

Future Network Forum – Network Pricing Design

Victorian Electricity
Distribution Businesses



Residential and Small Business customers
September 2018





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Introduction

Purpose

This is a consultation paper from the Victorian electricity distributors. We are seeking customer and stakeholder views on a shortlisted set of network pricing options in Victoria (we will refer to them as “pricing structures”). We are also seeking view on how we might move to a new pricing structure (pace of change) and the possible use of peak-time rebates (complementary measure).

We have targeted this consultation at informed stakeholders with some previous understanding of network pricing. However, we welcome views from any customer or stakeholder.

Background

A pricing structure is the basis on which we charge a retailer for each customer that uses the network. This commonly includes a fixed annual charge and a price for each unit of electricity consumed from the network, but there are also other potential pricing structures.

Each one of our customers is assigned a pricing structure. Our prices are charged to a customer's nominated retailer, with the retailer recouping these through their bill to the end customer. The retailer's bill also includes other costs such as wholesale electricity and metering.

We offer a range of potential pricing structure options for residential and small business customers.

Setting pricing structures is a separate process to setting the price levels. Prices under any pricing structure will be set to ensure the Victorian electricity distributors only collect the same amount of revenue as that allowed by the Australian Energy Regulator.

Engagement to date

The Victorian electricity distributors embarked on an extensive consultation process in which we engaged a wide range of stakeholders that are interested in, or may be impacted by, network pricing reform. We have held two in depth forums.

Key outcome 1 – Pricing objectives

In the first forum (1 November 2017), we heard that network pricing reform is desirable and had customers and stakeholders tell us what pricing objectives made sense to them. We have adopted these objectives as shown in the box on this page

Any network pricing structure will result in trade-offs between our pricing objectives. The last four objectives imply pricing structures which better reflect network costs, but these, designs are more complex. We are seeking stakeholder and customer views to make sure we get the balance right.

Key outcome 2 – Who responds to network prices?

In the second forum (18 April 2018), we sought expert opinion from the Brattle Group to consider a range of pricing structures that best fit the objectives defined in the first forum.

A key question that arose was:

who should the pricing structure be targeted towards, the retailer or the end customer?

The answer to this questions tells us whether the pricing structure should be designed with the customer or retailer in mind as the party to respond to the price signal. In both scenarios, the customer will continue to be charged by the retailer.

The preference of forum members was that end-customers' wishes be kept in mind even if pricing structures are directed towards retailers. It is important to understand that it is ultimately the retailer's choice as to whether the network pricing structure is provided to the end customer, or not. With this in mind, forum members indicated that prices should be capable of being directed to either the retailer or end customer. As such, we must consider pricing structures that can be managed by both.

At the end of the second forum we committed to providing a shortlist of pricing structures that meet the pricing objectives. These pricing structures are outlined in this paper.

Pricing objectives



Simplicity. Network prices should be readily understood by customers, retailers and stakeholders



Economic Efficiency. Customers face the correct price signals so that their consumption decisions reduce total network costs



Adaptability. Network pricing design should be capable of being applied to future network configurations and technologies



Affordability. Access to network services should be affordable, including for vulnerable customers



Equity. Each customer should pay a fair share of network costs

We consider these pricing objectives align to the pricing principles under the National Electricity Rules.

The case for change

Network costs are driven by peak demand

We have to build our network so that it copes with the maximum amount of electricity used by all customers on a very hot day. Our variable costs are driven by the need to meet peak demand on our network (when everyone is using electricity at the same time).

If we can reduce growth in peak demand, this reduces future network investment and results in lower network prices for customers in the long term.

Network pricing reform is not new and is not going away

Stakeholders familiar with the electricity network sector will be aware that network pricing reform has been an industry and policy-maker focus for a number of years. This focus has not dimmed. In its June 2018 report on retail electricity pricing, the Australian Competition and Consumer Commission recommended that “steps should be taken to accelerate the take up of cost-reflective network pricing”, (page XIX).

Rapid market changes increase urgency of reform

The electricity market is rapidly changing. Solar panels and air-conditioner penetration are increasing, and electric vehicle uptake could take-off very soon. All of these things can lead to new investments by network companies to maintain reliable electricity supply to homes and businesses. Progress on network pricing reform will ensure that customer’s investment decisions are efficient, resulting in the best-sized networks that meet customer’s needs.

New technology means that new pricing structures are possible

The energy system is shifting to a more decentralised and diversified grid, with a mix of large-scale and distributed energy resources. Customers are looking to control their bills, and technology is giving some an increasing ability to do that.

Currently, network components of electricity bills are a combination of fixed charges and a single price applied to the amount of electricity that is used (usage rate). The usage rate is the same, regardless of when electricity is used—whether it’s during the hottest part of a summer’s day (when network peaks tend to occur) or the middle of the night.

These simple pricing structures were first developed when meters were read, manually, a couple of times a year, and do not reflect the costs of building and maintaining the network. Now that smart meters are common across Victoria, it is possible to move to more cost-reflective pricing structures, that gives incentives for customer response that supports more efficient energy infrastructure, enabling us to avoid network upgrades.

Change will benefit customers

If more cost-reflective network pricing structures were able to shift the peak load, or spread it out in a way that put less stress on electricity networks, it would lower bills for all customers in the long term. Our challenge as a sector is to ensure the transition to a modern energy system delivers benefits to all consumers in a way that is fair, affordable and sustainable.



What are we engaging on now?

1. Which pricing structure you prefer

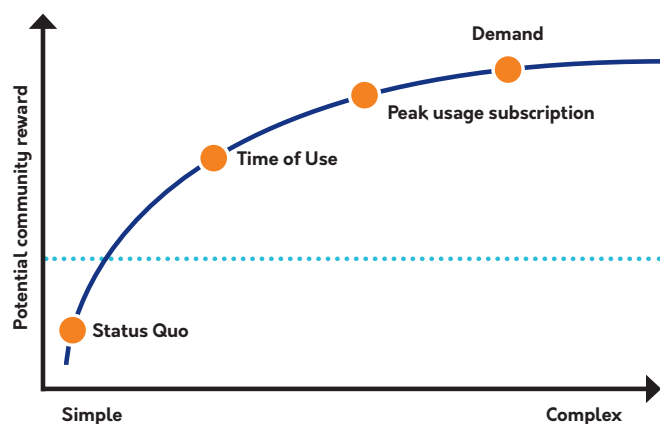
At our second forum we committed to providing a shortlist of pricing structure options. In this paper, we narrow down the wide range of potential pricing structure options into a few that we believe should be compared against the pricing objectives.

The pricing structures shortlisted and presented include:

1. Status quo
2. Time of use
3. Peak usage subscription
4. Demand charge.

Based on feedback from stakeholders, more complex pricing structures, such as critical peak pricing and coincident demand charges, did not make our shortlist.

Some of these pricing structures may rate well against certain pricing objectives but are less compelling against others. For example, in the chart we compare the simplicity of each pricing option against the likely economic benefit of having more cost reflective, but complex, prices.



We need a pricing structure that strikes the right balance between customers' lifestyle needs and achieving the benefit of price signals that could lead to achieving lower bills in the long run.

In this paper we present some information on the strengths and weaknesses of each and seek views on your preference.

2. Pace of change

The impact to customers of a change to our pricing structures will depend on the how fast those changes are implemented. The more efficient pricing signal (i.e. more cost reflective), combined with a rapid deployment of the pricing structure will mean more benefits sooner.

Conversely, a more simple pricing structure combined with low take up options will mean the benefits are delayed and reduced. There are a number of potential combinations between these two extremes that might be acceptable to customers and stakeholders. In this paper we set out six options from mandated assignment to a cost reflective pricing structure to maintaining the current opt in approach.

The questions of which pricing structure and pace of change you prefer are likely to go hand-in-hand.

3. Complementary measure

There are also other things we could do to complement our pricing structures to realise bill savings sooner. We explore the possibility of peak time rebates further in this paper.

Next steps

On this page we have asked you some specific questions, but we also welcome views on any other elements of pricing structures or network price reform you wish to comment on.

We will incorporate your views into our tariff structure statements.

Questions for you

1. Which network pricing option do you prefer? Are there any changes you would want to see to how we have structured your preference?
2. Are there any other network pricing options you would recommend exploring?
3. What is the appropriate pace of change that complements your preference? If you support an option that includes opt out, to what other pricing structure the customer opt out to?
4. How would you explain the pros and cons of each pricing structure in terms of the pricing objectives?
5. Do you consider that we should further develop peak time rebates as a complementary measure to be used on an ongoing basis?
6. What information would you like to see on customer impacts?
7. Do you think that any separate consideration should be given to residential and small business customers when choosing a pricing structure and pace of change? If so, what are these?
8. How can we best continue to engage you in this process?

Price option 1: Status quo

Description

Under this option we would keep the current range of pricing structures in place.

The status quo is for customers to predominantly be on a single rate usage charge (\$/kWh) combined with a fixed charge (cents per day). Currently 75% of residential and small business customers are on this pricing structure. Customers can choose or be assigned to other pricing structures including:

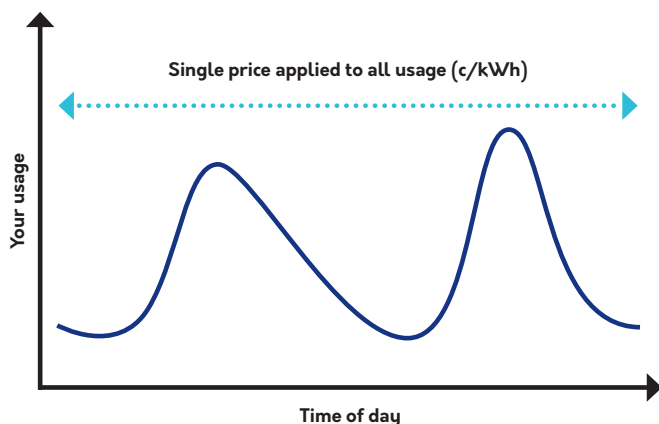
- Flexible (or time of use) - 25% of small business and residential customers are on this pricing structure
- Demand - 0.04% of residential and small business customers are on this pricing structure

The "single rate" pricing structure

Fixed charge

Cents per day - regardless of usage

Usage - all days



Observations

Strengths of this pricing design



Simplicity - Administratively this is the simplest option as there is no change to current practices. There would also not be any step changes in customers' bills.

Weakness of this pricing design



Economic efficiency - This is the least efficient option to be able to drive societal economic benefits as few customers make efficient consumption choices as they are not facing efficient prices.



Economic efficiency - Under the status quo there is no expected change in customers' behaviour, as no signal is provided to avoid using the network during peak times. Over the long run, and particularly where electric vehicles are heavily used, more network investment would be needed, increasing costs to customers compared to pricing that encourages customers to use the network at less costly times.



Equity - The status quo results in a cross subsidy borne by customers unable to reduce their overall electricity usage, which may include some vulnerable customers.



Adaptability - The status quo would fail to provide the correct price signal for efficient investment in future technologies and might hamper the development of customer decision support tools.

Impacts on customers from 75% of customers on a single rate usage charge

Customers able to reduce their energy use, for example, by investing in energy efficient appliances or by installing solar PV, will be relatively better off. This is the case even if these customers continue to use the same amount of energy at times which are costly to the network (peak periods).

Customers that are worse off under this option include those unable to reduce their energy use on an ongoing basis, but able to reduce their use during peak periods. These customers would benefit from lower bills under an alternative option, and as the network is used less heavily during peak periods less investment is needed, and eventually all customers will benefit from lower prices.

Intended audience of this pricing structure

The single rate pricing structure is capable of being targeted at retailers or being passed through to customers.

Price option 2: Time of Use

Description

The time of use pricing structure is currently offered on an opt in basis. It consists of:

- A fixed charge (cents per day), plus
- Usage charges (\$/kWh) where prices vary depending on the day and time of day in which electricity is consumed.

Observations

Strengths of this pricing design



Simplicity - Relatively simple and has been available for some time meaning it is generally well understood by some segments of the community. A customer's bill is not significantly impacted by any single day usage decision.



Economic efficiency - Customers are provided a set of prices that can act as a signal for them to react differently in how they use electricity, and the prices are more reflective of network costs than a single rate charge.

Weakness of this pricing design



Economic efficiency - Network costs are driven by the instant when everyone uses lots of electricity at once. Time of use pricing is not able to accurately reflect these costs.



Adaptability - Not robust or adaptable to ensuring efficient network costs in all future scenarios. For example, automated technologies, which switch certain appliances on or off at the same time to benefit from the pricing structure, may result in stability issues (and require additional investment) if not effectively managed.

Intended audience of this pricing structure

This pricing arrangement would lend itself to being passed through to customers.

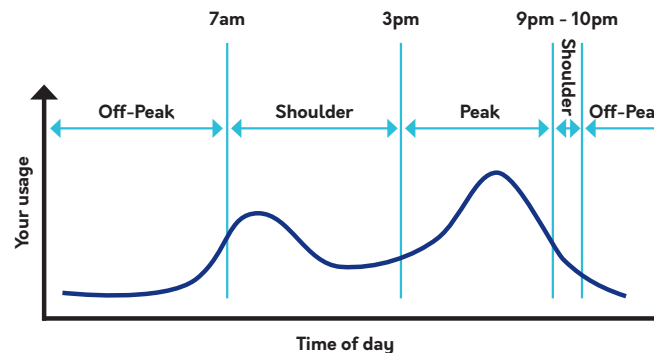
An example residential time of use pricing structure

Fixed charge

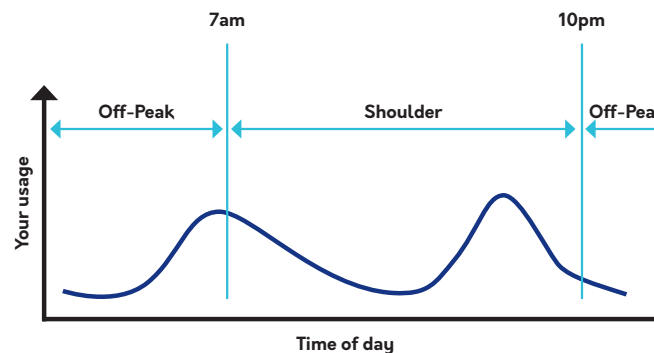
Cents per day - regardless of usage

Usage charge - Weekday

Peak price > Shoulder price > Off peak price



Usage charge - Weekend



There are currently a range of time of use pricing structures, where the exact structure and peak times may vary by distributor and between residential or small business customers.

Price option 3: Peak usage subscription

Description

The peak usage subscription network price is not currently offered. It consists of:

- A fixed charge subscription (\$/kWh/month, payable every month of the year) that covers the customers peak summer usage (3pm-9pm from November to March), plus
- An incremental charge when peak usage exceeds the subscription (\$/kWh/month), plus
- A single rate usage charge (\$/kWh).

This option applies a fixed charge based on the peak period usage band the customer falls into. We have heard that the kWh peak is a more understandable proxy of the customer's average demand (kW).

How the band gets selected

The subscription bands could either be nominated by each customer via their retailer or could be automatically selected based on transparent rules.

If the bands were nominated by retailers, then there would be administrative costs to both the retailers and distributors due to the need:

- to contact each customer on the choice of band
- for business-to-business processes to nominate the bands.

If the bands were selected automatically then rules would need to be developed for assignment to bands for new connections or customers that are moving home.

Observations

Strengths of this pricing design



Economic efficiency - Creates a signal for customers to reduce peak demand by making customers choose their level of peak use, then incurring incremental charges if they exceed this.



Affordability - Avoids high seasonal bill volatility that may be associated with pure demand pricing options.



Simplicity - Usage (kWh) better understood by customers than demand (kW).

Weakness of this pricing design



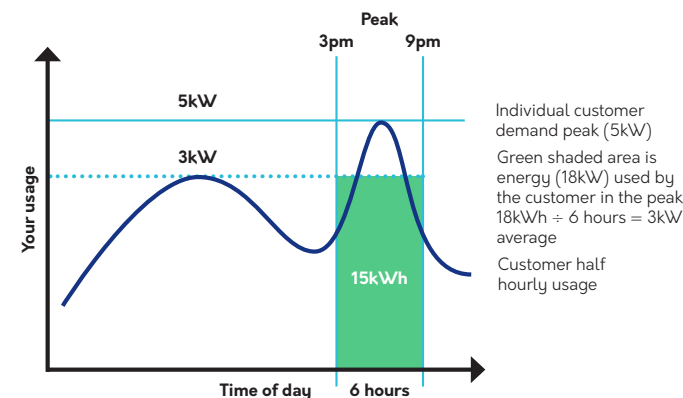
Economic efficiency - Banding means loss of cost reflectivity as customers are not paying based on actual cost drivers. There is difficulty getting the incremental charge level right as there may be incentives for customers to choose an undersized band if incremental charges are too low, and potential to create bill shock if it is set too high.



Simplicity - Banding and assignment may be difficult to explain. Ideally requires education materials and customer decision support tools to enable customers to change their behaviour if they are risking breaching their subscription level.

Intended audience of this pricing structure

This pricing arrangement lends itself to be passed through to customers.



Up to	Price
5kWh	Fixed price per month and usage charge plus a \$/kWh/month for incremental use over 5kWh
10kWh	Fixed price per month and usage charge plus a \$/kWh/month for incremental use over 10kWh
15kWh	Fixed price per month and usage charge plus a \$/kWh/month for incremental use over 15kWh
20kWh	Fixed price per month and usage charge plus a \$/kWh/month for incremental use over 20kWh
25kWh	Fixed price per month and usage charge plus a \$/kWh/month for incremental use over 25kWh

Incremental charge set to provide incentive to choose the appropriate fixed package.

Incremental charge payable only on the customer's usage on their peak day in the month - i.e., incremental charges do not apply to every day they go over their package in the month.

Price option 4: Demand

Description

A demand network pricing option consists of:

- A fixed charge (cents per day), plus
- A maximum demand charge (\$/kW/month), plus
- A single rate usage charge (\$/kWh).

For the demand charge element, customers are charged according to their maximum demand during a specified peak period. For our residential customers, we currently offer a monthly maximum demand charge on an opt in basis. Maximum demand is measured as the customer's highest half hour demand during the 3pm-9pm workday peak period.

Observations

Strengths of this pricing design



Economic efficiency - A monthly demand charge is the most cost reflective of the options. It would provide efficient price signals to the customers about when they use electricity as well as how much they use.



Adaptability - Technology neutral and capable of ensuring all customers fairly pay for individual peaks they contribute to on the network.

Weakness of this pricing design



Simplicity - There is low community awareness and acceptance of demand pricing. Unless accompanied by customer decision support tools, the price signal to customers will only be revealed after the fact, and it relies on the customer understanding the likely bill impacts.



Economic efficiency - An individual customer's monthly demand peak won't always coincide with the network peak.

The intended audience of this pricing structure

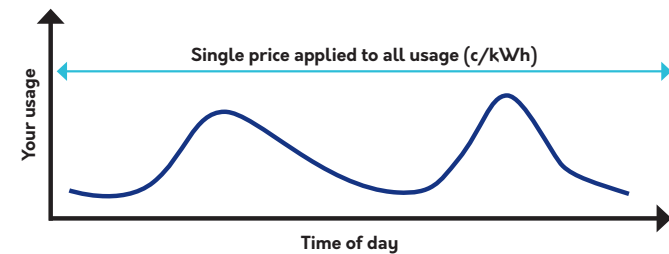
This pricing arrangement could equally apply to both customers or retailers. More complicated variants such as coincident peak demand charges could be targeted at retailers.

The residential demand pricing structure

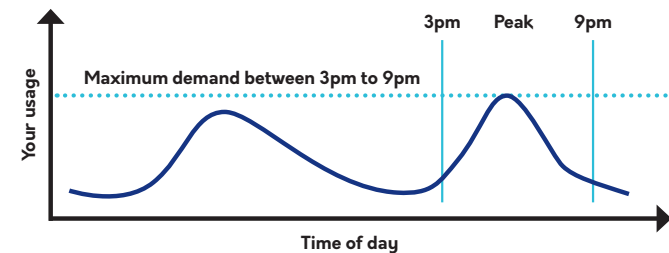
Fixed charge

Cents per day - regardless of usage

Usage - all days



Demand charge - Work days



For small business customers, the exact structure and peak times may vary by distributor.

Pace of change

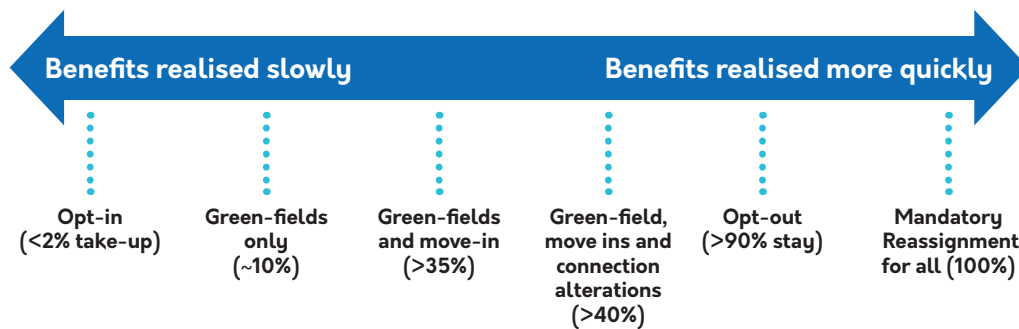
Any benefits or costs associated with the pricing structure options can be accelerated or slowed depending on how fast they will be implemented.

On face value, it makes sense to get on with changing the way network prices are charged. However, there is generally low levels of awareness of networks and network pricing by our average customer. In the short-term some customers may face higher bills under some pricing structure options and may not understand the cause. Those that understand and are initially worse-off may not want network pricing reform at all. There are also some customers that are sceptical about change, even if they are better off through lower bills; and that's understandable, these customers want to know more before endorsing changes.

Some customers may just need time, education and/or tools to understand the complexity of cost reflective network prices, especially if retailers pass the network pricing structure through to the end customers. These customers may feel that a slower transition is acceptable to allow time to get comfortable with change.

What are the options?

The spectrum below sets out the expected customer take-up given different policies over a five-year period.



At one extreme all customers are assigned immediately onto a new network price structure. At the other extreme customers get to self-select by opting into the new network price when they see fit. A summary of each option, with some potential benefits of risk is outlined to the right.

Reassignment option	Benefits	Risks
Opt-in	Customers are empowered to make the change if they are aware of the option and choose to change.	Most customers don't know this option exists and may be missing out on the benefits. This pace of change is so slow, the social benefits of price reform may never be realised. Customers who opt-in are likely to benefit by opting in with no associated network benefits.
Green-field sites (New connections)*	Customers at newly connected sites are assigned to the new cost reflective network price; they are on the most efficient network price and don't have to think about other options.	Some customers might be better off on legacy network price designs, but are unlikely to actually know .
Green-field and move-ins*	Same as the above, and customers who move in to a new or existing premises will be on the most efficient network price and don't have to think about other options.	Same as above for Green-field sites.
Green-field, move-ins and connection alteration customers*	The above, and customers who have made a choice to change their connection (for example to install new technology) will be on the most efficient network price and don't have to think about other options.	Same as above for Green-field sites.
Opt-out	All customers mandatorily transition to the new cost reflective network pricing structure. However , they have the option revert to an old price structure if they choose.	Low engagement will mean that some individuals would be better off on an old network pricing design, but won't revert.
Mandatory reassignment	All customers mandatorily transition to the new cost reflective network pricing structure. All customers are better off through longer-term price reductions.	Some customers will be worse off in the short term.

* These options could be combined with opt-out arrangements.

Pace of change

Experience shows that opt-in is the same as not having price reform at all

Experience shows that the rate of customers self-selecting network pricing structures under opt-in arrangements is so low that it becomes more expensive than no reform at all. This has been the experience of the demand pricing structure option currently available to customers in Victoria.

The demand pricing structure is more cost-reflective, has been available since 2017 and many customers would be better off on with this pricing structure. However, only 16 residential customers and 23 small business customers have so far opted in across the state. So far, the administrative costs of providing this option are greater than the benefits produced for the community.

Bill impacts most apparent under faster pace of change

One key concern about any change to a new pricing structure is the impact on customer bills causing relative winners and losers. This occurs when a customer compares their bill for their premises under the new pricing structure to historical bills. This direct like-for-like bill comparison is only possible under the options with a faster pace of change.

The right pace of change will balance collective customer benefits versus individual benefits

All customers will benefit if more customers are assigned to the reformed network pricing designs. However, this could come at the expense of some individuals in the short term.

If we are thinking about the collective long term interests of the electricity community, we would introduce mandatory pricing structure reassignments. However, if the question is about minimising short term individual customer impacts, then a slower pace of change might be preferable.



Complementary measure: Peak-time rebate

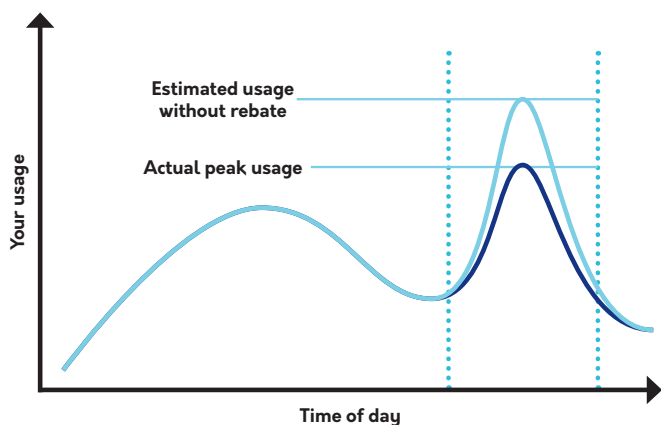
Description

A peak-time rebate can be combined with one of the pricing structure options. These rebates would be targeted on a localised basis at times of network peak.

Under this option, we would pay the customer a rebate for using less electricity than they were intending to at the time we called an electricity network peak event. There will be a small number of events (perhaps around ten) each year and the selected customers would know in advance via an SMS.

Customers responding to the price signal would receive a bill from their retailer and a refund from their network distributor.

This would work in a similar way to demand response pilots recently carried out by the distributors, including Jemena's Power Changers, AusNet Services' Peak Partners, and United Energy's Summer Saver.



Observations

Strengths of this pricing design



Simplicity - Customers get a refund for using less electricity during events than they otherwise would. It is a reward for not taking electricity from the grid at the time when it is most under strain.



Adaptability - From year to year, no customer is worse off. That is, if a customer chooses to participate they get a benefit, if they do not participate then their prices are no different.



Economic efficiency - Calling peak events dynamically means network businesses can be very specific in targeting time and location constraints at the time of coincidental peak.

Weakness of this pricing design



Affordability - It requires more administration by the network business to manage this pricing option. We would need robust records for customers and payment/account details which we do not currently have. We also need phone records to send SMS messages when calling events.



Affordability - Rebate requires funding, which will need to come from relatively higher prices for all customers



Economic efficiency - It's not clear the extent to which networks can initially plan and rely on a sustained demand response—for example when a heat wave spans several days.



Equity - It is difficult to work out what electricity a customer had intended to consume. For example, there may not be a comparison baseline for customers who only recently moved into a premises.



Equity - The rebate would only be available in constrained locations with the biggest beneficiaries more likely to be those with high and discretionary baseline usage.

The intended audience of this pricing structure

The signalling is more effective when a payment is made directly from the network business to the customer.

Have your say

We are now seeking stakeholder and customer feedback on the pricing structure, pace of change and complementary measures. We have provided some specific questions on page 6, but we also welcome views on any other elements of pricing structures or network price reform you wish to comment on.

This is an important next step in our collaborative approach to exploring the future of household and small business network pricing. This feedback will inform the Victorian electricity network businesses' tariff structure statement proposals to the Australian Energy Regulator in July 2019.

How to give your feedback

Please send all feedback to **talkingelectricity@jemena.com.au** by Friday 26 October 2018.

We also welcome the opportunity to discuss your feedback directly with you. You can contact us at:

Jemena: Matthew Serpell at **matthew.serpell@jemena.com.au**

AusNet Services: Charlotte Eddy at **charlotte.eddy@ausnetservices.com.au**

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