are expected to receive either a bill reduction or a bill increase in line with expected inflation.

Figure A–5 Ausgrid’s bill impact analysis for small business customers on a time-of-use tariff (EA225)



Ausgrid provided similar bill impact analysis of five other business tariffs, namely its major published tariffs. These other tariffs are not included in this chapter.³⁷⁸

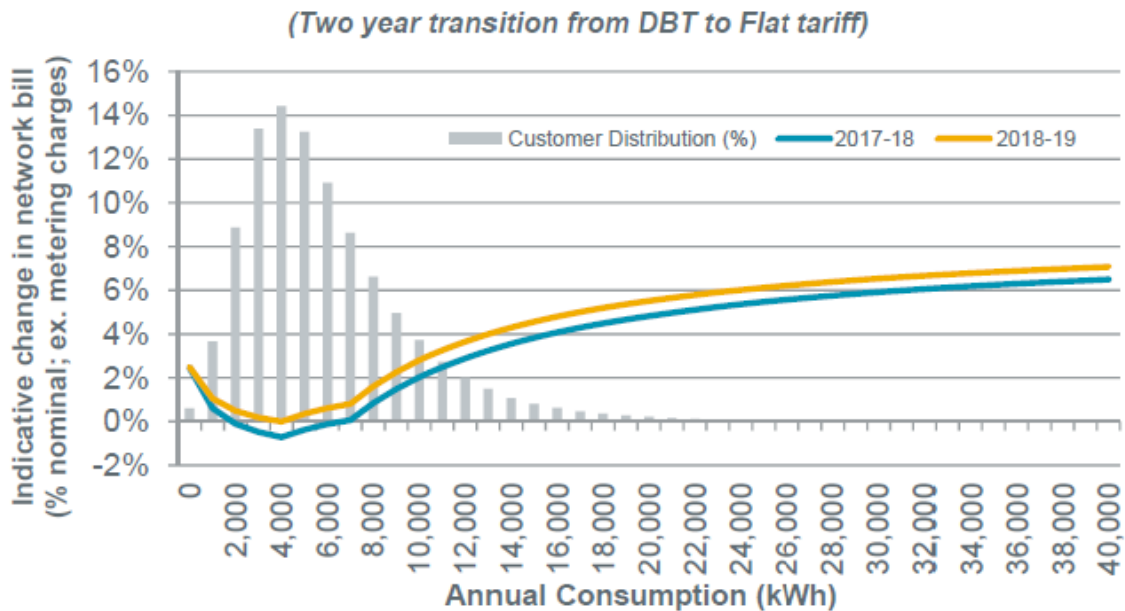
Endeavour Energy

Endeavour Energy noted that over 99 per cent of its customer base is on non-time-of-use tariffs. In its customer impact analysis, Endeavour Energy considered the impact of two proposed changes to its non-time-of-use tariffs.³⁷⁹ Namely Endeavour Energy proposed that:

- residential customers with basic accumulation meters will be reassigned from a declining block tariff to a flat tariff, over a two year period
- small–medium business customers with basic accumulation meters will be assigned to an inclining block tariff, with the trigger of the second consumption block increasing from 10 MWh per year to 120 MWh per year.

Figure A–6 shows the bill impact on residential customers as they transition from a declining block tariff to a flat tariff over two years. The majority of these customers are expected to receive a bill decrease in 2017–18 and a bill increase less than 1 per cent in 2018–19. A smaller proportion of residential customers are expected to receive a higher bill increase. Namely, small consumers are expected to receive a bill increase around 2 per cent, and large consumers are expected to receive a bill increase between 2 per cent and 7 per cent, over the two year period. However Endeavour Energy has not specified what proportion of its customers fall within this category.

Figure A–6 Endeavour Energy’s bill impact analysis for residential customers transitioning from a declining block tariff to a flat tariff



³⁷⁸ For analysis of these customers, see Ausgrid, *Revised Tariff Structure Statement, Appendix A*, October 2016, pp. 78–79.

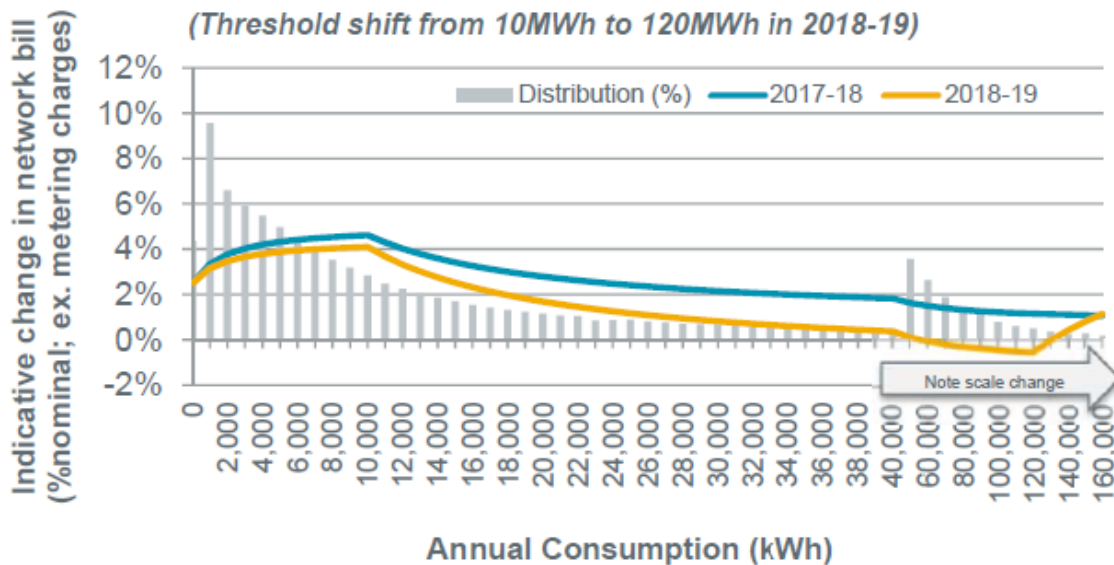
³⁷⁹ Endeavour Energy, *Tariff Structure Statement, Explanatory Statement* October 2016, p. 94.

Figure A–7 shows the bill impact on small–medium business customers with the trigger of the second consumption block increasing from 10 MWh per year to 120 MWh per year. The majority of these customers are expected to receive a bill increase between 2 per cent and 4 per cent. Again, Endeavour Energy has not specified what proportion of its customers fall within this category.

Some large consumers are expected to receive a bill decrease due to the broadening of the first consumption block. Large consumers that consume into the second consumption block are expected to receive a bill decrease or a bill increase under 2 per cent.

The bills for all these small–medium business customers in 2018–19 are expected to decrease from 2017–18 levels.

Figure A–7 Endeavour Energy’s bill impact analysis for small–medium business customers with a change in the consumption block threshold



Essential Energy

Essential Energy’s analysis shows the average annual bill impact in whole dollar amounts, by tariff class, in 2017–18. This allows customers to compare the differences between non-time-of-use tariffs, time-of-use tariffs and demand tariffs. Essential Energy provided this comparison separately for residential and business tariffs.³⁸⁰

Figure A–8 shows a bill comparison of Essential Energy’s proposed residential tariffs. Customers on a time-of-use tariff or a demand tariff are expected to pay less compared with customers on a flat tariff or a declining block tariff. These price differentials are greater for larger consumers.

³⁸⁰ Essential Energy, *Tariff Structure Statement*, 4 October 2016, pp. 23–26.

Figure A–8 Comparison of Essential Energy’s residential tariffs

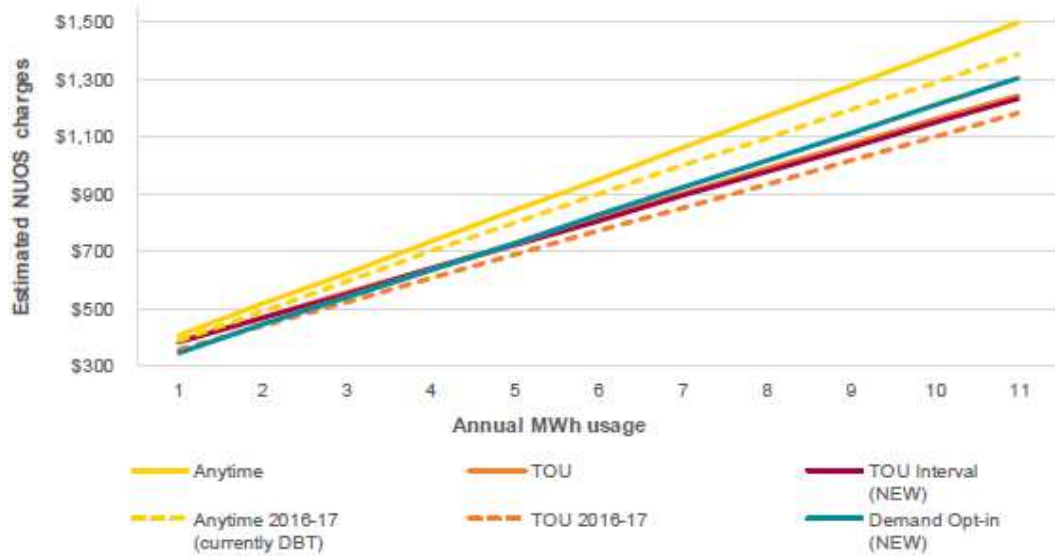


Figure A–9 shows the year-by-year bill impact on residential customers with an average annual consumption of 5 MWh per year. Customers on all tariffs are expected to receive a bill increase over time. Customers on the new time-of-use interval tariff, the default tariff for new residential customers with an interval or higher capability meter, are expected to receive a smaller bill increase in 2018–19 compared with customers on any other tariff.

Figure A–9 Essential Energy’s year-by-year bill impact analysis for residential customers with average annual consumption of 5 MWh

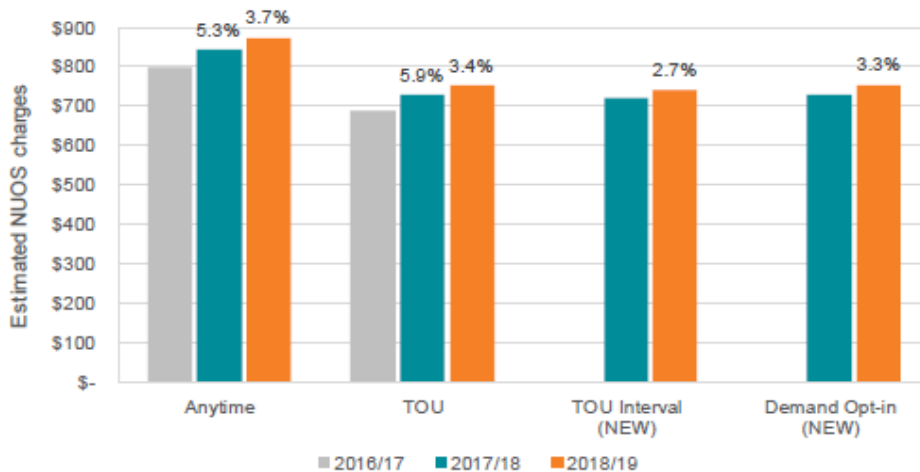
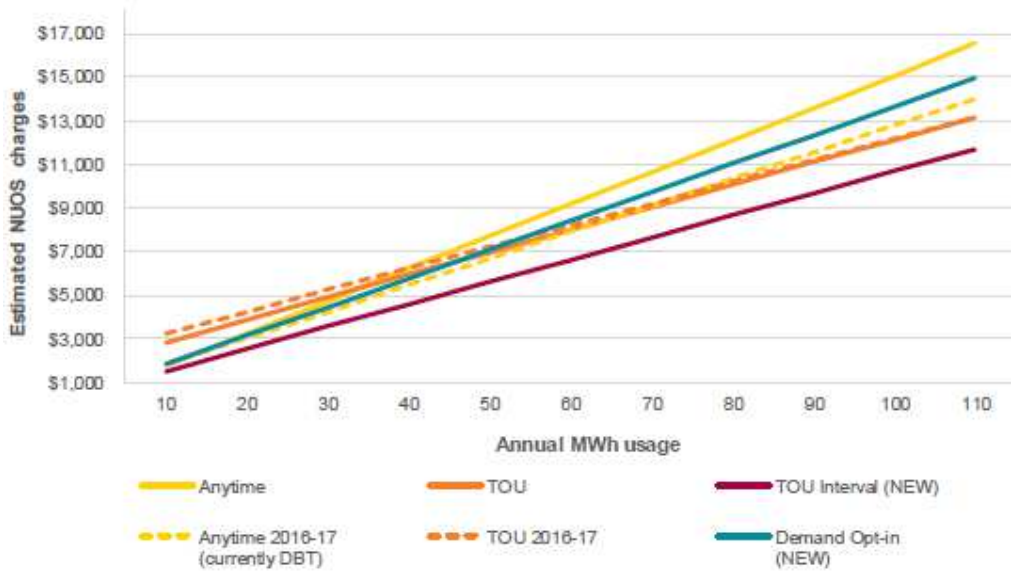


Figure A–10 shows a bill comparison of Essential Energy’s proposed small business tariffs. Customers on the new time-of-use interval tariff, the default tariff for new small business customers with an interval or higher capability meter, are expected to pay less compared

with customers on any other tariff. Similar to residential tariffs, the price differentials are greater for larger consumers.

Figure A–10 Comparison of Essential Energy’s small business tariffs



A closer comparison of the bill impacts of business tariffs can be seen in Figure A–11 and A–12, which show the year-by-year bill impact on small business customers with an average annual consumption of 8 MWh, and an average annual consumption of 60 MWh, respectively.

Figure A–11 Essential Energy’s year-by-year bill impact analysis for small business customers with average annual consumption of 8 MWh

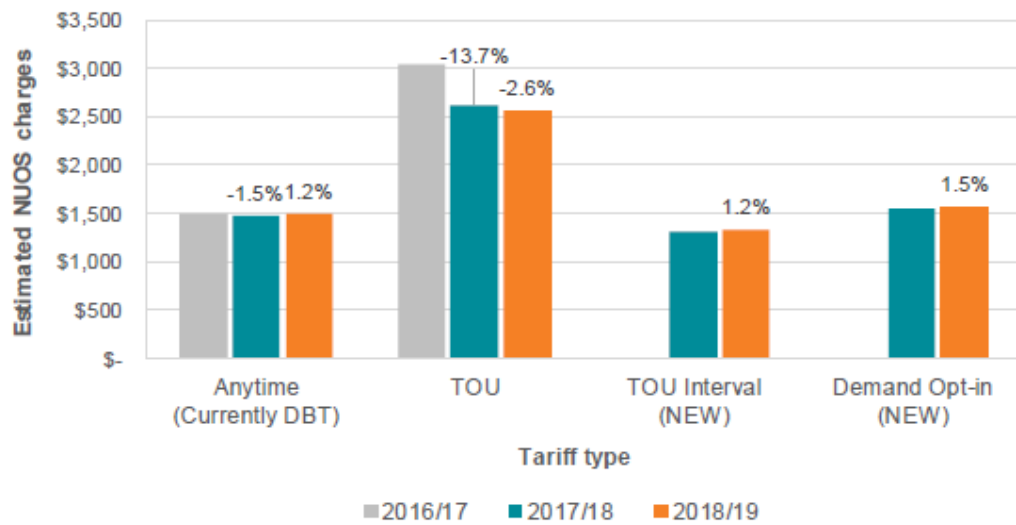
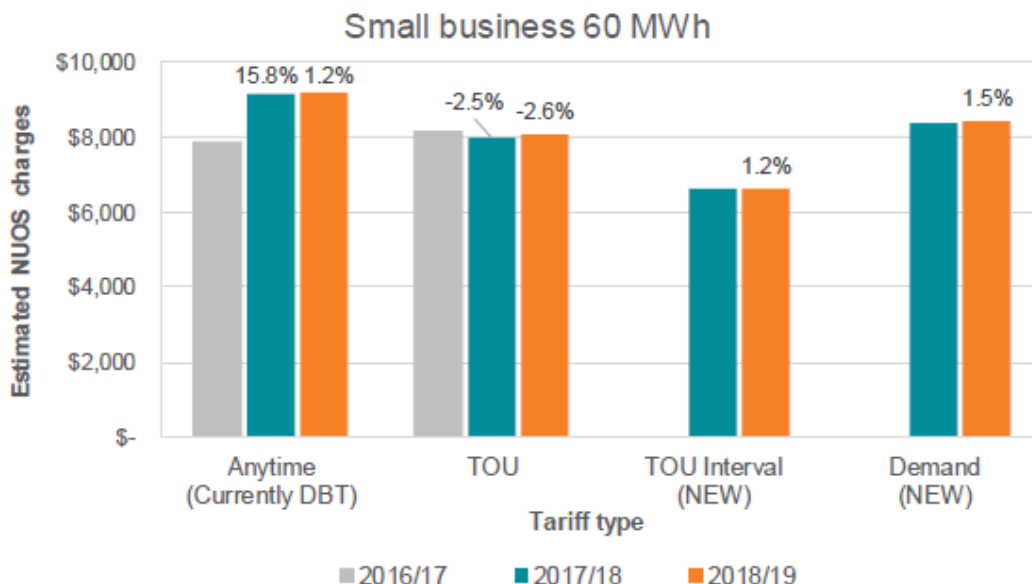


Figure A–12 Essential Energy’s year-by-year bill impact analysis for small business customers with average annual consumption of 8 MWh



Essential Energy additionally shows the year-by-year bill impact on large business and sub-transmission customers across different average annual consumption levels. For these customer classes, Essential Energy shows the bill impacts for only the main tariffs employed by those customer classes. This additional analysis is not included in this chapter.

Stakeholder feedback

Some stakeholders criticised the scope and magnitude of the customer impact analysis in the distributors’ revised tariff structure statements.

NSW Council of Social Services (NCOSS) expressed that for the next round of tariff structure statements and related stakeholder consultation, distributors should include detailed, disaggregated customer data. Data should be segmented by housing type, location, and usage profile (and where possible, income, family size and cultural background).

NCOSS specifically proposed that each distributor undertake:

- a project to gather segmented data on customer impacts of a range of tariff structure types, for instance with the use of ‘ghost meters’
- pilot tests for a range of tariff structures on small groups indicative of various customer types, including but not limited to time-of-use and demand tariffs
- detailed modelling with supportive data, on the impact of a range of potential changes to charging windows and peak charging.³⁸¹

³⁸¹ NSW Council of Social Services, Submission on the revised Tariff Structure Statement, 26 October 2016, p. 2.

The Public Interest Advocacy Centre (PIAC) called for the distributors to use the 2017–2019 regulatory period for testing and experimental design to gather data and gain a deeper understanding of cost reflective tariffs.³⁸²

The Clean Energy Council called for distributors to collect data on the number of customers that have opted into demand based tariffs, and whether there are measurable differences between the consumption profiles of these customers.³⁸³

Energy Consumers Australia expressed disappointment that the distributors had not chosen to begin trials of cost reflective tariffs, specifically demand tariffs, with a view to gather data for the next round of tariff structure statements.³⁸⁴

Next round of tariff structure statements

We acknowledge that there are limitations to gathering customer data, particularly in regards to the bill impact of switching from non-time-of-use tariffs to time-of-use tariffs, due to the low penetration of smart meters in the market. However, regulation changes in this space, specifically the Metering Rule Change will see a larger proportion of customers on smart meters over the next few years. In the lead up to the next round of tariff structure statements, distributors will have access to a larger scope of consumption information.

In the next round of tariff structure statements, we would like to see more sophisticated customer impact analysis. In addition to the further detail we requested in our draft decision, noted in the introduction of this chapter, we consider the distributors could make further improvements to their customer impact analysis in the next round of tariff structure statements.

All three distributors could improve their customer impact analysis by including:

- the minimum and maximum bill savings or increases in absolute dollar terms, resulting from a change in the indicative tariff levels and / or a change in tariff structures
- the proportion of customers who benefit, or do not benefit by switching from a non-time-of-use tariff to a time-of-use or demand tariff
- examples of how customers can change consumption usage patterns to realise bill savings on, for example, a time-of-use or demand tariff
- modelling that demonstrates the relationship between customers' load factor and demand tariff charging.

³⁸² Public Interest Advocacy Centre, Submission on the revised Tariff Structure Statement, 25 October 2016, pp. 9–10.

³⁸³ Clean Energy Council, Submission on the revised Tariff Structure Statement, 26 October 2016, p. 4.

³⁸⁴ 19 October 2016 meeting between AER and Energy Consumers Australia.

B NSW distributors' stakeholder consultation process

This chapter sets out the consultation process the NSW distributors undertook when developing their revised tariff structure statements, and the key issues that came out of the consultation process.

The Rules require that distributors consult with their customers in order to help them understand the new tariffs and how they might mitigate the impact of these tariff changes.³⁸⁵ We are of the view that distributors' stakeholder engagement contributes to the achievement of compliance with the distribution pricing principles and the national pricing objective.

During the first round of tariff structure statements, the NSW distributors undertook stakeholder consultation in a three phase process, between 2013 and 2016. The NSW distributors engaged with stakeholders via a range of channels, including:

- presentations
- workshops
- roundtables
- one-on-one interviews
- an issues paper
- an online portal
- social media.

Feedback from stakeholders was that the NSW distributors began the consultation process too late. Stakeholders commented that they need time to develop policy positions and to effectively engage in the process. Stakeholders additionally criticised the distributors for applying a 'DAD' approach to consultation ('decide', 'announce', 'defend').

The NSW distributors acknowledged they needed to improve their stakeholder consultation process in the lead up to their revised tariff structure statements.

After we released the AER draft decision, the NSW distributors sought feedback from stakeholders on the key issues and implications arising from the AER's feedback.

In August, Ausgrid met with stakeholders and invited submissions on a short options paper to understand the key issues and implications arising from the AER's draft decision. Ausgrid met with stakeholders again in September to discuss and get feedback on its revised tariff structure statement.³⁸⁶

³⁸⁵ NER, clauses 6.18.5(h)(2) and (3) and 6.18.5(i)(1) and (2).

³⁸⁶ Ausgrid, *Revised Tariff Structure Statement, Appendix A*, October 2016, pp. 91–93

Endeavour Energy released an issues paper outlining the key changes in its revised tariff structure statement and discussed these key changes further in a stakeholder workshop. Most stakeholders participated in the workshop with some making written submissions to the issues paper.³⁸⁷

Essential Energy met with stakeholders through Essential Energy's Customer Advocacy Council, to get direct feedback on the AER draft decision. Essential Energy further encouraged formal written responses from stakeholders following these meetings. Essential Energy engaged IPSOS Public Affairs to consult with impacted business customers that need to transition to time-of-use tariffs or demand tariffs.³⁸⁸

The common key issues discussed during consultation with each of the NSW distributors include:

- replacing declining block tariffs with flat tariffs
- tariff assignment, particularly time-of-use tariffs, for new customers
- charging windows
- demand charges
- specific tariffs, including social tariffs and food and fibre tariffs
- customer education.

Each of the distributors met with the AER prior to submitting their revised tariff structure statements and proposed ongoing frequent communication with the AER over the next couple of years in the lead up to the next round of tariff structure statements.

Feedback from stakeholders is that the distributors' consultation process has significantly improved since the first round of tariff structure statements.

The Energy & Water Ombudsman NSW (EWON), NSW Council of Social Services (NCOSS), and the Public Interest Advocacy Centre (PIAC) expressed that since the first round of tariff structure statements, the distributors' consultation process had improved markedly. PIAC expressed that Ausgrid in particular had improved, noting it had hosted several meetings to discuss the AER's draft decision.

PIAC and NCOSS expressed that for the next round of tariff structure statements, the distributors could make further improvements in regards to genuine deliberative consultation. NCOSS expressed that distributors should collect suitable customer data over the next couple of years in preparation for the next tariff structure statement process. Distributors can then present on a range of options with sufficient analysis so that stakeholders can compare and contrast different viable options.³⁸⁹

³⁸⁷ Endeavour Energy, *Tariff Structure Statement: Customer and Stakeholder Report*, October 2016, pp. 73–76.

³⁸⁸ Essential Energy, *Overview of our Tariff Structure Statement*, 4 October 2016, p. 3.

³⁸⁹ 13 October 2016 meeting between AER, PIAC, EWON and NCOSS.

C Our stakeholder consultation process

This chapter details our consultation process and lists stakeholders who provided us with written submissions or attended meetings to provide feedback regarding our draft decision and/or the distributor's revised tariff structure statements. Table C–1 outlines the timeline of our consultation process.

Table C–1 AER consultation timeline

Date	AER action
November 2015	We received the NSW distributors' initial tariff structure statements
March 2016	We published an issues paper that summarised key aspects of the NSW distributors' initial tariff structure statements and highlighted issues we considered relevant to our assessment. In response, we received submissions from a cross section of stakeholders, including major retailers and consumer advocacy bodies
April 2016	We held a public forum to outline the key aspects of the NSW distributors' tariff structure statements and asked stakeholders a number of questions
April–June 2016	We issued information requests to each of the NSW distributors requesting additional information not provided in their initial tariff structure statements to inform our draft decision. The three distributors responded to our information requests
August 2016	We released our draft decision
September 2016	We met with each of the distributors and discussed our draft decision and the distributors' revised tariff structure statements
October 2016	We received stakeholder submissions on our draft decision
October 2016	We received the three distributors' revised tariff structure statements
October 2016	We received stakeholder submissions on the three distributors' revised tariff structure statements
	We met with small groups of stakeholders to discuss our draft decision and the distributors' revised tariff structure statements
November 2016	We issued information requests to the three distributors seeking clarity on some matters in their tariff structure statements. The three distributors responded to our information requests
November 2016	We met with each of the distributors and discussed remaining issues of concern in their tariff structure statements

In response to our draft decision, we received four stakeholder submissions. Submissions were received from the following stakeholders:

1. Energy Australia
2. Solar Citizens & SA Renewable Energy Policy Group
3. Red Energy & Lumo Energy
4. Energy Networks Associations

In response to the distributors' revised tariff structure statements, we received eight stakeholder submissions. Submissions were received from the following stakeholders:

1. Public Interest Advocacy Centre
2. NSW Council of Social Service
3. Energy & Water Ombudsman NSW
4. NSW Business Chamber
5. Clean Energy Council
6. NSW Irrigators Council & Cotton Australia
7. Origin
8. Red Energy & Lumo Energy

We met with the following small groups of stakeholders to discuss our draft decision and the distributors' revised tariff structure statements:

1. Energy Australia, Origin, AGL
2. Public Interest Advocacy Centre, NSW Council of Social Services and Energy & Water Ombudsman NSW
3. Energy Networks Association
4. Energy Consumers Australia
5. NSW Irrigators Council & Cotton Australia