

Demand based network tariffs – offering a new choice

Consultation paper

September 2015

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1 Overview

Our network tariff strategy

A key focus area for TasNetworks is to deliver predictable and sustainable network prices for our customers. This consultation delivers on that strategy by continuing our engagement on our network tariff strategy and starting the conversation about a new demand based network tariff to be offered as a choice for customers.

Our network tariff strategy is to move towards more cost reflective network tariff structures that enable customers to:

- make more informed investment and electricity use decisions; and
- recognise and pay for the value the network provides to them by gradually:
 - moving how our efficient costs are allocated to make network tariffs fairer for all of our customers; and
 - increasing the service charges of our network tariffs to better reflect the underlying characteristics of our efficient network costs.

More cost reflective network tariffs reward efficient use of the electricity network. This helps to reduce the need for substantial new investment in the network and helps keep costs down for all our customers in the long term.

We have consulted on our initial network tariff strategy and incorporated that feedback into our network tariff strategy. Our network tariff strategy is broadly grouped in two areas:

1. Transitioning existing consumption based network tariffs to be more cost reflective.
2. Offering demand based network tariffs as a choice for customers.

Transition for existing consumption based network tariffs

There are a number of changes that we need to make to ensure our network tariffs are more cost reflective. We have started the gradual move to more cost reflective network tariffs by making small changes to our existing network tariffs. These changes are based on a long term transition plan across a range of areas, that considers and manages the impacts on customers.

We are preparing a separate consultation paper that provides more information on the transition path for our existing consumption based network tariffs for small customers.

Demand based network tariffs – offering a new choice

Our initial view is that time of use demand based network tariffs may be the best long term network tariff structure to reflect the costs of providing network services, to benefit our customers and to satisfy the pricing principles in the National Electricity Rules. Some of our business customers already have a demand based network tariff.

Feedback from our consultation to date includes that customers want to better understand how a demand based network tariff would work, and what impact a

demand based network tariff would have on customer bills. This paper provides information to respond to that feedback.

In addition, the purpose of this paper is to consult with our customers on the design of demand based network tariffs. From 2017, we will offer a new demand based network tariff to retailers as a choice for residential and small business customers.

Continuing consultation and feedback

We recognise that information about network tariffs and how we earn revenue is complex. We are continuing to explore communication methods to help our customers understand our plans and provide us feedback. We will release fact sheets as part of our engagement with customers in the lead up to submitting our Tariff Structure Statement to the Australian Energy Regulator in January 2016.

The Tariff Structure Statement is a document that details our network tariff strategy, transition plan, feedback received from our customers, and indicative network prices.

The feedback we receive on this consultation paper will assist us in developing our Tariff Structure Statement, including the design of the demand based network tariffs we will offer as a choice to retailers, for the benefit of our customers.

We encourage you to have your say and welcome your feedback by 23 October 2015.

2 Background

TasNetworks commenced operations on 1 July 2014. We were formed by merging Aurora's distribution network and Transend's transmission network. We are a monopoly provider of many transmission and distribution network services. The Australian Energy Regulator determines how much revenue we are able to earn over a defined period (usually five years) to provide these services. The period is called the regulatory control period. Our next distribution regulatory control period is for two years, from 1 July 2017 to 30 June 2019. The shorter regulatory control period enables alignment of both our distribution and transmission regulatory control periods from 2019.

In setting our revenue allowance, the regulator provides a range of financial incentives. These incentives support our focus on improving efficiency by reducing the costs of the services we provide, while maintaining or improving the quality and reliability of our services. If you would like to learn more about our distribution regulatory proposal, information is available on our website: www.tasnetworks.com.au/consumer-engagement.

Under the regulatory framework a revenue cap is set to determine the amount of revenue we can earn each financial year. For our distribution customers we recover the distribution services revenue cap, and a share of the transmission services revenue cap, through network tariffs approved by the regulator.

Network tariffs are used to determine the cost of network service for each customer who is connected to the **distribution network**. Our network tariffs include transmission and distribution network costs. Rather than charging the customer directly, we charge retailers.

Network tariff design is concerned with the types of charges the distribution business charges retailers, rather than the overall level of revenue or prices. The purpose of this paper is to consult with our customers on designing the appropriate network tariff, and in particular, the design of demand based network tariffs.

Retail tariffs reflect how each retailer packages its input costs for particular customers, including network costs, energy costs, renewable energy target costs, market levies and the cost of providing retail services. It is the retail tariffs that customers see in their retail bills.

This paper relates to the network tariffs we charge retailers. Nearly 60 per cent of the average Tasmanian residential and small business customer electricity bill¹ relates to TasNetworks' costs for providing network services and metering services. This paper is focused only on tariffs for network services.

¹ Source: Office of the Tasmanian Economic Regulator, based on 2014-15 standing offer prices

3 Purpose

The purpose of this paper is to seek feedback on the design of the demand based network tariffs to be offered to retailers of small customers as a choice.

This paper provides an overview of the context for our network tariff strategy, and then focuses on one element: namely the design of demand based network tariffs.

4 Network tariff strategy

Recent changes to the National Electricity Rules require that network tariffs be more cost reflective. This means that even though we will be collecting the same level of overall revenue from customers in accordance with the Australian Energy Regulator's revenue decisions, the way in which we recover this revenue will transition to be more closely linked to customers' use of our network.

"Network tariff reform is a key to making energy markets work better for energy consumers", Australian Energy Regulator Chair Paula Conboy said on 2 July 2015 at a CEDA event in Sydney.

"Cost reflective network prices allow consumers to compare the value they place on using the network with the costs of using it."

Our network tariff strategy is to move towards more cost reflective network tariff structures that enable customers to:

- make more informed investment and electricity use decisions; and
- recognise and pay for the value the network provides to them by gradually:
 - moving how our efficient costs are allocated to make network tariffs fairer for all of our customers; and
 - increasing the service charges of our network tariffs to better reflect the underlying characteristics of our efficient network costs.

More cost reflective network tariffs reward efficient use. Developed in consultation with retailers, network tariffs can enable customers to recognise and pay for the value the network provides to them and make better investment and energy use decisions.

In Tasmania, our use of electricity is evolving. New technologies are changing how, when, and how much our customers use electricity supplied by the network. More cost reflective network tariffs may help customers better understand the network costs and benefits of their investments in electric vehicles, solar panels, battery storage and energy efficiency measures.

With cost reflective network tariffs, if customers choose to use electricity in ways that reduce network costs, for example, by using less power at peak times when the network loading is at its highest, these customers will be rewarded through lower network costs in their retail bills. This has the potential to reduce the need for substantial new investment in the network and helps keep costs down for all our customers in the long term.

By having a better understanding the costs of network services, customers can also weigh up whether their use of the network is a lower cost to them than investment in technologies, including energy storage technologies like batteries.

4.1 Network tariff reform options

We are investigating and consulting on network tariff reform options, with a view to introducing more cost reflective network tariffs. We are also commencing the development of our Tariff Structure Statement in accordance with new rule requirements.

Our network tariff strategy is broadly grouped in two areas:

1. Transitioning existing consumption based network tariffs to be more cost reflective.
2. Offering new demand based network tariffs as a choice for customers.

As part of our transition to more cost reflective consumption based tariffs we initially proposed to remove access to the uncontrolled low voltage heating network tariff (that provides a heavily discounted network charge for hard wired heating and hot water, at the time our network is most heavily loaded) for new customers from 2017. Customers voiced strong concern about this, and we have amended our strategy.

Our updated strategy is based on a longer term transition, which could take up to 15 years to deliver more cost reflective tariffs. We plan to transition over time from the present network tariffs to more cost reflective network tariffs. As we transition, we will work with retailers and customers to consider and manage outcomes.

We will make improvements to our network tariffs to make our network charges fairer for all our customers. It will take time to introduce cost reflective network pricing and we will gradually phase in new network tariff structures. We consider that this better balances community expectations and the path to better network price signals.

We are considering a number of options for the best transition path to more cost reflective network tariffs and this paper forms part of our consultation with customers on this transition.

We are preparing a separate consultation paper that provides more information on the transition path for our existing consumption based network tariffs for small customers.

From 2017, we will offer choice by introducing new demand based network tariffs for small customers. Our initial view is that time of use demand based network tariffs may be the best long term network tariff structure to reflect the costs of providing network services, to benefit our customers and to satisfy the pricing principles in the National Electricity Rules.

It is important to remember that our revenue for each year is revenue capped; we can only recover the efficient revenue we are allowed by the Australian Energy Regulator to provide network services, including any over or under recoveries from previous years. Therefore, changing the structure of our network tariffs is not about

increasing our revenue. Any change to our network tariff structures supports more efficient use of, and investment in, the Tasmanian electricity network for the overall benefit of our customers.

5 Consultation plan

Our consultation on network tariffs is an ongoing program of engagement and we will continue to consult following the submission of our Tariff Structure Statement in January 2016. The ongoing feedback we receive will be an important input into our development of the Tariff Structure Statement for the subsequent regulatory control period (commencing 1 July 2019).

We have established the TasNetworks Tariff Reform Working Group as an advisory group to help understand customer needs and issues. The TasNetworks Tariff Reform Working Group includes electricity retailers, customer advocacy groups, business associations and energy advisors. To date we have conducted three working group meetings to develop member understanding and gather initial feedback on our network tariff strategy. We have consulted with customers through surveys and a series of workshops in October 2014, June, July and September 2015. We have also considered the feedback we received through a number of submissions on our initial network tariff strategy.

For this consultation, we are seeking feedback on the design of the demand based network tariff to be offered to retailers of small customers as a choice. That feedback will assist us in developing our Tariff Structure Statement that we must submit to the Australian Energy Regulator in January 2016. The Tariff Structure Statement will include demand based network tariffs which we will offer as a choice to retailers for the benefit of our customers.

We plan on consulting separately in regards the impacts of network tariff reform on other customer segments.

6 Our customers

There are around 280,000 households, businesses and institutions that take their supply of electricity from the distribution network. A number of our customers are supplied via multiple network tariffs. For example many residential customers are assigned to both our Residential Low Voltage General network tariff ('residential' TAS31) and the Uncontrolled Low Voltage Heating network tariff ('uncontrolled energy' TAS41).

The table below provides a summary of our distribution customers and the electricity consumption for these customers. The customer numbers are reflective of the network tariffs we charge the retailers, noting that many customers are assigned to multiple network tariffs.

Network Tariff Customer Segments	Customer Numbers (by network tariffs)	Customer Numbers (%)	Total energy in 2014-15 (Gwh) ²	% of total Energy
Residential	236,584	47	983	24
Small business	38,058	8	830	20
Controlled energy	24,558	5	58	1
Uncontrolled energy	191,540	38	831	20
Large business (low voltage)	864	0.17	513	12
Large commercial (high voltage)	130	0.03	790	19
Irrigation	3,248	1	125	3
Unmetered supply	3,585	1	31	1
Total	498,567	100%	4,161	100%

7 How network tariffs are applied

There are currently 24 different types of network tariffs, which depend on the customer class (for example, residential, commercial or industrial) and the customer's forecast usage. Apart from some very large industrial customers that have specifically calculated demand based network tariffs, each customer is allocated to a particular network tariff/s. A summary of our current network tariff classes and network tariffs is provided in Appendix A.

If a customer prefers and is eligible for a different type of network tariff, a change can be requested through the customer's retailer. It is the retailer that ultimately recovers our network costs through its charges (retail tariffs) to the customer. If our network tariffs increase or decrease for a particular class of customer, retailers can be expected similarly to change retail tariffs to their customers.

² Relating to the distribution network only

8 Customer feedback

Affordability concerns are a consistent theme of feedback from the majority of customers. This is why our network tariff strategy is focused on delivering predictable and sustainable network prices. The affordability of electricity will continue to be an important issue for Tasmanians, particularly for vulnerable customers. Feedback from our customers has also highlighted concern that vulnerable customers may be left behind as the level of technology and innovation increases. We are advocating support for vulnerable customers through a review of energy concession arrangements.

We have heard consistent feedback from our customers that for network tariff reform to work effectively:

- retailers will need to pass the network tariff price signals through to customers via retail tariffs; and
- customers will need clear communications on how the demand based network charge applies.

The TasNetworks Tariff Reform Working Group members and some members of from our customer workshops have supported a tariff trial. Customers generally perceive that research from other jurisdictions is not applicable to Tasmania. A key component of our network tariff strategy is a tariff trial.

Advanced meters can support customers better understand their usage, demand and associated network charges by enabling this information to be captured and provided to customers in a more timely way. We will install advanced meters for those small customers who choose to participate in the trial.

The tariff trial will provide customer demographic and usage data this is key to enabling more extensive customer impact analysis. The tariff trial aims to further promote the concept of demand based tariffs and enable our customers to better understand our network tariff reform. The data gathered from trial will enable more granular customer impact analysis; this will help us to have a more meaningful conversation with the community in respect to demand based network tariffs.

We propose in this paper a preferred demand based network tariff option and a network tariff structure that have taken these key themes and other customer feedback into account.

The insights gained, along with the challenges and opportunities arising in the changing energy landscape, have helped shape the development of our network tariff strategy.

9 Network tariff strategy guiding principles

In November 2014, the Australian Energy Market Commission published new distribution pricing rules that require network tariffs to reflect the efficient costs of providing network services to customers so that they can make informed decisions about their electricity usage. More information about the rule is included in Appendix B.

In relation to network tariff design, in consultation with our customers, we have developed the following high level principles to help guide us:

1. Network tariffs should facilitate the efficient recovery of revenue (efficiency).
2. Network tariffs should be as simple as possible and developed in consultation with customers and other stakeholders (simplicity).
3. Network tariffs should provide 'price signals' to all customers, recognising that the cost of using the network varies at different times (efficient price signals).
4. We should calculate our network tariffs according to a well-defined and clearly explained methodology (clearly explained).
5. We should consider the impacts on customers of any network tariff change, and introduce change over a period of time to manage the impacts on particular customers (customer impact).
6. Our network tariffs must comply with the regulatory rules, both nationally and locally (compliance).

9.1 Application of the principles to the choice of network tariff design

For any network tariff change we consider, and work to manage, the impacts on customers (customer impact principle). The network tariff options have been designed recognising the significance of this key principle.

In implementing network demand based tariffs and network tariff structures, we have turned our mind to applying principles of simplicity and the provision of efficient price signals.

In relation to simplicity, the network demand based charge should be designed in a way that customers can readily understand. If the charging mechanism is overly complex, it will be difficult for customers to understand the network tariff and respond to the price signals; this may result in the network demand tariff being ineffective. A complex demand based charging mechanism will also require more sophisticated metering.

In relation to efficient price signals, the network is constructed to meet the system maximum demand. Across the regions of Tasmania there are common demand patterns, with higher distribution customer usage on weekday mornings and evenings in the darker, colder months.

If a customer increases demand at 7am on a cold winter weekday, the customer's demand will generally contribute to the system peak, and the total cost of providing network services. This includes the ongoing renewal of the network over time.

However, if a customer's maximum demand occurs on a weekend, the appropriate price signal would recognise that this is a period when the electricity network is not stressed, and therefore the cost of meeting demand at this time is not as high.

It follows, therefore, that to provide an efficient price signal to our customers, demand based pricing should be linked to the times when the system is most heavily utilised; namely this is the periods of peak demand that underpin ongoing network requirements, including investment and operation costs.

We also note that:

- The efficiency principle recognises that network tariffs should facilitate the efficient recovery of revenue. Our Tariff Structure Statement will provide an outline of our network tariff suite which will deliver this outcome.
- It will be necessary for us to ensure that the methodology for calculating the network tariff rates is soundly based and consistent with the rule requirements, in accordance with the principles of compliance and a clearly explained methodology.
- We initially propose an opt in approach to provide customers choice of network tariff design, which supports the customer impact principle.

While it is possible to make broad observations regarding the preferred features of the various ways to calculate demand based network charges, each particular option is likely to have its pros and cons. In particular, there is likely to be a trade off between simplicity and efficient price signals. In order to select a preferred demand based network charging approach, therefore, it is useful to consider the advantages and disadvantages of each option. We discuss the advantages and disadvantages of each option in Appendix C of this paper.

10 Efficient network pricing

The analysis underpinning our network tariff strategy considered a range of tariff options. We assessed options against our network tariff principles. Options we considered included:

- seasonal time of use demand network tariffs;
- time of use consumption network tariffs;
- demand based network tariffs; and
- critical peak pricing.

Network prices are considered to be efficient if they provide pricing signals that reflect the costs of using the network and customers are in a position to make an informed choice about their electricity use. Our assessment suggested that this is best achieved via demand based network tariffs that signal peak network demand costs.

Additional elements such a critical peak elements or seasonal variation may provide a degree of greater cost reflectivity. However, we consider the benefits of greater (or purer) cost reflectivity are not outweighed by the added complexity, therefore these elements are not being contemplated.

The following sections summarise a selection of different approaches for setting demand based network tariffs. In order to choose between these different options, we first need to understand why charging on the basis of demand (for network charges) is likely to deliver better outcomes for customers. We also explain how a move to network demand based charges aids in the removal of cross subsidisation between our customers and explain the relationship between efficient network prices and efficient network investment.

Our current network tariff suite includes a number of tariffs which result in cross subsidisation between customers. This includes consumption based network tariffs which for historic reasons provide certain customer classes with a discount, and which mean that some customers with embedded generation do not pay network charges that reflect their use of the network.

This situation is not unique to Tasmania: the prices charged for network services around Australia are not cost reflective, as they are largely based on how much (net) energy a customer uses, not how much network demand the customer uses.

Consumption based network tariffs allow for customers to offset their contribution to network costs with the aid of embedded generation. However, unless the embedded generation reduces the customers' network demand at times of system peak, these customers still contribute to overall network demand. They therefore contribute to underlying network costs, but are not currently paying accordingly. For example, many customers with solar embedded generation are not paying for their contribution to network costs on peak winter days.

Moving to a network demand based charging mechanism will aid in the removal of cross subsidisation and will mean a fairer network pricing structure for all customers.

10.1 Network demand and network costs

In planning our future capital expenditure program, we want to ensure that our network has the capacity be able to deliver total electricity demand at peak times. If total customer demand for instantaneous energy delivery increases, we require additional network capacity to meet that total maximum demand even if it occurs for a comparatively short period. The size and capacity of the network also impacts the ongoing costs to operate and maintain our network assets.

In Tasmania, peak demand is forecast to remain relatively stable into the future. This level of network demand underpins our ongoing renewal and asset replacement expenditure, as over time we must continue to replace assets in poor condition, and in accordance with supply reliability, safety, environmental and other compliance obligations.

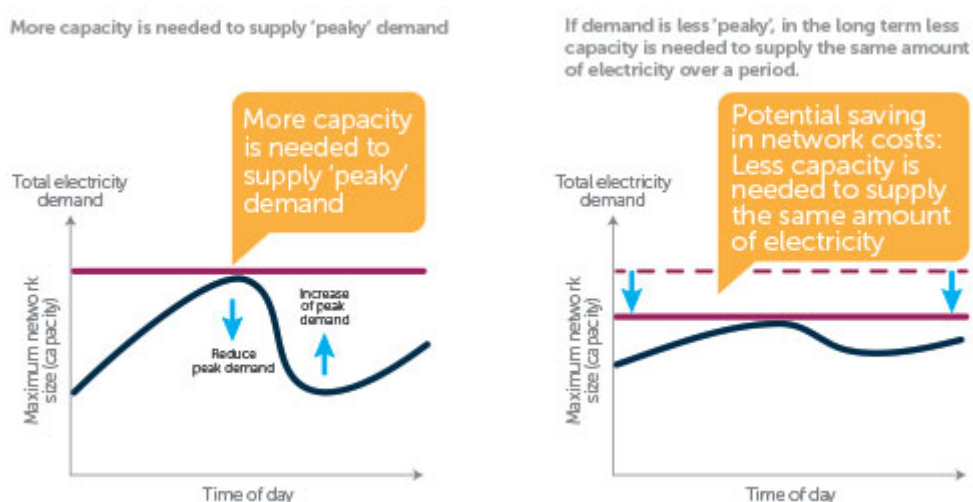
Our goal is to ensure that our network is sized over time to meet our customers needs, ensuring those who use the network, and contribute to its capacity and cost, pay their fair share.

We want to send price signals about the impact network demand has on network costs, as in general:

1. Continued growth in peak demand over time, and in areas of the state where the local network is reaching capacity, will increase network costs.
2. More efficient use of the network capacity that already exists means that customers can transport more energy at the same network cost. This reflects that the network has been built for the peak, so has 'spare' capacity for much of the day and over the year.
3. Sustained lower levels of peak demand over time will lead to reduced renewal and replacement costs as we are able to use 'smaller' capacity assets to meet customer needs over time.

For example, a long term reduction in peak demand could be achieved by shifting demand from peak to off-peak periods, as illustrated in the figure below.

Figure 1: Shifting demand impacts



Peak network demand pricing provides information to customers about the costs of using the network at peak times. This clear link between network costs and how customers are charged is not achieved via other network tariff structures, including any variation of a consumption based tariff. Under network demand pricing arrangements, all customers - including those who have embedded generation such as solar panels - pay for their use of the network at peak times. Therefore, network demand based charging is a more cost reflective and fairer way to charge our customers.

If customers increase demand during peak periods, new network capacity may be required. If customers continue to use present levels of demand during peak periods, existing levels of network capacity will need to be supported. However, our customer base can increase energy usage without increasing network costs, provided demand on the network does not increase in the peak. This leads to more efficient use of the network.

Customers contributing to the need to invest in the network should pay the efficient cost of providing for the capacity in the network. By utilising this approach, we are ensuring that we provide the best network price outcomes for all customers.

Network peak demand pricing may encourage some customers to reduce demand during peak periods, and to increase demand during off-peak periods. Therefore, a flatter load profile, in the long term, is expected to reduce future renewal and augmentation capital expenditure and see relatively lower costs for operating and maintaining a relatively smaller network (and asset base). It will also lead to better utilisation of the network.

To be clear, it is not the case that we prefer a flatter demand profile or that we wish to penalise customers for using the electricity network at peak times. If customers prefer usage at peak times - for example, on a cold winter's day – it is appropriate for us to provide the required network capacity to meet this peak demand. However, we want to make sure that existing network capacity is sustained, and any new capacity is built, only if customers genuinely want it, and are prepared to pay network tariffs that reflect its costs.

Demand based network tariffs provide a means of delivering this outcome.

11 Metering as an enabling technology

Before turning to our examination of the options, it is important to note the metering arrangements that are currently in place in Tasmania, and the national developments in metering requirements and proposed competition in metering. We have a variety of meters in service, including:

- basic electro-mechanical accumulation meters which record energy consumption only;
- advanced-capable meters, that can capture demand based information, but which require communications cards and a new program to be installed to enable them to be fully functional remotely-read advanced meters; and
- advanced (communications-enabled) meters, which are predominantly only for our high voltage connected customers.

At present, metering data for most customers is captured using manual reads of a customer's consumption over a quarter.

Approximately 20% of our metering fleet is advanced-capable. In order to implement demand based charging for smaller customers, information could be read manually from these advanced-capable meters³. This is similar to the way in which time of use data is currently handled for customers on one of our time of use network tariff offerings.

The Australian Energy Market Commission is currently developing changes to the National Electricity Rules to introduce new advanced metering requirements and competition in the provision of metering and related services to residential and small

³ To enable customers to receive better, more timely information and the opportunity to respond to the price signal, research has demonstrated monthly billing is preferred.

business customers. The proposed rule is likely to see advanced meters introduced for new and replacement meters⁴. The change may provide a framework to enable commercial investment in advanced meters and advanced metering services by retailers, distributors and/or other accredited service providers.

Our longer term plans for implementation of more cost reflective network charges have regard to these developments. We recognise that advanced meters will support the introduction of more cost reflective network pricing, as they will support better customer and network information, including information about network customer demand and responsiveness to network pricing signals.

12 Designing demand based network tariffs

For this consultation we are seeking feedback on the design of the demand based network tariff to be offered to retailers of small customers as a choice. The network tariff design relates to how the demand charge is measured and the network tariff structure.

In the next sections we are providing an overview of demand based network tariff options and network tariff structures, and outlining our preferred approach. We are seeking feedback on these options and structures to understand the preferences and issues for our customers.

13 Demand based network tariff options

We are seeking feedback as to how the maximum demand charge should be incorporated into the network tariff structure. In broad terms, demand based network charges can be applied in general or aimed more directly at a peak period. This means they could either be applied to:

- each customer's peak usage, no matter when that usage occurs; or
- each customer's usage when the electricity system is under more stress.

We also need to decide whether the network demand charge applies to a single period or whether it applies to the average level of demand measured over multiple periods. For example, the network demand charge could apply to:

- the maximum usage during the peak half hour for each month or quarter; or
- the average maximum usage during, say, the four highest half hours for each month or quarter.

We outline a number of demand based network tariff options in relation to these different parameters. We are interested in understanding customer preferences for how the network demand charge will be measured.

To provide a high level overview of the network tariff options, we have developed a matrix, which captures a sample of options of a network tariff applying to the customer or system peak; and for single or multiple periods.

⁴ The proposed rule is yet to be finalised. If the proposed rule is implemented the expected commencement date is 1 December 2017.

For each of the four quadrants in the matrix, we have identified a particular network demand based charge that exhibits those particular attributes. For example, a 'maximum demand charge' is based on a customer's demand during a period which coincides with the system peak. It therefore sits in the upper right quadrant.

Figure 2: A matrix showing alternative network demand based charging options

	Customer's Peak	System Peak
Single Peak Period	Option 1: Anytime Maximum Demand Charge	Option 3: Extended Peak Period Maximum Demand Charge
Multiple Periods	Option 2: Anytime Maximum Demand Charge (average)	Option 4: Average Maximum Demand Charge OR Option 5: Time of Use Demand Charge

We consider the system peak demand rather than using peak demand on local assets serving particular customers. Location based pricing adds another layer of complexity to tariff design and is likely to result in prices that are more volatile over time. In addition, the current jurisdictional obligations require 'postage stamp' pricing for small customers in Tasmania, so that tariffs do not vary by location.

Each of the five options listed in Figure 2, including brief analysis of the advantages and disadvantages of each option are explained in further detail in Appendix C. The TasNetworks Tariff Reform Working Group asked that we indicate our preferred option. We therefore explain our preferred option in more detail below.

We welcome feedback on all five options. Feedback will help us select the option that we develop for our Tariff Structure Statement.

13.1 Preferred option: Time of Use Demand Pricing

Our preferred demand based network tariff option is a time of use demand based network tariff. A time of use demand based network tariff means that the customer's maximum demand during defined periods is subject to different prices. We are proposing to include a peak and off-peak demand charge.

Time of use demand network tariffs allow network demand charges to be targeted in accordance with Tasmania's particular demand profile and are therefore more cost reflective. Targeted demand based charges send customers a network pricing signal to reflect the cost of providing and sustaining network capacity, including regional and local capacity that supports communities and individual customers.

We recognise that time of use demand arrangements may be more difficult for customers to understand than flat demand charges (as they involve multiple time

periods with different prices). Customers have also consistently expressed concern that a wide peak period limits their ability to shift their use to off-peak periods.

We have considered that feedback and observe that currently a number of customers on time of use consumption network tariffs, which also involve multiple periods, have been able to adapt and respond to these tariff offerings. Current time of use product use has also indicated that a number of customers are able and willing to modify their usage in response to price signals.

We also recognise that customers need to understand the pricing signal, and have timely information to be able to respond to the pricing signal. This option could therefore be implemented for small customers using our existing meter types that are 'advanced capable' meters.

As we transition to more cost reflective network tariffs, we will also need to consider how to manage customers who do not have access to meters that capture demand information. For example, some networks in other states are considering using standard customer demand profiles to calculate demand charges. We are thinking about this approach. We are also considering initially providing advanced metering for customers who opt in to our new demand based network tariff.

We consider that a time of use demand network tariff satisfies the guiding principles set out in the above and is therefore the preferred demand based network tariff option. We welcome feedback on the preferred option.

14 Demand based network tariff structure

We considered two different demand based network tariff structures: a three part network tariff and a two part network tariff. We will only offer one new demand based network tariff structure for small customers.

The **three part demand based network tariff structure** would contain the following types of charges:

- Service charges
 - Customers pay the same dollar amount, regardless of how much electricity they use; this charge is for the energy exchange service available from being connected to the network.
- Consumption charges
 - Customers pay based on each unit of electricity they consume.
- Demand charges
 - Customers pay depending on the maximum amount of electricity they use during a particular period.

The **two part demand based network tariff structure** would have only a service and demand charge. This network tariff would be offered as an opt in choice.

We provide an outline of network customer impacts in respect to both tariff types. The TasNetworks Tariff Reform Working Group asked that we indicate our preferred option. We therefore explain the network customer impacts of our preferred two

part network tariff structure in more detail below. The network customer impacts for the three part network tariff structure are outlined in Appendix D.

We welcome feedback on both demand based network tariff structures. Feedback will help us select the demand based network tariff structure that we develop for our Tariff Structure Statement.

14.1 Preferred option: two part demand based network tariff

We have considered the key network tariff strategy guiding principles: the customer impact principle, simplicity and efficient price signals. Our view is the two part demand based network tariff structure preferably satisfies the principles and best addresses the customer feedback received.

Our preferred demand based network tariff structure is to adopt Time of Use Demand Pricing with a:

- two part network tariff structure (which consists of service charges and demand charges); and
- choice of opting in to the new demand based network tariff from July 2017.

A strong theme from customer feedback is that customers need time to understand network demand based charging and adapt to changes. As part of our proposed transition to more cost reflective network tariffs we are offering a demand based network tariff for small customers on an opt in basis as a choice, with immediate transition to the network tariff structure. This is a simpler approach.

Currently if a customer requests a network tariff change (via their retailer) a Network Tariff Reassignment charge of may apply. As part our transition plan, to encourage our customers to consider a demand based network tariff, we will not charge the Network Tariff Reassignment charge to small customers who choose to opt in to a demand based network tariff.

Customers also noted that for network tariff reform to work effectively, retailers will need to pass the network price signals through to customers through the retail tariffs. Retailers are operating in a competitive market and are increasingly developing innovative retail tariffs and products to offer to their customers. We consider a simpler demand network tariff structure may be easier for retailers to apply and for customers to understand and adapt to.

In progressing this preferred option, we will look carefully at the appropriate difference between the network peak and off-peak time of use demand charge.

We commit to building customer understanding and recognise a considered customer engagement strategy is necessary to enable retailers and customers to understand and support this demand based network tariff design option.

As noted above, we have also committed to conduct a tariff trial to further promote the concept of demand based tariffs and help our customers better understand our network tariff reform. The data gathered from trial will enable more granular customer impact analysis; this will help us to have a more meaningful conversation with the community in respect to demand based network tariffs.

15 Two part demand based network tariff - network customer impacts

A move to cost reflective network tariffs will impact different customers in different ways. In this paper indicative network customer impacts for a range of average customers applying a two part demand based network tariff structure are presented. The network customer impacts have been based on a range of assumptions.

Customer usage patterns and profiles are unique and do not necessarily reflect the average, therefore it is important to note that individual customer impacts will differ from the average customer impact.

Due to a range of factors including limited data availability we are not able to provide customer impacts for a wide range of customer classes or customer profiles.

The customer impact analysis undertaken aims to provide a charge comparison of network charges under a base case scenario and a scenario with optional demand based network tariffs.

Some key assumptions are:

- Revenue is a major factor underpinning the derivation of network charges. The indicative network charges have been developed assuming forecast revenue in 2028-29 with network charges presented in today's dollars (\$2015-16 real).
- Following a 15 year network tariff reform transition period a small number of our customers have adopted a demand based network tariff⁵. By providing a demand based network pricing signal, consumption in 2028-29 will not fall as much as it would in a world where there are only consumption based network tariffs.
- There is a transition to efficient revenue recovery from each customer class, which represents unwinding of current cross subsidies between the customer classes.
- The service charges for our network tariffs will slowly increase over time to better reflect the underlying characteristics of our efficient network costs. The base case scenario modelled does not yet reflect this change.

Changing the network service charge is a component of our network tariff transition plan. More information regarding the gradual transition of service charges and the transition to efficient revenue recovery by customer class will be provided in a separate consultation paper.

The methodology and assumptions underpinning the indicative annual network charges are provided in Appendix E. Network customer impacts relating to a three part network tariff structure are outlined in Appendix D. We have applied the same methodology and assumptions to our analysis of network customer impacts for both the three part and two part demand based network tariff structures.

⁵ Note: the transition period is based on a 2014-15 commencement date.

A high level network customer impact summary for key customer segments is provided below, this analysis is based on a move to our preferred **two part demand based network tariff**.

15.1 Network customer impacts

The analysis is underpinned by network tariffs that have been developed for comparative purposes only, and use a range of assumptions. The analysis provides a comparison of network charges under two scenarios, the base case (existing network tariff structure) and the demand based network tariff.

All outcomes are for average impact, with a range of possible outcomes for particular customers within a customer segment, based on their actual consumption or demand relative to the average.

The outcomes are therefore illustrative of network charges at the end of the transition period (2028-29) and will not necessarily be representative of any final network tariff structure or network price and should not be relied upon for that purpose (refer Appendix E for assumptions).

Figure 3 illustrates the typical network annual charge for a medium residential customer currently on both network tariffs Residential Low Voltage General (TAS31) and Uncontrolled Low Voltage Heating (TAS41). It also shows the forecast annual network charge following movement to a time of use demand based network tariff.

Figure 3: Residential Network Customer Impact (Residential Low Voltage General and Uncontrolled Low Voltage Heating distribution network tariffs)

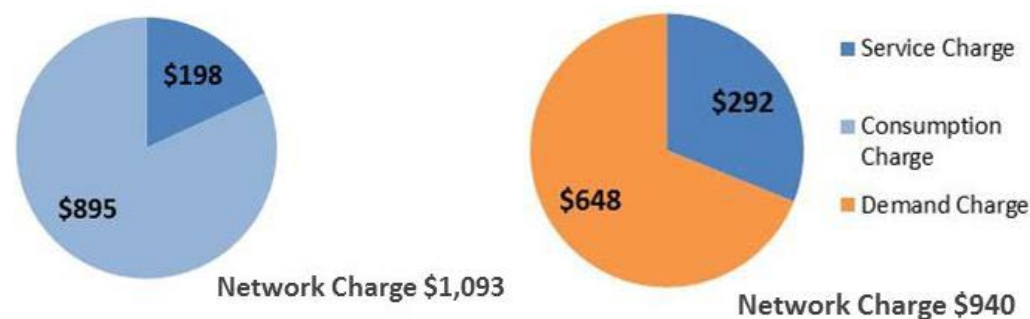


Figure 4 illustrates the typical network annual charge for a low usage residential customer currently on both network tariffs Residential Low Voltage General (TAS31) and Uncontrolled Low Voltage Heating (TAS41). It also shows the forecast annual network charge following movement to a time of use demand based network tariff.

Figure 4: Residential Network Customer Impact (Residential Low Voltage General and Uncontrolled Low Voltage Heating distribution network tariffs)

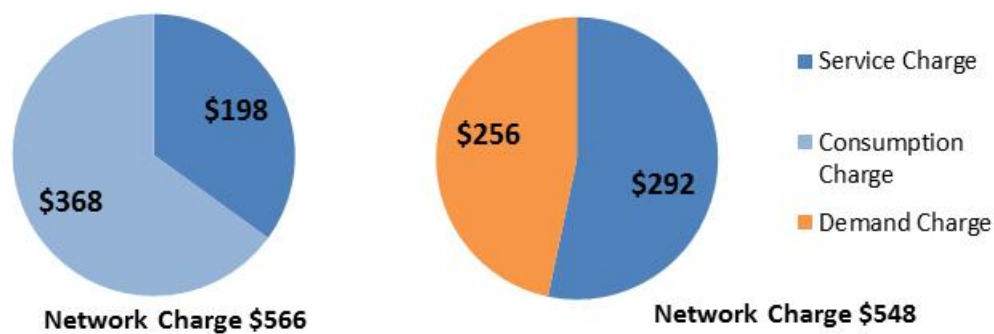


Figure 5 illustrates the typical network annual charge impact for a medium low voltage commercial customer currently on the Business Low Voltage General network tariff (TAS22) and the network annual charge following movement to a time of use demand based network tariff.

Figure 5: Low Voltage Commercial Network Customer Impact (Business Low Voltage General distribution network tariff)

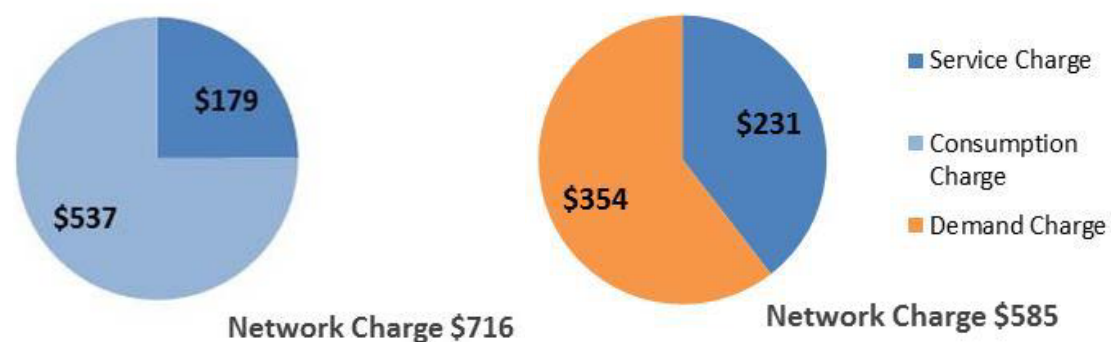
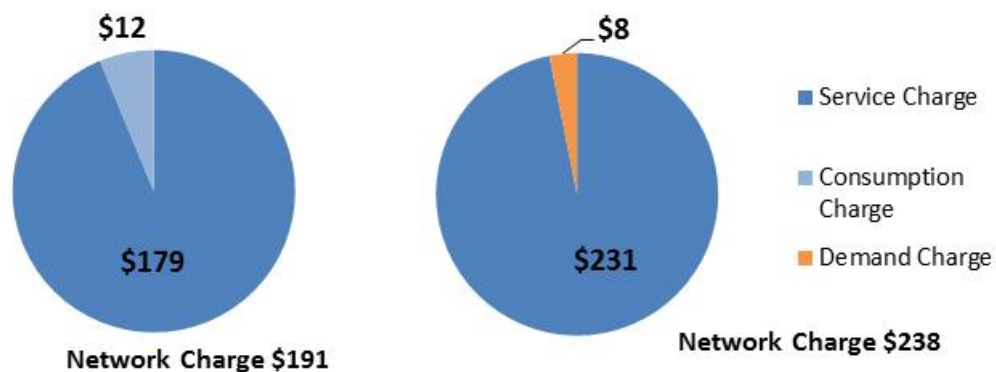


Figure 6 illustrates the typical network annual charge impact for a low usage low voltage commercial customer currently on the Business Low Voltage General network tariff (TAS22) and the network annual charge following movement to a time of use demand based network tariff. There a lot of customers that do not remain on this network tariff for a full year because it is used as a transitioning network tariff, hence the relatively low indicative network charge.

Figure 6: Low Voltage Commercial Network Customer Impact (Business Low Voltage General distribution network tariff)



A key reason for the increase in network charge for this customer type is the slightly higher service charge. This is not a function of the change to a demand based network tariff but rather an increase in the share of cost recovery associated with service charge. More information regarding the gradual transition of service charges and the transition to efficient revenue recovery by customer class will be provided in a separate consultation paper.

Figure 7 illustrates the typical network annual charge impact for a large usage low voltage commercial customer currently on the Business Low Voltage General network tariff (TAS22) and the network annual charge following movement to a time of use demand based network tariff.

Figure 7: Low Voltage Commercial Network Customer Impact (Business Low Voltage General distribution network tariff)

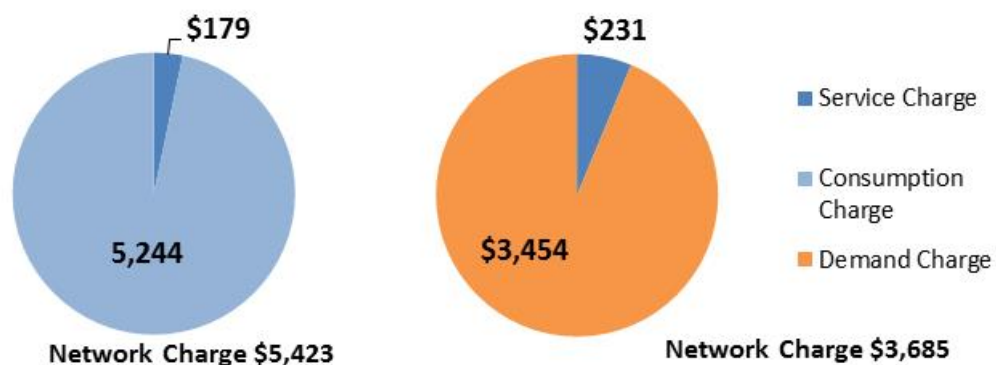
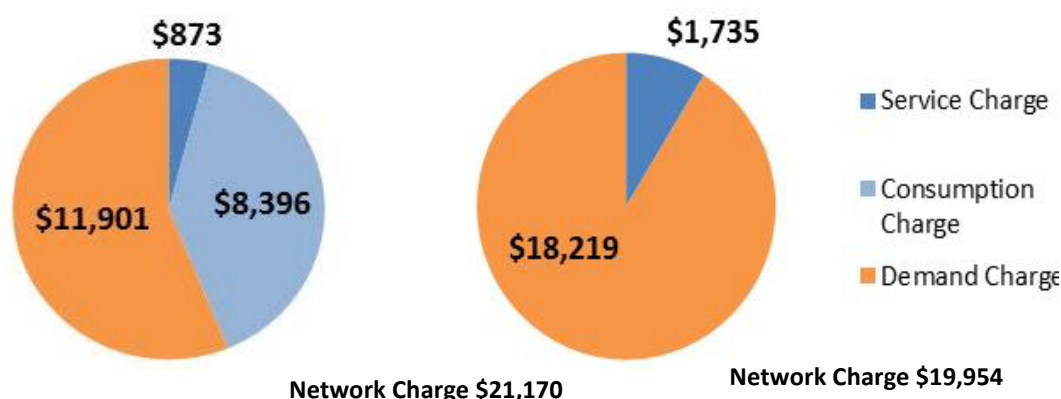


Figure 8 illustrates the typical network annual charge impact for a medium low voltage commercial customer currently on the Business Low Voltage kVA Demand distribution network tariff (TAS82) and the network annual charge following movement to a time of use demand based network tariff.

Figure 8: Low Voltage Commercial Network Customer Impact (Business Low Voltage kVA demand distribution network tariff)



15.2 Summary – network customer impacts

Our network tariff strategy is to move towards more cost reflective network tariff structures that enable customers to:

- make more informed investment and electricity use decisions; and
- recognise and pay for the value the network provides to them by gradually:
 - moving how our efficient costs are allocated to make network tariffs fairer for all of our customers; and
 - increasing the service charges of our network tariffs to better reflect the underlying characteristics of our efficient network costs.

The analysis undertaken provides a summary of customer impacts utilising an average usage profile for particular customer groupings, for example, residential customers with medium consumption. Individual customers within a customer segment will have differing usage characteristics to the average.

More cost reflective network tariffs reward efficient use. Some customers within a grouping may therefore pay more than the typical customer under a demand based network tariff, while others will pay less. These differences may change as customers' usage patterns and behaviours evolve in response to more efficient cost reflective network price signals.

Developed in consultation with retailers, network tariffs can enable customers to recognise and pay for the value the network provides to them and make better investment and energy use decisions. Moving to a network demand based charging mechanism will aid in the removal of cross subsidisation and will support a fairer network pricing structure for all customers.

With cost reflective network tariffs, if customers choose to use electricity in ways that reduce network costs, for example by using less power at peak times when the network loading is at its highest, these customers will be rewarded through lower network costs in their retail bills. This has the potential to reduce the need for

substantial new investment in the network and helps keep costs down for all our customers in the long term.

By having a better understanding the costs of network services, customers can also weigh up whether their use of the network is a lower cost to them than investment in technologies, including energy storage technologies like batteries.

16 Consultation with customers

The process of tariff reform will require striking a balance between cost reflectivity and gaining customers' understanding and acceptance of our transition plan as well as our new network tariffs. To that end, we will continue consulting with our customers and the wider community about the process of tariff reform.

It will take time to transition to efficient revenue recovery by customer class. We are committed to delivering predictable and sustainable prices for our customers. We are also committed to continuing the conversation with the community about tariff reform and moving towards pricing structures which are fairer for all our customers.

We welcome feedback and comments from customers on the issues discussed in this paper, and on our assessment of the options for demand based network tariffs. We recognise that the three key principles we have applied, customer impacts, simplicity and efficient price signals are open to different interpretations. We welcome your feedback on how we have applied the network tariff strategy guiding principles.

We recognise that there is a trade off between the principles of simplicity and efficient price signals in selecting the preferred option. For example, we are proposing to trade off some simplicity in network tariff design in order to transition carefully to more efficient price signals through optional introduction of the demand based charge over the next regulatory period.

We welcome customer feedback on these matters, and any other issues of interest or concern.

More specifically, we would welcome answers to the following questions:

1. Do you support our proposed move to demand based network tariffs as compared to the status quo of principally consumption based network tariffs?
2. Do you agree with our preference to introduce network Time of Use Demand network tariffs? If not, which network demand based network tariff option(s) would you prefer to see introduced and why?
3. Do you agree that the principles of simplicity and efficient price signals are appropriate in selecting the preferred network tariff structure?
4. Do you support offering a demand based network tariff as a choice?
5. Do you support our preferred demand based network tariff structure?
6. What do you think would make customers choose a demand based network tariff option? (e.g. incentives or product offers)
7. Is there anything in this consultation paper that hasn't been considered and is important to you?
8. Is there any other feedback you'd like to give us?

We are keen to receive your feedback on this paper. Your input will help to ensure that we have a strong foundation for the detailed Tariff Structure Statement we will submit for the 2017-2019 regulatory period in January 2016.

There is no standard format for submissions, but it will help us to understand your views if you indicate clearly which parts of the Consultation Paper you are commenting on. You may wish to provide answers to some or all of the questions in the paper, but you don't need to. You may raise any matter in your submission that is of interest or concern to you.

You can make a submission by:

- emailing your submission to: DD17@tasnetworks.com.au
- going on line at: tasnetworks.com.au/customer-engagement
- posting your submission to: Leader Regulation PO Box 606 Moonah Tas 7009

Unless your submission requests otherwise, we will publish all the submissions we receive on our website. We think this will promote better awareness of the issues of importance to different customers. We may also include excerpts from submissions in our Tariff Structure Statement.

In order for us to have sufficient time to consider your submission we must receive it by 5pm Friday **23 October 2015**. We will accept later submissions, but may not be able to take into account when finalising our plans.

The Tariff Structure Statement will provide a summary of the key themes emerging from customer feedback on our network tariff reform engagement, and explain how we have taken feedback into account in formulating our plans.

We look forward to receiving your feedback.

17 Appendix A: Current network tariffs classes and network tariffs

The table below provides a summary of our current network tariff offerings and the mapping from network tariff to network tariff class.

Table 1: TasNetworks 2015-16 Tariff Offerings

Network Tariff Class	Network Tariff	Description
High Voltage	Business High Voltage kVA Specified Demand (TASSDM)	<p>This network tariff is for customers where:</p> <ul style="list-style-type: none"> connection is made to this site at high voltage; and the expected ATMD of the site is less than 2 MVA. <p>Customers on this network tariff are able to agree with TasNetworks a “Specified Demand” for their electrical installation. Once agreed this value is used in the calculation of Network Use of System charges for the following period of no less than twelve months.</p> <p>A site connected to the TasNetworks’ distribution network with this network tariff is not eligible for any other network tariff.</p>
	Business HV kVA Specified Demand >2MVA (TAS15)	<p>This network tariff is for customers where:</p> <ul style="list-style-type: none"> connection is made to this site at high voltage; and the expected ATMD of the site is greater than 2 MVA. <p>Customers on this network tariff are able to agree with TasNetworks a “Specified Demand” for their electrical installation. Once agreed this value is used in the calculation of NUoS charges for the following period of no less than twelve months.</p> <p>A site connected to the TasNetworks’ distribution network with this network tariff is not eligible for any other network tariff.</p>
Irrigation	Irrigation Low Voltage Time Of Use (TAS75)	This low voltage time of use network tariff is for primary producers’ business installations that are used solely for the irrigation of crops, which must be classified as ANZSIC class 01.
Large Low Voltage	Business Low Voltage kVA Demand (TAS82)	This network tariff is for installations that are not private residential dwellings taking low voltage 3-phase supply.
Small Low Voltage	Business Low Voltage General (TAS22)	This is the basic, low voltage network tariff for installations that are not private residential dwellings.
	Business Low Voltage Nursing Homes (TAS34)	<p>This low voltage network tariff is applicable only to those businesses registered as aged care facilities.</p> <p>This network tariff is obsolete, with no new connections allowed.</p>

Network Tariff Class	Network Tariff	Description
	General Network – Business, Curtilage (TASCURT)	<p>This network tariff is for rural customers having a single low voltage connection point but requiring more than one meter due to site layout.</p> <p>The single connection point must supply an installation qualifying for, and being supplied on the General Network - Residential network tariff.</p> <p>This network tariff is obsolete, with no new connections allowed.</p>
	Business Low Voltage Time Of Use (TAS94)	This is the basic, time of use low voltage network tariff for installations that are not private residential dwellings.
Residential	Residential Low Voltage General (TAS31)	This network tariff is for low voltage installations that are premises used wholly or principally as private residential dwellings.
	Residential Low Voltage PAYG (TAS101)	<p>This network tariff supports the Aurora Pay As You Go product and is not to be used for any other application. This network tariff is for customers that have a specialised PAYG meter installed for the provision of the Pay As You Go product.</p> <p>This network tariff is for low voltage installations that are premises used wholly or principally as private residential dwellings.</p> <p>This network tariff is obsolete, with no new connections allowed.</p>
	Residential Low Voltage PAYG Time Of Use (TAS92)	<p>This time of use network tariff supports the Aurora Pay As You Go product and is not to be used for any other application. This network tariff is for customers with a basic meter and Payguard meter configuration for the provision of the Pay As You Go product.</p> <p>This network tariff is for low voltage installations that are premises used wholly or principally as private residential dwellings.</p>
	Residential Low Voltage Time Of Use (TAS93)	This time of use network tariff is for low voltage installations that are premises used wholly or principally as private residential dwellings.
Uncontrolled Energy	Uncontrolled Low Voltage Heating (TAS41)	<p>This network tariff is for low voltage installations.</p> <p>In installations that are private residential dwellings, this network tariff:</p> <ul style="list-style-type: none"> is for water heating and/or residential space heating and/or domestic indoor pool heating only. <p>In installations that are not private residential dwellings, this network tariff:</p> <ul style="list-style-type: none"> is for water heating only.

Network Tariff Class	Network Tariff	Description
Controlled Energy	Controlled Low Voltage Energy – Off Peak with afternoon boost (TAS61)	<p>This off-peak network tariff is for low voltage installations and includes an ‘afternoon boost’ component.</p> <p>In installations that are private residential dwellings, this network tariff:</p> <ul style="list-style-type: none"> • is for water heating and/or residential space heating and/or other “wired in” appliances as approved by TasNetworks; and • may be used for heating swimming pools, including those that incorporate a spa. Note that an individual spa from which the water goes to waste after use may not be connected on this tariff. <p>In installations that are not private residential dwellings, this network tariff:</p> <ul style="list-style-type: none"> • is for water heating and/or space heating and/or other “wired in” appliances as approved by TasNetworks.
	Controlled Low Voltage Energy – Night period only (TAS63)	<p>This network tariff is for low voltage installations and is only available during off-peak periods.</p> <p>In installations that are private residential dwellings, this network tariff:</p> <ul style="list-style-type: none"> • is for water heating and/or residential space heating and/or other circuits as approved by TasNetworks; and • may be used for heating swimming pools, including those that incorporate a spa. Note that an individual spa from which the water goes to waste after use may not be connected on this tariff. <p>In installations that are not private residential dwellings, this network tariff:</p> <ul style="list-style-type: none"> • is for water heating and/or space heating and/or other circuits as approved by TasNetworks.
Unmetered	UMS Low Voltage General (TASUMS)	<p>This network tariff is for small, low voltage, low demand installations with a relatively constant load profile. For example:</p> <ul style="list-style-type: none"> • illuminated street signs; • public telephone kiosks; • electric fences; • two-way radio transmitters; • fixed steady wattage installations; • traffic lights; and • level crossings. <p>All installations on this network tariff must have all components permanently connected. For the avoidance of doubt, an installation containing a power point does not qualify for this network tariff.</p>

Network Tariff Class	Network Tariff	Description
Streetlights	UMS Low Voltage Public Lighting (TASUMSSL)	<p>This network tariff is for customers that have a lighting service provided by TasNetworks.</p> <p>This network tariff does not include charges for the installation and/or replacement of lamps. Costs for the installation or replacement of lamps are an additional charge.</p>
Individual Tariff Calculation	Individual Network Tariff Calculation	<p>Individual Tariff Calculation (ITC) network tariffs will typically apply to customers with an electrical demand in excess of 2.0 MVA, or where a customer's circumstances in a pricing zone identify the average shared network charge to be meaningless or distorted. ITC network tariffs are determined by modelling the connection point requirements as requested by the customer or their agents.</p> <p>ITC prices are based on actual transmission use of system charges for the relevant transmission connection point, plus charges associated with the actual shared distribution network utilised for the electricity supply, plus connection charges based on the actual connection assets utilised. This provides the greatest cost reflectivity for this type of customer and is feasible since the number of such customers is relatively small.</p> <p>Terms and conditions for these customers are contained within individually negotiated connection agreements.</p>
Embedded Generator	Residential Low Voltage Import Transitional (TASX1I)	<p>This network tariff is for the recording of 'export energy' for those residential installations that import energy into the distribution system and are eligible for the residential transitional feed-in tariff rate.</p> <p>Consistent with the provisions of clause 6.1.4 of the Rules, TasNetworks does not apply a charge for this network tariff.</p> <p>Connection charges for embedded generation will always be treated on an individually calculated basis. Terms and conditions for these customers are contained within individually negotiated connection agreements.</p>
	Business Low Voltage Import Transitional (TASX2I)	<p>This network tariff is for the recording of 'export energy' for those commercial installations that import energy into the distribution system and are eligible for the business transitional feed-in tariff rate.</p> <p>Consistent with the provisions of clause 6.1.4 of the Rules, TasNetworks does not apply a charge for this network tariff.</p> <p>Connection charges for embedded generation will always be treated on an individually calculated basis. Terms and conditions for these customers are contained within individually negotiated connection agreements.</p>

Network Tariff Class	Network Tariff	Description
	Residential LV Import Fair and Reasonable (TASX4I)	<p>This network tariff is for the recording of 'export energy' for those residential installations that import energy into the distribution system and are eligible for the standard feed-in tariff rate.</p> <p>Consistent with the provisions of clause 6.1.4 of the Rules, TasNetworks does not apply a charge for this network tariff.</p> <p>Connection charges for embedded generation will always be treated on an individually calculated basis. Terms and conditions for these customers are contained within individually negotiated connection agreements.</p>
	Business Low Voltage Import Fair and Reasonable (TASX5I)	<p>This network tariff is for the recording of 'export energy' for those commercial installations that import energy into the distribution system and are eligible for the standard feed-in tariff rate.</p> <p>Consistent with the provisions of clause 6.1.4 of the Rules, TasNetworks does not apply a charge for this network tariff.</p> <p>Connection charges for embedded generation will always be treated on an individually calculated basis. Terms and conditions for these customers are contained within individually negotiated connection agreements.</p>
	Non-Qualifying Import (TASX6I)	<p>This network tariff is for the recording of 'export energy' for those installations that import energy into the distribution system and are not eligible for any feed-in tariff arrangement.</p> <p>Consistent with the provisions of clause 6.1.4 of the Rules, TasNetworks does not apply a charge for this network tariff.</p> <p>Connection charges for embedded generation will always be treated on an individually calculated basis. Terms and conditions for these customers are contained within individually negotiated connection agreements.</p>

18 Appendix B: Network pricing rule changes and compliance

The Australian Energy Market Commission published its final rule determination for Distribution Network Pricing Arrangements on 27 November 2014. This rule change has important implications for our network tariff strategy as it requires us to demonstrate that our network tariffs reflect the efficient cost of providing network services. So, we will need to comply with the following pricing principles:

- Each network tariff must be based on the long run marginal cost of providing the service.
- The revenue to be recovered from each network tariff must recover the network business' total efficient costs of providing services in a way that minimises distortions to price signals and that encourage efficient use of the network by customers.
- **Consider the impact on customers of changes in network tariffs and to ensure customers can understand the network tariff structures. New network price structures can be gradually phased in.**
- Network tariffs must comply with any Tasmanian specific legal requirements for pricing, and must do so transparently and only to the minimum extent necessary.

The changes to the rules have made a significant change to the pricing process: in addition to lodging a distribution regulatory proposal that outlines total revenue to efficiently run the business each year, a Tariff Structure Statement is now also required to be submitted.

We will be submitting our Tariff Structure Statement to the Australian Energy Regulator on 31 January 2016 as part of our distribution regulatory proposal documents. Our Tariff Structure Statement will provide detail in respect to network tariff structure and indicative network pricing levels for the period from 1 July 2017 to 30 June 2019.

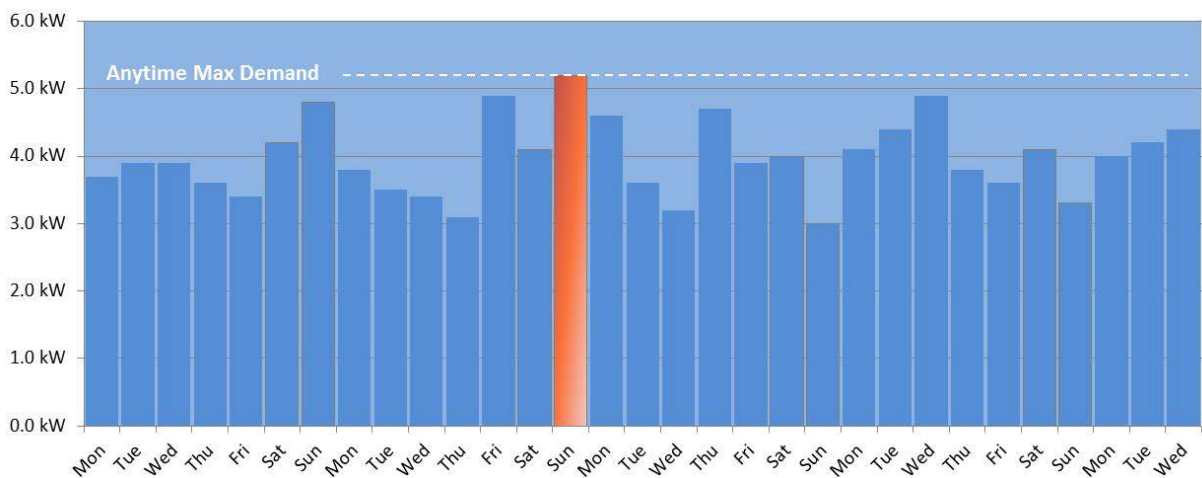
The network tariffs to apply are approved by the Australian Energy Regulator as part of its determination on the distribution regulatory proposal which will be finalised in the first half of 2017. This is in addition to the existing annual approval process for network tariffs and structures as part of the Pricing Proposal.

19 Appendix C: Demand based network tariff options

19.1 Option 1: Anytime Maximum Demand Charge

As outlined in the matrix in Figure 2 (section 12 of this paper), the Anytime Maximum Demand Charge is applied to each customer's single highest peak demand. In the figure below, the customer's peak demand occurred on a Sunday. Even though the electricity network is unlikely to be stressed on a Sunday, the Anytime Maximum Demand Charge will be applied based on the customer's maximum demand on that day.

Figure 9: Anytime Maximum Demand Charge



19.1.1 Option 1: Advantages

From a simplicity perspective, this network tariff structure is the easiest one to implement and for customers to understand. It has some common characteristics with other products customers may be familiar with, such as internet or phone data charges based on capacity levels over a period.

19.1.2 Option 1: Disadvantages

As this network tariff structure applies charges to each customer's maximum demand, there is no clear linkage to network demand which generally drives system peaks and network investment. This network tariff structure does not take into account customer demand coincident with system peak which is a key component of cost reflectivity.

This option represents only a marginal improvement in cost reflectivity when assessed against our existing principally consumption based network tariffs. Compared to consumption based network tariffs, it does send a more cost reflective signal that network demand is different to energy consumption.

Finally, this network tariff structure means that the demand charge is levied on the customer's peak usage within a 30 minute period within the billing period. This may

expose the customer to higher charges if the customer's peak demand increases significantly for a single half hour period.

19.1.3 Option 1: Overall Assessment

This option performs poorly against the efficient price signals principle. In view of these considerations, this option is not preferred.

19.2 Option 2: Anytime Maximum Demand Charge (Average)

The Anytime Maximum Demand Charge described above may be extended, so that the charge applies to the customer's peak demand averaged across several periods, rather than a single half hour. This provides an offset mechanism in terms of abnormal events which may result in unusually high usage on behalf of the customer. The essential design characteristic remains the same; however, as it applies to the customer's own maximum demand rather than the customer's demand at times of system peak.

19.2.1 Option 2: Advantages

This option lessens the impact of a customer's demand in a single period on the customer's overall network charge. It therefore may provide more stable and or predictable network charge to customers.

19.2.2 Option 2: Disadvantages

Like Option 1, charges are levied on the basis of the customer's anytime maximum demand, regardless of system peak demand. The option therefore performs poorly in terms of providing cost reflective price signals.

This option requires communications enabled advanced meters; this is due to the requirement to average multiple maximum demands for multiple periods. This is an additional data requirement as compared to Option 1.

19.2.3 Option 2: Overall Assessment

Consistent with our assessment for Option 1, this network tariff structure performs poorly against the efficient price signals principle. In view of these considerations, this option is not preferred.

19.3 Option 3: Extended Peak Period Maximum Demand Charge

The Maximum Demand Charge depicted in the figure below applies to the customer's demand at time of system peak (shaded more lightly in the figure below, this is an extended period compared to previous options and captures both the morning and evening peaks). The figure shows the customer's demand profile and the system demand profile over the course of a particular weekday (Monday to Friday).

Figure 10: Maximum Demand Charge



In contrast to the Anytime Maximum Demand charge, this network charge would not apply on weekends as the system peak occurs mid-week rather than on weekends. In addition, if a customer's actual maximum demand did not coincide with the system peak, it would not attract the Maximum Demand Charge. Instead, the Maximum Demand Charge is applied to the customer's demand when it aligns with the system peak.

We would provide customers with information in terms of coincident demand periods as part of the network tariff structure definition process and this would form a key component of the education process.

19.3.1 Option 3: Advantages

This network tariff structure is more cost reflective when compared against options 1 and 2 as the demand charge is levied during system peak.

The charging mechanism relatively is easy to understand, as customers do not have to consider multiple charges and charging periods.

It is consistent with network demand charges being introduced in other jurisdictions. This may increase the likelihood of retailer pass through.

19.3.2 Option 3: Disadvantages

As per option 1, basing the network charge on the customer's highest demand in a single half hour period (albeit within a defined peak period) will expose the customer to the risk of higher charges if demand is unusually high and there is a high level of potential volatility from shifting behaviour from peak to non-peak periods.

Given the demand profile in Tasmania, a single peak period would need to be defined widely in order to capture both the morning and afternoon peaks. The definition of the peak period may unavoidably need to include the period between the afternoon and morning peaks (known as 'shoulder periods'), where network demand based charges should be lower. Alternatively, two peak periods could be defined, although this would increase the complexity of the tariff.

Overall, there is improved cost reflectivity compared to an anytime demand charge (Option 2), but the likelihood of the need for a more widely defined peak period

when compared to subsequent options leads to it being less strongly focused on system peak demand.

This option would mean that customers, who principally create demand on weekends, in regional areas such as holiday towns, may not pay a demand charge that reflects the network service they receive. This may distort their use of the network and not recover efficient costs for providing network services to such areas.

19.3.3 Option 3: Overall Assessment

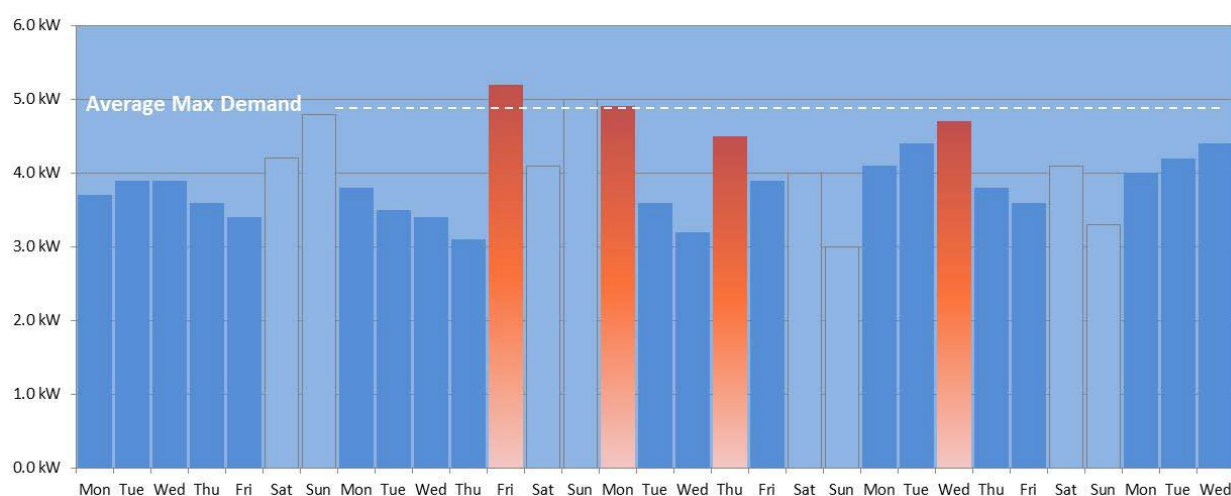
This option satisfies the guiding principles set out in section 8; however it has the disadvantage of giving rise to potential volatility in customers' network demand charges and their overall network charges.

19.4 Option 4: Average Maximum Demand Charge

This network tariff structure option - shown in Figure 11 below - the Average Maximum Demand Charge applies to the customer's demand during system peak measured over the four periods when the customer actual demand is highest during system peak.

In order to calculate the demand charge, the customer's maximum demand is averaged over the four relevant periods.

Figure 11: Average Maximum Demand Charge



From a customer's perspective, averaging the four highest demand periods may seem fairer as it avoids the demand charge being based entirely on an unusually high demand for a single 30 minute period. It could be argued, therefore, that network charging on the basis of the customer's average demand more accurately reflects the customer's typical use of network assets during system peak. On the other hand, if network augmentation is driven by the coincident peak period, the averaging dilutes the pricing signal and may be less efficient.

It is worth noting that this option requires advanced meters (communications-enabled) due to the additional data that would be required to undertake the averaging calculation.

19.4.1 Option 4: Advantages

Averaging a number of the customer's highest demand periods is likely to reduce the volatility of charges, compared to Option 3. This may be seen fairer as it avoids the network demand charge being based entirely on an unusually high demand for a single period. It also provides a weaker peak usage signal.

19.4.2 Option 4: Disadvantages

From a cost reflectivity perspective, given capital expenditure is driven by demand in the coincident peak period; the averaging dilutes the pricing signal and may be less efficient.

19.4.3 Option 4: Overall Assessment

This option mostly satisfies the guiding principles set out in section 8, noting the requirement for advanced metering.

19.5 Option 5: Time of Use Demand Charge

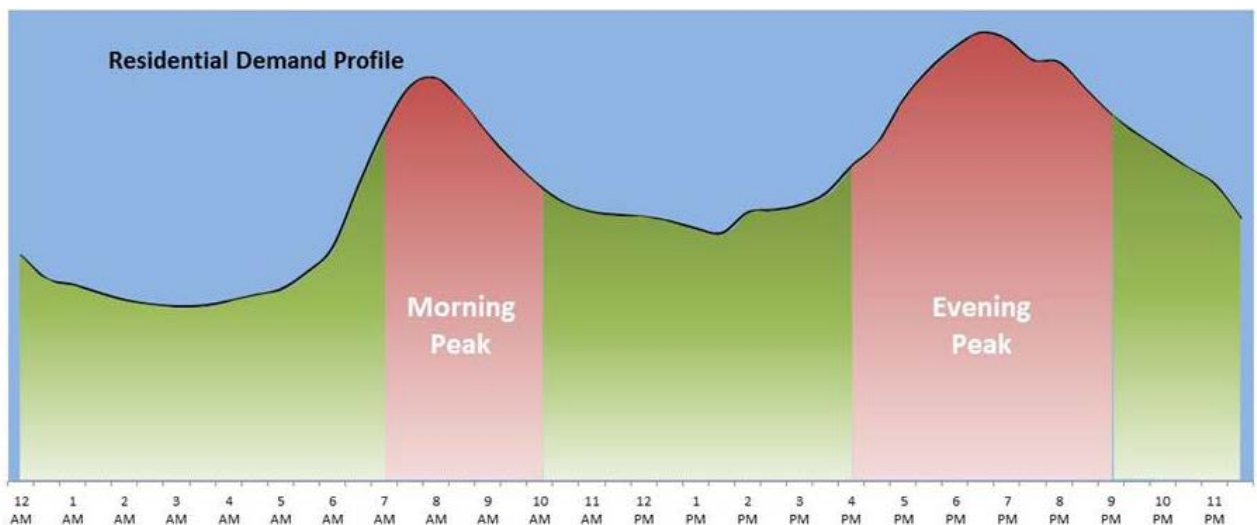
Time of Use Demand network charging is essentially a more sophisticated extension of the maximum demand charge, which only has a price for the peak period.

In a Time of Use Demand charging arrangement, the customer's maximum demand during defined periods is subject to different prices. The charging periods may include peak, shoulder and off-peak periods, each with their own demand price.

In our analysis, we prefer to utilise just peak and off-peak periods with the shoulder period effectively categorised as off-peak. Our analysis suggests that having three time periods instead of two does not assist to improve cost reflectivity and adds more complexity.

In this example, we show the Tasmanian system demand during a typical weekday using indicative time periods. The figure recognises that in addition to two peak periods as shown previously, there are also off-peak periods.

Figure 12: Time of Use Demand Charge



19.5.1 Option 5: Advantages

This option allows network demand charges to be targeted in accordance with Tasmania's particular demand profile. In particular, it avoids applying the same demand charge to peak and shoulder periods. This option should also lead to less volatility in network charges, as the network peak price will be lower compared to peak only network tariff options.

Shifting behaviour to non-peak periods still involves a network demand charge at a lower rate which lowers risks associated with revenue recovery (and therefore volatility of network charges due to under-recovery). It also sends customers a network pricing signal to reflect that there is a cost of providing and sustaining network capacity, including regional and local capacity that supports communities and individual customers.

19.5.2 Option 5: Disadvantages

The time of use demand arrangements may be more difficult for customers to understand (as they involve multiple time periods with different prices). That said, we currently have a number of customers on time of use consumption network tariffs which also involve multiple periods and customers have been able to adapt and respond to these tariff offerings. Current time of use products has also indicated that a number of customers are able and willing to modify their usage in response to price signals.

An important consideration in this option is the level of difference between the charges for peak and off peak demand.

- The lower the volatility in price between demand in different periods, the lower the incentive for behavioural change. Given customers will still face a network demand charge (at a lower rate) in shifting behaviour to non-peak periods, for many non-price sensitive customers there may be no change to demand.
- The higher the difference, the higher the incentive for change. However, to the extent that there is limited ability for many customers to move demand for heating and lighting, it may not be appropriate to send a punitive price signal.

19.5.3 Option 5: Overall Assessment

This option satisfies the guiding principles set out in the paper, and responds to customer concerns that a wide peak period limits a customer's ability to shift their use to off-peak periods. This option may also be implemented for small customers using manually read 'advanced capable' meters.

20 Appendix D: Three part network tariff – network customer impacts

A high level impact summary for key customers segments is provided below, this analysis is based on a move to a three part network tariff. Given its complexity, this is not our preferred option.

The analysis is underpinned by network tariffs that have been developed for comparative purposes only, and use a range of assumptions. The analysis provides a comparison of network charges under two scenarios, the base case (existing network tariff structure) and the demand based network tariff.

The outcomes are therefore illustrative of network charges at the end of the transition period (2028-29) and will not necessarily be representative of any final network tariff structure or network price and should not be relied upon for that purpose (refer Appendix E for assumptions).

Figure 13 illustrates the typical network annual charge for a medium residential customer currently on both network tariffs Residential Low Voltage General (TAS31) and Uncontrolled Low Voltage Heating (TAS41). It also shows the forecast annual network charge following movement to a time of use demand based network tariff.

Figure 13: Residential Network Customer Impact (Residential Low Voltage General and Uncontrolled Low Voltage Heating distribution network tariffs)

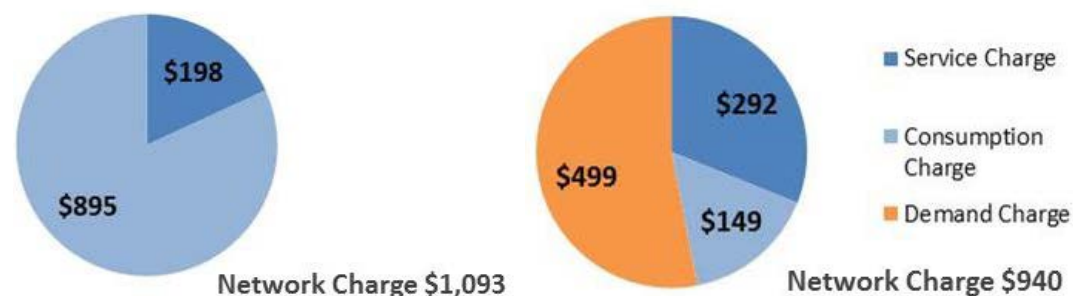
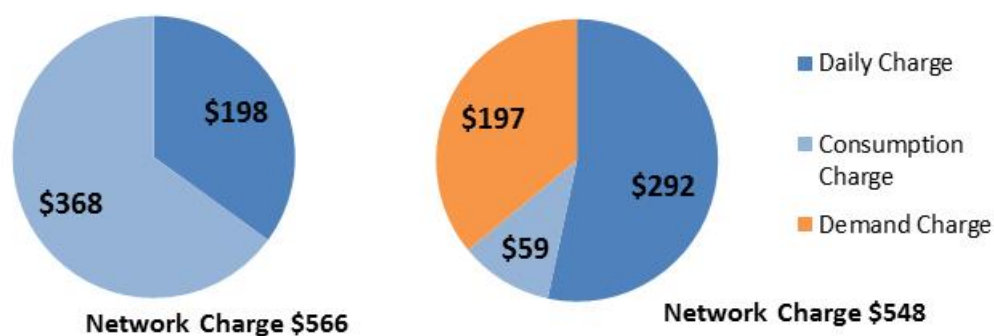


Figure 14 illustrates the typical network annual charge for a low residential customer currently on both network tariffs Residential Low Voltage General (TAS31) and Uncontrolled Low Voltage Heating (TAS41). It also shows the forecast annual network charge following movement to a time of use demand based network tariff.

Figure 14: Residential Network Customer Impact (Residential Low Voltage General and Uncontrolled Low Voltage Heating distribution network tariffs)



Currently our low voltage commercial customers are on a range of different network tariff offerings which include flat consumption based network tariffs, time of use consumption network tariffs and an anytime maximum demand network tariff. The move to cost reflective network tariffs will impact customers differently depending on individual load profiles and depending on customer's current network tariff. The figures below provide an outline of customer impact for customers on each of the current low voltage commercial network tariff offerings. We recognise that due to the diversity in customer load profiles and usage patterns within the Low Voltage Commercial Customer class that introducing a single demand based network tariff may not be appropriate. We are therefore proposing a small and large low voltage commercial demand network tariff which should be similar to the differentiation between our existing small and large low voltage commercial network tariff offerings.

Figure 15 illustrates the typical network annual charge impact for a medium low voltage commercial customer currently on the Business Low Voltage General network tariff (TAS22) and the network annual charge following movement to a time of use demand based network tariff.

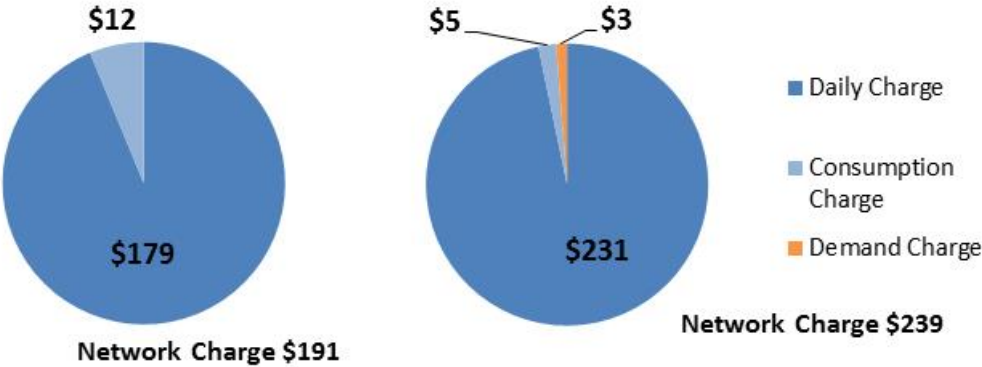
Figure 15: Low Voltage Commercial Network Customer Impact (Business Low Voltage General distribution network tariff)



Figure 16 illustrates the typical network annual charge impact for a low usage low voltage commercial customer currently on the Business Low Voltage General

network tariff (TAS22) and the network annual charge following movement to a time of use demand based network tariff.

Figure 16: Low Voltage Commercial Network Customer Impact (Business Low Voltage General distribution network tariff)



A key reason for the increase in network charge for this customer type is the slightly higher service charge. This is not a function of the change to a demand based network tariff but rather an increase in the share of cost recovery associated with service charge. More information regarding the gradual transition of service charges and the transition to efficient revenue recovery by customer class will be provided in a separate consultation paper.

Figure 16 illustrates the typical network annual charge impact for a large usage low voltage commercial customer currently on the Business Low Voltage General network tariff (TAS22) and the network annual charge following movement to a time of use demand based network tariff.

Figure 17: Low Voltage Commercial Network Customer Impact (Business Low Voltage General distribution network tariff)

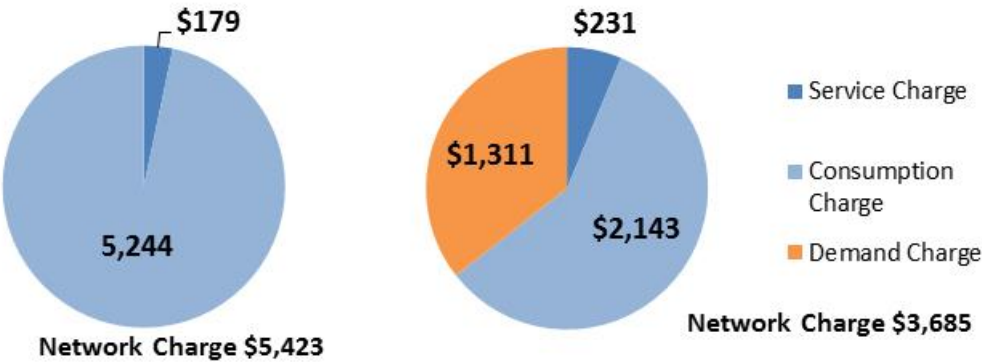
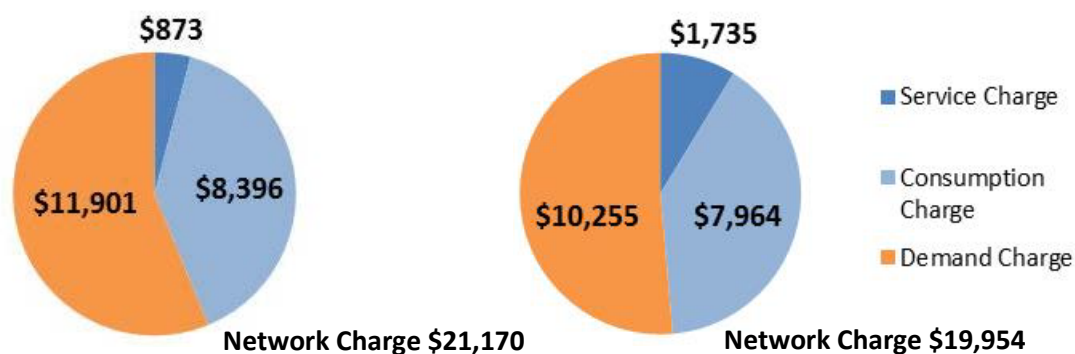


Figure 18 illustrates the typical network annual charge impact for a medium low voltage commercial customer currently on the Business Low Voltage kVA Demand distribution network tariff (TAS82) and the network annual charge following movement to a time of use demand based network tariff.

Figure 18: Low Voltage Commercial Network Customer Impact (Business Low Voltage kVA demand distribution network tariff)



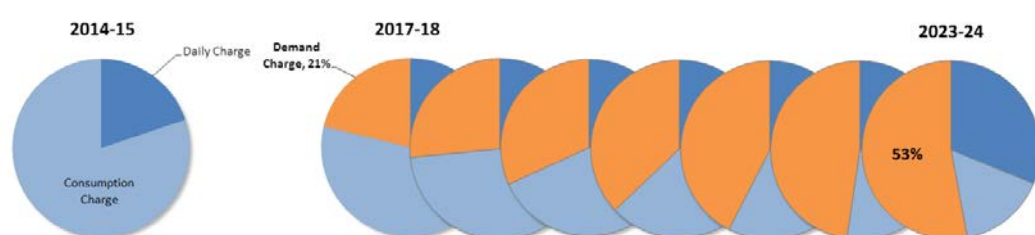
20.1 Transition plan for the three part network tariff

As part of this transition in the first instance from 1 July 2017 we plan to offer a demand based network tariff to small customers on an opt in basis. Currently if a customer requests a network tariff change (via their retailer) a Network Tariff Reassignment charge of may apply. However, as part of the transition process to encourage our customers to consider a network demand based tariff, we will not charge the Network Tariff Reassignment charge to small customers who choose to opt in to a demand based network tariff.

We also recognise that we need to allow time for customers to understand network demand based charging and adapt to these changes. We therefore propose a transition that involves gradually increasing the demand price over a number of years until such a time as the cost reflective network price is reached.

The effect is that, assuming no behaviour change, the contribution to a customers' charge of the network demand tariff component will increase over time while the contribution of the consumption component decreases. We expect the demand component will reach approximately 55% of a residential customer's network charge by 2024⁶; this progression is shown in the figure below.

Figure 19: Proposed Demand Network Tariff Transition (residential customer)



We propose that this transition will occur over a number of regulatory control periods.

⁶ Based on current forecasts and will change depending on changes to forecast programs, demand and long run marginal cost calculation iterations.

Our current expectation is that all our network demand charges will reach fully cost reflective levels by 2024, that is, our demand network tariffs will be recovering the appropriate amount of revenue via the demand component of network tariffs.

21 Appendix E: Methodology/assumptions underpinning indicative annual network charges

21.1 Methodology

There are no existing network demand based tariffs for residential and most low voltage commercial customers. Therefore, no demand data is held for individual customers. Typical demand profiles (30 minute profile data for 2013-14 and 2014-15) have been derived from system load data and extrapolated to each customer class:

- Residential;
- Small Low Voltage;
- Large Low Voltage;
- Irrigation;
- Uncontrolled energy; and
- Controlled energy.

The demand data (as derived above) was used to develop indicative network prices and network charges.

The derived demand data has been applied to typical network customer charge analysis to determine indicative average network charge impacts for customer segments by major existing network tariff/network tariff combination. This enabled an indicative demand profile to be derived for typical customer segments (30 minute data profile) and enabled the indicative network annual charge to be determined based on the existing typical customer profiles and the derived demand profiles.

21.2 Assumptions

As the analysis makes use of derived data, future year outcomes requiring forecast data and parameters that are yet to be finalised the analysis is underpinned by a large number of assumptions.

The analysis compares two set of network charges (base case and the demand based scenario) for each of the presented network tariffs and associated customer profiles.

Revenue recovered from each network customer class for both scenarios has been transitioned to reflect our forecast efficient revenue recovery from each customer class. This represents an unwinding of current cross subsidies and revenue recovery by customers aligned with reasonable cost allocation. This is indicative only and further refinement over time is expected.

Under the base case we have assumed that consumption will decline at a greater rate and existing network tariff structures are maintained. This means that the scenario includes the introduction of demand based network tariffs and network tariff realignment.

The major assumptions are provided below:

- Derivation of demand data from system load data as described under methodology above, this is effectively an average profile by existing network tariff type will not be representative of all customers;
- Revenue is a major factor underpinning the derivation of price. The indicative prices have been developed assuming forecast revenue with charges presented in real (\$2015-16 constant) terms;
- The network price and average annual network charge impacts are given in real (\$2015-16 constant) terms;
- Revenue recovered from each network customer class has been transitioned to reflect our forecast efficient revenue recovery from each customer class. This represents an unwinding of current cross subsidies and revenue recovery by customers aligned with reasonable cost allocation. This is indicative only and further refinement over time is expected;
- The network tariff fixed charge components have been increased to account for the sunk costs associated with provision of the network service and also to ensure minimal distortion to the long run marginal cost signal;
- For the base case scenario, the network tariff structure has been maintained. This means the service charge maintained at existing proportions, which is not consistent with our proposed strategy. This is explained further in a separate separate consultation paper that provides more information on the transition path for our existing consumption based network tariffs for small customers.
- In the three part tariff, the network consumption price is a residual price used to recover the remaining forecast revenue requirement for the network tariff after the fixed and demand charges have been accounted for;
- The network demand price is based on the underlying long run marginal cost value and tariff contribution to system peak demand. Utilising the derived demand data described above;
- Long run marginal cost has been set at \$277/kW which equals the initial estimate of system wide long run marginal cost from TasNetworks long run marginal cost modelling. This is indicative only and further refinement over time is expected.
- The network time of use demand charge components have been set such that the network off peak price is one third of the network peak price;
- Time of use periods for the demand components were allocated based on an analysis of system and tariff peak profiles. Peak periods were not allocated to weekends; and
- As the derived demand was a single profile per customer grouping, and given that time of use was derived by ensuring demand in the peak period exceeded that in other periods, anytime maximum demand occurred all in the peak period. To simulate that this would not be the case across all customers a proportion of maximum demand was allocated to anytime maximum demand above the peak demand.