AusNet Electricity Services Pty Ltd

Revised Tariff Structure Statement 2022-26

Explanatory paper

Submitted: 3 December 2020

About AusNet Services

AusNet Services is a major energy network business that owns and operates key regulated electricity transmission and electricity and gas distribution assets located in Victoria, Australia. These assets include:

- A 6,574 kilometre electricity transmission network that services all electricity consumers across Victoria;
- An electricity distribution network delivering electricity to approximately 680,000 customer connection points in an area of more than 80,000 square kilometres of eastern Victoria; and
- A gas distribution network delivering gas to approximately 572,000 customer supply points in an area of more than 60,000 square kilometres in central and western Victoria.
- AusNet Services' vision is to create energising futures by delivering value to our customers, communities and partners.

For more information visit: www.ausnetservices.com.au.

Contact

This document is the responsibility of the Asset Management division, AusNet Services. Please contact the indicated owner of the document below with any inquiries.

Charlotte Eddy
AusNet Services
Level 31, 2 Southbank Boulevard
Melbourne Victoria 3006
Ph: (03) 9695 6000

Table of Contents

Overview

AusNet Services, is one of five Victorian electricity distributors providing distribution network, metering and public lighting services to our customers.

Every five years, AusNet Services is required to prepare a Tariff Structure Statement (TSS) that describes how our distribution tariffs are structured and the arrangements for assigning and reassigning customers to these tariffs.

This TSS Explanatory Paper provides the reasons behind our proposed tariff structures and assignment and reassignment policy, including how we have taken account of feedback received from our customers and stakeholders.

For our residential and business customers consuming not more than 40MWh per year (small business customers), AusNet Services took a collaborative approach to engagement with the four other Victorian electricity distribution businesses and have proposed an aligned position. We heard both support for change but also calls for restraint in terms of the pace of change and to also look out for vulnerable customers.

From 1 July 2021, the new ToU tariff will become our default tariff for residential customers. We will assign the following customers to the new ToU tariff:

- New connections (i.e. new homes connecting to the network for the first time, not re-energisations);
- Customers who choose to upgrade from single-phase to three-phase supply;
- Customers who choose to install solar or batteries; and
- Electric vehicle (EV) customers[1].

Together with the other Victorian electricity distributors, for residential customers we will:

- Retain our single-rate, demand charge, and controlled load (dedicated circuit) tariff structures from the 2016-20 period;
- Reassign our legacy ToU tariff customers onto the new ToU tariff on 1 July 2021; and
- Remove our legacy ToU tariffs from our tariff schedule[2].

For small business customers, we propose to:

- Change the default tariff from the current single-rate tariff to a two-rate ToU tariff with a peak period of 9am-9pm local time on weekdays (the new default ToU tariff);
- Move all legacy TOU tariff customers onto the new default ToU tariff on 1 July 2021; and
- Remove all legacy ToU tariffs from our tariff schedule.

For our business customers consuming more than 40MWh per year, we are not proposing any changes to our tariff structures and assignment policy, with the exception of our default medium customer tariff. From 1 July 2023, the consumption charging window for this tariff will be amended as follows:

- The morning peak charging window will be removed; and
- The evening peak charging window will be shortened by two hours.

[1] This assignment requires an EV register to be available. EV customers will be assigned to the new ToU pricing structure from the date that the EV register becomes available.

[2] Tariff NEE24 will remain on our tariff schedule.

The remainder of this document explains the rationale for our proposed approach and is structured as follows:

- Chapter 1 provides background information.
- Chapter 2 sets out and explains how our proposed tariff classes meet our pricing objectives and therefore the requirements in the National Electricity Rules (Rules).
- Chapter 3 sets out and explains our proposed tariff structures for residential customers and how this meets our pricing objectives. This proposal is largely common across all Victorian electricity distribution businesses.
- Chapter 4 sets out and explains our proposed tariff structures for businesses and how this meets our pricing objectives. For small business customers, this proposal is largely common across all Victorian distributors. For small customers consuming between 40 MWh and 160 MWh per year, each distribution business has developed its own company-specific proposals.
- Chapter 5 sets out our proposed tariff structures for customers consuming over 160 MWh per year and how this meets our pricing objectives. The tariff arrangements for these larger customers also vary across the distribution businesses. It also sets out and explains the proposed changes for our default medium business tariff.
- The appendix sets out further information on our modelling approach in applying the pricing principles in clause 6.18.5 of the Rules.

1 Background

As one of five Victorian electricity distributors (Victorian distributors), AusNet Services provides our customers with distribution network services, residential and small business metering, public lighting and other related services that they might request.

We charge electricity retailers for these services, but ultimately, our customers pay for our services via the bill they receive from their retailer.

1.1 What is the tariff structure statement?

A "tariff" is how we charge a retailer for the services we provide to our customers. The tariff can be made up of different tariff components such as fixed charges, usage charges or demand charges. These tariff components, the charging parameters[3] and the applicable prices constitute the tariff structure[4]. The total network charges for any particular customer will depend on their assigned network tariff and their network usage.

The Revised Tariff Structure Statement (TSS) sets out each distributor's applicable tariffs and their policies and procedures for assigning or reassigning customers to particular tariffs. The TSS must ensure that the proposed tariffs conform with pricing principles specified in the National Electricity Rules (the Rules). The Rules also require that each distributor submits its TSS to the AER for approval alongside its Regulatory Proposal.

Our TSS explains our proposed tariff structures for the 2022-26 regulatory period. It is published concurrently with this Revised Tariff Structure Statement Explanatory Paper (Explanatory Paper**)**, which provides detailed information and analysis to support the TSS.

1.2 Purpose of this explanatory paper

In this Explanatory Paper, we outline the context for how we propose to set network prices for customers in the 2022-26 regulatory period including:

- Describing our residential and business customers, and the changing way our customers use the network;
- Explaining how we engaged with customers and detail how their feedback has informed our proposal;
- Detailing our pricing objectives and explaining how these have changed to reflect customer feedback; and
- Providing reasons for the tariff classes, tariff structures and assignment policies we are proposing.

A key objective is to provide consumers and stakeholders with an understanding of the reasons for our proposed changes to tariff structures and tariff assignment and reassignment in the 2022-26 period.

1.3 Our network

AusNet Services, along with CitiPower, Jemena, Powercor and United Energy, are the five electricity distribution businesses that transport electricity to homes and businesses across Victoria. Collectively, we are responsible for maintaining distribution network safety and reliability, along with planning and designing network extensions and upgrades to meet our customers' current and future electricity

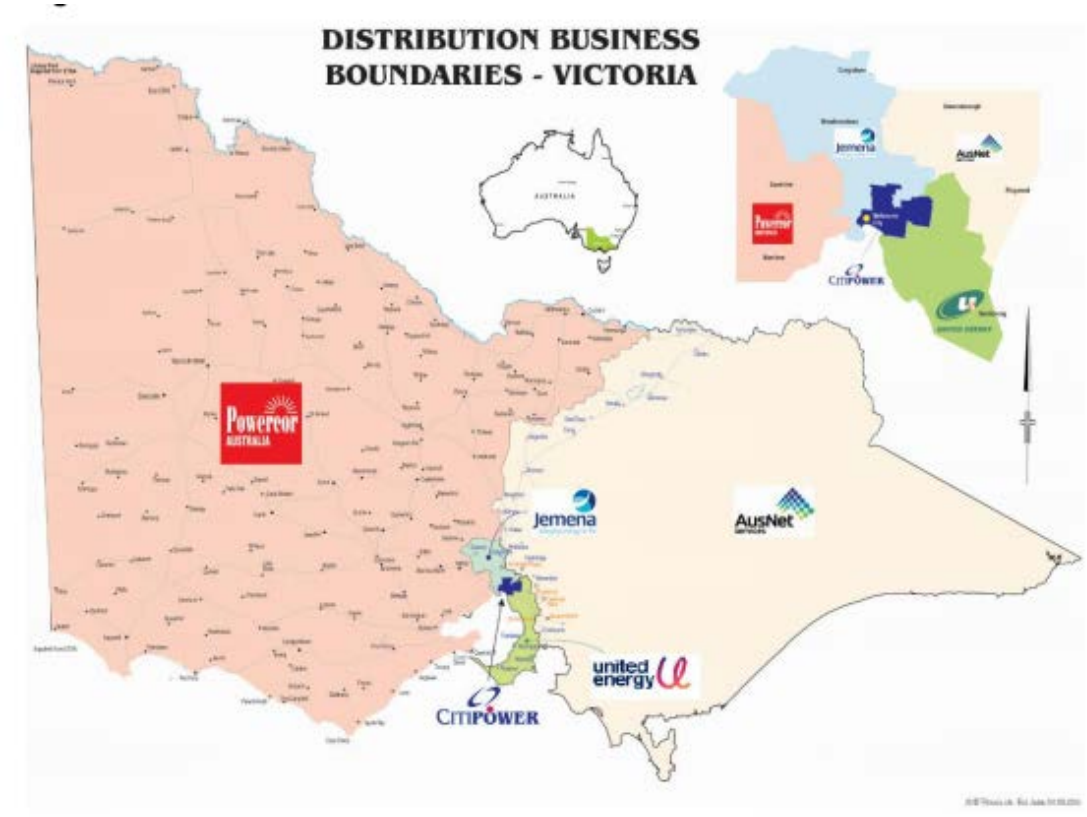
[3] Charging parameters help to explain key information such as peak periods and minimum chargeable demand levels.

[4] In this document we use the term tariff structure to be consistent with the terminology in the National Electricity Rules, but we have often used the term "price structure" to mean the same thing within our engagement materials.

needs. We each operate our own networks on a day-to-day basis, connect new customers (large and small) to our own networks, and provide metering services. The service territories for each Victorian distributor is shown in Figure 1.1 below.

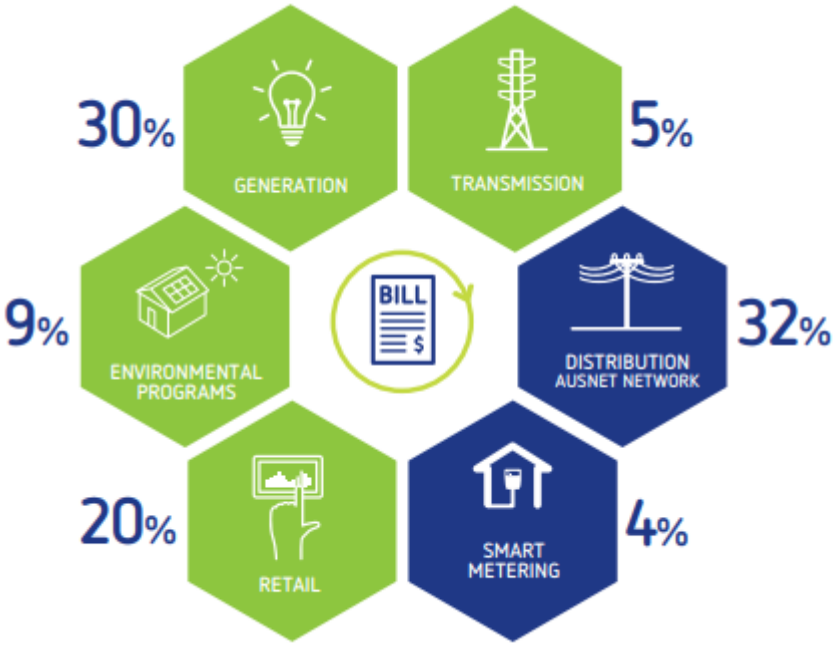
AusNet Services serves and delivers electricity to 735,000 customers, including fast growing suburbs in Melbourne's north and east, regional communities and remote customers in the alpine areas of Victoria. Our network covers 80,000 square kilometres (km), consists of 52,000 km of powerlines and 400,000 power poles.

Figure 1–1: Victorian Electricity Networks



The cost of distributing energy across our network is paid for through customers' electricity bills. Our network charges typically amount to around 32% of a typical bill (see Figure 1–2).

Figure 1–2: Cost components of a typical bill



As a regulated business, the distribution revenue we can recover from our customers is determined by the Australian Energy Regulator (AER) on a five-yearly basis to ensure this reflects the efficient costs of providing network services. The revenue determination process for the 2022–2026 regulatory period is currently underway, with changes coming into effect on 1 July 2021.

Each year, we submit an annual pricing proposal to the AER. The purpose of these pricing proposals is to obtain approval for how we recover our distribution revenue allowance, transmission costs and other government policy charges in any given year. The way we set our prices does not impact the total amount of revenue we collect but it does influence how much individual customers pay for their energy services.

We recover our network and metering charges from electricity retailers, who recover these costs from customers through their retail tariffs. Our customers currently pay the lowest network charges in Australia.

1.4 Collaboratively designing tariffs with our customers

We are mindful of the impact tariff structures have on our customers, as any change will make some customers better off and others worse off. Over the last two years, we have taken a customer-led approach to ensure we understand and reflect our customer and related-stakeholders' priorities as we developed our tariff structures for the 2022-2026 regulatory period. In developing our proposal, we undertook an extensive consultation process with a wide range of stakeholders who had an interest in, or might be impacted by, network pricing reform in Victoria. We recognised that successful reform depends on effective engagement with our customers and stakeholders.

Our engagement approach ensured that we involved representatives from all our customer segments, customer advocates, retailers, the Victorian Government and the AER in our pricing forums. We understood that bringing people together would lead to decisions that fairly balance the views of a wide array of stakeholders.

We focused on opening up two-way conversations with our stakeholders to understand our customers' needs and priorities and facilitate joint decision making. Only after listening to our customers did we begin developing ideas and testing them through further consultation.

We worked to ensure a common approach to pricing in response to the feedback on our previous TSS process for the 2016-2020 regulatory period. Common small customer tariff structures across the State are preferred by all stakeholders to make pricing simpler and fairer for all Victorians. As a result, a key component of our engagement in this period has involved working closely with other Victorian distributors. In addition, due to this collaborative work there is a high degree of consistency in this Explanatory Paper across all the Victorian distributors.

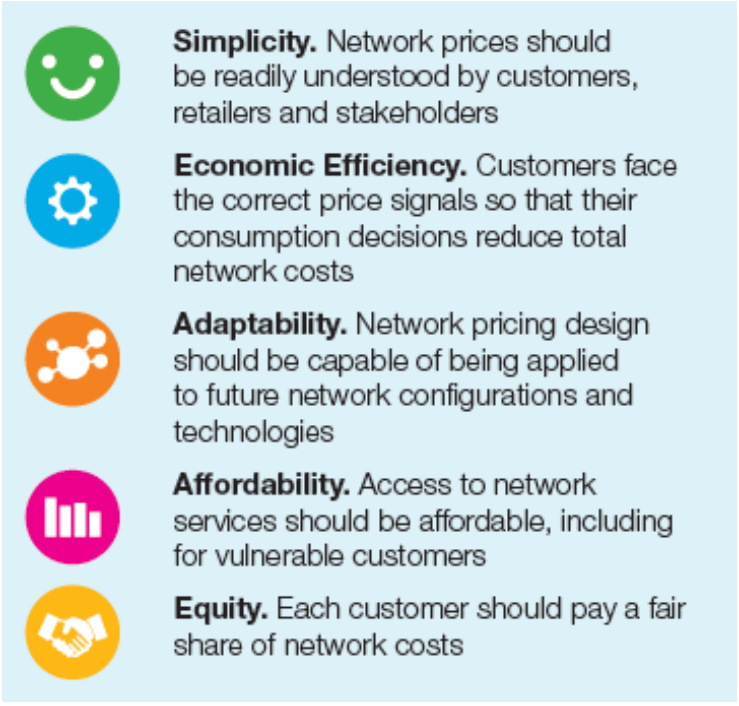
This engagement will continue following submission of the proposed Tariff Structure Statement. We will seek to understand stakeholder views on any developments that may occur throughout the assessment process. In addition, we will engage with retailers to ensure smooth and effective implementation of the final tariff structures.

In subsequent chapters of this Explanatory Paper, we provide more detail on what our different customer groups and stakeholders told us, and how we have responded.

1.5 Pricing objective

At an initial household and small business public forum[5], the Victorian distributors heard how customers and stakeholders prioritised the objectives we should consider when developing tariff structures. We distilled this feedback into five key pricing objectives, which are set out in Figure 1–3. We also engaged separately with our large/industrial customers through surveys and on a one-on-one basis. We outline what we heard from our large customers through this process in Chapter 5.

Figure 1–3: The five stakeholder objectives for pricing design



The five objectives provide a framework to determine how we design our proposed residential and small business tariff structures, assignment and transition by assessing options against these objectives. These objectives were a key foundation for engaging on our proposed tariff structures. It provided a framework for exploring options on pricing designs with customers and stakeholders. It recognised that no single tariff option can address all of these objectives, which means that trade-offs or compromises need to be considered.

[5] 1 November 2017.

Table 1–1 shows how these objectives are consistent with the pricing principles specified in the Rules. [6]

Table 1-1: How our pricing objectives relate to the Rule requirements

Pricing objective	Explanation	Aligns to pricing principle in the rules
Simplicity	Customers, retailers and stakeholders should readily understand information about network prices	Rule 6.18.5(i) – customers must be reasonably capable of understanding the tariff structures.
Economic efficiency	Customers face the correct price signals so that their consumption decisions reduce total network costs.	Rule 6.18.5(a) – The network pricing objective.[7] Rule 6.18.5(e)-(g) – General efficiency principles.
Adaptability	Network pricing design should be capable of being applied to future network configurations and technologies.	This pricing objective is not specifically linked to the principles in the Rules but is consistent with promoting efficient outcomes.
Affordability	Access to network services should be affordable, including for vulnerable customers.	Rule 6.18.5(h) – requires us to consider the impact on customers of changes in tariffs.
Equity	Each customer should pay a fair share of network costs.	Rule 6.18.5(h)&(i) require us to consider customer impact.

1.6 Trends influencing tariff development

In addition to directly engaging with stakeholders, another part of developing effective tariffs for the upcoming period is to understand the changing needs of our customers and the impact this has on the network. A number of these trends impact peak demand, although voltage issues also drive some network expenditure.

Below we discuss:

- Our obligation to meet customers' peak demand levels and the factors affecting future growth
- The importance community places on managing the impact of tariff changes on vulnerable customers.

1.6.1 Meeting customers' peak demand

Our costs, and therefore customers' bills, are influenced by the need to meet peak demand on the electricity network. Naturally, peak demand will increase as new customers connect to the

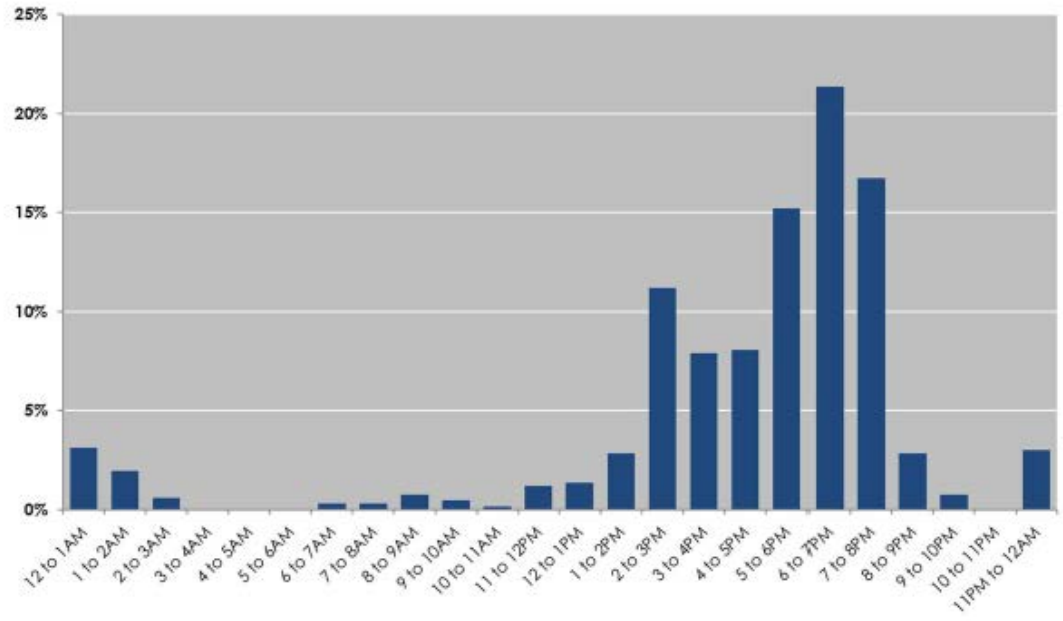
[6] The pricing principles for direct control services are set out in clauses 6.18.5(e)-(j) of the Rules.

[7] The network pricing objective is 'that the tariffs that a Distribution Network Service Provider charges in respect of its provision of direct control services to a retail customer should reflect the Distribution Network Service Provider's efficient costs of providing those services to the retail customer. See Rule 6.18.5(a).

network, driven primarily by population growth in Victoria.[8] Peak demand will also be affected by how customers use the network.

In most parts of Victoria, peak demand occurs on a very hot day when customers are using air-conditioners (see Figure 1–4). Most zone substations peak between 2pm and 8pm (local time). There are also "tails" to this period, with several substations peaking between 11am and 2pm, or 8pm and 9pm local time. However, CitiPower's zone substations, which cover the Melbourne CBD, have earlier peaks between 10am to 5pm, which must be taken into account when designing uniform tariffs across the State.

Figure 1–4: Victorian zone substation peaks by hour of day (2015-17), local time



While single-rate tariff structures incentivise customers to decrease total usage, they do not specifically encourage customers to decrease usage at peak times. When our costs are driven by meeting peak demand but the majority of customers are on single-rate tariff structures, customers with higher usage during peak times will be cross-subsidised by other customers with flatter usage profiles, creating inequities and inefficiencies.

Historically, customers had relatively similar load profiles, so the single rate tariff did not create significant inequities. However, existing and emerging market developments mean that customers' usage profiles are diverging over time. In future, peak demand will be affected by changes in the way that customers use the network, including:

- Continued growth in air-conditioner load, exacerbating the early evening peak
- Emergence of electric vehicles (EVs) which could exacerbate the early evening peak.
- Future take-up of home batteries with solar PV allowing photo-voltaic generation to be consumed and/or exported in any time period.

We discuss each of these developments in further detail below. By reducing growth in peak usage, we can reduce future network capacity requirements and put downward pressure on customer bills in the long-term. Tariff structures that reflect the real costs of using the network also ensure cost fairness between customers.

[8] New customers connecting to the network in the 2022-26 regulatory period is a large driver of network capacity investment, with the Victorian residential customer base growing by about 2.4% per year (around 52,000 new homes each year). New customers pay a capital contribution when connecting to the network. This is calculated so that any costs not estimated to be recovered through long-term tariffs are collected from the newly connecting customers.

1.6.1.1 Growth in air conditioners and other appliances

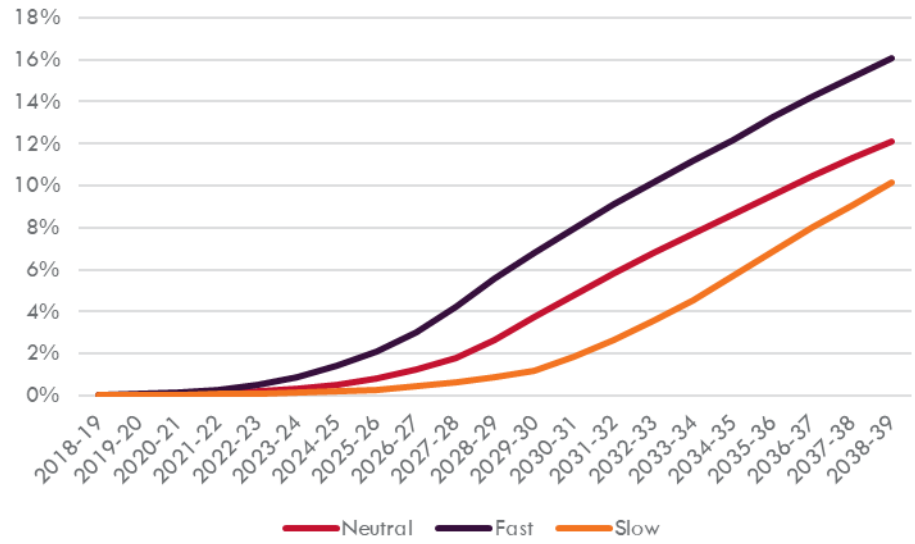
In the early to mid-2000s, we were required to invest significantly in new capacity to meet growing demand at peak times while ensuring network stability. This was a result of more customers installing and running air conditioners, with Energy Networks Australia estimating that more than 70% of households use an air conditioner on hot days.[9] Since that time, peak demand growth has subsided due to energy efficiency initiatives, for example, although investment is still required in areas of high population growth.

In the future, we want to have tariff structures in place so that customers are efficiently making these investment decisions and appropriately contributing to the costs incurred.

1.6.1.2 Electric vehicles

Electric vehicle (EV) uptake is expected to increase significantly over the long term[10]. AEMO's forecast suggests that EVs consumption share of operational demand in Victoria will be about 13% by 2040 under a neutral scenario and 15% under a faster uptake scenario.[11] Although this forecast impact is material, it is more conservative than several other credible forecasts.

Figure 1–5: AEMO modelling assumptions for EV consumption share of operational demand



Source: AEMO 2019, Assumptions and Inputs workbook

Given that EVs can have a significant impact on maximum demand, our stakeholders understand that network tariffs can play an important role in facilitating efficient outcomes. Stakeholders want a future where the demand growth associated with the expected increased penetration of EVs is no more than necessary, and the costs of resulting network augmentation are appropriately targeted.

Tariff design is an important element in managing the impact of EVs by providing pricing signals that reward customer for charging EVs outside peak times. In particular, as seen in Figure 1–6, cost-reflective tariff structures such as Time of Use (ToU) can be used to incentivise customers

[9] Energy Networks Australia, Staying warm this winter – and keeping bills down (26 April 2018), www.energynetworks.com.au/news/energy-insider/staying-warm-this-winter-and-keeping-bills-down/.

[10] For example, analysis by Energeia undertaken on behalf of the Clean Energy Finance Corporation (CEFC) and the Australian Renewable Energy Agency (**ARENA**) forecast that with only 'moderate' intervention, customer uptake of battery electric and plug-in hybrid vehicles will account for 100% of new vehicle sales in Australia by 2040 (see Energeia, Australian Electric Vehicle Market Study: prepared by Energeia for ARENA and CEFC (May 2018)).

[11] See AEMO ISP 2019 (August 2019) Input and Assumptions workbook.

to charge their EVs during the day or overnight instead of during peak time. These tariffs will also encourage uptake of new technologies such as automated smart night charging.

Figure 1–6: Electric vehicle daily charge profile, residential user (weekday in February)

Source: AEMO 2018, Electricity Statement of Opportunities, August 2018

1.6.1.3 Solar PV and home batteries

The capacity of installed solar PV across Victoria is forecast to continue to increase over the 2022-26 regulatory period.

Cost reflective tariff structures can efficiently reduce the need for future network investment by encouraging customers to invest in energy solutions and behave in ways that minimise network demand peaks or solar export peaks.

New solar customers already have an incentive to use their solar generation, rather than export it, since the avoided cost of grid energy is usually higher than the standard solar feed-in-tariff. Currently a customer receives a minimum of 12 c/kWh for their solar exports and pays around 25 c/kWh on a single-rate retail tariff. This means new solar customers generally have an incentive to defer solar output from midday to the early evening, for instance by installing west-facing solar panels or to use a batteries to charge from their solar panels and discharge when electricity is needed.

Network tariffs can strengthen this incentive by setting rates higher in the early evening compared to around midday.

1.6.2 How vulnerable customers are identified and treated

We have heard that the level of customer advocate support for tariff change depends materially on the possible outcomes for vulnerable customers. Some customer advocate groups voiced concerns that we would be unable to identify all vulnerable customers in any solution that sought to exclude vulnerable customers from tariff reassignment. In particular, concern was expressed not only for vulnerable customers as a single, but difficult to identify, cohort, but also in relation to outcomes for individual vulnerable customers.

For example, a solution that identifies and excludes from reassignment customers on life support and with a medical cooling concession only amounts to around 1.5% of households. This would mean some customers on retailer payment assistance schemes or claiming the mains electricity concession, who we can't individually identify, could still be negatively impacted by being reassigned to a new tariff structure. Similarly, stakeholders indicated that customers under

mortgage stress or pensioners—who as a group are increasingly installing solar panels—may also be considered vulnerable.

While there was support for complementary measures to mitigate the financial impact of tariff reform on vulnerable customers (such as retailer communications, literacy programs, technology rebates, energy efficiency programs and peak time rebates), there was also concern that these initiatives may not penetrate a significant part of the residential customer base who do not, or cannot, engage in the energy market.

In light of the difficulty of identifying vulnerable customers, we decided to adopt a more conservative assignment and reassignment policy for the 2022-26 period. The objective of this approach was to ensure that vulnerable customers would not be adversely affected by the proposed changes.

1.7 Tariff reform in the future

Any change to tariff structures could mean that, in the short term, some customers are better off and some worse off relative to the status quo.[12] The degree of this depends on a number of factors, including whether the change is reflected in retail bills, and whether customers change their consumption patterns in response to a new structure. Our stakeholders have been clear that any changes must be managed in a way that ensures customers are not unfairly disadvantaged. These concerns led us to consider more conservative transitional arrangements and the potential impact on the total costs to customers, as explained below.

Peak demand growth is not expected to rise significantly during the 2022-26 regulatory period, meaning that augmentation capital expenditure is likely to be relatively limited in the short term. As a result, deferring this investment over this time would have only a modest impact on customer bills. Table 1–2 shows that even under the extreme case where we deferred all capacity investment, the impact on residential customer bills would be less than 1% for all Victorian networks.

Table 1-2: Size of the prize – contribution to 2026 retail bill of 2021-26 capacity investment caused by average coincident peak demand growth

Distribution area	Demand-driven augex 2022-26 ($2021, $m)[13]	Contribution to 2026 retail bill	
		Dollars ($2021)	% of the total bill
AusNet Services	92	4	0.2
CitiPower	18	1	0.1
Jemena	102	6	0.4
Powercor	124	3	0.2
United Energy	75	2	0.2

Given the minimal impact on customers in the short term, there is a less pressing need to mandate cost-reflective tariffs across our residential and small business tariff classes. A more gradual transition that focuses on readying customers for ToU over time and making incremental changes to peak periods was considered more palatable by a number of stakeholders (see section 3.2). This approach would also make more substantial moves toward cost-reflective tariffs in future - which are key to ensuring long-term peak demand is as efficient as possible - less of a step change.

[12] This is particularly the case under our revenue cap form of price control.

[13] These numbers may vary from individual distributors proposals as these were estimated at the time of our forum 3 engagement in March 2018.

We have also considered the potential medium to longer-term benefits of moving toward more cost-reflective network pricing. Some of these broader benefits include:

- Reducing network investment to support future electrification and rapid population growth which over time, should lead to lower network costs for all consumers;
- Tariffs can keep pace with the unprecedented changes in the energy landscape to adapt to new and emerging energy technologies, and reflect changes in the way customers use electricity and interact with the grid; and
- Moving demand away from peak generation periods to help reduce wholesale prices.

1.8 Complementary measures to tariff design

Our stakeholders have told us that tariff reform must be accompanied by a strong communication and education program for customers. They considered that a successful communication plan requires cross-industry cooperation and that working effectively with retailers is important.

The complementary measures that we intend to further investigate and support over the 2022-26 period include:

- Literacy programs—some distribution networks currently support energy literacy programs within the communities they serve. If ToU pricing develops at the retail level, we will adjust our literacy programs accordingly.
- Technology rebates—in our view, home automation is a key enabler of more complex tariff structures. While a simple peak/off-peak ToU tariff structure is relatively straight-forward for customers to understand and recall, in the future, there may be a business case to provide rebates for home energy management services and technologies that will automate customers' responses to network tariffs.
- Energy efficiency programs—sensible, cost-effective energy efficiency programs can help lower energy usage overall, and those that target air-conditioners can help mitigate peak demand.
- Peak time rebates—in areas where there are network constraints, networks can reward customers for reducing their consumption during nominated critical peak periods, or reward customers for allowing the network to control certain devices during critical peak periods.

1.8.1 Demand response as an alternative to tariffs

As well as tariff design, each Victorian distributor is actively engaging with customers to manage costs through demand response programs, whereby distributors reward customers for decreasing energy usage during peak events to address local network constraints and defer investment.

As we learn more about how our customers want to engage in demand response, greater numbers of customers are participating and consistently using less energy during critical periods. Over the 2022–2026 regulatory period we will also continue to learn more about how our customers want to engage with us. For example, this may be through:

- Implementing consumer segmentation research to increase customer engagement and drive better network outcomes.
- Better understanding customer motivations and drivers so that existing and future programs incorporate their needs and expectations.
- Better targeting customers in those areas of most need.
- Identifying the partners to help us build scale and develop demand response programs that provide meaningful value to customers and the network.

2 Tariff classes

This section explains the tariff classes we propose for the 2022-26 regulatory period, and how they reflect our pricing objectives and requirements under the Rules.

Tariff classes are described for our direct control services. Direct control services are those distribution services that are regulated by the AER. They are categorised into standard control services and alternative control services (which include AMI metering services as well as specific services requested by a user). Here we describe how we divide our customers for each service into tariff classes.

2.1 Standard control services

The standard control services tariff classes we are proposing to include in our TSS in the 2022-26 regulatory period are shown in Table 2-1.

Table 2-1: Tariff classes - standard control services

Tariff classes	Typical customer
Residential	Residential customers Low voltage (230V & 415V) Annual consumption is < 160 MWh per year
Small industrial & commercial	Small LV industrial & commercial customers Low voltage (230V & 415V) Annual consumption is < 160 MWh per year
Medium industrial & commercial	Medium LV industrial & commercial customers Low voltage (230V & 415V) Annual consumption is > 160 MWh and < 400 MWh per year
Large industrial & commercial	Large LV industrial & commercial customers Low voltage (230V & 415V) Annual consumption is > 400 MWh per year
High voltage	Large HV industrial & commercial customers High voltage (6.6kV, 11kV & 22kV)
Sub transmission	Large extra HV industrial & commercial customers, and supplies to Latrobe Valley Open cuts and works areas Sub transmission (66kV)

The proposed tariff classes are unchanged from the 2016-20 TSS. The six tariff classes enable us to achieve an optimal balance between differentiated price signalling—taking into account customer load and connection characteristics—and the higher transaction costs of providing more customised tariffs.

2.2 Alternative control services

In addition to our standard control services, we provide user-requested services and metering services (alternative control services). The full cost of these services is attributed to the customer who receives the service.

Table 2-2: Alternative control services

Tariff classes	Typical customer	Tariffs
Public lighting	Local councils and other authorities such as Vic Roads	Public lighting tariffs based on lighting type.
Metering services	Retail customers or at the request of a retailer or metering coordinator	Published annual fee based on meter type or an exit fee for meter removal.
	Unmetered services provided to Government organisations or businesses	Annual charges based on unmetered supply.
Connection services	A retail customer requesting a routine connection service or seeking pre-approval of a PV or small generator installation.	Published fee for service.
Ancillary services – fee based	Retail customers requesting standard services, including Basic Connection Services; Service Truck Visits; Wasted Truck Visits; or Meter equipment tests. Embedded generators seeking pre-approval for connection.	Published fee for service.
Ancillary services - quoted	Retail customers requesting non-standard services, such as complex connection services; undergrounding; rearrangement of network assets at the customers' request; and high load escorts.	Quoted fees, based on approved labour rates.

The proposed approach in relation to alternative control services is unchanged from the current arrangements and is consistent with the AER's Framework and Approach Paper.

3 Residential Customers

The purpose of this chapter is to set out:

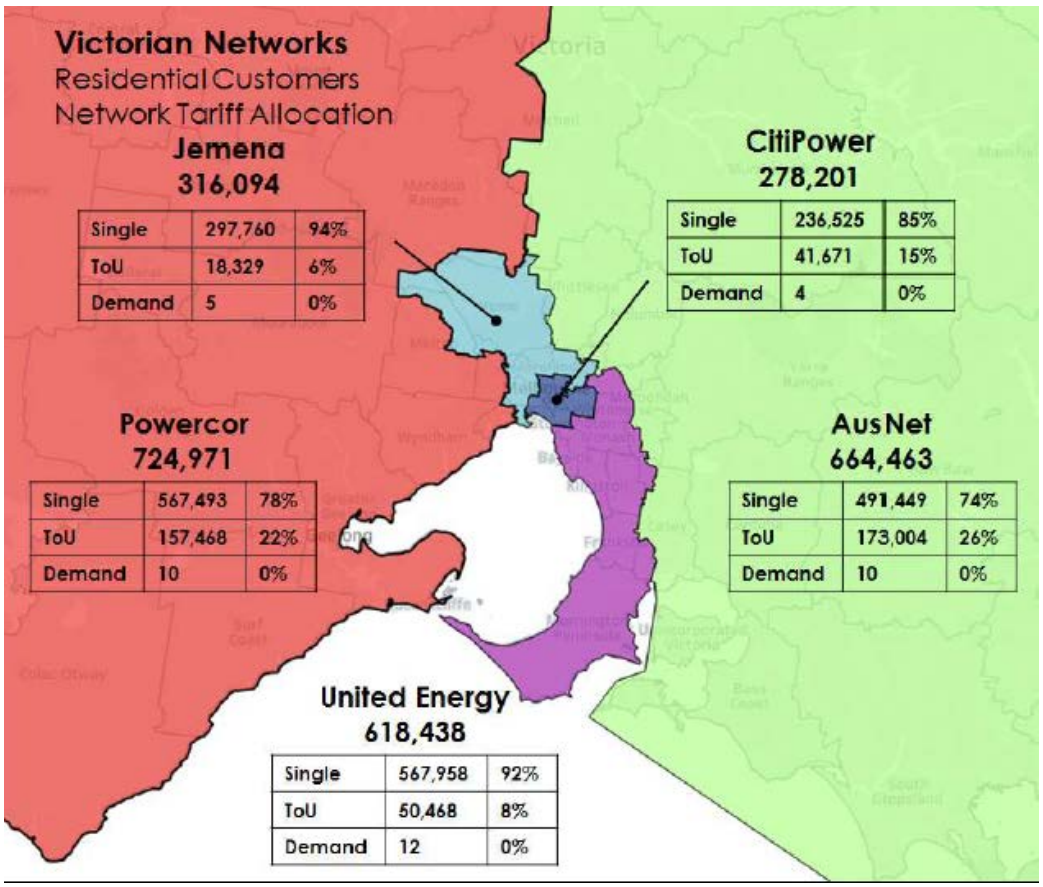
- Who are our residential customers and their existing network tariffs
- Our customer and stakeholder engagement
- Our proposed changes for residential network tariff structures and assignment policy as set out in our TSS
- Why we consider our proposed changes best meets the needs of our customers and stakeholders, taking account of our consultation process, our pricing objectives and the Rules requirements.
- How residential customers may reduce costs by adopting our new ToU tariff.

3.1 Our residential customers

The residential customers in our network area are diverse. For example, our customers differ in terms of rural or regional centre location, the number of people in the household, age, medical needs, financial means, and whether they have solar PV.

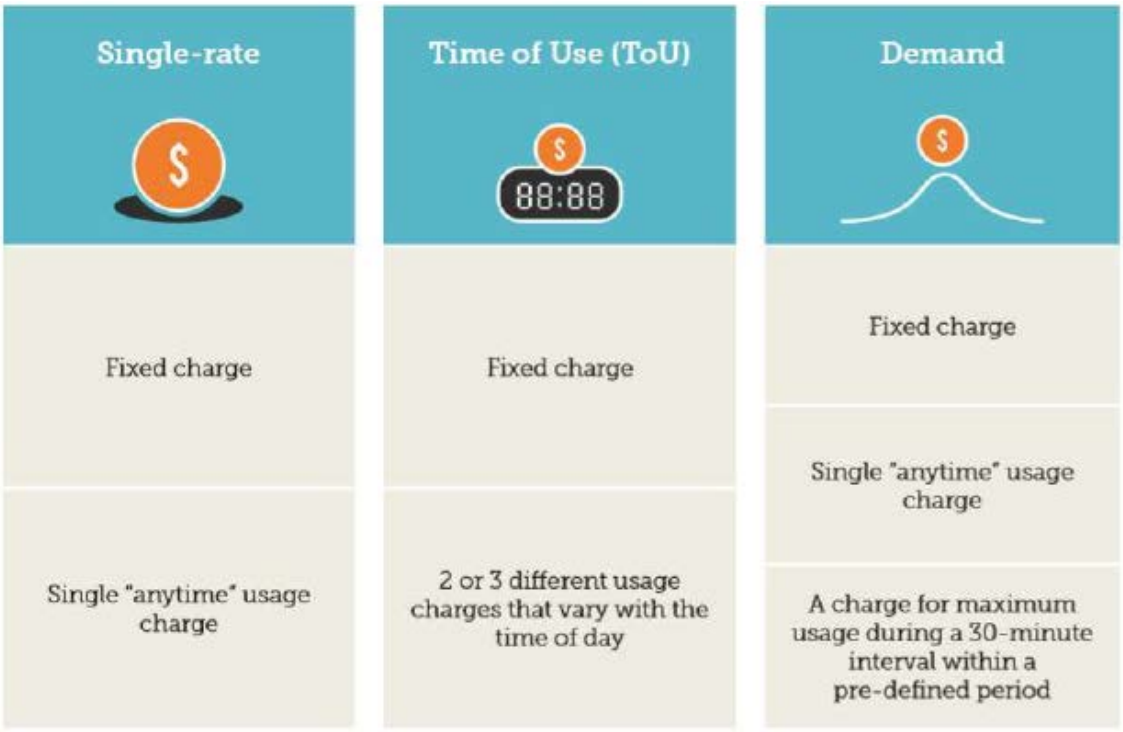
Figure 3–1 shows the number of residential customers in each Victorian network on single-rate, ToU and demand tariff structures.

Figure 3–1: Victorian residential customers on each tariff structure



Currently, we have three main types of residential electricity network tariff structures, as can be seen in Figure 3–2.

Figure 3–2: Simplified view of different network tariff structures



The makeup of residential tariffs is as shown below:

- More than 80% of Victorian residential customers are currently on a single-rate tariff structure where usage charges are not dependent on time of day.
- In 2013, the Victorian Government introduced an optional three-part time-of-use tariff structure called the 'flexible' tariff where the price of electricity changes depending on the time at which energy is used. This tariff defined the peak period as 3pm to 9pm weekdays. Only a small number of customers chose to opt in to the flexible tariff, currently making up less than 1% of AusNet Services' residential customers.
- In 2017 the Victorian distributors introduced a demand tariff on an opt-in basis. Very few customers have opted into this tariff.
- The remaining residential customers are currently assigned to existing ToU tariff structures mostly with a peak-period of 7am to 11pm typically on weekdays only. These legacy tariffs are currently closed.
- Customers may also have a dedicated circuit that supplies hot water or slab heating, which is on a secondary controlled load tariff[14]. These customers are charged a low network price in exchange for us being able to control their load.

3.2 Our engagement with residential customers and stakeholders

In developing our TSS for the 2022-26 period, the Victorian distributors have collectively listened and responded to the views of our stakeholders. In this section, we provide details of the collaborative Victorian distributor engagement.

[14] AusNet Services customers with dedicated circuits are placed on a single rate with dedicated circuit pricing structure.

3.2.1 Collaborative Victorian distributor engagement

Over the past two years, the Victorian distributors have adopted a multifaceted engagement approach to jointly develop our tariff structure and assignment policy for small customers (both residential and small businesses consuming under 40 MWh per year).

Jointly, we have:

- Held three pricing forums with informed stakeholders and customer groups;
- Published two consultation documents on tariff design and implementation options;
- Engaged a study of the impact of our ToU tariffs on a sample of vulnerable customers;
- Researched community perceptions toward preparing for electric vehicles; and
- Collated what we have individually heard from small customer and retailer interactions.

We sought to actively involve our customers and stakeholders in decision making on tariff structures for the 2022-26 period. Our role has been to frame discussion and provides analysis to explore tariff structure options that meet our customers' preferences and expectations. Our proposal reflects many of the learnings from engagement with our stakeholders.

3.2.1.1 Pricing forums

In late 2017, the Victorian distributors embarked on an extensive consultation process in which we engaged with a wide range of stakeholders who had an interest in, or might be impacted by, network pricing reform in Victoria. The participants in the forums included consumer representatives, regulators, Victorian government representatives and retailers. We actively sought out people who have an interest in or the capacity to influence pricing reform. By bringing all the Victorian networks and interested stakeholders together, we could strive for unity of vision and a common approach to tariffs.

We held three in-depth forums. We learned that customers have strong views on what our pricing objectives should be and the design of our tariff structures. Prior to each forum, we published a discussion paper or fact sheet to help participants understand the context of the sessions, and what we were consulting on. We designed the forums to draw out a diversity of perspectives. Many of our participants delivered presentations based on the themes of the engagement session. We also wanted participants to have conversations with each other, and report back their views to the group. Our approach reflected our goal of moving from a one-way conversation to meaningful consultation.

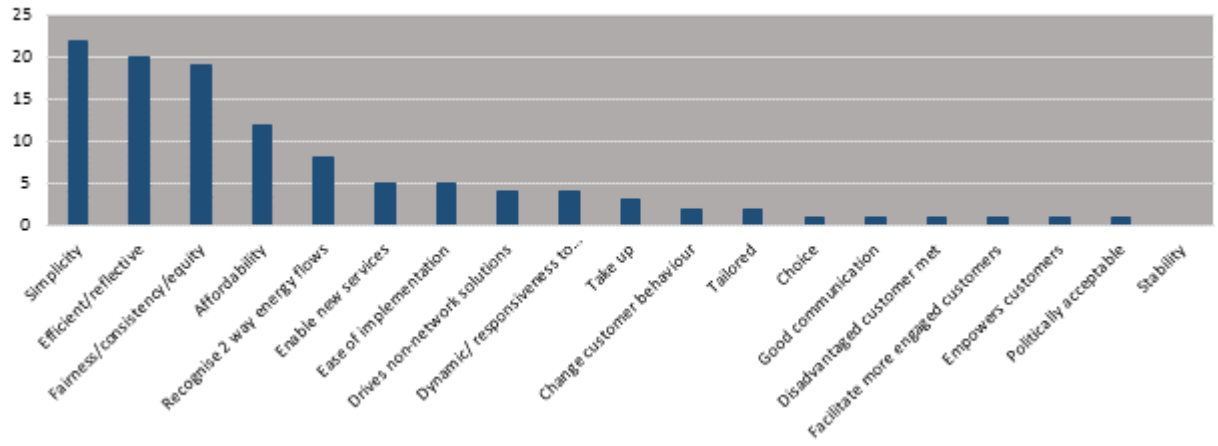
Forum 1 – Key outcome: Determined pricing objectives

In the first forum in November 2017, our aim was for attendees to collaborate, share and listen to stakeholder views on the challenges and opportunities that can arise from residential electricity network pricing changes. We sought to:

- Identify key objectives to guide network pricing changes.
- Discuss how these objectives are best progressed.
- Identify any research gaps that need to be filled and the complementary measures that need to be considered in our pricing design.

In this session, we heard that network pricing reform is desirable. Through the forum exercises, participants provided a range of potential pricing objectives (see Figure 3–3).

Figure 3–3: Stakeholder voting on important principles for pricing design



Participants then narrowed the principles down by voting on ones they preferred. The top 5 principles of simplicity, economic efficiency, adaptability, affordability and equity were adopted in our consultation process, as discussed in section 1.5.

Building on the simplicity objective, our customers, retailers and other stakeholders told us that tariff structures should be able to be understood and managed by both retailers and customers as retailers often mirror network tariff structures. Uniform tariff structures across Victoria help achieve this.

Stakeholders also told us that in the face of an increasingly complex energy market, there is a need for pricing reform. Stakeholders want us to empower households to reduce bills by encouraging the efficient use of energy. They also want us to address cross-subsidy issues and reward consumer behaviours which reduce network costs. Our stakeholders also want to make sure that vulnerable customers are not worse off as a result of tariff reform.

Forum 2 – Key outcome: Who responds to network prices?

In the second forum in April 2018, we asked participants whether tariff structures should be targeted towards the retailer or the end customer. The preference of forum members was that end customers' preference should be kept in mind even if tariff structures are directed towards retailers. This recognised that it is the retailer's choice as to whether the network tariff structure is passed onto the end customer, but ultimately some end customer impact is likely.

We also sought the views of our stakeholders on broad pricing design options and how these relate to the principles agreed to in the first forum. We heard:

- Support for cost-reflective tariff structures, but a mixture of views on the most appropriate design.
- Some support for reassigning customers to a cost-reflective tariff structure after a period of transition, but also support for opt-in only.
- A desire for analysis to support customer impacts.

At the end of the second forum, the Victorian distributors committed to providing a shortlist of tariff structures that would meet the principles established in the first forum. In September 2018, we published a consultation paper which shortlisted four tariff structure options and implementation options. This included single rate, ToU, peak usage subscription and demand charges.

Forum 3 – Key outcome: Majority support for a two rate TOU tariff with a fast pace of change

The third forum was held in March 2019. The Victorian distributors presented "strawmen" positions for consultation.

The first strawman was a new ToU tariff structure. The structure would have a higher rate for energy use between 3pm and 9pm that would apply for all days of the year. About 80% of participants were accepting of or supported a ToU structure. The simplicity of a two-rate, year-

round structure and its coverage across Victoria were the key reasons why participants supported the proposal. A key reason why some participants did not support the proposed tariff structure was uncertainty about how it would impact vulnerable customers.

The second strawman related to transitioning customers to the proposed new ToU pricing structure. In the lead up to the session, the Victorian distributors' consultant (ACIL Allen) delivered a presentation on the impacts of ToU structures on vulnerable customers. Our proposed strawman was that life support customers and medical cooling concession customers would not be re-assigned to a ToU tariff structure, and all other residential customers could 'opt-out' of the new tariff structure for five years. About 79% of participants were accepting of or supported the transition strategy. A key message we heard was that stakeholders wanted more information on the impacts to particular residential segments including small, vulnerable customers and those on existing ToU tariffs. In section 3.5, we discuss how the feedback from our participants has influenced our transition strategy.

3.2.1.2 Joint Victorian distributor consultation documents

The Victorian distributors provided two opportunities outside of the forums for stakeholders to provide formal written feedback:

- In September 2018, we published an options paper where we asked stakeholders for their views on tariff design, implementation and transition (pace of change), which informed the strawman we provided at our third forum.
- In October 2019, we sought stakeholders views on an amended position to the strawman presented at our third forum.

3.2.1.3 ACIL Allen study of vulnerable customer impacts

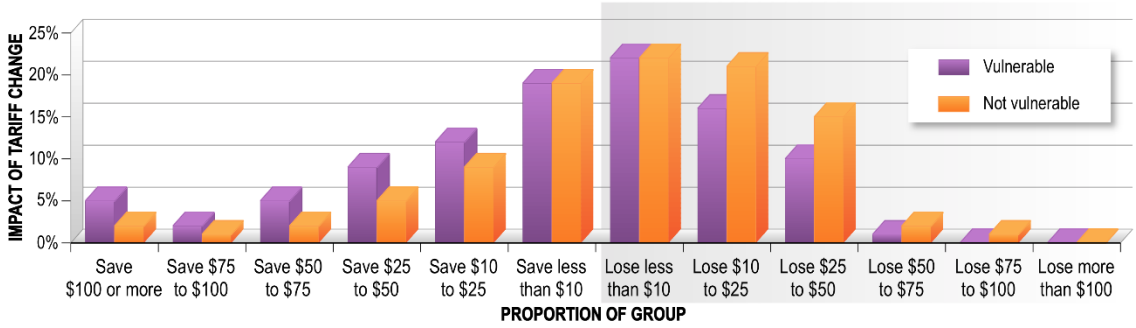
Having heard customers and stakeholders views of the importance of understanding the impact of our proposed changes on vulnerable customers, we commissioned ACIL Allen to undertake further analysis.

ACIL Allen surveyed around 2,000 Victorian electricity customers to identify demographic data that might indicate vulnerability and matched it to the customer's electricity consumption profiles over a year. ACIL Allen then determined whether the customer would be financially better off on a single rate or equivalent ToU tariff.[15]

The analysis showed that, on average, a vulnerable customer's bill would decrease by $11.93 if all customers were on a ToU tariff. This suggests that vulnerable customers generally use relatively less electricity during peak periods. However, there exists a diversity of consumption profiles within the vulnerable customers segment, just as there is for non-vulnerable customers. Accordingly, the analysis showed that while, on average, vulnerable customers would be better off, approximately 27% of vulnerable customers would be negatively impacted by more than $10 per year under a ToU tariff (see Figure 3–4 and Table 3–1). Across the population of Victorian vulnerable customers, this would be a significant number of households.

[15] An equivalent ToU tariff means one that is priced to ensure that the distributors receive the same total revenue as if all customers were on the current single-rate tariff.

Figure 3–4: Customer impacts of moving small customers to our ToU tariff



Source: ACIL Allen

Table 3-1: Customer impacts of moving small customers to a ToU tariff

	Vulnerable	Other
Proportion of customers with bill decrease	32%	19%
Proportion of customers with no change (within +/- $10)	41%	41%
Proportion of customers with bill increase	27%	40%
Sample size	293	1658

Source: ACIL Allen

These results showed that almost three-quarters of vulnerable customers would be at least no worse off financially under a ToU tariff, around 27% of vulnerable customers would experience a bill increase.

For further information relating to ACIL Allen's study on vulnerable customer impacts, refer to the VIC DNSPs Vulnerable Customers Analysis slides that was submitted as part of our Initial Proposal.

3.2.1.4 JWS research on community perceptions toward preparing for EVs

The Victorian distributors engaged JWS Research to undertake qualitative research to uncover consumer response (initial reactions, thoughts, concerns, questions) to information about investment in infrastructure to prepare for EVs, including the role of network tariffs.

Figure 3–5 provides a summary of the key findings. In particular, we heard:

- Support for ToU tariffs.
- Anecdotal evidence of customer perceptions of EVs that supports AEMO's forecast of minimal demand impact in the current period.

Figure 3–5: Summary of JWS Research key findings

Source: JWS Research

For further information relating to JWS Research key findings, refer to the Electric Vehicles Research Report that was submitted as part of our Initial Proposal.

3.2.1.5 What we heard from customers and stakeholders

Table 3–2 provides the key themes from the consultation activities described above. We also provide key themes on how we responded to these.

Table 3-2: What we heard and our response

What we heard	Our response to what we heard
Residential Customers	
• Electricity pricing is complex and not well understood. • It is fair for residential customers to pay in line with the cost they each impose on shared community infrastructure like an electricity network. • Some customers may need to be supported if any changes to tariff structures are imposed. • Mixed support for single-rate, ToU, and demand tariff structures. • ToU pricing is more readily understood than demand pricing.	• The status of electricity as an essential service drives most households to want us to price our services in a way that carefully considers those least able to respond to any changes we might implement. • Customers prefer pricing mechanisms that reward rather than mechanisms that penalise (a preference for "carrots" over "sticks"). • Many customers, even when they have access to personalised information, time, and experts, have difficulty understanding demand pricing. Meanwhile, ToU pricing is well understood and "part of life" –

• There is little support for subscription pricing[16] because of its relative complexity. • Peak time rebates[17] are supported if cost-effective.	customers readily cite examples such as public transport fares as examples of ToU pricing. We have therefore proposed a ToU tariff as the new default tariff (see section 3.3).
Customer and Stakeholder representatives	
• Tariff structures should be able to be understood and managed by both retailers and customers. • Pricing principles should be affordability, simplicity, equity, economic efficiency and adaptability. There is recognition that trade-offs are required meet these. • Peak time rebates are supported if cost-effective. • It is important to consider transition and complementary measures but the level of support for change depends materially on the outcomes for vulnerable customers. Any tariff reassignment should seek to minimise the number of negatively impacted vulnerable customers.	• We agree that moving to more cost-reflective tariff structures should be our aim (see our proposed changes, section 3.3). • Given retailers often mirror network pricing structures, it is important that customers understand, and can, therefore, respond to, network tariff structures. When there is a trade-off between benefits related to complex solutions and benefits of simple solutions, we have therefore erred on the side of simplicity. For example, in our choice of a two-rate tariff (section 3.4.1) and selecting when our peak period applies (section 3.4.2). • We will continue to explore demand management options as a potentially powerful tool to manage peak demand. • To minimise the potential to inadvertently and negatively impact vulnerable customers, we only assign or reassign customers when there is a customer-led trigger that is less likely to be associated with vulnerable customers. i.e. new connections, installing solar, upgrading to a three-phase power supply and potentially EV's (see section 3.5).
Retailers	
• Network tariff structures should be focused on retailers rather than customers. • Customers need to be informed of a change in tariff structures that could result in their bills from a change in their bills. • Generally, prefer mandatory reassignment to a new ToU tariff.	• Generally, retail tariff structures have tended to closely align to network tariff structures – as a result, stakeholders have asked us to consider customer outcomes if this pattern continues into the future. • We agree that customers should be made aware of material changes to their retail tariff structures.

[16] This option applies a fixed charge for each customer based on pre-defined peak period usage band.

[17] Peak time rebates involve paying customers in a particular local area (depending on the local of a constrain) a rebate for using less electricity than they were intending to at the time we called an electricity network peak event.

• Some query whether peak periods should apply on weekends and public holidays. • Would find extended transitions where prices move slowly toward cost-reflective tariffs difficult to communicate.	• Only the retailer itself is aware of when and how a tariff change may change a customers' retail tariff structure, so we consider it makes sense for retailers to lead communication and education efforts. • Because peaks can occur on weekends and public holidays and given the general preference for simplicity, we should apply our peak period to weekends and public holidays (see section 3.4.3). • We will set our available tariffs at price levels we consider cost-reflective. We will not seek to slowly move price levels toward cost-reflective levels over time (see our TSS).

3.3 Proposed changes

Our proposed changes to residential tariff structures seek to accelerate the pace of change without jeopardising the stakeholder support that is crucial to enable change.

The main change we propose to make for the 2022-26 period is to introduce a new two-rate tariff structure (new ToU tariff). This is explained in section 3.4 and is also presented in our TSS.[18]

From 1 July 2021, the new ToU tariff will become our default tariff for residential customers. From that date we will assign the following customers onto the new ToU tariff:

- New connections (i.e. new homes connecting to the network for the first time, not re-energisations)
- Customers who choose to upgrade from single-phase to a three-phase supply[19]
- Customers who choose to install solar[20] or batteries.

We would also like to include owners of EVs, although currently lack a credible means to identify small customers with EV charging infrastructure (EV customers). Should a register of customers who purchase EVs or other robust means of identifying an EV customer over the 2022-26 period, we would also seek to assign these customers to the new ToU tariff. In the absence of this information, we will work with other stakeholders to encourage EV owners to opt in to the new ToU tariff.

The Victorian distributors will:

- Retain our respective single-rate, demand charge, and controlled load (dedicated circuit) tariff structures from the 2016-20 period.
- Reassign our legacy ToU tariff customers onto the new ToU tariff on 1 July 2021; and
- Remove our legacy ToU tariffs from our tariff schedule[21].

[18] For AusNet Services, this new ToU tariff has the tariff code NAST11.

[19] Large electric motors can need three-phase power and require customers to upgrade their electricity supply. This can occur when customers are installing large air-conditioning systems, kilns, significant power tools (sometimes used in workshops or for home renovations), under floor heating, large pool pumps or a solar panel array above 10kVA. The Victorian networks provide around 3,000 supply upgrades per year.

[20] For AusNet Services, the new solar ToU tariff has the tariff code NAST11S and NAST11P.

[21] Tariff NEE24 will remain on our tariff schedule.

Separately, AusNet Services will also close our suite of seasonal ToU tariff structures to new entrants.

Table 3–3 summarises our proposed tariff assignment and reassignment for residential customers.

Table 3-3: Residential customer assignment and tariff options from 1 July 2021

Proposed tariffs	Proposed assignment	Tariff options (upon request from retailer)
New ToU	New connections Supply upgrades to three-phase Customers installing solar or battery Existing legacy ToU customers (excluding NEE24)[22] EV customers[23]	Single-rate[24] or demand
Single-rate[25]	All existing customers remain	New ToU or demand
Legacy ToU[26]	Customers on NEE24 will remain	Single-rate, new ToU or demand
Seasonal ToU[26]	All existing customers remain	Single-rate, new ToU or demand
Demand	All existing customers remain	Single-rate or new ToU

The remainder of this chapter provides the reasons for our proposal.

3.4 Our default tariff structure and how it meets the pricing principle

In the 2022-26 period, we are proposing that the default tariff structure for residential customers be a new ToU tariff structure. The key design features of the new ToU tariff structure are:

- A two-rate tariff structure;
- Peak period occurring between 3pm to 9pm local time, all days of the week including public holidays and regardless of season; and
- Off-peak applying at all other times.

Our reasons for this tariff structure are explained below.

3.4.1 Why two–rate is preferred to three-rate?

Feedback at our third forum strongly preferred the simplicity of a two-rate tariff (see Section 3.2.1.1). Customers only have to remember two times within the day – when the peak period starts and ends. The alternative is a shoulder period where rates are between the peak and off-peak rates. In conversations with us, customers showed an awareness of peak and off-peak

[22] Information relating to the reassignment of legacy ToU customers can be found in section 3.7 and 3.7.1 in this Explanatory Paper.

[23] From the point of an EV register becoming available, EV customers will be assigned to the new ToU pricing structure.

[24] AusNet Services will comply with any requirement of the Victorian Government's AMI Orders in Council, which may restrict some customers, i.e. small customers with EV charging infrastructure, from requesting transfer to the single-rate price structure.

[25] Includes single rate tariffs with a dedicated circuit. It is also closed to new entrants.

[26] Closed to new entrants

pricing but rarely mentioned a shoulder-period. Our view is that a shoulder period may dilute the effectiveness of the signals, and therefore not be particularly effective.

We, therefore, propose to only apply a two-rate tariff structure (peak and off-peak).

3.4.2 Why we chose 3pm-9pm peak period

The objective of a ToU tariff structure is to provide customers with an incentive to move the discretionary load into off-peak periods, when the network is under less stress.

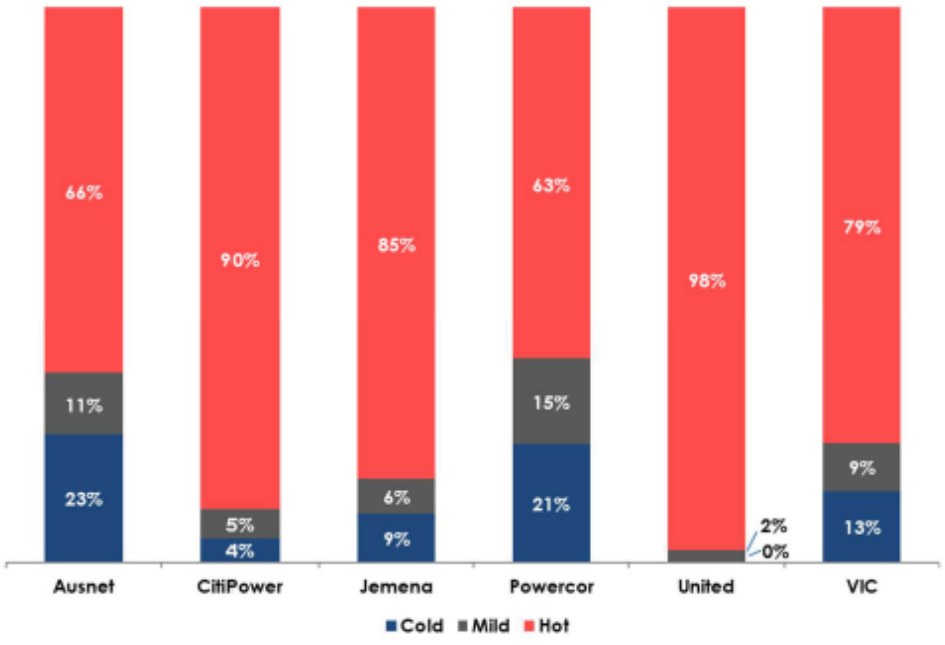
Stakeholder feedback indicated that we should select a peak period when residential customers are using a large amount of electricity and the local electricity network is under stress.

Figure 1–4 shows when our (approximately) 230 zone substations are under most stress. Most zone substations are peaking between 2pm and 8pm (local time)[27]. There are also "tails" to this period, with about 10% of substations peaking between 11am and 2pm, and 8pm and 10pm, local time.

We also need to assess when households are using the most electricity. To do this, we ranked each 30 minute interval between 1 January 2016 and 31 December 2018 by total household consumption across Victoria. We observed that the top 100 household consumption intervals all occurred in December, January, February or March.

We also looked at the temperature when substation peaks where occurring. As can be seen in Figure 3–6, most occur when it is hot (although there are some that occur in colder months).

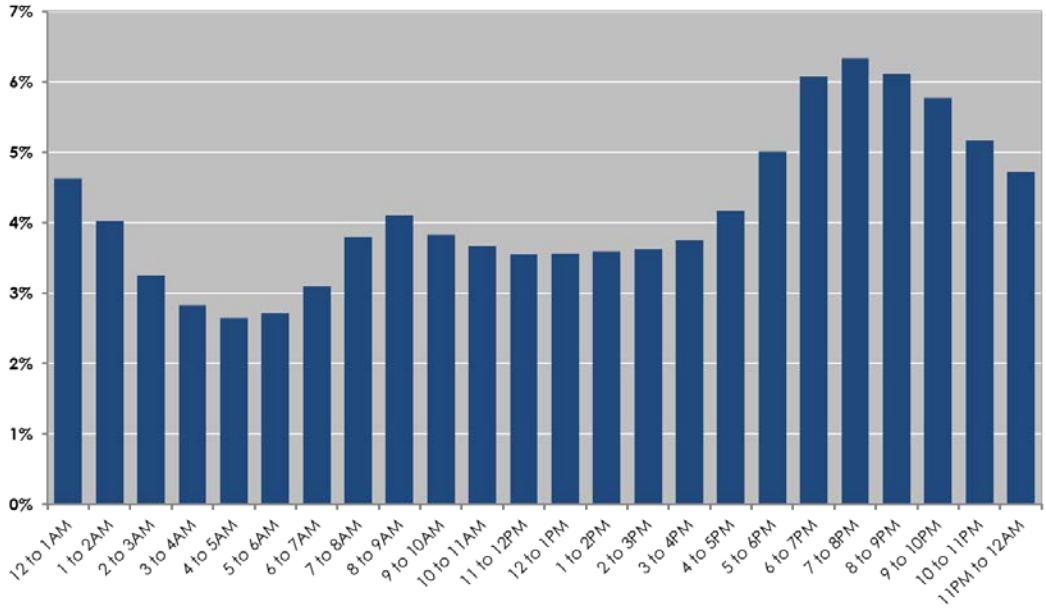
Figure 3–6: Substation peak by temperature, 2015-17



Therefore, while we cannot ignore winter months, our analysis suggests we should focus on residential consumption during December to March, which are generally the hottest months of the year. Figure 3–7 shows that between December and March, households tend to ramp up consumption from 4pm and continue to use large volumes of electricity to 1am (most controlled hot water heating), peaking between 6pm and 9pm during the evening.

[27] Zone substations peaking between 11pm and 2am reflect zone substations supplying customers with controlled load.

Figure 3–7: Proportion of 2016-18 household consumption by hour of day, local time summer plus March



Taking Figure 1–4 and Figure 3–7 together (i.e. when households are using the most electricity and the same time as the network is under most stress), we consider 3pm to 9pm, local time, as the optimal peak-time period for our new ToU tariff structure.

One of the key questions we needed to consider in choosing this period is whether this might simply "move" the peak to just before or after this 3pm to 9pm time period, or for some networks exacerbate peak demand if that tended to occur on the fringes of 3pm to 9pm.

Over the 2022-26 period, we do not expect that peak demand will shift outside 3pm to 9pm because:

- Minimal impact is expected from customers moving other discretionary load; and
- Customers will continue to use air-conditioners on hot afternoons.

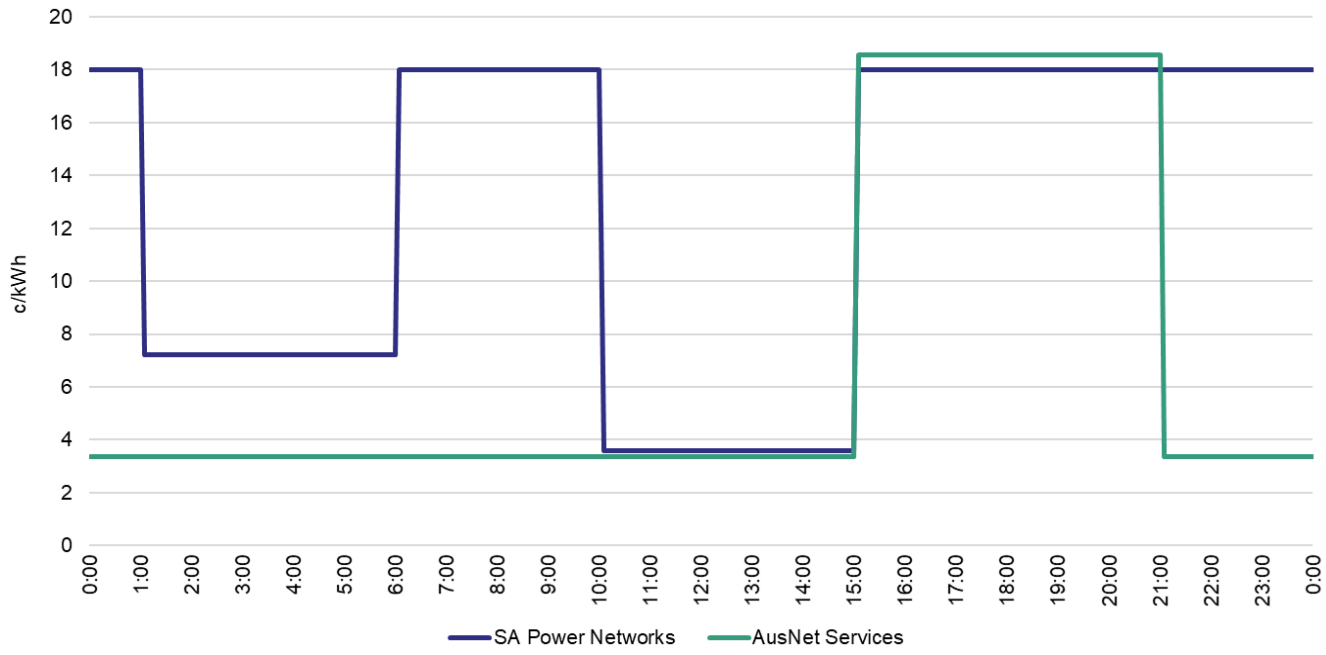
It is also important to point out that:

- EV take-up is not expected to grow to the extent that EV charging will have a material impact on the load shape over this regulatory control period;
- To the extent that EV load grows faster than expected, we expect home convenience-charging to be the pre-dominant charging option in the near-term, and this would likely occur as customers arrive home from work from 5pm;
- Home battery installations are not expected grow to the extent that they will have a material impact on the load shape over this period;
- While solar PV installation penetration is expected to increase, and price signals may encourage more solar panels to be oriented westwards, this is not expected to materially affect demand from 6pm.

We have optimised our new ToU tariff based on demand at the zone substation level of the network, which is the aggregate demand on the low voltage and high voltage network. Whilst we don't expect the aggregate peak to shift from 3pm to 9pm, in the future localised high solar exports are expected to occur on the low voltage network. If we are to enable these exports, future network investments will be required. Our new ToU tariff with off-peak rates before 3pm and peak rates after 3pm provides incentives to reduce midday solar exports, for instance by installing west-facing solar panels or to use a batteries to charge from their solar panels and discharge when electricity is needed. Therefore our proposed new ToU tariff serves the dual purpose of providing incentives to reduce network demand and to reduce midday solar exports.

SA Power Networks specifically proposed a 'solar sponge' period when network charges are very low. Our new proposed ToU tariff will provide a similar incentive, but with a simpler ToU tariff. Figure 3–8 indicates that our proposed ToU rate around midday is within 1 c/kWh of SAPN's proposed 'solar sponge' rate, but our proposed tariff structure is simpler for customers to understand.

Figure 3–8: Comparison of SA Power Networks and AusNet Services proposed ToU tariffs



3.4.3 Why are we including weekends?

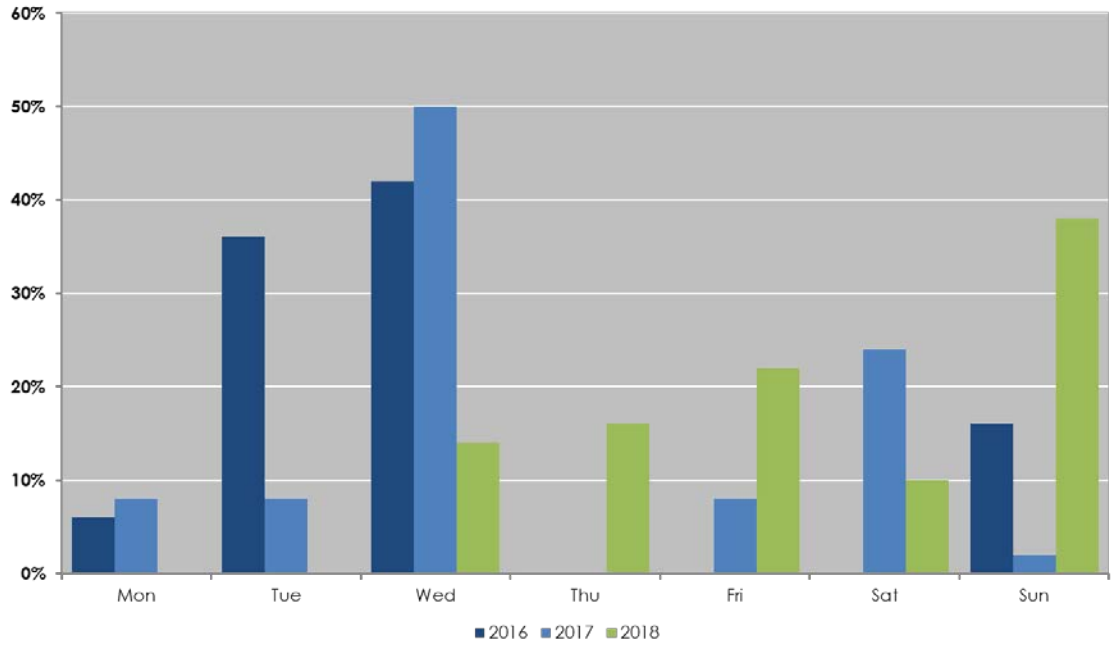
To determine which days to apply the ToU tariff structure for our residential customers we looked at when residential peak loads occur across Victoria, and whether there is any clear pattern to justify including or excluding weekends (104 days of the year) and/or public holidays (13 days of the year).

Residential peaks can and do occur on any day of the week (see Figure 3–9). This is primarily driven by domestic air-conditioning load on hot summer days. We are therefore proposing to apply the ToU tariff structure on all days of the week, including weekends.

The second question is whether we include public holidays. Most substations peak on a very hot day, and very hot days can logically occur on public holidays (most likely those in summer). We heard a mix of views from stakeholders. Some stakeholders preferred the simplicity provided by having the peak period apply every day of the year--customers can easily understand, remember and behave accordingly. Other stakeholders did not agree that peaks should apply on weekends, which, apart from very hot days, generally have much lower demand.

On balance, and considering the potential for a peak to occur on a summer public holiday, we are proposing to include public holidays.

Figure 3–9: Days on which the top 50 Victorian residential half-hour peaks fell (2016 to 2018)



3.4.4 Should the peak period only apply at certain times of the year?

At most zone substations in Victoria, residential peak load occurs in summer. This has led us to consider whether we apply the new ToU price during summer only, or during the period of daylight savings, or year-round.

Stakeholders did not provide strong views on the time of year to apply the peak period. We therefore propose to apply the same ToU pricing all year around because of its simplicity. It:

- Avoids customers having to remember when the pricing period starts and ends;
- May assist customers understand ToU pricing if the tariff structure is seen on every bill received by the customer during the year, rather than just some bills;
- Would result in less confusing retail bills as it will avoid potentially two tariff structures appearing on the bills that cover time-periods when the ToU tariff structure does and does not apply; and
- Recognises that some zone substations do peak in winter due to electric-heating load.

3.4.5 Summary assessment of default residential ToU tariff against pricing principles

Table 3–4 summarises why we consider the new two-rate ToU tariff best meets the principles established by stakeholders.

Table 3-4: Assessment of ToU tariff structure against principles designed by key stakeholders

Principle	How a ToU tariff structure is consistent with this principle
Simplicity	A two rate ToU tariff structure with peaks occurring every day is simple to communicate and is easy for customers to understand. It provides a clear message that consumption between certain times is more costly than consumption during other periods.

Principle	How a ToU tariff structure is consistent with this principle
Economic efficiency	Prices are more reflective of network costs than the status quo, reflecting a move towards more cost-reflective pricing. By applying our new ToU tariff structure to new connections and new installations of solar/distributed generation, and potentially batteries and EVs, we would ensure that any existing cross subsidies are not exacerbated going forward.
Equity	Compared to the status quo, customers using the network relatively more at peak times will pay more than customers using the network during off-peak periods, moving towards paying a fair share of network costs.
Affordability	Opt-in and opt-out arrangements will support more retail tariff choice so that customers can choose the tariff structure that is most affordable for their circumstances. By allocating network costs to those who incur them, consumers could change their consumption patterns, network investment could be avoided and costs reduced. Over time, this should lead to lower network costs for all consumers.
Adaptability	Introducing a ToU tariff structure as the default tariff structure provides a solid foundation for any potential new tariff structures that may be introduced after 2026. It is uncertain what the network will look like by 2026, and even more uncertain beyond this date. Against this uncertainty, it is unclear what tariff structure will be preferable in the future. The two-rateToU pricing with fixed pricing periods could evolve into one, or a combination, of the following: • A demand tariff structure with a similar peak window • A ToU tariff structure with an additional critical peak price (or rebate) window nominated by the distributor on a few occasions a year; • A dynamic ToU tariff structure; • A locational ToU (or demand) tariff structure or rebate where the peak/rebate ratio varies depending on the cost/benefit to the network at certain location. Monitoring developments and considering the effectiveness of network pricing with greater cost reflectivity (e.g. demand-based prices) will be a key focus for 2022-26.

3.4.6 Consideration of other tariff structures

In our September 2018 consultation, we sought stakeholder views on four different pricing options, including single-rate, ToU, peak usage subscription[28] and demand. We also sought views on peak time rebates.[29]

In addition, we outline in our assessment of adaptability in Table 3–4 some of the other cost reflective tariff structures we could consider (for example, a critical peak tariff). These are more complex for customers to understand. For the success of tariff reform, it is critical that cost-reflective tariffs are capable of garnering and retaining customer support. We have heard

[28] This option applies a fixed charge for each customer based on pre-defined peak period usage band.

[29] Peak time rebates involve paying customers in a particular local area (depending on the local of a constrain) a rebate for using less electricity than they were intending to at the time we called an electricity network peak event.

customer and stakeholder preference for simple tariffs, which indicates there would be an advantage in further embedding ToU tariffs to increase understanding and acceptance before contemplating more complex structures.

We continue to offer our monthly maximum demand tariffs, which were the preference of some of our stakeholders. However, this was preference not unanimous for a number of reasons including:

- The higher level of complexity.
- Wariness of tariffs where single consumption decisions can adversely impact customer bills, and especially how this might impact vulnerable customers.

We consider that there is more work for us and the industry as a whole to develop understandable and acceptable tariffs that are more cost-reflective. This remains the case even if such tariffs were to be targeted to retailers rather than customers.

Our current view is that a transition to even more cost-reflective tariffs (than ToU) should only be contemplated after a period of bedding down ToU tariffs. Future developments may include making the monthly maximum demand tariff the default tariff for new connections and other reassignments.

3.4.7 Consideration of locational tariffs

Locational tariffs may potentially improve cost-reflectivity by enabling sharper signals to be provided in areas where capacity is scarce. At this stage, however, we are not considering the introduction of locational network tariffs. We recognise in the current environment that the added complexity this would introduce is undesirable for customers and may risk undermining current levels of support for reform.

3.5 Assignment policy and transition

This section outlines:

- Our proposed assignment policy
- Our reasons for proposing this assignment policy by reference to our pricing objectives, including:
  - The transition options we considered.
  - Our customer impact analysis.
  - Applying what we heard from customers and stakeholders.
  - Our opt out arrangement for residential customers.
  - Reassignment of customers on legacy ToU tariffs to the new ToU tariff.

3.5.1 Assigment policy

Table 3–3 above summarises our proposed assignment and tariff options for customers. That is, from 1 July 2021, new connections, upgrades to three phase metering and new solar or battery installations will be assigned to the new ToU tariff structure. From the point of a register becoming available, EV customers would also be assigned to the new ToU tariff structure.

Importantly:

- New residential customer connections and three-phase upgrade customers that are assigned to the new ToU tariff structure may request to be transferred to the single-rate tariff structure or monthly maximum demand tariff.
- AusNet Services' solar customers may request a transfer to single-rate, ToU or demand tariff structures.

- Jemena, Citipower, Powercor and United Energy, who currently allow solar customers on single rate, ToU or demand tariff structures, will retain this current practice to support customer choice.

Our full assignment policies are detailed within our individual TSSs.

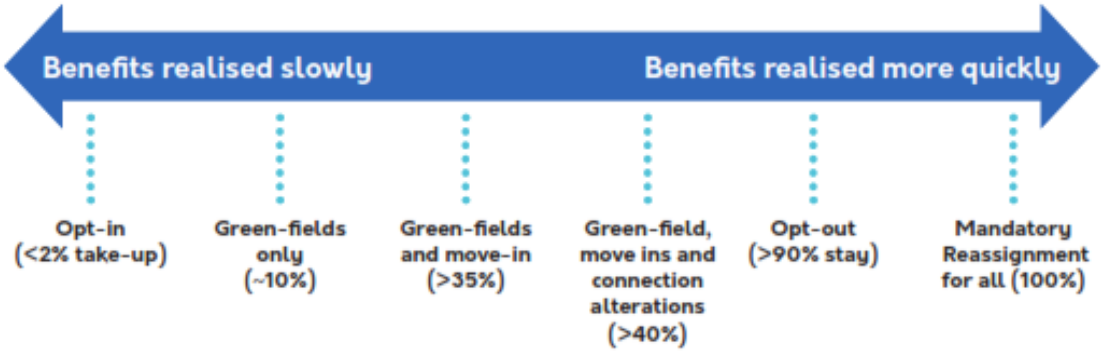
3.5.2 Transition options we considered

There are a range of transition options to assign customers to the default new ToU tariff structure.

In our September 2018 options paper, we consulted on transition options (which we referred to as "pace of change") as shown in Figure 3–10. At one extreme, all customers are assigned immediately onto a new network tariff structure. At the other extreme, customers are allowed to self-select by opting into the new network price when they see fit. We acknowledged that the choice might be influenced by whether stakeholders provide greater weight to:

- The collective long term interests of the electricity community, in which case the preference would be to introduce mandatory pricing structure reassignments.
- Minimising short term individual customer impacts, in which case a slower pace of change might be preferable.

Figure 3–10: Pace of change options



Having received some support in submissions for mandatory assignment, we developed a strawman to test further at our third forum. This included reassigning all customers other than specifically identifiable vulnerable customers on life support or with medical cooling concessions to the new ToU tariff, but allowing all customers to opt out to a single-rate tariff (or opt in to a demand tariff).

The strawman was supported as "Okay [with]", "Supported" or "Strongly supported" by 79% of forum participants. Four individuals opposed the transition strategy, while three were in the "Uncertain/need more information" category.[30]

3.5.3 Customer impact analysis

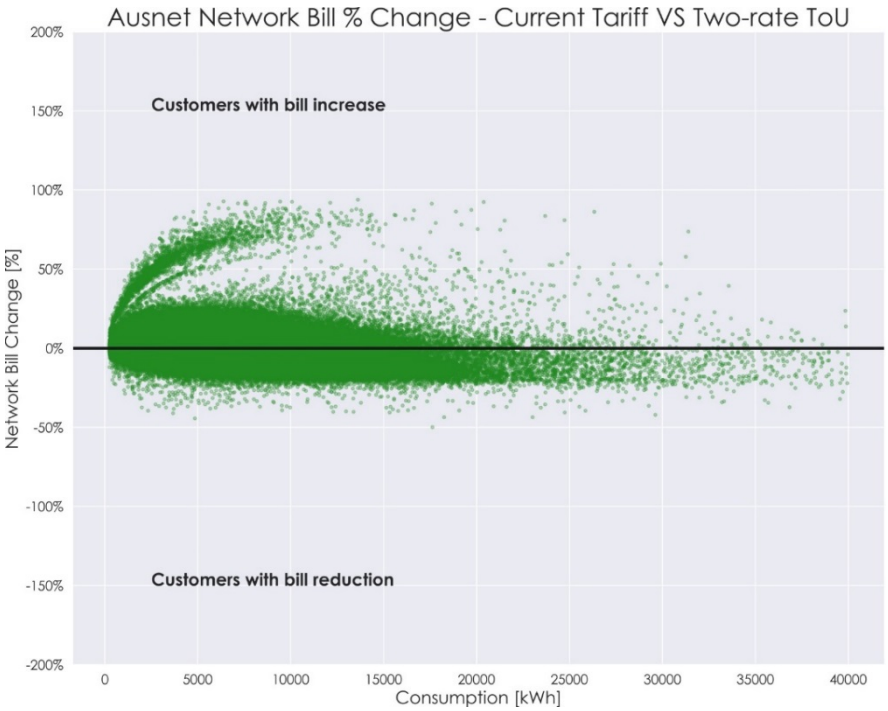
The strawman presented at our third form involved moving most[31] customers from a single-rate pricing structure onto a time of use pricing structure.

[30] There was discussion on the merits of not allowing customers to opt-out at all, with varying views presented. Participants generally did not support glide path transitions due to the complexity this creates for communicating change to customers.

[31] This included all customers other than those registered as life support customers or those with medical cooling concessions.

As a joint exercise with the Victorian distributors, we modelled the impact on Victorian residential customers[32] if all customers were moved to the new TOU tariff. The results for AusNet Services' residential customers are shown in the figure below, where each dot represents an individual customer.

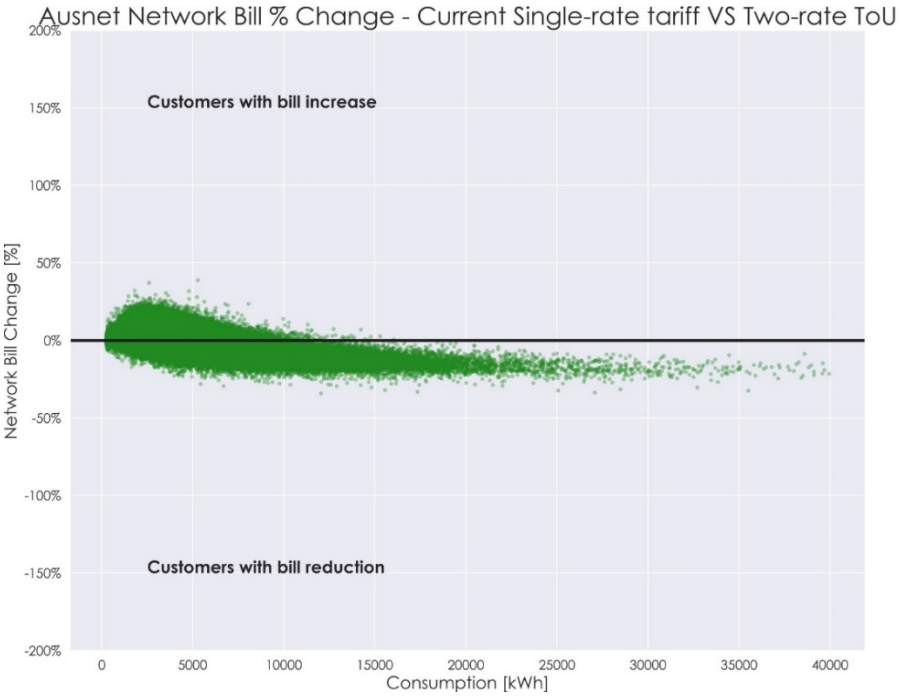
Figure 3–11: AusNet Services bill impacts of a move of all customers to our new ToU tariff



The above exercise was repeated in the scenario where only single-rate customers moved and not legacy ToU customers, as shown in the figure below.

[32] We used 2018 consumption profiles with 2019 single-rate tariffs. No behaviour change is assumed. We excluded customers consuming under 250 kWh per year as they are likely to have been vacant and those over 40 MWh per year as they are more likely to be incorrectly assigned to residential tariffs.

Figure 3–12: AusNet Services bill impacts of a move of all single-rate customers to our new ToU tariff



The above figures show that while there are less extreme impacts than if we moved all residential customers, there remains a number of customers with bill increases of more than 25%.

The results are summarised in the table below, which shows that 29% of customers would realise a financial saving and 71% of customers would experience a bill increase. The average saving is $63 and the average increase is $25 per year.

Table 3-5: AusNet Services bill impacts of a move of all single-rate customers to our new ToU tariff

	$ average saving	$ average increase	% customers who realise a saving	% customers who experience an increase
Customer bill impact	63	25	29	71

3.5.4 Applying what we heard from customers and stakeholders to our proposal

Following the presentation of customer impact analysis at our third forum, some participants noted that there were likely to be vulnerable customers who experience bill increases but are not captured by the proposed carve-outs for life support and medical cooling concessions. Customers on life support or with a medical cooling concession only amount to around 1.5% cent of households. This means some customers on retailer payment assistant schemes or claiming the mains electricity concession, who we cannot identify, could still be negatively impacted by being moved to our proposed new ToU tariff structure. Our forum participants were concerned that these vulnerable customers could be made worse-off and may have little understanding of why or how to respond. It was therefore difficult for the participants to support the transition without understanding the impact on these other vulnerable customer groups.

Following the forum we sought further views on transition and heard that to support change, some stakeholders would need to understand what complementary measures (such as retailer communications, literacy programs, technology rebates, energy efficiency programs and peak time rebates) would be provided to vulnerable customers, both before and after the change

occurs. They indicated that without such measures—acknowledging some of which are outside the control of the distribution businesses—they would find it easier to support transition options that only applied the new ToU pricing structure to new connections, solar, EV customers and residential customers with large usage profiles. Additionally, even with complementary measures, there was also concern that they may prove ineffective in reaching those households who do not, or cannot, engage in the energy market.

We therefore amended our transition position from the strawman presented at forum three to better target non-vulnerable household cohorts. Based on the feedback we received, we consider that the following customer groups are materially less likely to include vulnerable customers:

- New connections—the Victorian residential customer base grows by about 2.4% per year (around 52,000 new homes each year). This only includes new homes connecting to the network for the first time, and does not include re-energisations following a de-energisation (e.g. move-in customers, or after a disconnection for debt).
- Customers who, from 1 July 2021, choose to upgrade from single-phase to three-phase supply[33].
- Customers who, from 1 July 2021, choose to install solar or batteries[34].
- EV owners.

By the nature of their requirements, these customers would also have an interaction with their retailer, which provides the customer an opportunity to discuss and understand the tariff options available to them. We have therefore included the first three events as triggers for tariff reassignment as described in Table 3–3, section 3.5.1 and within our TSS. From the point of a register becoming available, we would also seek to assign customers who purchase EVs to the new ToU tariff structure. We have also retained the option for customers to choose a single-rate or demand tariff, which is an option that was widely supported at our third forum.

While this assignment would result in a slower transition, we consider that it still provides much-needed progress to more cost reflective tariffs, with the support of our stakeholders and customers. While benefits might take longer to materialise, we also consider those benefits are more likely to occur in the medium to longer term given the low levels of augmentation capital expenditure planned in the 2022-26 regulatory period (see Table 1-2). It is essential that we can enter that medium to long term with some momentum and support for change.

In the 2022-26 period, we will increase our focus on improving the complementary measures (including communications, literacy programs and energy efficiency programs, the use of technology and peak time rebates). This will allow us to put in place effective mitigation strategies for those customers that may otherwise be exposed to increases in their electricity bills as more customers transition to ToU tariffs in the future.

3.5.5 Our opt-out arrangements for residential customers

Stakeholders have told us that it is important for customers to have the choice to opt-out, particularly those that may have difficulty shifting their load.

We have thought carefully about this. Customers that are more likely to opt-out from the new ToU tariff structure are those that expect (or have experienced) a material increase in their bill as a result of the change. These customers are consuming relatively more electricity during the peak period relative to the off-peak period. From one perspective, this is exactly the consumption that

[33] Large electric motors can need three-phase power and require customers to upgrade their electricity supply. This can occur when customers are installing large air-conditioning systems, kilns, significant power tools (sometimes used in workshops or for home renovations), under floor heating, large pool pumps or a solar panel array above 10kVA. The Victorian networks provide around 3,000 supply upgrades per year.

[34] Under its moderate scenario, CSIRO estimate that rooftop solar capacity will increase by about 50 per cent by 2030. CSIRO, *Projections for small-scale embedded technologies*, June 2018, pp35-36. A customer (or their solar installer) installing solar for the first time, or upgrading their solar system is required to inform their distribution network.

ToU pricing is targeting. ToU pricing is providing these customers with a better signal of the cost impacts of consuming load during the peak period compared to the off-peak period.

However, taking into account stakeholder and customer feedback, we must be mindful of the impacts on customers who may not have a choice about when to consume electricity for reasons beyond their control. Indeed, some customers may be incentivised to shift load or reduce electricity consumption that, for health reasons, should not be moved.

As a result we have provided the option for residential customers or their retailer to opt-out from the new ToU tariff structure in the 2022-26 regulatory period. Details of the opt out arrangements are provided in each distributor's TSS.

3.6 How can customers save

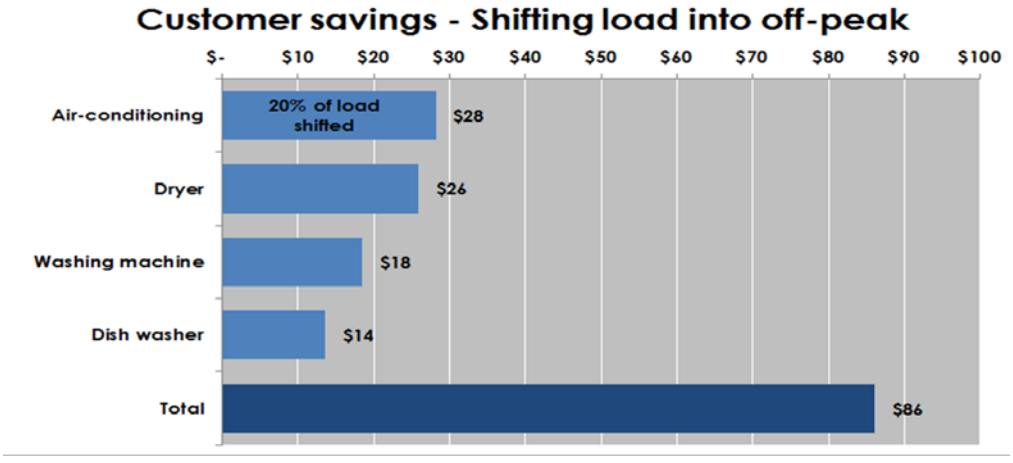
A consistent message we have heard during our engagement is that customers want to know how they can reduce their electricity bills. Under a single-rate tariff structure, the only way to reduce an electricity bill is to use less energy in aggregate. Customers are not rewarded for shifting energy to off peak periods.

Depending on the structure of their retail tariff, residential customers may be able to reduce their electricity bills more if they move the time that they use appliances to non-peak periods. For example:

- Putting washers, driers and dishwashers on a delayed cycle outside of the 3-9pm peak.
- Changing the scheduled time for pool pumps
- Setting Electric Vehicles (EV) and batteries to charge later at night.
- Pre-cooling the property on warm days to take advantage of the cheaper off-peak rates.

In our engagement sessions, our stakeholders asked us to provide an indication of how much a customer could save by changing the times they use electricity. Figure 3–13 shows an example of how much a typical customer may be able to save in their annual network charges by switching the time they turn on appliances such as dryers and washing machines. The key message is that ToU tariffs empower customers to achieve meaningful savings on their electricity bill by using everyday appliances in non-peak times.

Figure 3–13: Savings in network bill from using electricity in non-congestion periods



Based on typical consumption – sourced from http://www.energyrating.gov.au

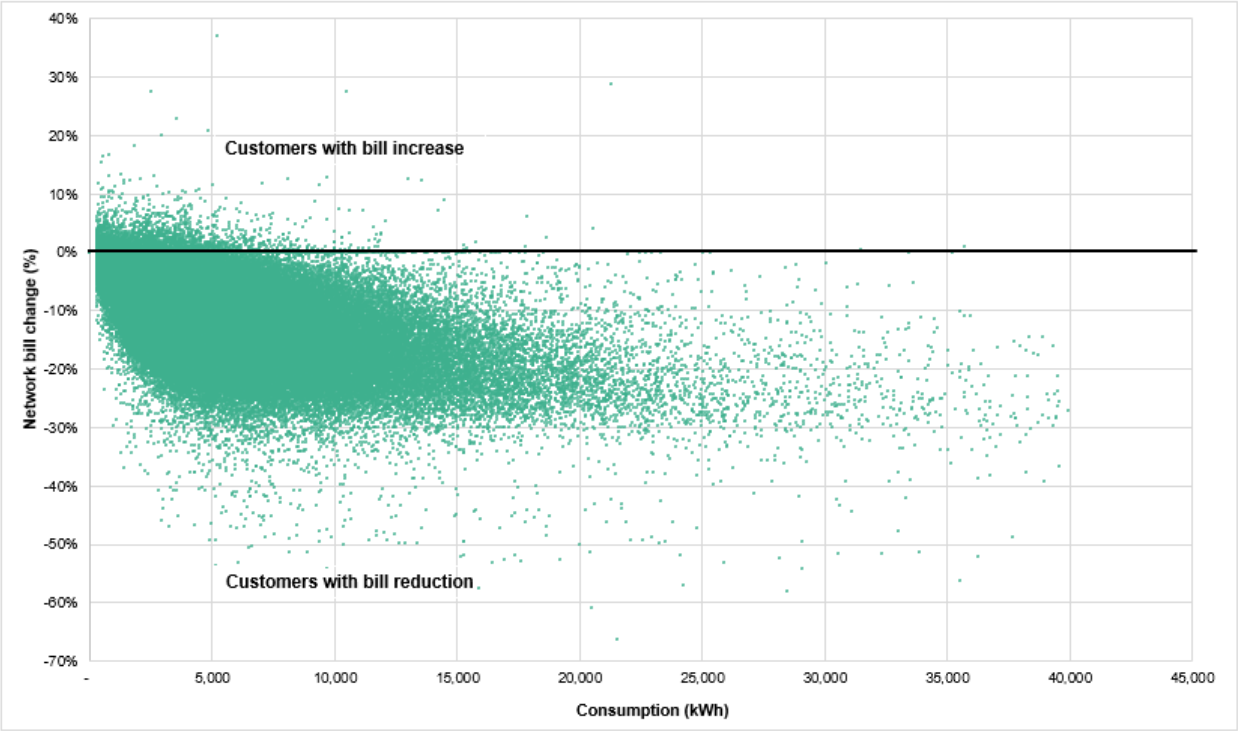
Total air-conditioning load 1,745 kWh (Powercor Climate Saver customer average)

3.7 Reassigning legacy ToU customers to the new ToU tariff

In the Draft Decision, the AER asked that we consider closing our residential legacy ToU tariffs and reassign those customers to the new ToU and demand tariffs.

In considering this request, we modelled the impact of existing legacy ToU customers[35] moving to the new ToU tariff[36]. The results for AusNet Services' residential customers are shown in the figure below, where each dot represents an individual customer.

Figure 3–14: AusNet Services bill impacts of a move of legacy ToU customers to our new ToU tariff



The results are summarised in the table below, which shows that 98% of customers would realise a bill reduction and 2% of customers would experience a bill increase. The average bill reduction is $110 and the average bill increase is $10 per year.

Table 3-6: AusNet Services bill impacts of a move of legacy ToU customers to our new ToU tariff

	$ average bill reduction	$ average bill increase	% customers with bill reduction	% customers with bill increase
Customer bill impact	110	10	98	2

With the majority of customers realising a bill reduction, we will accept AER's request and propose to reassign legacy ToU customers (with the exception of NEE24 customers) to the new ToU tariff. The exclusion of NEE24 from the legacy ToU reassignment will be discussed in the following section.

Tariff assignment policy relating to the reassignment of legacy ToU customers is provided in our revised TSS compliance document.

[35] Excludes NEE24 customers.

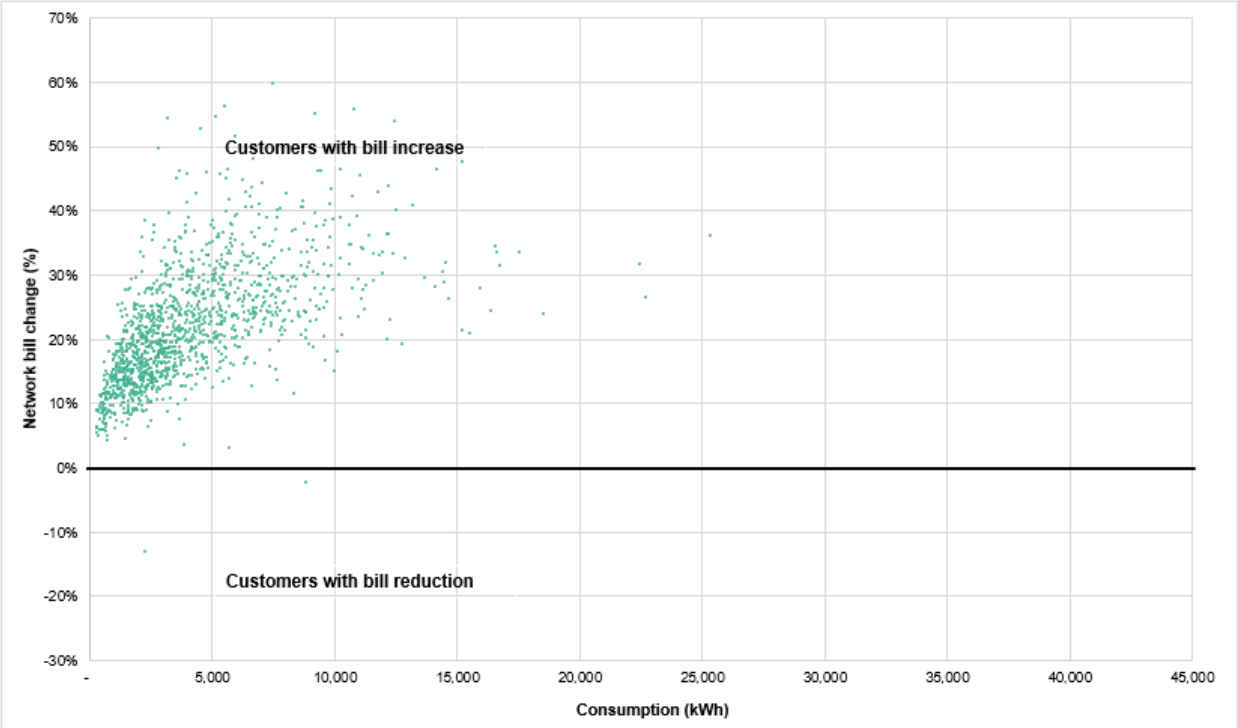
[36] Bill impact analysis based off 2019 consumption profile, CY2020 and FY22 draft decision prices, and includes AMI metering charges.

3.7.1 Excluding NEE24 from legacy ToU reassignment

NEE24 is a legacy ToU tariff introduced in 2009 to rural customers with heating requirements where alternative energy supplies were limited. This caused the local network to experience high levels of demand when these appliances switch on for their overnight heating. The introduction of NEE24 sought to alleviate the demand issue by giving AusNet Services the ability to manage and control customers heating requirements for six hours at any time between from 8:00pm to 8:00am (Monday to Friday) over a twelve hour period. In exchange for allowing this flexibility, customers received a discounted tariff in NEE24 which return to the customer a proportion of the savings we realised from avoided network augmentation.

Customers on NEE24 had to be excluded from the legacy ToU reassignment as the majority of customers on the tariff would receive a bill increase if this group of customers were moved to the new ToU tariff. To verify this outcome, we modelled the impact of NEE24 customers moving to the new ToU tariff[37]. The results of NEE24 customers are shown in the figure below, with each dot representing an individual NEE24 customer.

Figure 3–15: AusNet Services bill impacts of a move of NEE24 customers to the new ToU tariff



The results are also summarised in the table below, which shows that 0.1% of customers would realise a bill reduction and 99.9% of customers would experience a bill increase. The average bill reduction is $30 and the average bill increase is $99 per year.

[37] Bill impact analysis based off 2019 consumption profile, CY2020 and FY22 draft decision prices, and includes AMI metering charges.

Table 3-7: AusNet Services bill impacts of a move of NEE24 customers to the new ToU tariff

	$ average bill reduction	$ average bill increase	% customers with bill reduction	% customers with bill increase
Customer bill impact	30	99	0.1	99.9

With close to 100% of customers facing an average bill increase of $99 per year, we are proposing to exclude NEE24 customers from being reassigned to the new ToU tariff.

4 Small business

The purpose of this chapter is to explain:

- Who our small business customers are and what our existing network tariffs are.
- Our customer and stakeholder engagement.
- Our proposed changes for small business network tariff structures and assignment policy, as set out in our TSS.
- Why we consider our proposed changes best meets the needs of our customers and stakeholders, taking account of our consultation process, our pricing objectives and the Rules requirements.

The Victorian distributors classify a small business customer differently. In Jemena's distribution region, a small business customer can is any business customer who consumes under 400 MWh per year, whilst the remaining Victorian electricity distributors (including AusNet Services) classify a small business customer as one who consumes 160 MWh or less per year.

For small business customers consuming greater than 40 MWh per year, the Victorian electricity distributors have different tariffs. For small business customers consuming not more than 40 MWh per year, we have taken a common Victorian approach because:

- A key stakeholder view is to drive simplicity by increasing the level of State-wide tariff commonality
- The Victorian definition of a 'small customer' includes both residential customers and those businesses who consume not more than 40 MWh per year.
- Our collaborative engagement also covered business customers consuming 40 MWh or less per year.

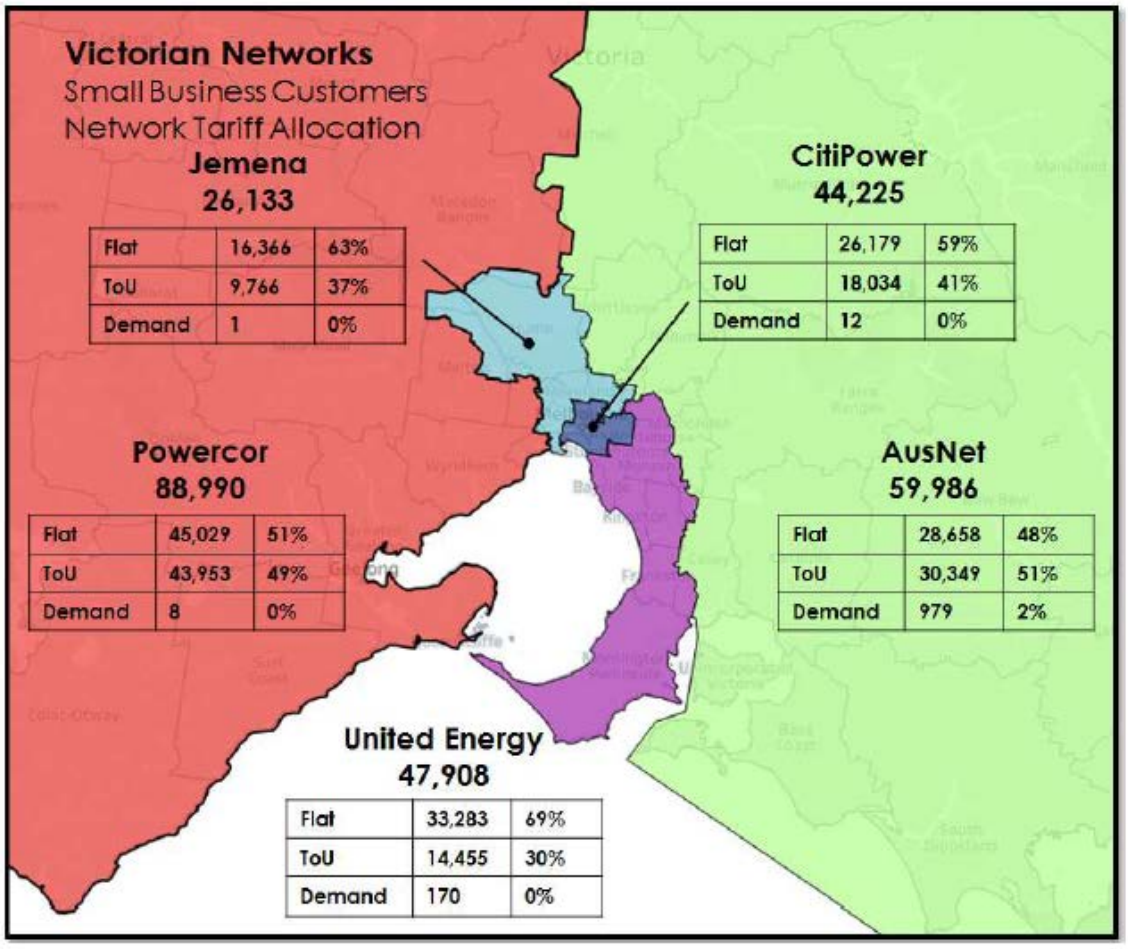
As each distributor's approach differs for business customers above the 40 MWh per year consumption threshold, we have separated out the proposed changes and reasons for:

- The common Victorian approach for customers consuming not more than 40 MWh per year.
- AusNet Services' approach for customers consuming over 40 MWh per year.

4.1 Our small business customers

We have a diverse range of businesses on AusNet Services' network, including retail, real estate, construction, health, professional services and transport. Figure 4–1 shows the number of small businesses in each Victorian network on single rate, ToU and demand pricing structures.

Figure 4–1: Number of Victorian small business customers on various network tariff structures



There are three main types of small business network pricing structures in Victoria, as there are for residential customers (see Figure 3–2).

Almost all small business customers are either on single rate or ToU tariffs. There are 31 different small business ToU tariffs across Victoria, which can make tariffs more time consuming and complicated than they need to be for customers, although most have a peak pricing period of 7am to 11pm weekdays.

We recognise that energy bills are a large operating cost component for many small businesses in Victoria. We also acknowledge that while some small businesses may have the ability to shift their consumption, others will have limited flexibility (for example, shops open during business hours or restaurants open during meal times). When considering what network tariff and tariff structure to apply to small business, we need to take into account and balance a number of different principles.

Of particular relevance is the extent to which small businesses can change their electricity usage in response to a new tariff structure.[38] We are mindful of the potential impact on small businesses who may have limited choice about when to consume electricity in order to carry out their business and serve their customers. There may be other small businesses with greater ability to move their electricity use—for example pre-heating or cooling. However, this will depend on:

- The length of the peak period.
- Whether the peak period applies only on certain days, months or year round.

[38] National Electricity Rules, Rule 6.18.5(h).

The longer the peak period and the more of the year it applies, the harder it becomes for a small business to shift usage to off-peak times. Given the above issues, the starting point for our proposed changes to tariffs was to listen to the concerns and feedback of small businesses.

4.2 Our small business customers and stakeholder engagement

Our small business engagement mirrors that for our residential customers. Our first two pricing forums and the September 2018 consultation paper covered our approach to small businesses of not more than 40 MWh. What we heard is therefore predominantly captured in section 3.2. In addition we published a small business options paper for consultation in October 2019, where we set out what we had heard to date and our preferred approach. Although we did not receive formal submissions to this paper, each Victorian distributor gained specific feedback through other engagements including a number of one-on-one and small group meetings. These engagements included small business surveys, which for example, told us:

- Electricity is their third-highest expense, behind mortgage/rent and salaries/wages
- Almost all businesses surveyed are open during the 3pm to 6pm peak during the week, and of those, only a small number felt it was possible for them to reduce their demand in the peak period. The remainder said their electricity use was essential to their supply of goods and services.

4.3 Proposed changes for customers consuming 40 MWh or less per year

In the 2022-26 regulatory period, in response to stakeholder feedback seeking simple and uniform pricing across Victoria, for small business customers consuming 40 MWh or less per year we propose to:

- Change the default tariff from the current single-rate tariff to a two-rate ToU tariff with a peak period of 9am-9pm local time on weekdays.
- Reassign all legacy ToU tariff customers (consuming 40 MWh or less per year) onto the new default ToU tariff on 1 July 2021.
- Remove all legacy ToU tariffs (for customers consuming 40 MWh or less per year) from our tariff schedule.

Table 4–1 summarises our proposed tariff assignment and reassignment, including those customers who would trigger reassignment to the default ToU tariff.

Table 4-1: Small business consuming 40 MWh or less per year assignment and tariff options from 1 July 2021

Proposed tariffs	Proposed assignment	Tariff options (upon request from retailer)
Default ToU	New connections Supply upgrades to three-phase Businesses installing solar or battery Existing legacy ToU customers EV customers[39]	Single-rate[40] or demand

[39] From the point of an EV register becoming available, EV customers will be assigned to the new ToU pricing structure.

[40] AusNet Services will comply with any requirement of the Victorian Government's AMI Orders in Council, which may restrict some customers, i.e. small customers with EV charging infrastructure, from requesting transfer to the single-rate price structure.

Single-rate[41]	All existing customers remain	Default ToU or demand
Seasonal ToU[42]	All existing customers remain	Single-rate, default ToU or demand
Demand	All existing customers remain	Single-rate or default ToU

4.4 How the default structure meets our principles objectives

Given stakeholder preference for consistent and simple pricing structures across Victoria, we considered the following options for small business tariffs:

- Two-rate or three-rate tariffs?
- What hours to set the peak window?
- Should the peak apply to weekends?
- Should the peak apply year round?

4.4.1 Two-rate or three-rate?

We propose a single two-rate tariff (peak and off-peak) for the same reasons provided for residential customers (see section 3.4.1).

4.4.2 What hours to set the peak window?

We have proposed that the peak period for small businesses consuming 40 MWh or less per year should be from 9am to 9pm local time. We have proposed to make this tariff in local time, rather than AEST, (which is common for many of our legacy ToU tariffs) to make tariff calculation simpler for customers.

We have considered how the small business peak may contribute to overall peak demand on the network as well as the specific peak demand for small businesses (to ensure we do not create localised peak issues on certain distribution substations).

Because we are seeking to have a consistent pricing structure across the Victorian distributors, we first considered how the networks are used across Victoria. Figure 1–4 in section 1.6.1 shows when AusNet Services' 230 zone substations are under most stress. Most zone substations are peaking between 2pm and 8pm (local time). There are also "tails" to this period, with a number of substations peaking between 11am and 9pm local time.

While there appear to be few peaks between 10am and 2pm across all networks, this is not the case for Citipower whose network services cover the Melbourne CBD (see Figure 4–2). We have taken this information into account in determining a single peak period for Victorian small business customers.

[41] Includes single rate tariffs with a dedicated circuit. It is also closed to new entrants.

[42] Closed to new entrants.

Figure 4–2: Citipower zone substation peaks by hour of day (2015-17)

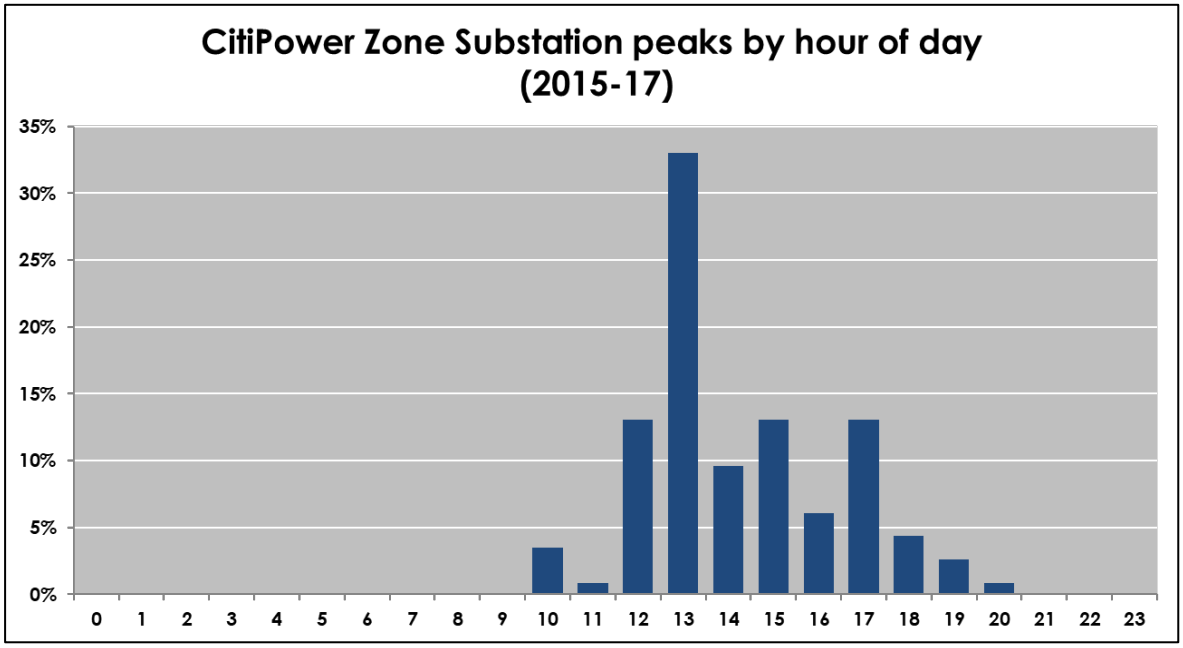
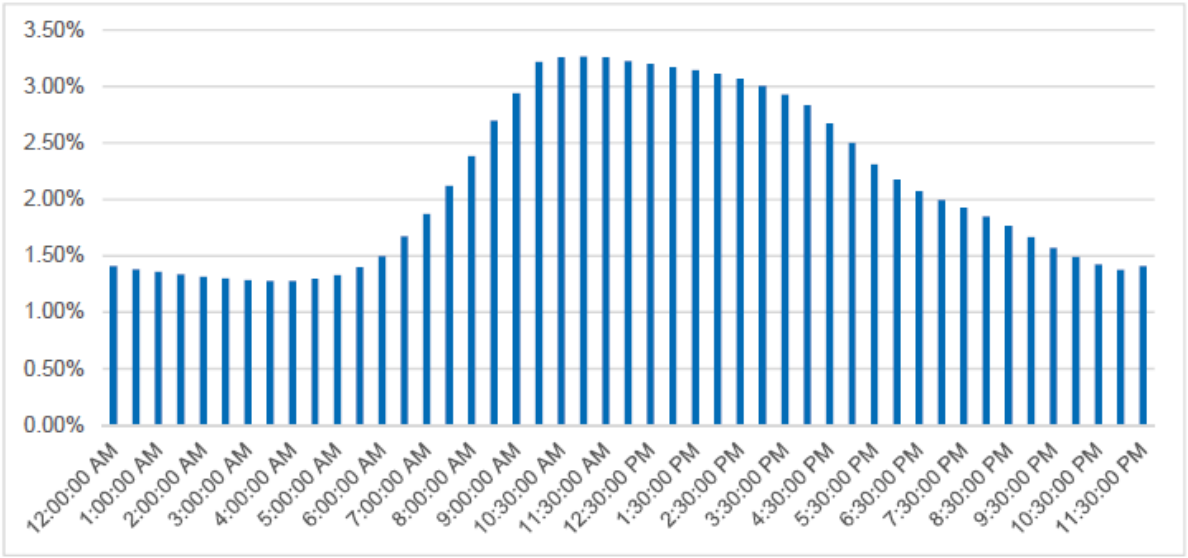


Figure 4–3, shows small businesses' weekday consumption profile, with consumption rising rapidly between 5am and 9am, peaking between 10am and 12pm and then declining, with accelerated declines from around 4pm into the evening as businesses shut down. This indicates that the current 7am to 11pm peak pricing window is too wide, and that narrowing it is likely to be more reflective of how small businesses impact our networks.

Figure 4–3: Small business weekday load by time of day, AEST, 2017-18



We can see that small business peaks (around 10am to 12pm) are earlier than the coincident peak (around 2pm to 8pm). We need to consider both:

- The benefit of providing incentives that reduce the coincident peak.
- The small business peak to ensure we do not provide localised peak issues on certain substations.

The peak period chosen can have a large influence on the resulting customer impacts. We therefore tested the impacts of a peak period of 10am to 6pm, and another of 9am to 9pm. Importantly, these both seek to narrow the existing predominant peak period of 7am to 11pm. Our analysis is shown as part of the transition options discussed in section 4.6.

Given the analysis above and in section 4.6, we consider that:

- Absent customer impacts, a 10am to 6pm timeframe would provide a best-fit Victoria-wide small business peak period.
- Taking into account customer impacts, a 9am to 9pm peak period is appropriate, given a significant number of small business customers have limited ability to adjust their consumption behaviour due to the need to use energy at certain times that support the services they provide to their customers.

While still relatively wide, a peak pricing period of 9am to 9pm (local time):

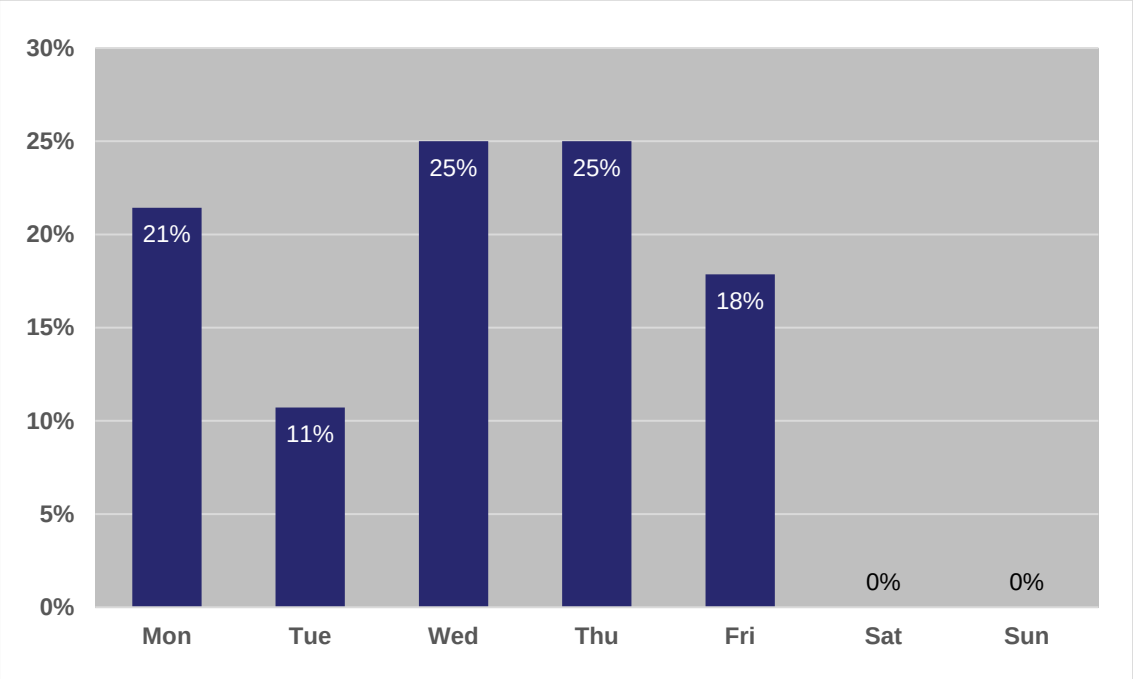
- Is more cost-reflective than the existing 7am-11pm (AEST) used for the majority of our legacy ToU tariffs .
- Is simpler for customers to understand, as the term used to describe peak time is 'local time' rather than AEST.
- From the analysis in section 4.6, it is preferred to a 10am to 6pm peak which would have an adverse impact on some customers. We are also aware that ending the peak period at 6pm may have resulted in a shift in load to commence at 6pm, which may exacerbate wider network peaks.

4.4.3 Should the peak apply to weekends?

We have looked at when small business peak loads occur across Victoria, and whether there is any clear pattern to justify including or excluding weekends (104 days of the year).

Small business peaks have not occurred on weekends (see Figure 4–4). This is primarily due to small business operating hours falling on weekdays. We therefore do not propose to apply the ToU pricing structure on weekends.

Figure 4–4: Victorian small business peaks 2018 – top 200 half hours (occurring on 28 days)



4.4.4 Should the peak apply year round?

We propose to apply the peak period throughout the year. This is for the same reasons as provided for residential customers in section 3.4.4.

4.5 How the default ToU structure meets our principles

Table 4–2 summarises why we consider our approach for small businesses consuming 40 MWh or less per year against the principles agreed by our stakeholders at our 2017 forum.

Table 4-2: Assessment against principles designed by key stakeholders

Principle	How our approach is consistent with this principle
Simplicity	Improves simplicity by having only one TOU tariff for all small business (compared to 31 ToU tariffs across the Victorian distributors currently). Compared to other options (such as demand pricing), it is easier for customers to understand that consumption at certain times of the day is more costly than consumption during other periods.
Economic efficiency	Prices are more reflective of network costs than the status quo, which means that the proposed change will provide more cost reflective tariffs.
Equity	Consolidating legacy ToU customers onto a single ToU tariff will mean consistency on the rates and times by which customers are charged. Compared to the status quo, we will have more customers on ToU tariffs meaning customers using the network relatively more at peak times will pay more than customers using the network during off-peak periods, moving towards paying a fair share of network costs. Those assigned to the ToU tariff without the ability to move their consumption can opt out, although this would require a level of active engagement by the customer.
Affordability	Compared to the status quo, the narrower peak window allows customers more opportunity to save by shifting consumption. The move to a 9am-9pm peak window and only moving legacy ToU tariffs mitigates customer impact.
Adaptability	Changing our default tariff structure to a ToU tariff structure provides a solid foundation for any potential new tariff structures that may be introduced after 2026. It is uncertain what the network will look like by 2026, and even more uncertain beyond this date. Against this uncertainty, it is unclear what tariff structure will be preferable in the future. The two-rate ToU pricing with fixed pricing periods could evolve into one, or a combination, of the following tariff structures: • A demand pricing tariff structure with a similar peak window • A ToU pricing tariff structure with an additional critical peak price (or rebate) window nominated by the distributor on a few occasions a year; • A dynamic ToU pricing tariff structure; • A locational ToU (or demand) pricing tariff structure or rebate where the peak/rebate ratio varies depending on the cost/benefit to the network at certain location. We will continue to monitor consumption patterns during 2021-26 and consider the case for further tariff changes in future, including whether the peak period should be redefined. It is noted that consolidating the existing tariffs is a key step toward future adaptability and agility.

Our consideration of other tariff structures and locational tariffs for small business customers is consistent with that provided for residential customers (see sections 3.4.6 and 3.4.7).

4.6 Assignment policy and transition (customers 40 MWh or less per year)

This section outlines:

- Our proposed assignment policy
- Our reasons for proposing this assignment policy by reference to our pricing objectives, including:
  - The transition options we considered and our customer impact analysis
  - Applying what we heard from customers and stakeholders
  - Why are we retaining opt-out for small business customers under 40 MWh per year?

4.6.1 Assigment policy

Table 4–1 summarises our proposed assignment and tariff options for small business customers consuming 40 MWh or less per year. That is, from 1 July 2021, new connections, upgrades to three phase metering and new solar or battery installations will be assigned to the new default tariff structure.

Importantly:

- New small business customer connections (40 MWh or less per year) and three-phase upgrade customers (40 MWh or less per year) that are assigned to the default ToU tariff structure may request to be transferred to the single-rate tariff structure or demand tariff.
- AusNet Services' solar customers may request transfer to single-rate, ToU or demand tariff structures.
- Jemena, CitiPower, Powercor and United Energy, who currently allow solar customers on single-rate, ToU or demand tariff structures, will retain this current practice to support customer choice.

The full details of our respective assignment policies are detailed in each distributor's TSS.

4.6.2 The transition options we considered

We assessed three transition and tariff combination options for small businesses consuming 40 MWh or less per year. These are summarised in Table 4–3.

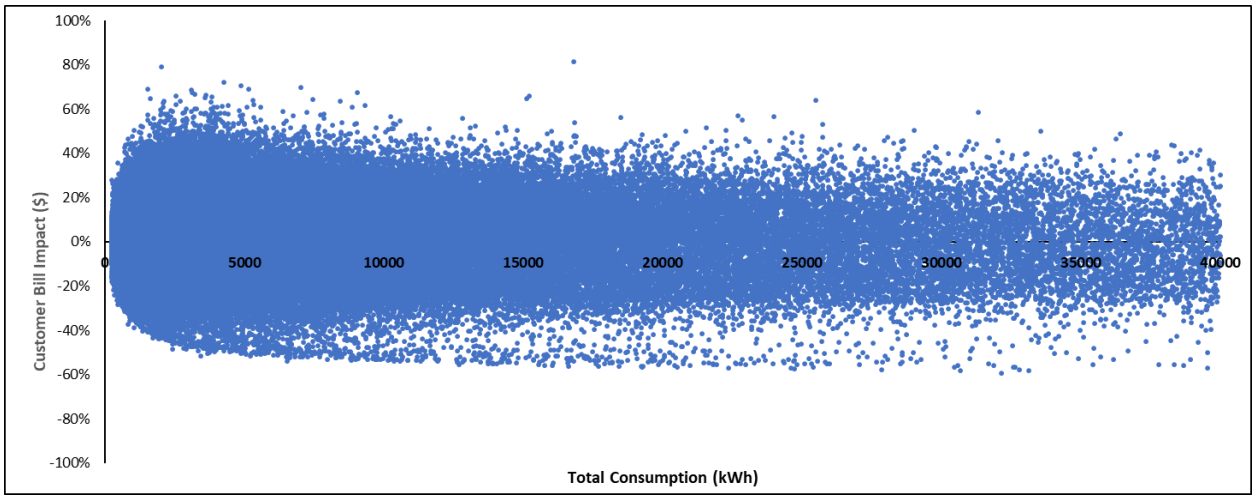
Table 4-3: Description of options

Feature	Option 1. A two-rate ToU tariff for all customers	Option 2. A two rate tariff with a wider peak period	Option 3. Replace existing ToU tariffs for one simple and more cost reflective two-rate ToU tariff (PROPOSED)
Peak period	10am – 6pm on weekdays (year round).	9am – 9pm on weekdays (year round).	9am – 9pm on weekdays (year round).

Transition	Assign all new customer connections and reassign all single rate customers to new ToU tariff on 1 July 2021. Close legacy ToU tariff to new entrants but do not reassign customers currently on them.	Assign all new customer connections and reassign all single rate and legacy ToU customers on 1 July 2021. Remove legacy ToU tariffs.	Assign all new customer connections, new solar installations and those requesting upgrade to 3 phase metering to the new ToU tariff. Reassign all legacy ToU customers to the new ToU tariff on 1 July 2021. Remove legacy ToU tariffs.
Choice	Retailers can opt a small business customer (who consumes 40 MWh or less per year) out of the ToU network tariff to a single rate or demand network tariff[43]. Customers on existing legacy ToU can opt into the new ToU network tariff.	Retailers can opt a small business customer (who consumes 40 MWh or less per year) out of the ToU network tariff to a single rate or demand network tariff.	Retailers can request that a small business customer (who consumes 40 MWh or less per year) customer be assigned to a single rate, ToU or demand network tariff. Customers on existing single rate tariffs can opt into the new ToU network tariff.

Figure 4–5, Figure 4–6 and Figure 4–7 respectively show the Victoria-wide impact of Option 1 to Option 3. Each dot on the scatterplot is one of our small business customers. Table 4–4 provides summary results. We replicate these for AusNet Services in Figure 4–8, Figure 4–9, and Figure 4–10, with the summary in Table 4–5. This demonstrates that the impacts and conclusions drawn at a Victoria-wide level are replicated in the experience for customers of AusNet Services.

Figure 4–5: Individual customer impacts of moving single rate small business customers to new 10am -6pm weekday ToU tariff – Option 1, Victoria



[43] We would generally expect this to occur following a request from the customer to the retailer.

Figure 4–6: Individual customer impacts of moving single rate and legacy ToU small business customers to new 9am-9pm ToU tariff – Option 2, Victoria

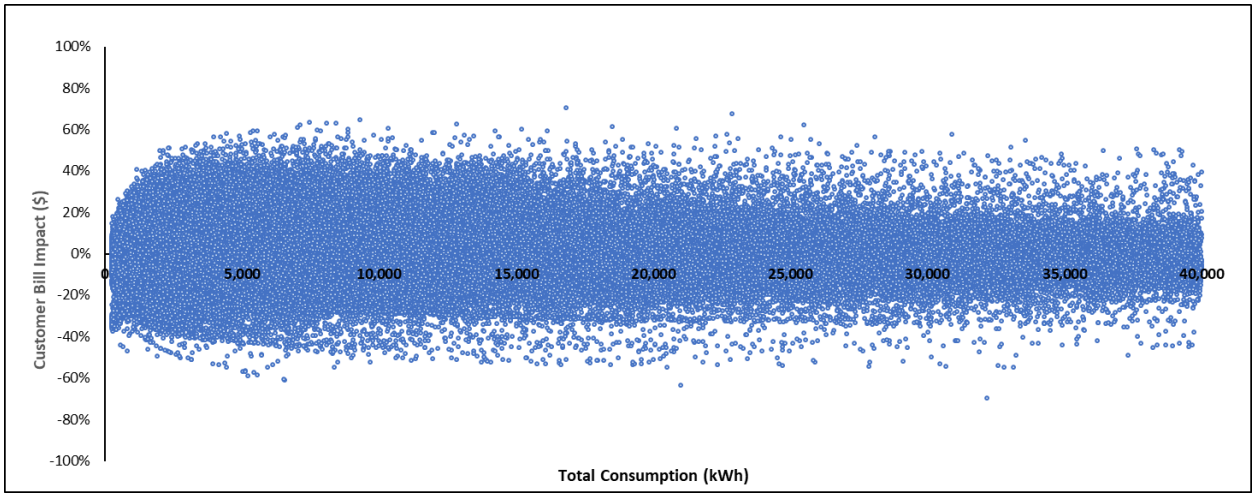


Figure 4–7: Individual customer impacts of moving legacy ToU small business customers to new 9am-9pm ToU tariff – Option 3, Victoria

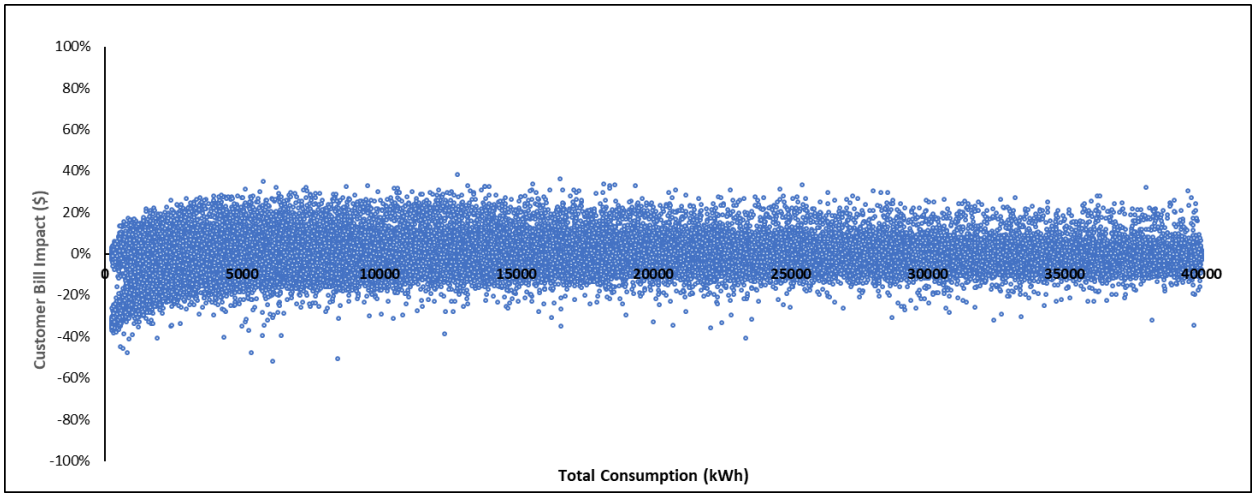


Table 4-4: Small business customer impacts - Victoria

	% of customers whose bill would decrease	% of customers whose bill would increase	% of customers whose bill increases by more than 10%	% of customers whose bill increases by more than 20%
Option 1	49	51	30	14
Option 2	51	49	20	6
Option 3 (proposed)	49	51	5	1

Figure 4–8: Individual customer impacts of moving single rate small business customers to new 10am-6pm weekday ToU tariff – Option 1, AusNet Services

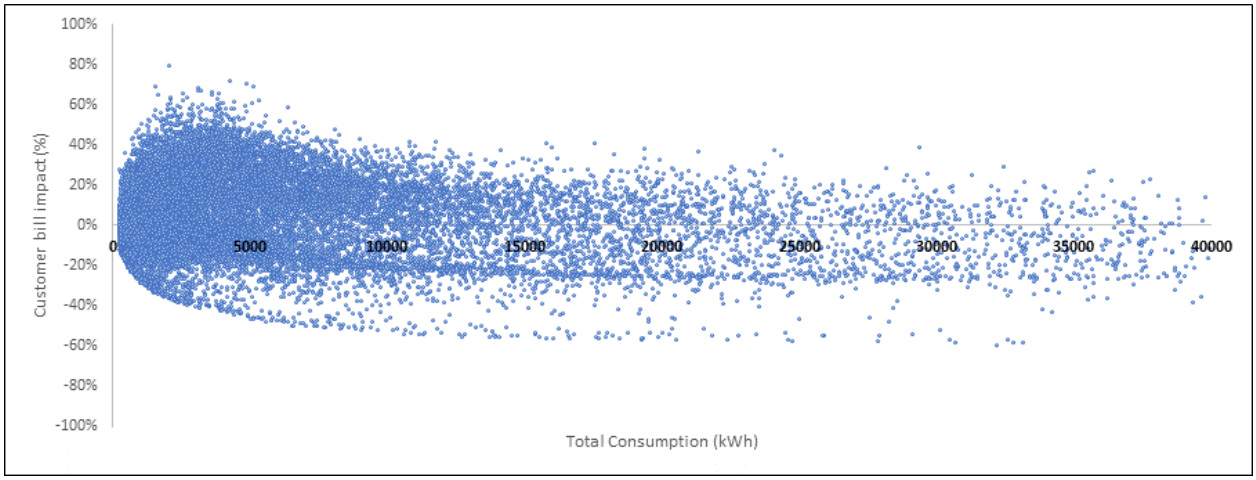


Figure 4–9: Individual customer impacts of moving single rate and legacy ToU small business customers to new 9am-9pm ToU tariff – Option 2, AusNet Services

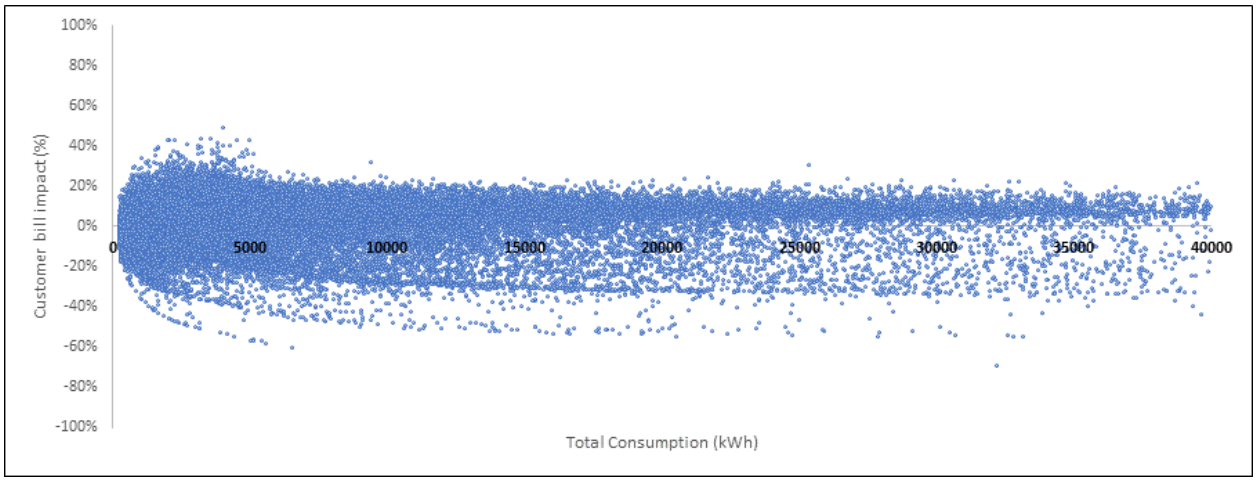


Figure 4–10: Individual customer impacts of moving legacy ToU small business customers to new 9am-9pm ToU tariff – Option 3, AusNet Services

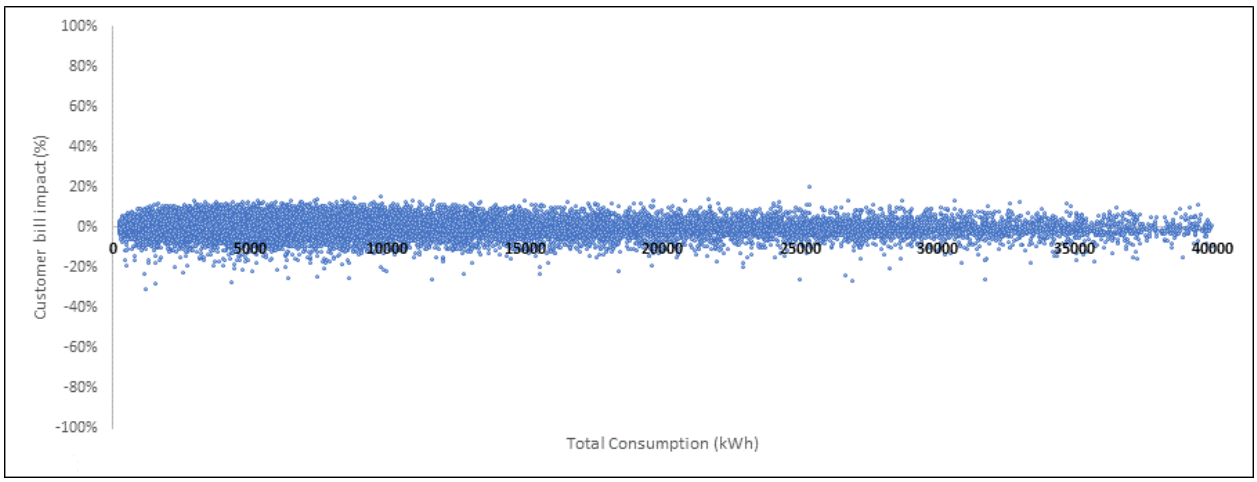


Table 4-5: Small business customer impacts – AusNet Services

	% of customers whose bill would decrease	% of customers whose bill would increase	% of customers whose bill increases by more than 10%	% of customers whose bill increases by more than 20%
Option 1	46	54	27	38
Option 2	35	65	29	3
Option 3 (proposed)	52	48	3	0

4.6.3 How customer bill impacts have influenced our proposal

The Victorian distributors already have around 30-50% of all small business customers on some form of ToU tariff. On average, small businesses are therefore more likely to respond in line with efficient network investment than our residential customers—of which only around 17 per cent of customers are on ToU tariffs. Nevertheless, we consider it is important to continue to make progress on tariff reform whilst having regard to customer impacts.

We can see from the analysis of Option 1 that assigning all small business single-rate customers to a ToU tariff creates a relatively high proportion of customers impacted by more than 10% across all networks. We cannot be confident that we would avoid capturing a significant number of customers who have very limited ability to move their electricity usage outside of the 10am to 6pm peak period. This risks creating customer impacts that individual customers may not be able to mitigate through adjusting their usage.

Additionally, we have not seen evidence that small business customer engagement in the electricity industry is sufficient to rely on them actively requesting to opt out when they are unable to mitigate higher bills through their usage decisions. This supports an assignment regime predicated on either already being a ToU customer or having a pre-existing reason to contact the retailer – eg upgrade to 3 phase metering, a new customer connection or a solar installation.

Option 2 and Option 3 seek to reduce the customer impact compared to Option 1 by widening the peak to a 9am - 9pm weekday window. The lower impact is because both the peak and off peak prices are both lower under Option 2 and Option 3 (this is a result of our revenue cap and the peak price applying for longer). While a 10am - 6pm peak period would cover most small business demand peaks, we consider that the customer impacts are better mitigated by a 9am - 9pm peak period. This would put us on a path to further reductions in the length of the peak window after 2026.

The key difference between Option 2 and Option 3 is whether single-rate customers are moved onto the new tariff on 1 July 2021. As this still creates significant impacts for some customers, who may be those with limited ability to respond to the price signal, we do not consider it would be appropriate to undertake this change at this time. We therefore consider Option 3 to be most appropriate. This is consistent with our position for residential customers, but provides additional movement toward cost-reflective tariffs by also moving legacy ToU customers onto the new ToU tariff.

4.6.4 Why are we retaining opt-out for small business customers consuming 40 MWh or less per year?

Our reasons for retaining opt-out for small businesses consuming under 40 MWh per year are the same as for residential customers (see section 3.5.5).

4.7 Proposed changes for small business customers consuming over 40 MWh per year

AusNet Services is not proposing to change the existing pricing structures or assignment policies for small business customers consuming over 40 MWh per year.

AusNet Services will continue to assign new small business customers consuming over 40 MWh per year to a cost reflective demand tariff. Existing small business customers with consumption over 40 MWh per year will be reassigned at the start of each year. In our current tariff structure statement, we explained that customers in this category typically have a high utilisation factor. As a consequence, the majority of customers are not negatively impacted by the introduction of the maximum demand component.

Customers can initiate a request to opt out from this tariff. The default tariff for reversion is a cost reflective tariff with a zero demand usage charge and customers must remain on this tariff for a minimum period of 12 months before being permitted to elect to reassign to another cost reflective tariff.

5 Over 160 MWh per year customers

AusNet Services have grouped customers consuming more than 160 MWh per year into the following classes:

- Medium industrial & commercial customers;
- Large industrial & commercial customers;
- High voltage customers; and
- Sub transmissions customers.

The majority of customers in these classes are currently assigned to one of AusNet Services' critical peak demand (CPD) tariffs. As part of our tariff transition strategy (Appendix C of our TSS), we are proposing to close other tariffs in the above classes when there are zero customers assigned.

Customers are invited to participate in AusNet Services' CPD program, where they are rewarded with a lower network bill for voluntarily reducing their demand when called upon by AusNet Services.

Over the 2016-20 regulatory period, customer participation has helped to reduce demand on our network by approximately 40-50MW per event and allowed us to manage the network efficiently at critical peak times. This has subsequently helped to defer future network augmentation and continue to drive down network costs for all customers in our distribution area.

With the current success of the CPD tariffs, we have tested our position to not change the existing over 160 MWh pricing structures or assignment policies with our internal Customer Consultative Committee and the Energy Users Association of Australia (EUAA) as part of our TSS consultation process. Both groups of stakeholders were comfortable with leaving the position unchanged, but indicated to us the importance of continuously improving our customer communications to build on the current success and maximise the benefits CPD tariff can bring.

With the exception of the default medium business tariff in the medium industrial & commercial class, AusNet Services is not proposing to change the existing pricing structures or assignment policies within the above classes, and have already implemented improvements in our customer communications to educate and assist customers to reduce demand to realise network cost savings. For more information relating to over 160 MWh pricing structures or assignment policies, please refer to our revised TSS compliance document.

5.1 Amending default medium business tariff charging window

In its draft decision, the AER expressed concerns that our proposed peak charging windows (7-10am and 4-11pm) for default medium business tariff does not reflect the periods when the network is under greatest strain and may be too wide to send effective price signals to customers about their impact on the network.

We have addressed the AER's concerns by analysing and proposing to amend the peak charging windows in our default medium business tariff (NSP56). This is discussed in turn.

5.1.1 Demand profile of default medium business tariff customers

To understand how our NSP56 customers are currently responding to the peak charging windows, we extracted their 2019 calendar year demand data and plotted

- the average weekday demand profile; and
- their maximum peak demand day which occurred on 1 March 2019.

Figure 5–1: Average weekday NSP56 customer demand in 2019 (kVA)[44]

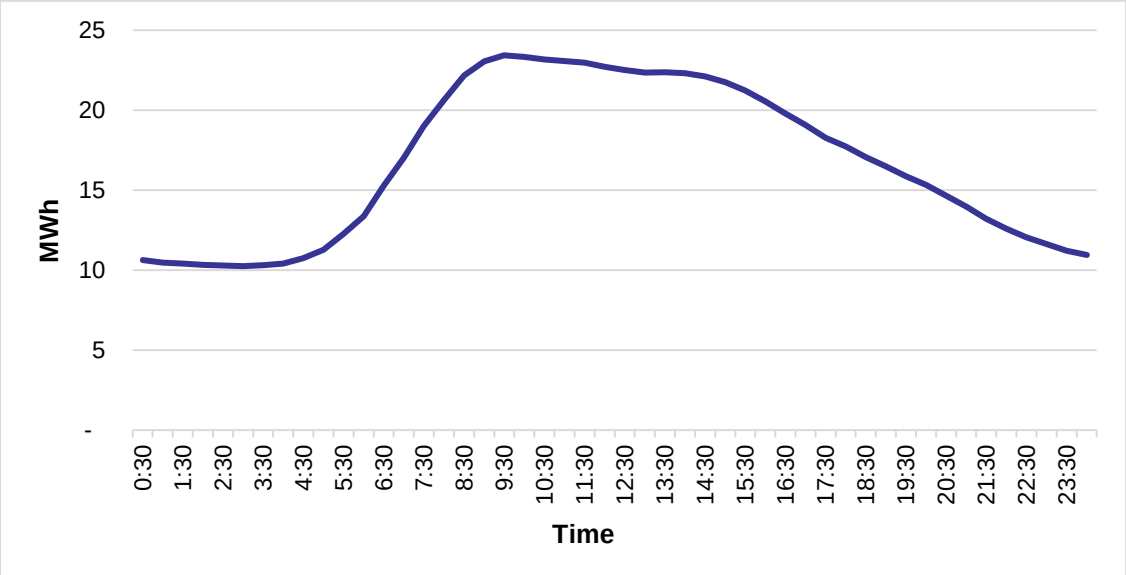
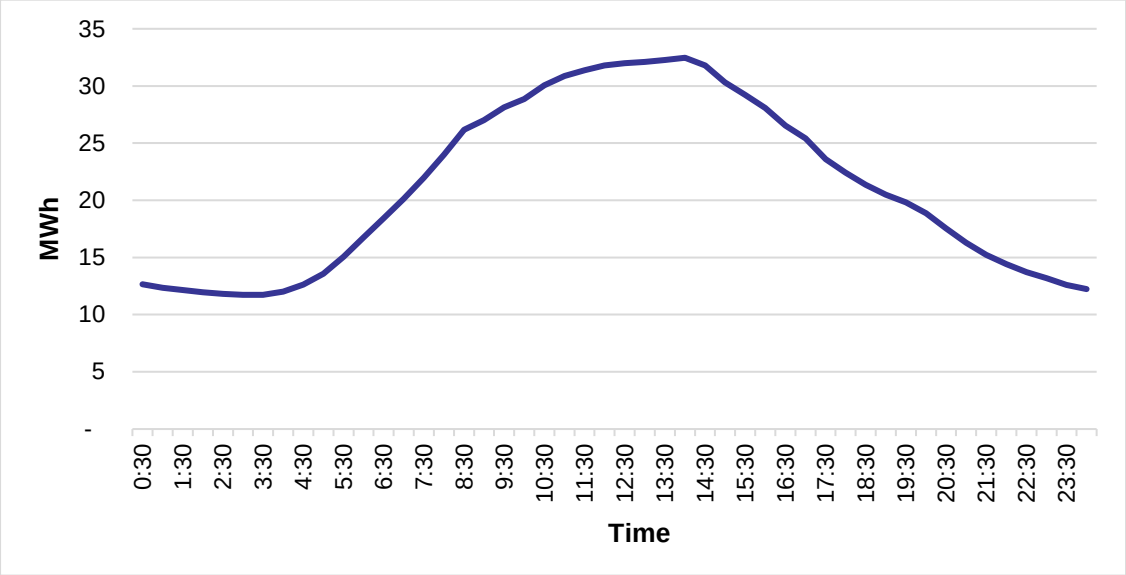


Figure 5–2: NSP56 customers' aggregated demand (kVA) on 2019's peak demand day[45]



As seen in Figure 5–2 the maximum peak occurred at 2pm, suggesting customers may already be responding to the existing charging windows, and therefore shifting their consumption over the day. It is also notable that the demand trails off significantly toward the period when the network is under the most stress in the late afternoon to evening.

5.1.2 Location of default medium business tariff customers and performance at zone substations

The next step in the analysis is to identify where each of our NSP56 customer are located at our zone substations. Of the 1,060 customers allocated to this tariff in 2019, 80% are located at 29 zone substations. Table 5-1 shows the location of these customers.

[44] This chart reflects the average energy consumed per 30 min interval across all weekdays in 2019. It is not representative of an average day.

[45] Peak demand day for 2019 was 1st March 2019.

Table 5-1: The location of NSP56 customers (top 80% of customers)

ZSS code	No. of customers	Cumulative % of total
CYN	47	4%
EPG	46	9%
WGL	46	13%
BWR	44	17%
FGY	40	20%
BRA	39	24%
CRE	36	27%
WO	36	31%
TT	33	34%
LDL	31	37%
WT	29	39%
HPK	28	42%
NRN	28	44%
OFR	28	47%
TGN	28	49%
BDL	27	52%
CLN	27	54%
PHM	27	57%
RWT	27	59%
BN	26	62%
MWL	26	64%
MFA	23	66%
SLE	23	68%
ELM	22	70%
KLO	22	72%
SMR	22	74%
WGI	20	76%
DRN	19	78%
MOE	19	80%

When the peak load on peak days are close to a zone substation's capacity, it signals to AusNet Services that new investment may be necessary. For this reason, we have looked at the zone substations listed in Table 5-1, and then focussed on those that are close to capacity.

To determine which zone substations are close to capacity, we looked at our 2020-24 Distribution Annual Planning Report, and calculated the maximum forecast over 2020 to 2024 as a percentage of its name plate rating, and firm capacity summer rating. When the percentage is above 85%, we defined the zone substation as being close to capacity. Table 5-2 below shows the capacity status of each zone substation where our NSP56 customers are located.

Table 5-2: Capacity status of ZSS where our NSP56 customers are located

ZSS code	Capacity status
CYN	Near capacity
EPG	Near capacity
WGL	Near capacity
BWR	Near capacity
FGY	Near capacity
BRA	Near capacity
CRE	Near capacity
WO	Not near capacity
TT	Near capacity
LDL	Not near capacity
WT	Near capacity
HPK	Not near capacity
NRN	Not near capacity
OFR	Near capacity
TGN	Near capacity
BDL	Not near capacity
CLN	Near capacity
PHM	Near capacity
RWT	N/A
BN	Near capacity
MWL	Not near capacity
MFA	Near capacity
SLE	Near capacity
ELM	Near capacity
KLO	Not near capacity
SMR	Near capacity
WGI	Near capacity
DRN	Near capacity
MOE	Near capacity

We then proceed to plot the load profile for each zone substation on its peak loading days that are close to capacity. The following zone substations warrant closer analysis because they are ranked higher based on its number of NSP56 customers and the zone substation's capacity status:

- Warragul (WGL), Cranbourne (CRE), Thomastown (TT), Clyde North (CLN) and Doreen (DRN)

With the exception of zone substation TT, load profiles for the other four higher ranked zone substations show that the peak loading occurred during the evening. As this is the period of greatest stress on the network, the load profiles showed that it aligns with NSP56's current evening peak charging window. It is also noted that whilst peak demand occurs during this period, demand falls quickly after 9pm, suggesting that the current evening peak charging window may be too wide.

Load profiles for each zone substation are shown in the tables below.

Figure 5–3: Zone substation load profile on their peak loading days (top five ranked)

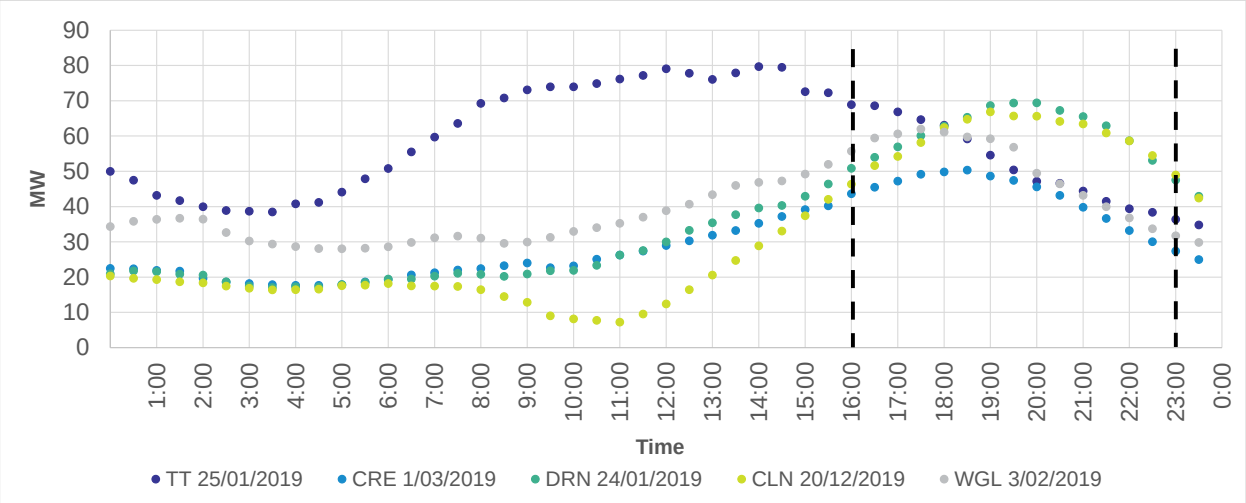


Figure 5–4: Zone substation load profile on their peak loading days (others ZSS, group 1)

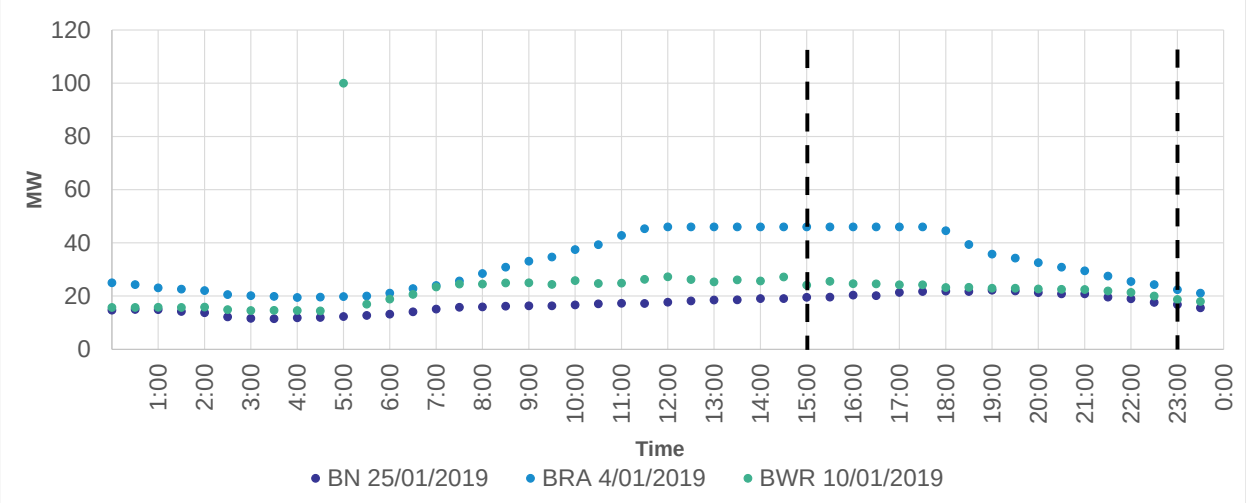


Figure 5–5: Zone substation load profile on their peak loading days (others ZSS, group 2)

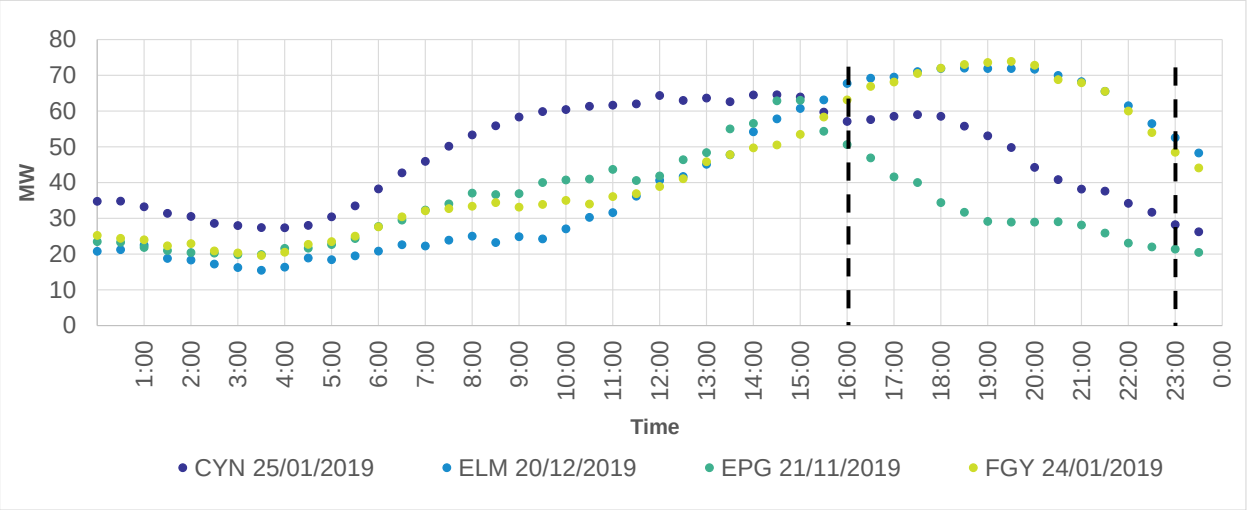


Figure 5–6: Zone substation load profile on their peak loading days (others ZSS, group 3)

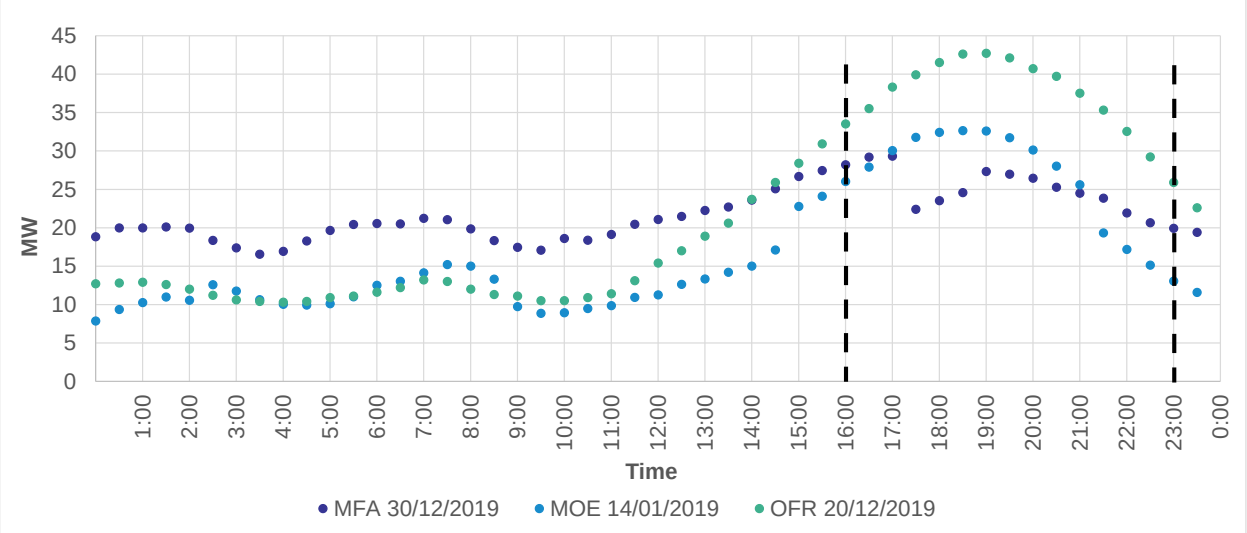


Figure 5–7: Zone substation load profile on their peak loading days (others ZSS, group 4)

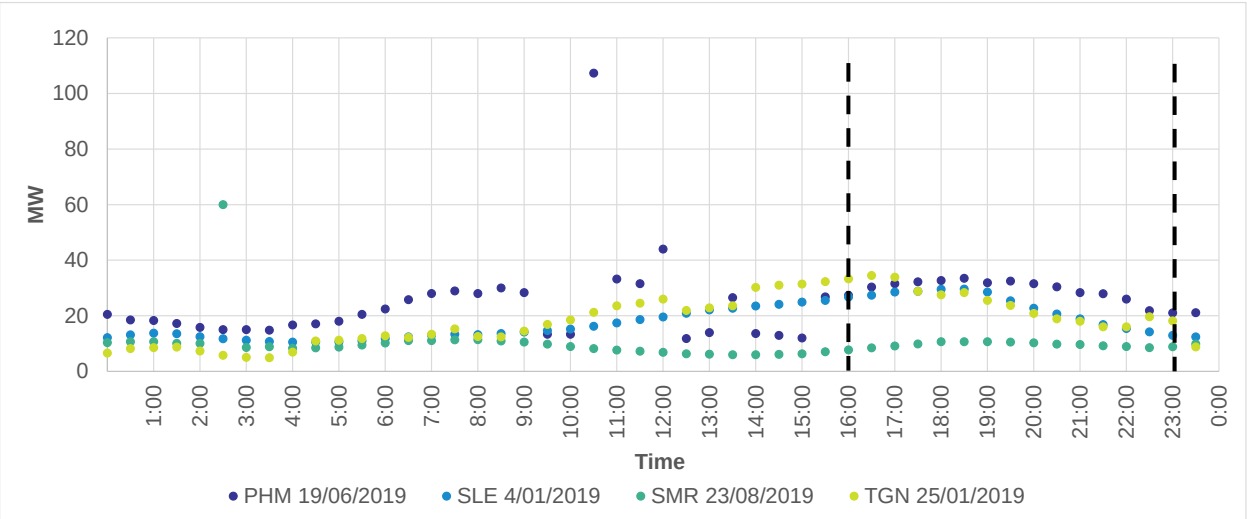
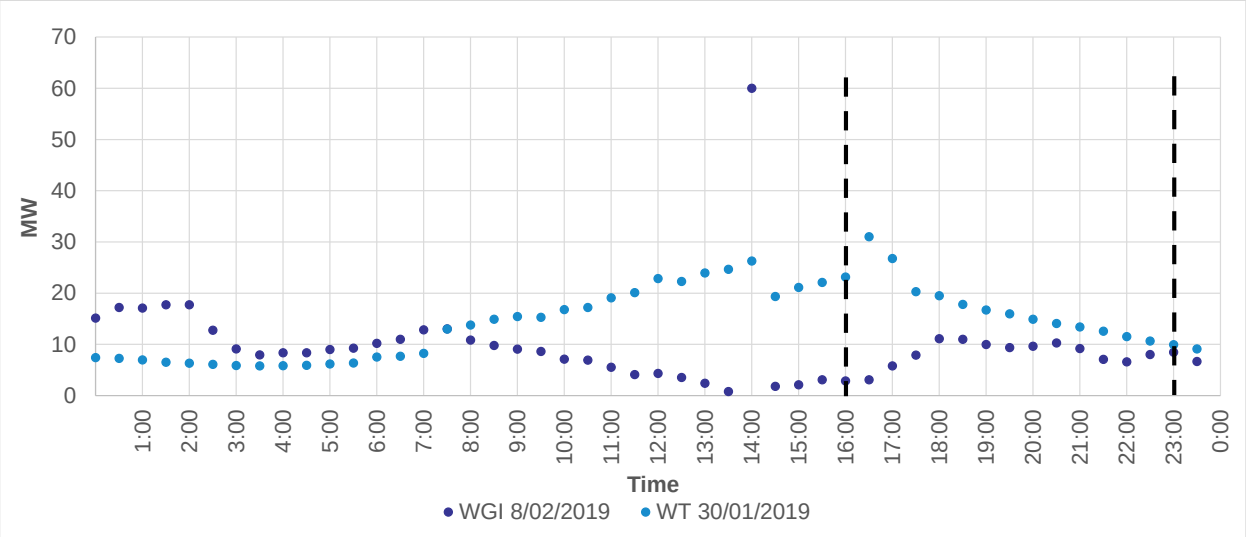


Figure 5–8: Zone substation load profile on their peak loading days (others ZSS, group 5)



As mentioned above, the load profile for zone substation TT is different to the other zone substations. We undertook further analysis to understand why this is the case. On the peak loading day for zone substation TT, the peak occurred at 2pm on Friday 25 January 2019. This is earlier than expected, and it may be due to businesses bringing forward their activity in anticipation of the Australia Day long weekend. It may also be due to it being an extremely hot day (thus increasing air-con use during the afternoon). As noted by the Bureau of Meteorology (BOM):

- Many sites had their highest January temperature on record, mostly on Friday 25 January 2019.
- Kerang recorded 47.6 °C on Friday 25 January 2019 - this is a new January temperature record for Victoria.
- The night between the 24th and 25th was exceptionally warm across most of Victoria, with many sites recording their highest overnight (6pm to 9am) minimum temperature.[46]

We also note that the 25 January 2019 was a peak loading day for several other zone substations, where some of these substations also recorded their peak in the afternoon.

Further analysis of zone substation TT shows:

- On the second highest peak demand day in 2019 (24 January 2019), the peak occurred at 6pm.
- On the third highest peak demand day in 2019 (21 November 2019), the peak occurred at 2:30pm. This may be due to it being an extremely hot day[47] (thus increasing air-con use during the afternoon) and/or the fact that a cold front and associated trough crossed Melbourne on 21 November, leading to the temperature at 3pm being lower than at 9am.[48]

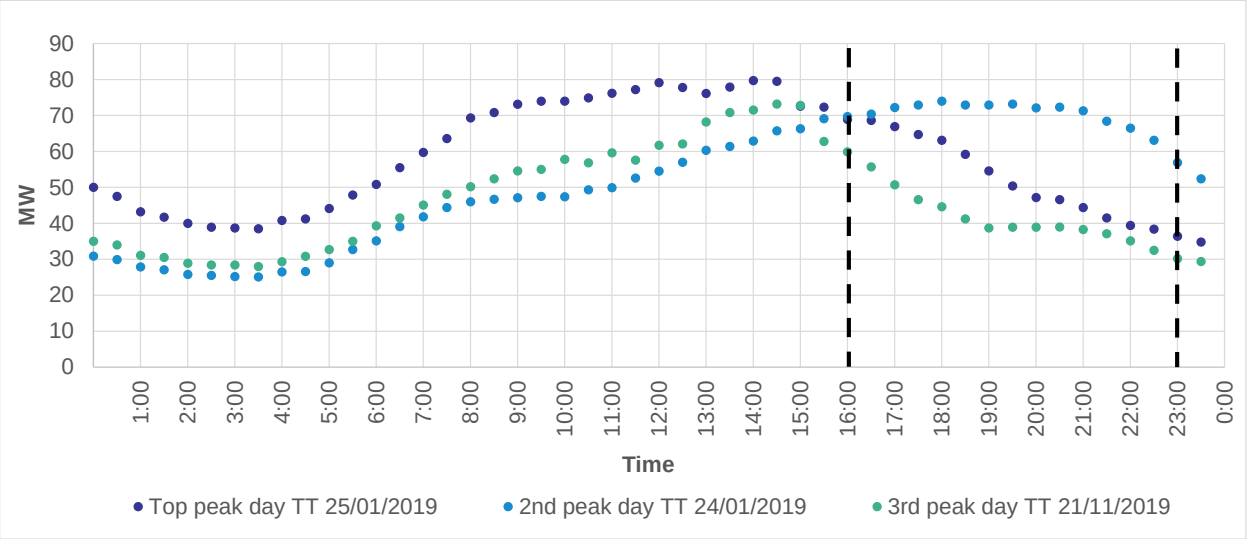
This is shown in Figure 5–9 below.

[46] www.bom.gov.au/climate/current/month/vic/archive/201901.summary.shtml.

[47] Most reporting sites had their highest November temperature on record on the 21st; at most of these sites the previous records were exceeded by 2.0 °C or more, www.bom.gov.au/climate/current/month/vic/archive/201911.melbourne.shtml.

[48] www.bom.gov.au/climate/current/month/vic/archive/201911.melbourne.shtml; www.bom.gov.au/climate/dwo/201911/html/IDCJDW3050.201911.shtml.

Figure 5–9: Top 3 peak demand days for ZSS TT in 2019



5.1.3 Peak charging window proposal

From the analysis, it is evident that:

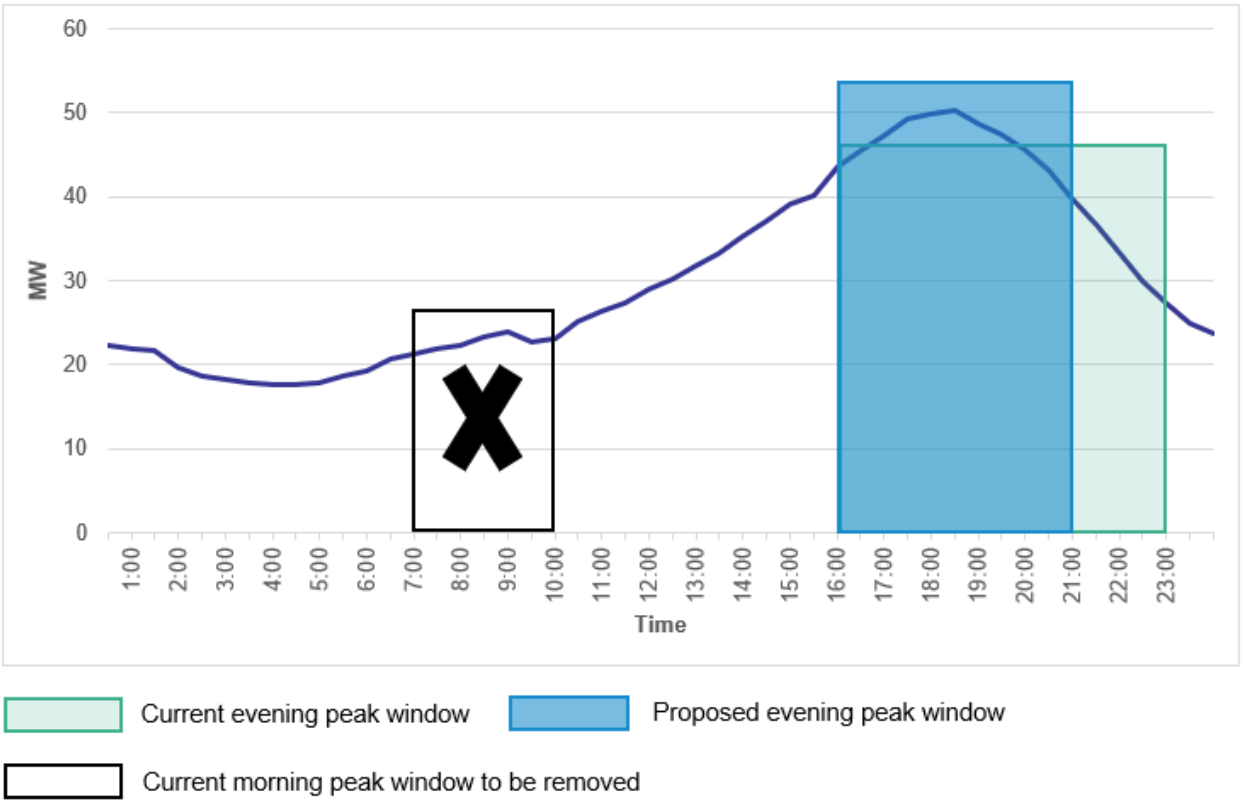
- The currently designated morning peak period (7am to 10am) does not represent a period where the network is stressed, and for many business customers would likely be a period to which customers could load shift.
- The late-night portion of the evening peak period (up to 11pm) also does not represent a period where the network is stressed. Whilst it is less likely to be a time to which business customers would shift load, the opportunity should be provided, and the existing load served during this period should not be charged at high rates.

To address this issue, we are proposing to make the following changes to our NSP56 tariff in our revised TSS:

- Morning peak charging window (7 am to 10 am, Monday to Friday) will be removed;
- Evening peak charging window (4 pm to 11 pm, Monday to Friday) will be narrowed and change to 4 pm to 9 pm, Monday to Friday;
- Shoulder charging window (10 am to 4 pm, Monday to Friday) will remain unchanged;
- Off-peak charging window will be amended to (12 am to 10 am and 9 pm to 12 am, Monday to Friday); and
- Off-peak charging window on weekends remain unchanged.
- All other tariff components of NSP56 will remain unchanged.

Figure 5–10 depicts the peak charging window changes for NSP56.

Figure 5–10: Propose changes NSP56 peak charging window



We presented the above findings and proposed changes to the EUAA as part of our TSS consultation process. We also consulted on the transition to the new NSP56 pricing structure which included:

- applying the changes from 1 July 2023; and
- applying changes in stages to the NSP56 pricing structure across the 2022-26 period.

These arrangements were developed with the assistance of the EUAA. In particular, the EUAA considered that the two year lead time should provide sufficient time for NSP56 customers to understand and prepare for the tariff change. We also accepted the EUAA's recommendation that the proposed tariff changes should be supported by effective engagement and communication with the affected customers.

Appendix A – Complying with the pricing principles

A.1 LRMC

Rule 6.18.5 (f) prescribes the marginal cost concept that must be utilised when developing network tariffs, stating that "*each tariff must be based on the long run marginal cost of providing the service*".

The requirement to take into account the LRMC reflects a fundamental economic concept - namely allocative efficiency. Allocative efficient outcomes will be promoted if customers consume electricity up to the point where the marginal benefit to them of consuming an additional unit of energy (kWh, kW or kVa, depending on the cost driver being priced) equals the marginal cost of providing that extra unit of energy to that customer.

The three key questions that stem from the discussion of LRMC are:

- What methodology should be used to calculate the LRMC?
- What 'service attributes' should be costed and therefore subject to a variable price based on the LRMC of supply? and
- What cost information should be included in the LRMC calculation?

A.1.1 LRMC methodology

Consistent with the requirements of Rule 6.18.5 (f), AusNet Services will adopt the Average Incremental Cost (AIC) approach, which is underpinned by a business' forecast of the change it expects to incur in its future costs (numerator) as a result of its forecast change in demand for its service/s (denominator), with both the numerator and denominator discounted back to create a Net Present Value (NPV).

$$LRMC = \frac{\sum NPV(Forecast\ Augmentation\ Capex + Forecast\ Augmentation - Related\ Opex)}{\sum NPV\ (Forecast\ Cumulative^{49}\ Growth\ in\ MW)}$$

The AIC approach ensures that if AusNet Services' underlying demand and cost forecasts eventuate, the NPV of revenue generated over the evaluation period from the implementation of a cost-reflective price based on the calculated LRMC will equal the NPV of the costs that it incurs – that is, growth is 'self-funding'. AIC is commonly used by distribution networks, as it is generally considered to be well suited to situations where there is a fairly consistent profile of investment over time to service growth in demand.

A.1.2 Types of cost included in the LRMC

AusNet Services has included the following types of costs in its LRMC model:

- Forecast augmentation capital expenditure: As future changes in customer demand (MW) can affect the timing and size (and therefore cost) of any expenditure in this cost category; and
- Incremental forecast operating expenditure related to changes in demand or energy consumption: As future changes in customer demand and consumption are likely to drive

[49] Cumulative demand is used as this creates a value that if charged to all of that future demand growth, would lead to the NPV of revenue being exactly equal to the NPV of the cost of those augmentation projects. This is not the case if we estimate the LRMC based on year-on-year demand (instead of total cumulative incremental demand), unless the resultant amount was applied as a one-off up front cost (e.g., only in the year that the increment in growth occurs). However, this is inconsistent with the development of an on-going price signal.

a small amount of its future operating expenditure (e.g., short run operational and maintenance costs).

AusNet Services has explicitly excluded the following costs from its LRMC model:

- Forecast replacement capital expenditure: The timing and scale of these costs is not expected to be materially affected by AusNet Services' forecast change in demand or energy consumption, rather, these costs are predominately driven by condition and risk factors unrelated to the loads placed on the asset[50].
- Forecast DER integration capital expenditure: The timing and scale of these costs is predominately driven by voltage-related issues caused by significant amounts of PV being exporting back into the grid at times coincident with when native demands on the grid are low or moderate;
- Forecast corporate, safety related and IT capital expenditure costs: The timing and scale of these costs will not be affected by changes in future customer demand or energy consumption.
- Sunk costs: This expenditure will not be influenced by future changes in demand or consumption.
- Non-incremental forecast operating expenditure: This expenditure will not be influenced by future changes in demand or consumption.

For further information relating to the LRMC, refer to LRMC and Avoidable Cost Model that was submitted as part of our Initial Proposal.

A.2 Stand alone and avoidable cost

Rule 6.18.5 (e) requires 'that for each tariff class, the revenue expected to be recovered must lie on or between:

(1) an upper bound representing the stand-alone cost of serving the retail customers who belong to that class; and

(2) a lower bound representing the avoidable cost of not serving those retail customers'.

Therefore, for a tariff to be deemed to be efficient under the Rules, it must deliver a stream of revenue from a customer, or as a proxy, a class of customers, that is between this upper and lower bound. This is commonly known as the 'efficient pricing band'. There are two reasons why a price within this 'band' is deemed to be efficient:

- Greater than the avoidable cost: If the revenue expected to be recovered from a customer / customer class does not exceed the cost that the business would avoid if they did not provide them with electricity services, that customer is (a) being subsidised by AusNet Services' remaining customer base, and (b) would tend to consume more electricity than would be efficient;
- Less than the stand alone cost: Exceeding this upper bound may result in that customer (or group of customers) by-passing AusNet Services' existing distribution network in order to avoid paying AusNet Services' tariffs, despite the fact that the incremental cost to AusNet Services of providing these services to that customer (or group of customers) may be less than the alternative (by-pass) option.

AusNet Services notes that there are a number of methodologies that may be used to calculate the stand-alone cost of servicing a customer, or group of customers. These include:

[50] For example, if demand remained the same – i.e., there was neither an increase or decrease from current levels – AusNet Services' replacement expenditure would remain almost identical to that which it proposes under its existing program of works (which reflects its current forecast of peak demand).

- A 'notional' network solution, assuming:
  - A 'bottom-up' build of stand-alone costs, reflecting the construction of a modern day equivalent, optimised asset base to deliver distribution services to each customer or group of customers on a stand-alone basis; and
  - A 'top-down' approach, which involves allocating each existing asset / asset type to a customer or group of customers using a cost allocation methodology that reflects the underlying cost drivers.
- A by-pass solution, assuming:
  - A network solution, being the construction of a connection from the customer's premises into the transmission network in order to by-pass the distribution network; or
  - A non-network solution, being on-site generation assuming a solar PV system, back up generation (if required) and battery storage; or an embedded generation system for larger customers.

AusNet Services has utilised the following methodologies to calculate the stand-alone cost of supply:

- A by-pass solution has been adopted in relation to sub-transmission connected customers. To apply this methodology, AusNet Services has estimated the costs (in NPV terms) that two of its largest customers would incur if they were to bypass its distribution network, and then compared this to the NPV of those customer's future DUoS bills (based on current DUoS tariffs); and
- A non-network solution for its residential and commercial customers who are connected to the high voltage and low voltage networks. To apply this methodology, AusNet Services estimated the cost to various sized residential and small commercial customers (notionally, high, medium and low using customers) of installing a PV and battery system.

In relation to the avoidable cost test, AusNet Services notes that there are a number of issues that affect the way the avoidable cost of supply could be calculated, including:

- The period over which avoided costs should be calculated (short term versus long-term) – this will affect whether or not avoided capex costs should be included, or just operating and maintenance costs.
- The consumption profile of the customer assumed to be disconnecting from the grid – this will affect whether or not AusNet Services will avoid future augmentation costs (because this will be a function of whether or not and the degree to which that customer is assumed to use electricity at times when the broader network is peaking); and
- Whether the avoided cost calculation should be based on the avoided costs of serving an individual customer, or a group of customers and, if the latter, whether that group should be assumed to be in a similar location – this will influence whether future capital expenditure associated with upgrading the network to meet required levels of service and replacement expenditure should be included in the calculation.

AusNet Services has calculated the avoidable costs of supplying each tariff class based on the estimated co-incident peak demand of a selection of customers in that tariff class (with the customers chosen being those that have been used to model the stand-alone cost) and multiplied by the LRMC of supply in order to inform our estimate of the costs that AusNet Services would avoid if an average customer within that tariff class no longer consumed energy during times of system peak demand.

This methodology reasonably assumes that AusNet Services will not be able to avoid any replacement expenditure if a customer disconnects from its network.

For further information relating to stand alone and avoidable costs, refer to the Stand Alone Cost model and, LRMC and Avoidable Cost Model that was submitted as part of our Initial Proposal.