

# Victorian Electricity Networks Forum Series

## Third Forum - Household Network Pricing



Pre-reading

March 2019



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### ABBREVIATIONS

AER	Australian Energy Regulator
EV	Electric vehicle
AEMO	Australian Energy Market Operator
ToU	Time of use
SEIFA	Socio-economic indexes for areas

## 1. BACKGROUND

### 1.1 PURPOSE

This document has been prepared by the Victorian electricity distributors—AusNet Services, CitiPower, Jemena, Powercor and United Energy—the five companies that transport electricity to homes and businesses across Victoria. It focuses on residential customer network pricing structures and provides background information on our proposed pricing structure and transition approach.

We have prepared this document as pre-reading to a stakeholder forum being held on 20 March 2019 in relation to residential network pricing structures. The purpose of this document is to provide information to participants on the issues for discussion, to assist them to provide feedback on the day.

### 1.2 ABOUT PRICING STRUCTURES

AusNet Services, CitiPower, Jemena, Powercor and United Energy are the five companies that transport electricity to homes and businesses across Victoria. We charge electricity retailers for providing these services, not customers directly. But ultimately, customers pay for our services within the electricity bill they receive from their retailer.

Before we set the prices we charge electricity retailers, we must determine how to structure our prices. At its simplest, there are three main types of residential electricity network pricing structures as shown in Figure 1–1.

**Figure 1–1: Victorian household network tariff structures (simplified)**

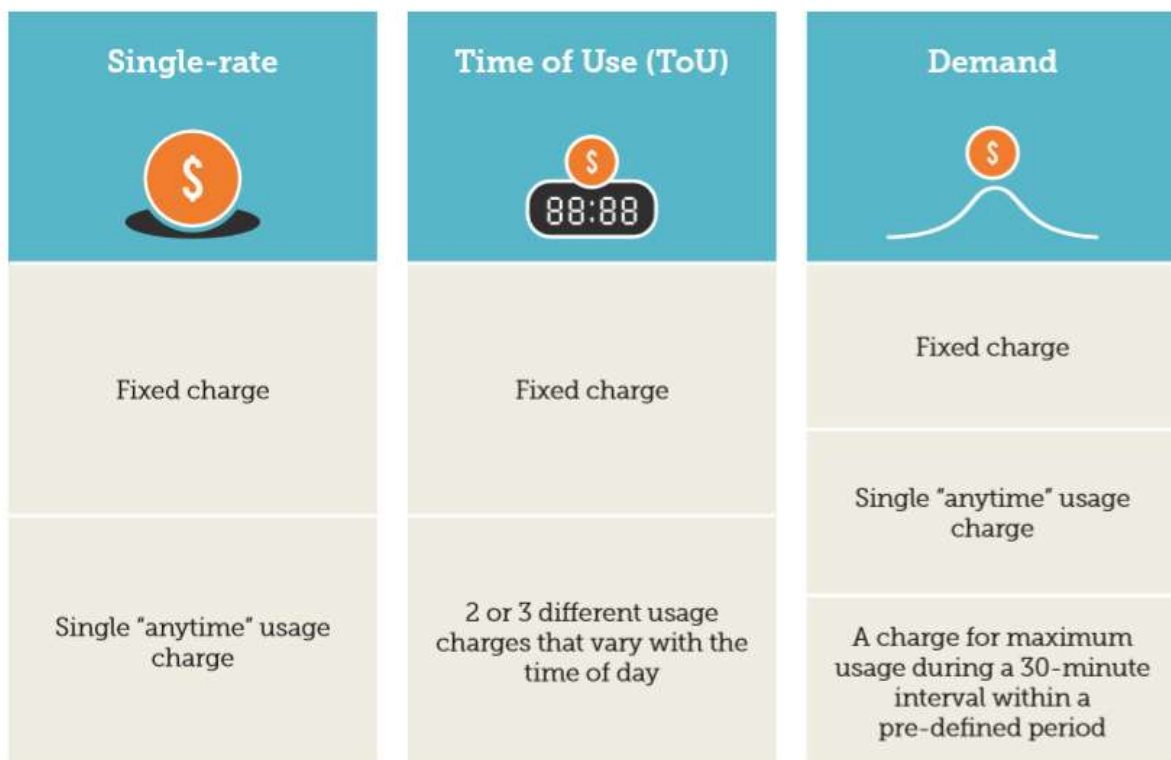
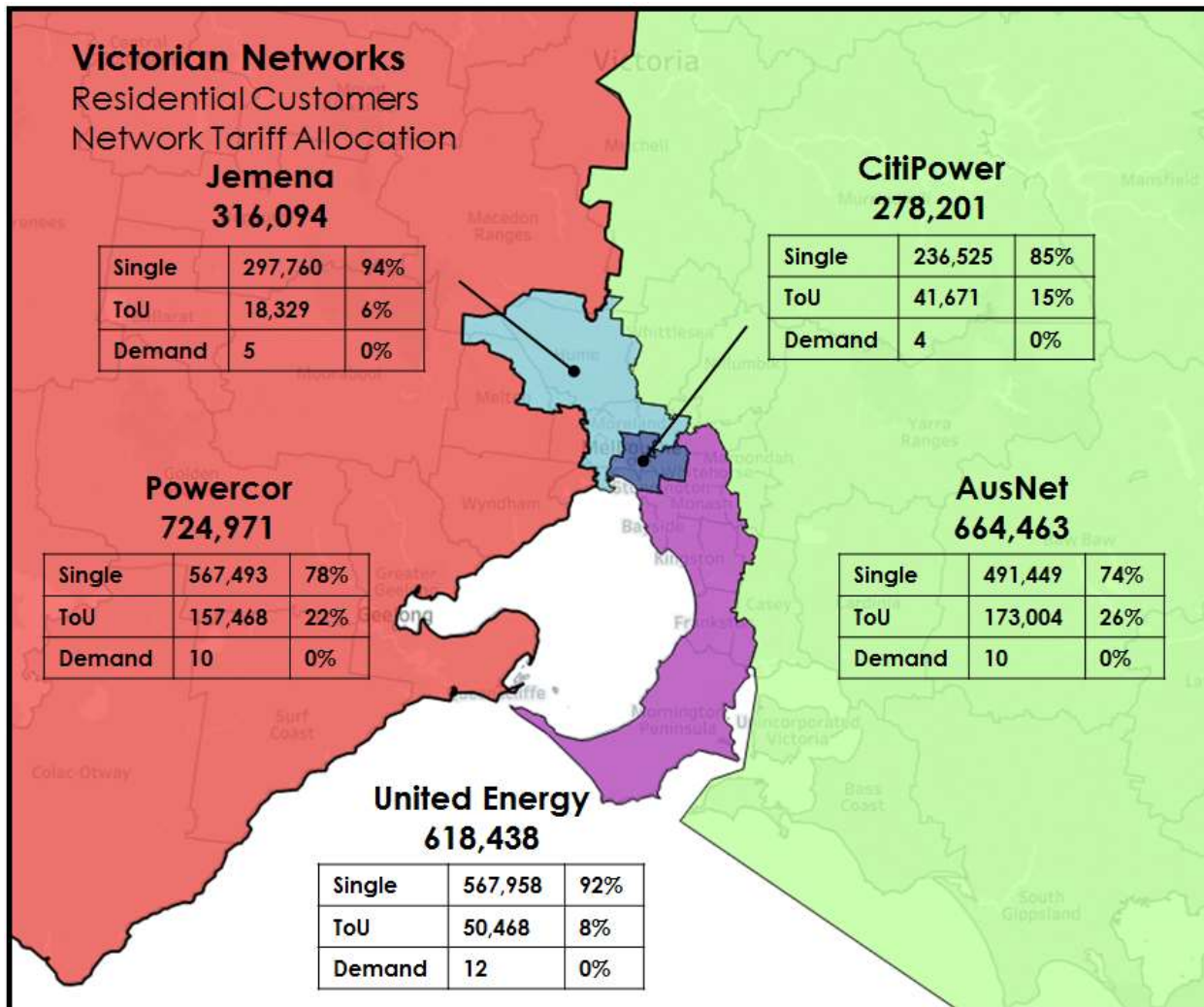




Figure 1–2 sets out the approximate number of Victorian residential customers on the three electricity network pricing structures as at December 2018.

**Figure 1–2: Victorian residential customers are currently assigned to different network pricing structure**



## 1.3 WE ARE REVIEWING OUR PRICING STRUCTURES TO APPLY FROM 1 JANUARY 2021

Every five years we undertake a major review of our electricity network pricing structures. We are currently undertaking one of these review processes, and any new or changed pricing structures will come into effect from 1 January 2021. We need to submit a proposed set of electricity network pricing structures to the Australian Energy Regulator (**AER**) for approval in July 2019.

## 1.4 SEPARATE SMALL BUSINESS CONSULTATION

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The circumstances facing small businesses are quite different to households. So we are undertaking targeted consultation with small business representatives to ensure their perspectives are understood and carefully considered.

We are currently consulting with the following small business representatives regarding small business electricity network pricing structures:

- Council of Small Businesses Organisations Australia;
- Australia Industry Group;
- Energy Consumers Australia; and
- Victorian Chamber of Commerce and Industry.

If you have any feedback on who we should engage with in relation to small business pricing structures, or any feedback on these yourself, please let us know.

## 2. REFLECTIONS ON WHAT WE HAVE HEARD SO FAR

Our current views on future residential network pricing structures are a product of our engagement with customers and stakeholders.

### 2.1 HOUSEHOLDS

The table below describes the feedback we have generally received from residential customers to date. Most consultation has been conducted through face-to-face customer forums held by the various distributors.<sup>1</sup>

What we have heard from households	Our reflections on what we have heard
<ul style="list-style-type: none"> <li>Electricity pricing is complex and not well understood;</li> <li>It is fair for households to pay in line with the cost they each impose on shared community infrastructure like an electricity network;</li> <li>Some customers may need to be supported if any changes to pricing structures are imposed;</li> <li>Mixed support for single-rate, ToU, and demand pricing structures;</li> <li>ToU pricing is more readily understood than demand pricing;</li> <li>There is little support for a subscription pricing<sup>(i)</sup> because of its relative complexity;</li> <li>Peak time rebates<sup>(ii)</sup> are supported if cost-effective.</li> </ul>	<ul style="list-style-type: none"> <li>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 capable of responding to any changes we might implement;</li> <li>Customers prefer pricing mechanisms that reward rather than penalise (a preference for “carrots” over “sticks”)</li> <li>Many customers, despite access to personalised information, time, and experts, have difficulty understanding demand pricing;</li> <li>ToU pricing is well understood and “part of life” – customers readily cite examples such as public transport fares as examples of ToU pricing.</li> </ul>

(i) This option applies a fixed charge for each customer based on pre-defined peak period usage band

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

### 2.2 CUSTOMER AND STAKEHOLDER REPRESENTATIVES

The table below summarises our consultation efforts with customers and stakeholder representatives to date, what we have heard, and what we are doing in response. This consultation has been conducted through a number of one-on-one and small group meetings, a public consultation paper, as well as two major consultation forums held in 2017 and 2018.

<sup>1</sup> See for example: Jemena's Peoples Panel: <https://yourgrid.jemena.com.au/33868/documents/87920>; CitiPower, Powercor and United Energy deliberative forums: <https://talkingelectricity.com.au/wp/wp-content/uploads/2018/08/CPPCUE-RESI-AND-SME-Forum-Report-Final-5-Jul-2018.pdf>.

What we have heard from customer and stakeholder representatives	Our reflections on what we have heard
<ul style="list-style-type: none"> <li>• Pricing principles should be: affordability, simplicity, equity, economic efficiency and adaptability – and when designing tariff structures to meet these, recognition that some trade-offs are required between objectives;</li> <li>• Pricing structures should be able to be understood and managed by both retailers and customers;</li> <li>• Peak time rebates are supported if cost-effective;</li> <li>• Transition and complementary measures are important to consider.</li> </ul>	<ul style="list-style-type: none"> <li>• Given retailers often mirror network pricing structures, it is important that customers understand, and can therefore respond to, network pricing structures;</li> <li>• We agree that moving to more cost-reflective pricing structures should be explored;</li> <li>• We will continue to explore demand management options as potentially a very powerful tool to manage peak demand;</li> <li>• Transitional and complementary measures are the focus of the third forum.</li> </ul>

## 2.3 RETAILERS

We have engaged with a number of retailers in relation to network pricing. Further, on 9 February 2019 we wrote to all retailers outlining some key elements of our proposals, and seeking their feedback. Some retailers have responded to this letter. The table below summarises what we have heard so far and what we are doing in response.

What we have heard from retailer representatives	Our reflections on what we have heard
<ul style="list-style-type: none"> <li>• The five distributors should align their residential pricing structures;</li> <li>• Network pricing structures should be focussed on retailers rather than customers;</li> <li>• Customers need to be informed of any changes that could result to their bills from a change in pricing structures;</li> <li>• Retailers would value further engagement with networks on tariff reform going forward.</li> </ul>	<ul style="list-style-type: none"> <li>• Generally, retail pricing structures have tended to closely align to network pricing structures – as a result stakeholders have asked us to have one-eye to customer outcomes if this pattern continues into the future;</li> <li>• We agree that customers should be made aware of material changes to their retail pricing structures;</li> <li>• Retailers determine when and how it may change a customers' retail pricing structure, so customer communications about pricing structures must be done collaboratively.</li> </ul>



### 3. TOU NETWORK PRICING IS AN APPROPRIATE NEXT STEP FOR VICTORIAN HOUSEHOLDS

#### 3.1 THE PROBLEM WE ARE TRYING TO ADDRESS

Our costs, and therefore customers' bills, are influenced by the need to meet peak demand on the electricity grid – that is, when everyone is using electricity at the same time. In most parts of Victoria this occurs on a very hot day when households are using air-conditioners. In some country areas, particularly where there is no natural gas, peak usage can also be caused by controlled household hot water heating and household electric heating on a very cold winter's night.

If we can reduce growth in peak usage, this will reduce future network capacity requirements, and put downward pressure on customer bills in the long-term.

In the past, new capacity investments have been significant, particularly as household air-conditioner penetration has increased.

Our analysis indicates that, at this point in time, additional capacity requirements over the 2021-25 period are mostly driven by new customers connecting to the network, rather than growth in the average customer's electricity usage at the time when the network is under most stress.

It is important to note that new customers pay a capital contribution when connecting to the network. This is calculated so that network prices won't be affected by newly connecting customers, including due to their contribution to peak demand.

Over the 2021-25 period, additional capacity investment will be a relatively low part of Victorian networks' cost base. Therefore deferring these investments would have a very modest impact on customer bills. As shown in Table 3–1, even under the extreme case where more cost-reflective network prices could defer **all** 2021-25 demand-driven capacity investment, the impact on household bills would be less than 1 per cent. The average Jemena household would see the biggest 2026 retail bill reduction – this would be only be \$11 (or 0.8 per cent).

**Table 3–1: Size of the prize – contribution to 2026 retail bill of 2021-25 capacity investment caused by average coincident peak demand growth**

Distribution area	Demand-driven investment 2021-25 (\$2020, \$m)	Contribution to 2026 retail bill	
		Dollars (\$2020)	% of total bill
CitiPower	0	0	0.0
Powercor	141	5	0.3
United Energy	67	3	0.2
Jemena	100	11	0.8
AusNet Services	67	3	0.2

#### 3.2 LOOKING BEYOND 2025

While the short-term benefits of cost-reflective pricing are reasonably limited, we also need to think about the future beyond 2025.

There is uncertainty about how customers will use our network beyond 2025, particularly the intersection with solar, batteries and electric vehicles (**EV**).

In particular, stakeholders have raised the potential growth in EV uptake (following global trends) which may lead to a return in peak demand driving additional investment.

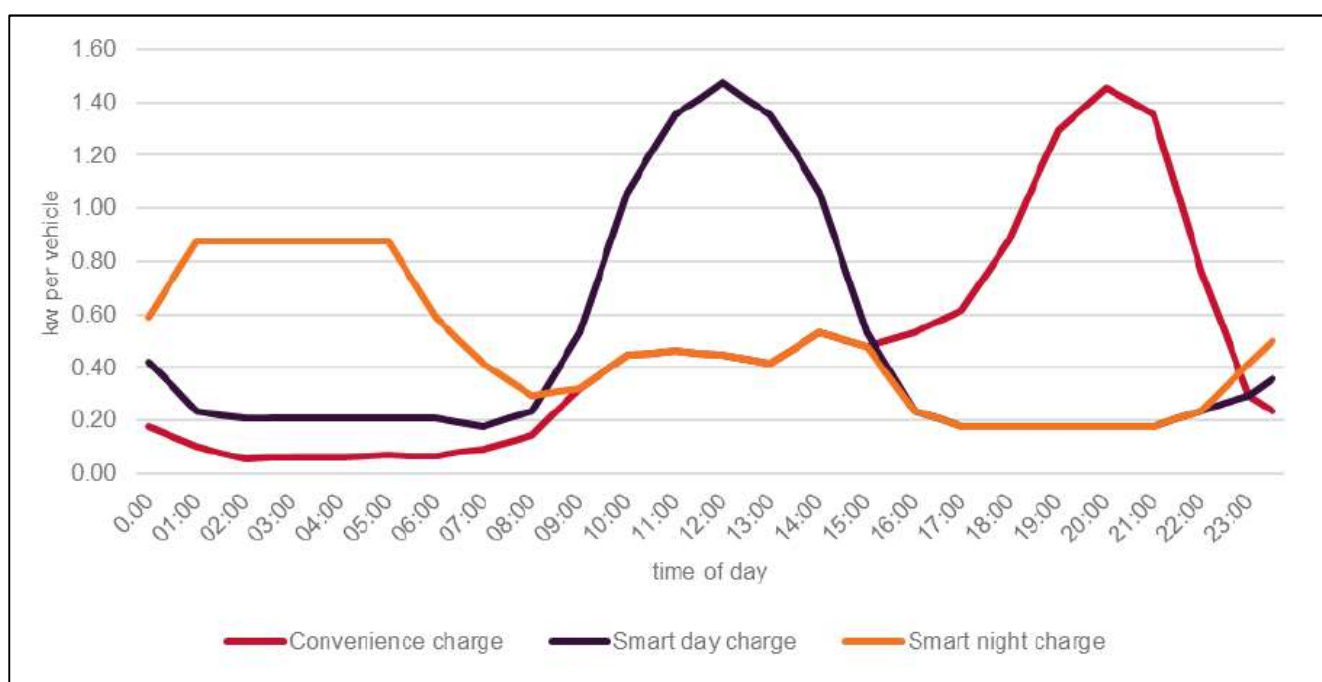
While there is general consensus that the penetration of EVs will increase, there is less certainty about the scale and pace of change. According to the Australian Energy Market Operator's (**AEMO**) 2018 Integrated System Plan:

*Increases in electric vehicles will impact the uses of power, but over the plan period [to 2039/40] they are forecast to have a small impact on overall grid-based demand.<sup>2</sup>*

We have considered at a high-level how EV owners might charge their vehicles into the future. Figure 3–1 provides an example of electric vehicle charging profiles for a residential user in summer under three charging options<sup>3</sup>:

- convenience charging—predominantly charged as soon drivers get home, including during peak hours.
- smart day charging—predominantly charged in the middle of the day during the solar trough.
- overnight charging—predominantly charged overnight, after the evening demand peak.

**Figure 3–1: Electric vehicle daily charge profile, residential user (weekday in February)**



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

A future challenge will be optimising this EV load to ensure the peak does not intensify and shift to just after the peak-pricing window we may initially target, or simultaneous charging causes ramping issues on the network. In the longer-term diversifying overnight charging periods (smart-night charging) potentially through automation technology may best facilitate the integration of EVs into the grid. There are a range of ways to incentivise this,

<sup>2</sup> AEMO, *Integrated System Plan*, July 2018, p5.

<sup>3</sup> Sourced from AEMO, *2018 Electricity Statement of Opportunities*, August 2018, p32.

## 3 — TOU NETWORK PRICING IS AN APPROPRIATE NEXT STEP FOR VICTORIAN HOUSEHOLDS

for example through controlled load pricing arrangements – these arrangements are in place for certain appliances today.

While EVs are not expected to be a key driver of peak demand growth prior to 2025, we do expect there to be increasing diversity in how customers use electricity, due to an increasing number of customers installing rooftop solar or large air-conditioning systems. Moving towards cost reflective pricing, in the form of time of use (ToU) pricing, will be fairer as it will better reflect the real costs of using the network in light of these changes. We note that the Energy Security Board has raised the importance of moving customers with smart meters onto cost-reflective network pricing structures.<sup>4</sup>

Providing appropriate price signals assists customers to make efficient investment decisions and will create markets for new technologies (e.g. batteries) that can efficiently reduce the need for future network investment. Again, the potential for economic uptake of these technologies is likely to be higher in 2025 and beyond than it is today.

### 3.3 A TOU PRICING STRUCTURE BEST BALANCES STAKEHOLDER FEEDBACK AS WELL AS THE CHALLENGES WE ARE CURRENTLY MANAGING

Taking the above into account, together with customer and stakeholder feedback, we consider:

- a move towards more cost reflective pricing continues to be in the best interests of customers; however
- the pace of this move should be commensurate with the potential short to medium-term benefits of change.

#### **Box 3–1: Proposed ToU pricing structure for residential customers**

We propose to re-assign all residential customers on a single-rate, or existing ToU network pricing structure, to a new, cost-reflective, ToU pricing structure.

The vast majority—over 83 per cent—of Victorian residential customers are currently on a single-rate network pricing structure. Almost all other residential customers are currently assigned to an existing ToU pricing structure. Our understanding is that retailers generally mirror network pricing structures and customer assignments at the retail level.

We consider a ToU pricing structure, at this point, best meets these key principles co-designed with key stakeholder groups in our first stakeholder forum in 2017 (see Table 3–2). Our rationale for reassigning customers currently on a ToU network pricing structure (as well as those on a single-rate structure) to the new cost-reflective ToU pricing structure is:

- legacy ToU network pricing structures have a peak-period of 7am to 11pm, typically on weekdays only, which does not align particularly well to periods of peak demand; and
- a single household ToU network pricing structure will make communicating a clear message to customers easier, and mitigate potential for customer and stakeholder confusion into the future.

<sup>4</sup> COAG Energy Council, Energy Security Board, *Strategy Energy Plan – consultation on proposed metrics*, November 2018.

**Table 3–2: Assessment of ToU pricing structure against principles designed by key stakeholders**

Principle	How a ToU pricing structure is consistent with this principle
Simplicity	<p>Compared to other options (such as demand pricing), it is easier for customers to understand that consumption between certain times is more costly than consumption during other periods.</p> <p>A single ToU pricing structure is simpler to communicate, supporting reassignment of customers currently on a ToU pricing structure to the new ToU pricing structure.</p> <p>Beyond 2025, potential growth in home automation and third party energy management services may make it less important to customers to directly engage with and understand different electricity pricing structures.</p>
Economic efficiency	Prices are more reflective of network costs than the status quo, reflecting a move towards more cost-reflective pricing
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	The opt-out arrangements can help customers to avoid bill shock. Transition and complementary support measures may also be appropriate.
Adaptability	<p>Introducing a ToU pricing structure as the default pricing structure provides a solid foundation for any potential new pricing structures that may be introduced after 2025. Due to future uncertainty, it is unclear what pricing structure will be preferable in the future. The two part or three part ToU pricing with fixed pricing periods could evolve into one, or a combination, of the following:</p> <ul style="list-style-type: none"> <li>• A demand pricing structure with a similar peak window</li> <li>• A ToU pricing structure with an additional critical peak price (or rebate) window nominated by the distributor on a few occasions a year;</li> <li>• A dynamic ToU pricing structure;</li> <li>• A locational ToU (or demand) pricing structure or rebate where the peak/rebate ratio varies depending on the cost/benefit to the network at certain location.</li> </ul> <p>Monitoring developments and considering the effectiveness of network pricing with greater cost reflectivity (e.g. demand-based prices) will be a key focus for 2021-25.</p>

### 4. WHAT WOULD THE TOU PRICING STRUCTURE LOOK LIKE?

We intend to propose a consistent ToU structure across the 5 networks. There are some key decisions we need to make when designing a ToU pricing structure. Box 4–1 sets out our strawman ToU pricing structure, for consultation with stakeholders on 20 March 2019.

#### **Box 4–1: Strawman for stakeholder feedback: ToU pricing structure**

Our current view is that the new ToU pricing structure would:

- comprise only two daily pricing periods – peak and off-peak;
- have a peak window of 3pm to 9pm local time;
- apply weekdays, weekends and public holidays; and
- apply year-round with no seasonal pricing differences.

#### 4.1 TWO RATES OR THREE?

Currently, ToU pricing structures are generally two-rate (peak/off-peak) or three-rate (peak/off-peak/shoulder). Prices are highest during the peak period, lowest during the off-peak period, and somewhere in-between during the shoulder periods. The shoulder periods sit either side of the peak period.

We prefer a 2-rate ToU pricing structure because it is simple and customers only have to remember two times within the day – when the peak period starts and ends. In their conversations with us customers show an awareness of peak and off-peak pricing, but have rarely mentioned the existence of a shoulder-period. We are unsure if a shoulder period is particularly effective.

#### 4.2 WHEN IS THE PEAK-TIME PERIOD?

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

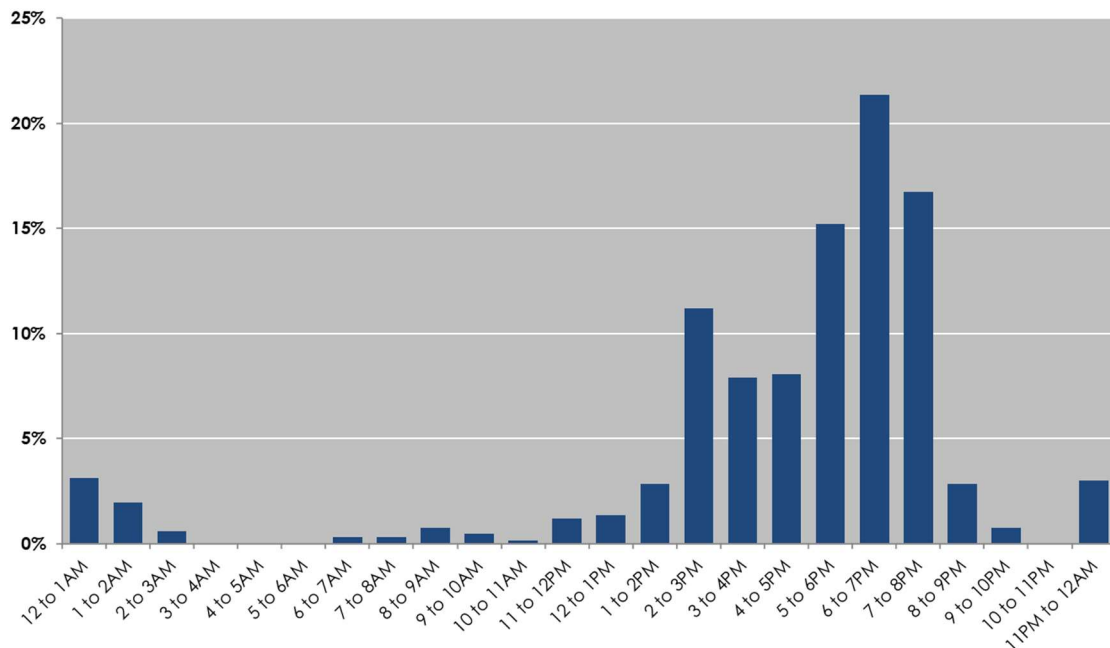
We therefore need to choose a peak-time that reflects when households are using a large amount of electricity at the same time the local electricity network is under stress.

Figure 4–1 shows when our (approximately) 230 zone substations are under most stress. Most zone substations are peaking between 2pm and 8pm (local time)<sup>5</sup>. There are also “tails” to this period, with about 10 per cent of substations peaking between 11am and 2pm, and 8pm and 10pm, local time.

<sup>5</sup> Zone substations peaking between 11pm and 2am reflect zone substations supplying customers with controlled load.



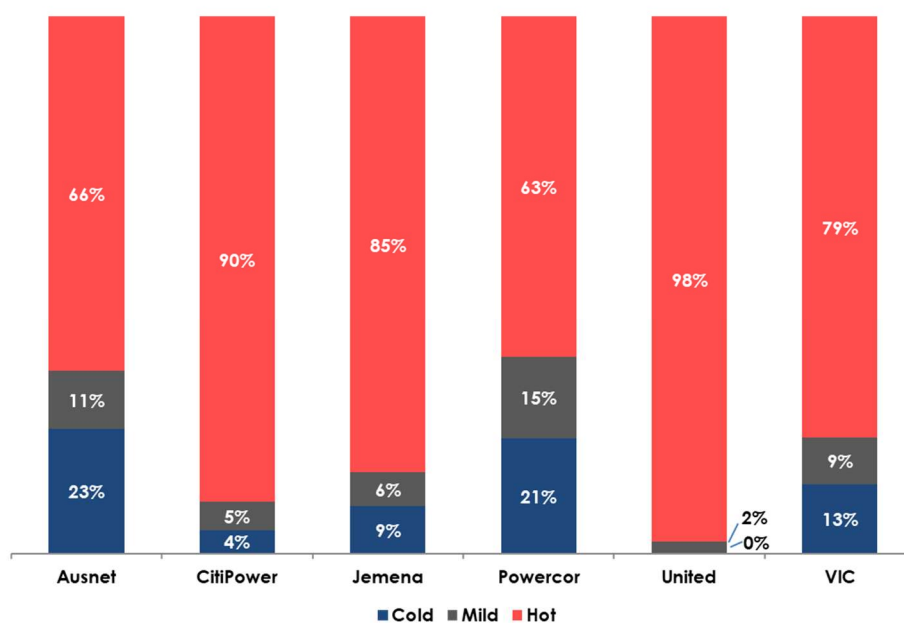
**Figure 4–1: Victorian zone substation peaks by hour of day (2015-17), local time**



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 substations peaks where occurring. As can be seen in Figure 4–2, most occur when it is hot (although there are some that occur in colder months).

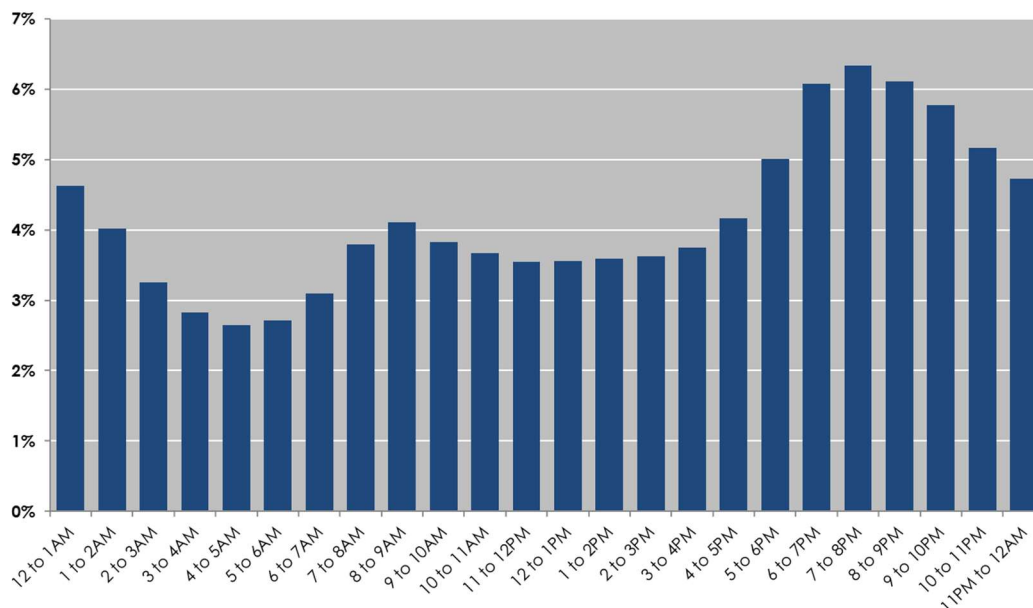
**Figure 4–2: Substation peak by temperature, 2015-17**



## 4 — WHAT WOULD THE TOU PRICING STRUCTURE LOOK LIKE?

Therefore, while we cannot ignore winter months, our analysis suggests we should focus on household consumption over December to March, which are generally the hottest months of the year. Figure 4–3 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.

**Figure 4–3: Proportion of 2016-18 household consumption by hour of day, local time summer plus March**



Taking Figure 4–1 and Figure 4–3 together (i.e. when households are using the most electricity at the same time as the network is under most stress), we intend to adopt 3pm to 9pm, local time, as the peak-time period for our new ToU pricing structure. The expected continued high rate of solar PV installations could reduce demand in the afternoon and therefore in the future peaks may occur a little later in the day.

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. This could be partially addressed through the use of a shoulder pricing period.

Over the 2021-25 period we don’t expect that peak demand will shift outside 3pm to 9pm because:

- customers will continue to use air-conditioners on hot afternoons;
- as noted by AEMO, EV take-up is not expected to grow to the extent that it will have a material impact on the load shape over this period;
- to the extent that EV load grows faster than expected, we expect home convenience-charging (refer section 3.2) to be the predominant charging option in the near-term, and this would likely occur as households arrive home from work from 5pm;
- home battery installations are not expected to grow to the extent that they will have a material impact on the load shape over this period, despite recently announced government subsidies for a small number of batteries;
- 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 6 pm; and

- minimal impact is expected from customers moving other discretionary load.

### 4.3 INCLUDE WEEKENDS AND PUBLIC HOLIDAYS?

We need to determine which days to apply the ToU pricing structure for our residential customers.

We have therefore 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).

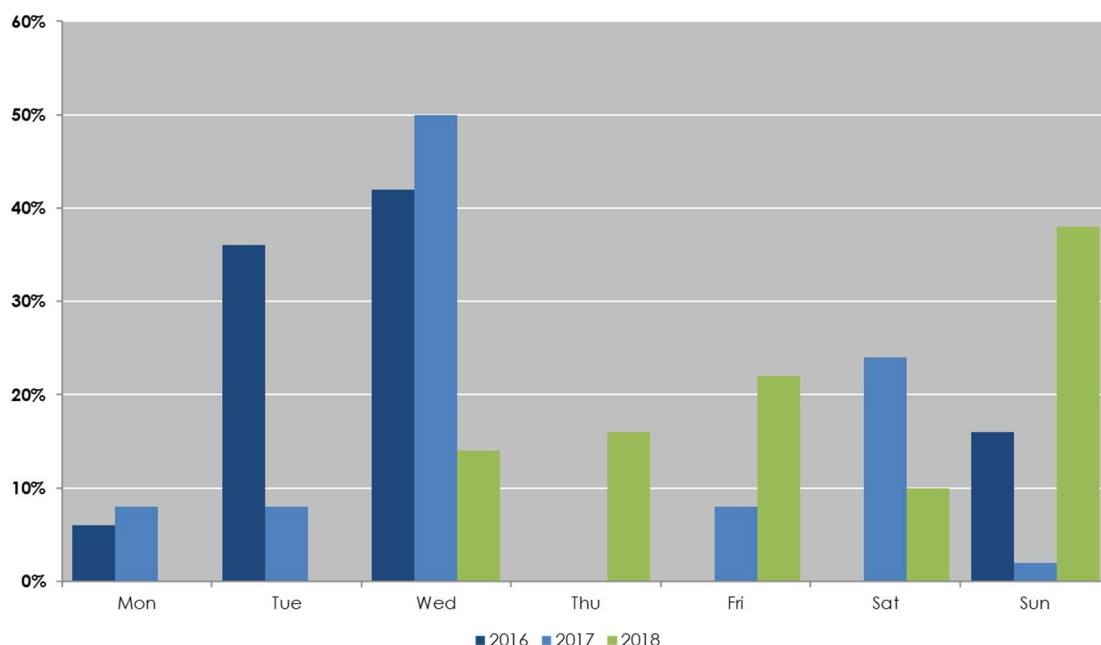
Residential peaks can and do occur on any day of the week (see Figure 4–4). This is primarily driven by household air-conditioning load on hot summer days. We are therefore minded to apply the ToU pricing structure on all days of the week, including weekends.

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). By chance, there have been no extremely hot days falling on a public holiday in recent years.

We are minded to include public holidays because an extremely hot day can logically fall on a public holiday in the future and this choice supports pricing simplicity. If stakeholders have strong views to the contrary, they may wish to consider whether it is acceptable to simply exclude public holidays that do not fall in summer.

**Figure 4–4: Days on which the top 50 Victorian residential half-hour peaks fell (2016 to 2018)**



### 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 just apply the new ToU price during summer, or perhaps the period of daylight savings, or year-round.

Our initial view is to apply the same ToU pricing all year around because of its simplicity. This choice:

- avoids customers having to remember when the pricing period starts and ends;
- may assist customers understand ToU pricing if the pricing 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 pricing structures appearing on the bills that cover time-periods when the ToU pricing structure does and does not apply; and
- recognises that 22 per cent of zone substations do peak in winter due to electric-heating load (as noted in Figure 4–2).

## 5. CUSTOMER OUTCOMES WITH A TOU NETWORK PRICING STRUCTURE

We do not know with certainty how retailers would respond to a ToU network pricing structure. However, as noted in section 2, stakeholders expect us to have “one-eye” on customer outcomes if retailers mirrored the ToU network pricing assignment at the retail level.

To do this, the five networks have used a common model to predict the network component of customers’ 2019 retail bill under their current single-rate or ToU network pricing structure, and new ToU network pricing structure.

We will present the results of this analysis at the forum on 20 March. Unsurprisingly, there are a range of outcomes depending on the customer’s usage profile. We need to be mindful of the impacts on customers. This gives rise to the potential need for transition options, as outlined in section 6.

### 5.1.1 WHAT DOES THIS MEAN FOR CUSTOMERS INSTALLING SOLAR OR PURCHASING AN EV?

Some industry and customer representatives have asked us to be particularly conscious of outcomes for customers installing solar or purchasing an EV.

Under its moderate scenario, CSIRO estimate that rooftop solar capacity will increase by about 50 per cent by 2030.<sup>6</sup> Recent Victorian Government announced solar rebates may result in an even higher rate of household solar PV uptake. A customer (or their solar installer) installing solar for the first time, or upgrading their solar system is required to inform their distribution network.

Under our proposal, new household solar customers would be assigned to the new ToU pricing structure. This would provide appropriate price signals to assist customers to make efficient investment decisions. It will also promote markets for new technologies – for example, solar customers may have a greater incentive to invest in a battery to absorb excess solar generation and reduce electricity drawn from the network during the peak period. AusNet Services and United Energy currently assign new solar customers to a ToU network pricing structure.

As noted in section 3.2, we expect an increase in the up-take of electric vehicles although the scale and pace of change is less clear and relatively low until at least 2025.

To the extent that EV charging occurs at home (and not at public charging stations), we expect this to be largely convenience-based commencing when households return home from work at around 5pm. A ToU network pricing structure would incentivise these customers to shift EV-charging to after the peak window. Consistent with AEMO expectations, we do not expect new EVs to have a material impact on peak demand before 2025 (and potentially 2030).

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<sup>6</sup> CSIRO, *Projections for small-scale embedded technologies*, June 2018, pp35-36.



### 6. TRANSITION OPTIONS FOR THE TOU PRICING STRUCTURE

There are a range of transition options available to us when implementing the new ToU pricing structure and assigning households to it. Each may deliver varying outcomes both in terms of the households affected, but also the overall rate of movement to the new ToU pricing structure. Ultimately, customer outcomes will be most influenced by if/how retailers respond, and if/how customers respond to the new pricing signal.

Box 6–1 sets our strawman ToU pricing structure, for consultation with stakeholders on 20 March 2019. We intend to consult on each option at the 20 March forum.

#### **Box 6–1: Strawman for stakeholder feedback – transition options**

Our current view is that the following transition options should be implemented:

- Households (or their retailer) have the right to opt-out from the new ToU pricing structure for 5 years; and
- Life-support customers and those claiming the medical cooling concession should not be re-assigned to the new ToU pricing structure.

#### 6.1 SOME CUSTOMERS HAVE LIMITED CHOICE ABOUT WHEN THEY USE ELECTRICITY

There are a range of outcomes if households move to a ToU network pricing structure (assuming retailers mirrored this in the applicable retail pricing structure).

As noted in section 3, stakeholders have told us that it is important for customers to have the choice to opt-out, recognising the impact this may have on some customers, 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 pricing structure 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 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 need to be particularly 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 ideally not be moved.

As a result we propose to provide the option for households or their retailer to opt-out from the new ToU pricing structure for 5 years. We recommend this is coupled with appropriate customer communications as noted in section 7.1.

## 6.2 VULNERABLE CUSTOMERS

Customers and stakeholders have all asked us to carefully consider the impact on vulnerable customers of changing their network pricing structure.

### 6.2.1 ACIL ALLEN STUDY INTO VULNERABLE CUSTOMER IMPACTS

It is important that we understand how vulnerable customers may be impacted from a ToU pricing structure.

We engaged ACIL Allen to assess the likely impact on vulnerable customers of changing those on a single-rate network pricing structure to a ToU pricing structure. 83 per cent of Victorian households are currently on a single-rate network pricing structure.

Guided by Australian Bureau Statistics' Socio-Economic Indexes for Areas (**SEIFA**), ACIL Allen surveyed over 2,000 Victorian households to identify those that could be considered vulnerable. With consent, ACIL Allen then utilised smart meter data to estimate the network bill change arising from a change to network pricing structure.

Vulnerable customers (identified via survey self-evaluation) are expected to see an average annual bill *decrease* of \$18 per annum arising from a ToU pricing structure.

The methodologies and further detailed results will be presented at the 20 March forum.

### 6.2.2 TRANSITION ISSUES

While ACIL Allen surveyed 2,000 households, we do not have the same results for *all* Victorian households. As such, if we were to implement transition arrangements for vulnerable customers, we could not directly apply the ACIL Allen analysis.

The only household-level data sources we are aware of that potentially reflect a measure (albeit imprecise) of vulnerability across the entire customer base are:

- **life-support<sup>7</sup> customers**—approximately 1 per cent of households;
- **customers on a retailer payment assistance scheme**—approximately 5 per cent of households<sup>8</sup>;
- **customers claiming the medical cooling concession**—approximately 0.5 per cent of households<sup>9</sup>; and
- **customers claiming the mains electricity concessions** (annual electricity concessions) from the Department of Health and Human Services—approximately 43 per cent of households<sup>10</sup>

<sup>7</sup> Life support equipment includes any equipment that a registered medical practitioner certifies is required for a person residing and the premises for life support.

<sup>8</sup> KPMG, *Payment difficulty framework – Assessment of customer impacts*, Report for the Essential Services Commission of Victoria, September 2017. According to this report approximately 5% of Victorian households were on a payment assistance scheme in 2017 and in the absence of publicly available data (to our knowledge), it is reasonable to assume this proportion of households are also currently on a payment assistance scheme.

<sup>9</sup> Concessions data is available at <https://dhhs.vic.gov.au/publications/state-concessions-and-hardship-programs-annual-data-reports>.

<sup>10</sup> Concessions data is available at <https://dhhs.vic.gov.au/publications/state-concessions-and-hardship-programs-annual-data-reports>.

### 6.2.3 LIFE-SUPPORT CUSTOMERS AND CUSTOMERS CLAIMING THE MEDICAL COOLING CONCESSIONS

We know which households are registered for life-support – we have special arrangements for these customers when managing planned interruptions to supply. Retailers and the Victorian Government know which households are registered for the medical cooling concession.

Our preference is to exclude these customers from the initial reassignment given the particularly sensitive circumstances these customers face, and the potential unintended consequences that could result from moving them to a ToU network pricing structure.

We note that a life-support flag and medical cooling concession applies to only 1.5 per cent of households, so excluding these customers would not materially impact the take-up of the new ToU pricing structure. Life-support and medical cooling customers could still opt-in to the new ToU pricing structure should they wish.

### 6.2.4 CUSTOMERS ON A RETAILER PAYMENT ASSISTANCE SCHEME; CUSTOMERS CLAIMING THE MAINS ELECTRICITY CONCESSION

Our preference is to re-assign customers on a retailer payment assistance scheme, or claiming the mains electricity concession, to the new ToU network pricing structure, because:

- we do not have sufficient data to know whether these customers are better or worse-off under a network ToU pricing structure;
- we believe customers (and potentially their retailer) are in a better position to assess the outcomes for this group, noting both retailers and customer would have the opportunity to opt-out in advance under our proposal; and
- excluding the large number of customers claiming the annual electricity concession would materially slow the pace of transition.

If there was a strong stakeholder preference to implement transition arrangements for these customers, we would recommend a glide-path transition.

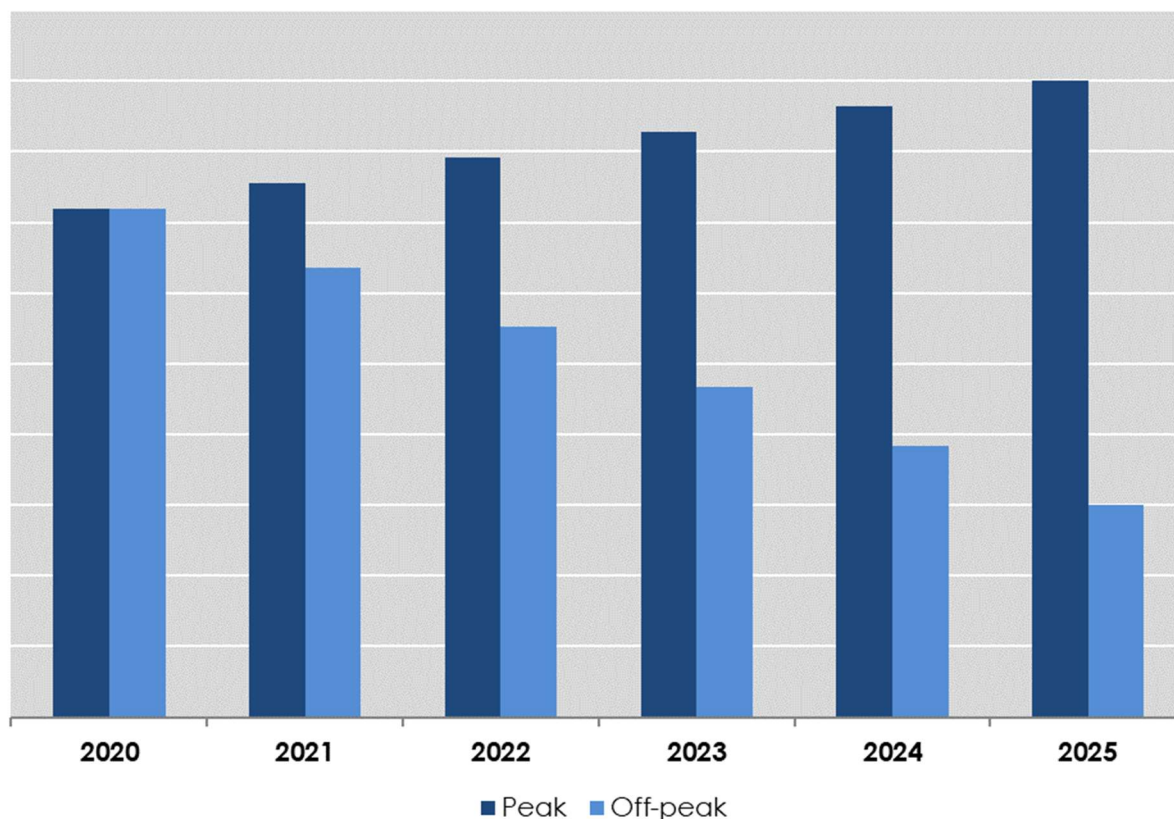
### 6.2.5 GLIDE-PATH TRANSITION

For customers (including vulnerable customers) currently on a single-rate pricing structure, the underlying cause of the customer impacts outlined in section 5 is the differential between the peak and off-peak electricity rates.

One option that could be considered is to start with those two different pricing rates quite closer together, then gradually move them apart in the subsequent 4 years. This would provide a glide path towards the desired ToU pricing structures. It would smooth-out the impact on customer bills for those worse-off. The impact would be roughly 20 per cent p.a. over 5 years, relative to the full change occurring in the first year (2021). The glide-path transition is illustrated in Figure 6–1.

This transition option could be adopted for all customers or only vulnerable customers (or a subset of those customers) as a transition measure. An issue that would need to be considered is how retailers might respond to a glide-path. There may be good reasons for retailers not to follow this glide-path. For example, it could increase complexity for customers, retailers and distributors.

To be implemented at the network level for vulnerable customers we would also need access to the household level data on retailer payment assistance provision and mains electricity concessions in the lead up to 1 January 2021.

**Figure 6–1: Transitioning from 2020 single-rate to preferred ToU rates by 2025 (illustrative only)**

### 6.3 SLOWER TRANSITION OPTIONS

There are several transition options available that could be implemented individually or in combination. Each would see a slower rate of transition to the new ToU network tariff structure

#### 6.3.1 MOVE HOUSEHOLDS CURRENTLY ON A TOU NETWORK PRICING STRUCTURE

Around 17 per cent of households are current on a ToU network pricing structure. We could move all customers currently on a ToU network pricing structure to the new, common, ToU network pricing structure. This could reduce customer impacts relative to our proposal – for each customer this will depend on the difference between each customers' current and new ToU price structures, and their consumption profile.

If existing ToU customers were not re-assigned to the new ToU pricing structure, then this would likely result in customer confusion or misunderstanding. Most existing ToU customers have a 7am to 11pm weekday<sup>11</sup> peak pricing period, whereas the proposed new ToU tariff would have a 3pm to 9pm everyday peak pricing period. Any

<sup>11</sup> Some existing ToU customers are on a 7am to 11pm everyday peak pricing period, and customers on the flexible TOU are on a three-part tariff with different pricing periods for weekdays and weekends.

customer communication regarding the peak pricing period would likely be very confusing or misleading if there were different ToU pricing periods.

### 6.3.2 NEW CONNECTIONS, MOVE-INS, UPGRADES

The slowest transition path (and in some cases, a path that may never see transition actually complete) would be to limit assignment to the new ToU pricing structure to customers moving home, connecting to the network for the first time, or upgrading their supply. What makes these customers unique is that they:

- will all be interacting with a retailer regarding a retail offer, providing the opportunity for the customer to receive information about their pricing structure upfront;
- there is less likelihood of a bill shock arising from the ToU pricing structure itself, because the first bill received by the customer is the first received in its present electricity supply circumstances; and
- are making choices about their house and/or electricity appliances and therefore may be ideal candidates to see an efficient pricing signal.

However, as noted limiting the allocation to customers in these circumstances would significantly slow-down the transition or could mean it never completes. As a result we do not intend to consider these options unless there are strong stakeholder views to the contrary. We present further information on these options below.

Table 6–1 below sets out the rate of transition for each option using available data.

**Table 6–1: Annual transition rate for certain customer groups**

Circumstances	Unique customers p.a. (estimate)	Annual transition rate
Move-in customers	Uncertain (see section 6.3.2.1)	
Upgrades	3,000	0.1%
New connections	52,000	2.4%

#### 6.3.2.1 Move-in customers

As noted in Table 6–1, of the three categories, move-in customers provides the fastest transition rate. We have assessed the data available to us in market systems (MSATS) to determine whether we can identify customers that have moved-in to their premises. MSATS does not have a field that identifies such customers, and we would need to initiate a procedure change via AEMO to obtain such information. This may be a material process change for retailers who would need to flag whether a new customer is a move-in customer.

#### 6.3.2.2 New connections

The Victorian residential customer base grows by about 2.4 per cent per annum (around 52,000 new homes each year). As noted in Table 6–1 of the three categories, move-in customers provides the second fastest transition rate, although significantly slower than move-ins.

If assignment is limited to new connections, based on our experience with opt-in demand-based pricing, almost all existing NMLs assigned to a single-rate pricing structure (around 2.2 million) could remain on that pricing structure for the foreseeable future.



### 6.3.2.3 Upgrade from single-phase to three-phase supply

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), or a solar panel array above 10kVA.

The Victorian networks provide around 3,000 supply upgrades per annum. Our current view is that if we do limit the new ToU pricing structure to new connections and/or move-in customers, we would also include customers with a supply upgrade given the relatively small numbers, and the fact that they are making a choice to invest in appliances that may materially change their consumption patterns.

### 7. COMPLEMENTARY CUSTOMER SUPPORT MEASURES

The previous section set out customer support options that relate to how we actually implement the new ToU pricing structure. There are other customer support measures that we could explore that may complement potential changes to retail pricing structures, that may follow our change to network pricing structure changes.

#### 7.1 CUSTOMER COMMUNICATIONS

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If retailers mirror the ToU pricing structure reassignment at the retail level, it is important that customers are made aware of this change. Given that:

- customers care more about their retail pricing structure than the underlying network pricing structure; and
- are not aware of the company that owns and operates the local electricity distribution network,

we are open to working collaboratively with relevant stakeholders on communications about pricing structures.

#### 7.2 OTHER COMPLEMENTARY MEASURES

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We have considered the following complementary measures that would support appropriate customer communications:

- **literacy programs**—some distribution networks currently support energy literacy programs within the communities they serve, and should ToU pricing proliferate at the retail level, we would adjust our literacy programs accordingly.
- **technology rebates**—in our view, home automation is a key enabler of more complex pricing structures. While a simple peak/off-peak ToU pricing 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 pricing structure.
- **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.

We are interested in stakeholder feedback on these options, particular which industry participant or group would be best-placed to lead these initiatives.