Combined Proposal 2024-2029

Attachment 22
Tariff structure explanatory statement

Outline: The Tariff Structure Explanatory Statement provides explanations of our approach to designing and setting those tariffs, our objectives in pursuing network tariff reform, our reasons for choosing the tariffs which appear in the Tariff Structure Statement and how they comply with the National Electricity Rules.

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Note

This attachment forms part of TasNetworks' Combined Proposal for the 2024-2029 regulatory control period and should be read in conjunction with the other parts of the proposal. TasNetworks' Combined Proposal is made up of the documents and attachments listed below, as well as the supporting documents that are listed in Attachment 23.

Document	Description
	Combined Proposal overview
Attachment 1	Customer and stakeholder engagement summary
Attachment 2	Annual revenue requirement
Attachment 3	Regulatory asset base
Attachment 4	Rate of return
Attachment 5	Regulatory depreciation
Attachment 6	Capital expenditure
Attachment 7	Contingent projects
Attachment 8	Operating expenditure
Attachment 9	Corporate income tax
Attachment 10	Efficiency benefit sharing scheme
Attachment 11	Capital expenditure sharing scheme
Attachment 12	Service target performance incentive scheme
Attachment 13	Demand management incentives and allowance
Attachment 14	Customer service incentive scheme
Attachment 15	Classification of services
Attachment 16	Control mechanisms
Attachment 17	Pass through events
Attachment 18	Alternative control services
Attachment 19	Negotiated services framework and criteria
Attachment 20	Distribution connection pricing policy
Attachment 21	Tariff structure statement
Attachment 22	**Tariff structure explanatory statement**
Attachment 23	List of supporting documents
Attachment 24	Glossary

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INTRODUCTION

22.1 Overview

TasNetworks' Tariff Structure Statement (**TSS**) has been prepared under the requirements of Chapter 6 of the National Electricity Rules (**NER** or **the Rules**). It provides details of our proposed approach to network tariffs over the period from 1 July 2024 to 30 June 2029.

This Tariff Structure Explanatory Statement (**TSES**) is a companion document to TasNetworks' TSS.

The TSES provides supporting explanations for the network tariffs, structures and assignment polices proposed in TasNetworks' TSS, including how we have incorporated feedback received from our customers and stakeholders. It also provides an opportunity for TasNetworks to comment on our network strategy and how this will shape future network use and pricing strategy. We recommend reading this together with TasNetworks' TSS.

22.1.1 Executive summary

Across Australia, customers are changing how they use and engage in the supply and distribution of electricity. Technologies such as household solar photovoltaics (**PV**), electric vehicles (**EVs**) and battery storage are driving this change and shifting customer expectations of their network service provider (**NSP**).

It is projected that in Tasmania the uptake of these technologies will continue to increase over the 2024-2029 period and beyond. EV take-up is expected to accelerate towards the end of this decade, driven by advancements in battery technology, reduction in capital cost, availability of a wider range of models and an increase in customer confidence with visibility of, and access to, public fast charging infrastructure.

As the distribution network service provider (**DNSP**) in Tasmania, we are preparing for this change. Many of the current pricing structures were introduced prior to the advent of this technology and established at a time when customers had different expectations of the network. Our customers and stakeholders have told us that TasNetworks needs to provide future-ready pricing structures for our customers. We heard both support for change as well as calls for moderation in terms of the pace of the change. Stakeholders also urged for the inclusion of protections for customers experiencing vulnerability.

When developing future-ready pricing structures, our aim is to better reflect the costs incurred by TasNetworks and provide network tariffs that promote efficient use of the network. This is achieved through pricing signals to incentivise customers to, for example, use the network at times of lower demand as opposed to times of peak demand. We aim to achieve this in a way that enables customers to readily understand and choose to use our cost reflective network tariffs, such that the network tariffs we set can ultimately be reflected in the retail tariffs set by retailers.

As well as providing new network tariffs, our pricing strategy also involves incentivising more customers to take up current cost reflective network options, such as time of use network tariffs. Over time, this may support reduced expenditure on expanding the network, meaning we can deliver more electricity without additional network investment to manage growing peaks in demand.

To achieve this, we are proposing to:

- amend our network tariff classes to produce a more streamlined structure
- make flat rate network tariffs obsolete[1] for residential and small business customers connecting to the network or upgrading their meter
- retain the current time of use consumption-based network tariffs as the default tariff option for residential and small business customers
- continue removing cross-subsidies between tariff classes and individual network tariffs
- revise the timing of peak periods for the time of use consumption-based network tariff for small business customers (TAS94)
- introduce new network tariffs designed specifically for embedded networks

1 Refer to section 22.7.2 for further discussion on making the flat rate tariffs obsolete

- provide pricing options for our residential customers who are more actively engaged with their energy needs (such as electric vehicle owners)
- design network tariff trials to understand the relationship between new technologies, pricing and network impacts.

22.1.2 Document Structure

TasNetworks' TSES consists of several parts – Talking with our customers, Standard control services, Export tariff transition strategy and Alternative control services. Table 1 outlines the structure of the TSES.

Table 1. TSES document structure

Section		Purpose
Introduction		
22.1	**Overview**	Provides an overview of the TSES and the executive summary of what the TSES contains.
22.2	**The tariff structure documents**	Introduces TasNetworks and the purpose of the TSS and TSES.
Talking with our customers		
22.3	**TasNetworks' engagement approach**	Summarises TasNetworks' approach to customer and stakeholder engagement.
22.4	**TasNetworks' customers and stakeholders**	Describes our customers and stakeholders and their relationship with the development of the Tariff Structure Statement and the Tariff Structure Explanatory Statement.
22.5	**Customer and stakeholder engagement**	Outlines key activities we have undertaken with our stakeholders over the last three years, which include workshops, forums, dedicated meetings, surveys and engagement with our agricultural customers.
Standard control services		
22.6	**Pricing strategy overview**	Provides an overview of our pricing strategy and our customers who use the network. This section discusses how our customers are changing their use on the network due to technology changes, the benefits of our pricing reform and what we are proposing for 2024-2029.
22.7	**2024-2029 pricing proposal**	This section provides detailed analysis of our pricing proposal, including amending our tariff classes, altering our tariff assignment rules, proposing new embedded network tariffs, reviewing our peak windows, updating our consumer energy resources tariff for residential customers, and developing complementary measures to our tariff design. In this section we also detail a potential tariff trial to support our agricultural customers to accommodate their investment in new technologies.
Customer impacts of this pricing proposal		
22.8	**Introduction**	Introduces this section and sets out its intent.
22.9	**Indicative price paths**	Analyses the indicative price paths of TasNetworks' network tariffs.
22.10	**Residential customer behaviour**	Undertakes scenario analysis of our residential customers to assess changes in customer behaviour resulting from their investment in new technology. Price impacts are analysed based using the existing network tariffs and the proposed new residential network tariff.
22.11	**Small business impact analysis**	Additional analysis of small business types is undertaken to assess the impact of the proposed changes to the small business time of use consumption (TAS94) network tariff.
Export Tariff Transition Strategy		
22.12	**Export tariff transition strategy**	This section provides an outline of TasNetworks' current situation on energy exports on our network and our future position on implementing export network tariffs.

Section		Purpose
Alternative control services		
22.13 to 22.18	**Alternative control services tariff class**	This section explains how TasNetworks' alternative control services are priced for the 2024-2029 regulatory control period.
Appendices		
A	**Setting our tariffs**	Outlines the process TasNetworks undertakes to ensure network tariffs are efficient and cost reflective. Also provides an outline of how transmission costs are included in the distribution network tariffs.
B	**Engaging customers in our pricing plan and tariff designs**	Summarises each of the Policy and Regulatory Work Group (**PRWG**) engagement workshops conducted in support of the development of TasNetworks' regulatory proposal for the 2024-2029 regulatory control period, as well as the issues raised by members.

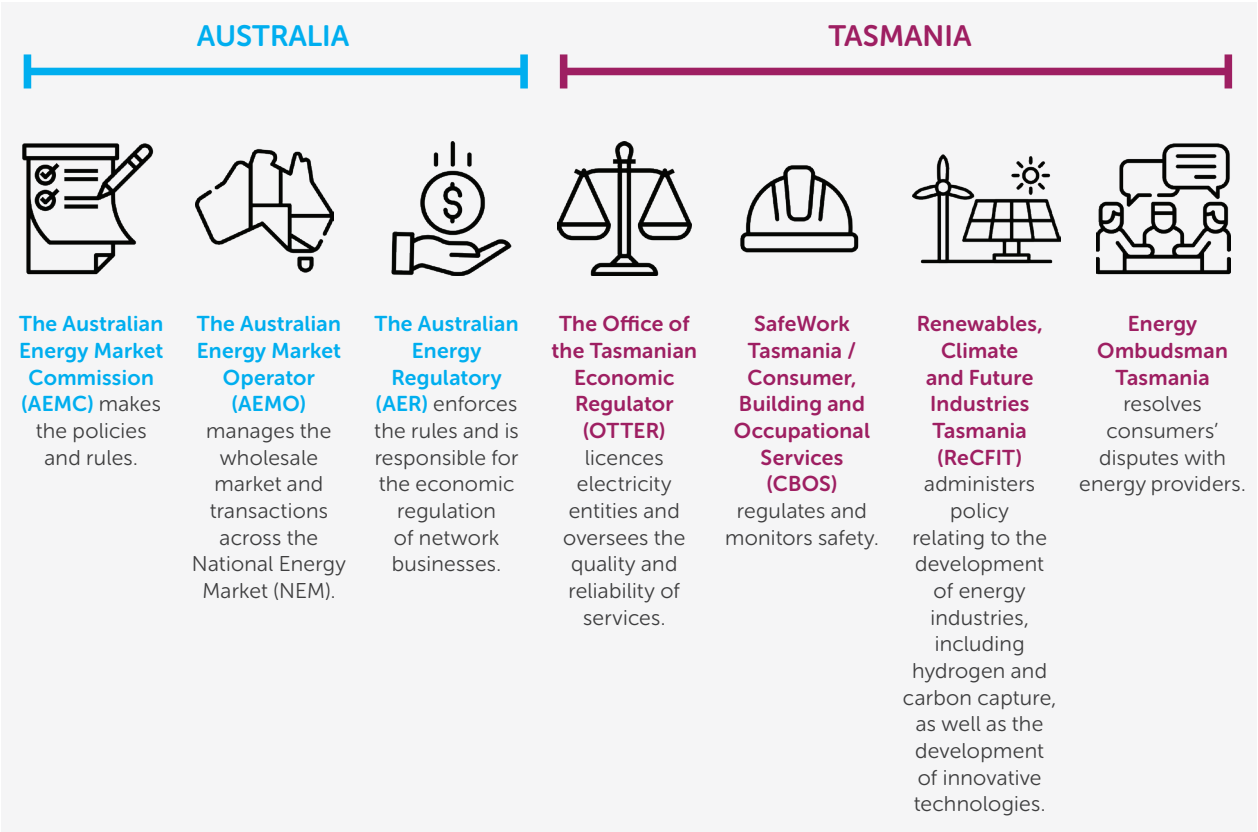
22.2 The tariff structure documents

This document outlines TasNetworks' strategy for recovering revenue as a DNSP.

22.2.1 The role of a network service provider

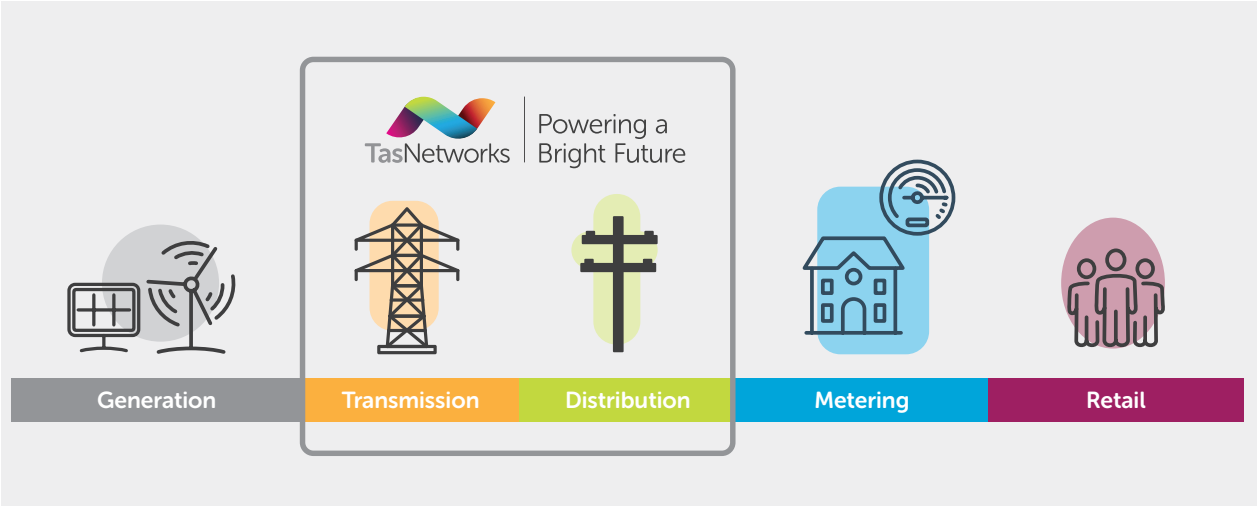
TasNetworks is a DNSP and Transmission Network Service Provider (**TNSP**) which operates within the National Electricity Market (**NEM**). We must adhere to a number rules and regulations at both the national and state level (Figure 1). These include rules applied by regulatory authorities like the Australian Energy Regulator (**AER**) and the Office of the Tasmanian Economic Regulator (**OTTER**).

Figure 1. TasNetworks' regulatory framework



The electricity supply chain consists of generation, transmission, distribution and retailers as shown in Figure 2. Unlike in other parts of the NEM, TasNetworks provides both electricity transmission and distribution services. The transmission network connects large scale generation to major energy consumers as well as the distribution network. The distribution network then provides network services to around 300,000 Tasmanian customers ranging from isolated farms in rural areas to industry precincts, regional and metropolitan residential homes, businesses and city centres.

Figure 2. TasNetworks' role in the energy supply chain



The AER regulates TasNetworks to ensure the provision of services delivered by TasNetworks are aligned to the National Electricity Objective (**NEO**) "to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity with respect to: price, quality, safety and reliability and security of supply of electricity".

To ensure the NEO can be met, the AER sets the amount of revenue that we can recover from our customers for using our networks. The AER allows us to propose how we recover this revenue within constraints set out in the Rules. We do this by proposing network tariffs. Tariffs set the price for services that are provided by the electricity distribution network. The differences in tariffs reflect the varying ways customers use the network.

Our tariff strategy underpins the process undertaken for setting our tariffs and is outlined in the accompanying TSS. This document, the TSES, describes our approach to designing and setting tariffs, our objectives in pursuing network tariff reform, our reasons for choosing the tariffs which appear in the TSS and how they comply with the Rules. We have sought to explain the process by which we have set our network tariffs and how that process satisfies the principles established in the Rules. In doing so, it:

- outlines how we propose to move to pricing which is fairer for all our customers
- facilitates customer and stakeholder understanding of our pricing by providing an overview of network pricing and associated concepts
- sets out our proposed network tariff structures and charging parameters, as well as the approach for setting each tariff annually
- explains how we arrived at our proposed network tariffs and our future plans for tariffs in accordance with our strategy.

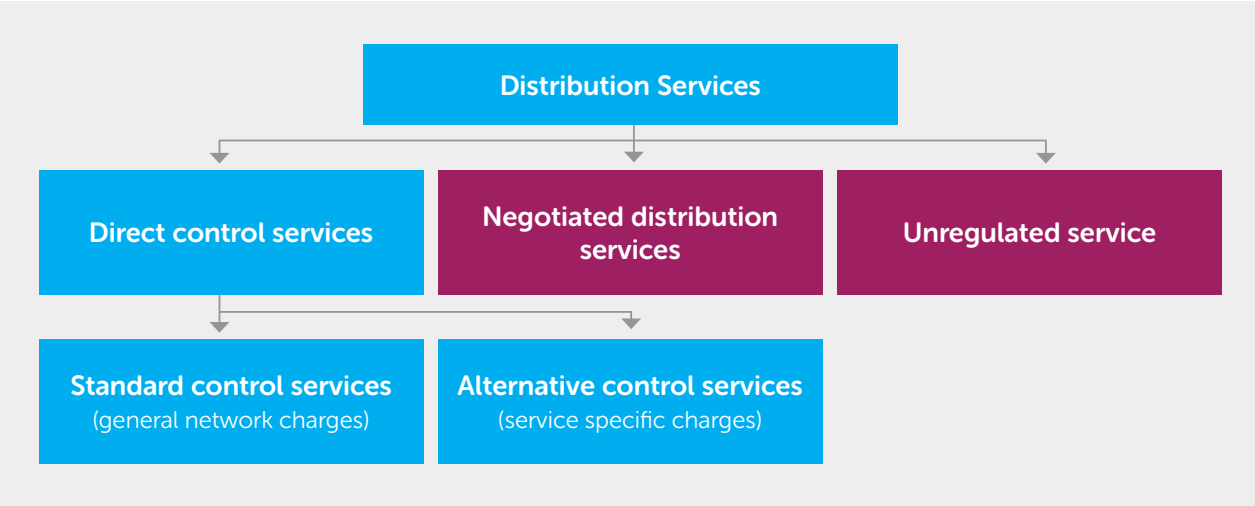
22.2.2 The services we provide

As part of the five yearly regulatory process the first step is the determination of which services will be regulated and how. This occurs through the Framework and Approach process. This delineation between services gives rise to a service classification. Services the AER determine need price regulation are termed direct control services. These are then further classified as standard or alternative control services.

Standard control services (**SCS**) refer to the regulation of network charges which involves the use of a cap on the amount of revenue that we are permitted to recover from our customers each year. General distribution network services which are relied on by most (if not all) customers, including the provision of complex connections to our distribution network, are known as 'standard control services'.

Alternative control services (**ACS**) refer to services where the costs – and the associated benefits from the service – can be directly attributed to a particular customer (for example, where a customer requests a service). For these services, instead of setting a revenue cap, the AER caps the prices that can be charged or sets the input costs that can be used by TasNetworks to quote jobs.

Figure 3. The services that TasNetworks' provide



22.2.3 Pricing strategy for direct control services

22.2.3.1 General network charges

The annual revenue allowance applying to our SCS is recovered through general network charges (network tariffs), and pay for the building, running and maintenance of the electricity distribution network. We apply a service charge to every connection to our network so that every household, business and organisation connected to the network makes a contribution towards the cost of the network service available to them.

22.2.3.2 Service specific charges

TasNetworks' ACS include regulated metering services for small customers, ancillary services (quoted services and fee-based services), and public lighting.

GLOSSARY

Term or Abbreviation	Description
ACS	Alternative control services
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Capacity	The amount of electrical power that a part of the network can carry
Controlled load	The DNSP controls the hours in which the supply of electricity is made available
Cost reflective pricing	Pricing which is indicative of the true cost of supplying or providing a service
Demand	Electricity consumption at a point in time
Demand Management	The ability for DNSPs to constrain customers demand at critical times and attempt to modify customer behaviour
CER (previously referred to as DER)	Customer energy resources, e.g., solar PVs, batteries, electric vehicles
Distribution network	The assets and services that carry the electricity conveyed from generators by the high voltage transmission system and deliver it to individual consumers at the lower voltages to operate lighting, heating, appliances, and industrial equipment.
DNSP	Distribution network service provider e.g., TasNetworks
EV	Electric vehicle
FiT	Feed-in-tariff
GWh	Gigawatt hour
HV	High voltage
ITC	Individual Tariff Calculation. Refers to a network tariff class for a small number of large commercial and industrial customers whose circumstances are such that assignment to an averaged network tariff would not be cost reflective, giving rise to the application of individually calculated network tariffs.
kV, kVA	Kilovolt, Kilovolt ampere
kW, kWh	Kilowatt, Kilowatt hour
LRMC	Long run marginal cost. The additional cost of providing one increment in service over the long run
LV	Low voltage
NEM	National Electricity Market
Network tariff	Network price components and conditions of supply for a tariff class
Network tariff class	A class of retail customers for one or more direct control services who are subject to a particular tariff or class of tariffs with similar electricity demand and usage
NER, or the Rules	National Electricity Rules
MVA	Megavolt-ampere
MW, MWh	Megawatt, Megawatt hour
PV	Photo Voltaic. Solar PV panels
Price signal	Information conveyed to end users of electricity via the prices charged for a network service, which provides a signal about the true cost of providing a service and/or the value to the customer of that service, which influences their decisions about the use of the service
PRWG	TasNetworks' Policy and Regulatory Working Group
Retailer	A business that buys electricity from generators, packages it with the network services (for transportation of the electricity) and sells it to consumers/end users

Term or Abbreviation	Description
SCS	Standard control service
TEC	Total efficient cost
ToU	Time of use
Transmission network	The assets and services that enable large generators, e.g., windfarms, hydro-electric power stations, to transmit the high voltage electrical energy they produce to population centres and major industrial users of electricity
TSES	Tariff structure explanatory statement
TSS	Tariff structure statement
Unmetered supply	A connection to the distribution system which is not equipped with a meter and for which the consumption of electricity is estimated, e.g., public lights, traffic lights, phone boxes are not normally metered

TALKING WITH OUR CUSTOMERS AND STAKEHOLDERS

22.3 TasNetworks' engagement approach

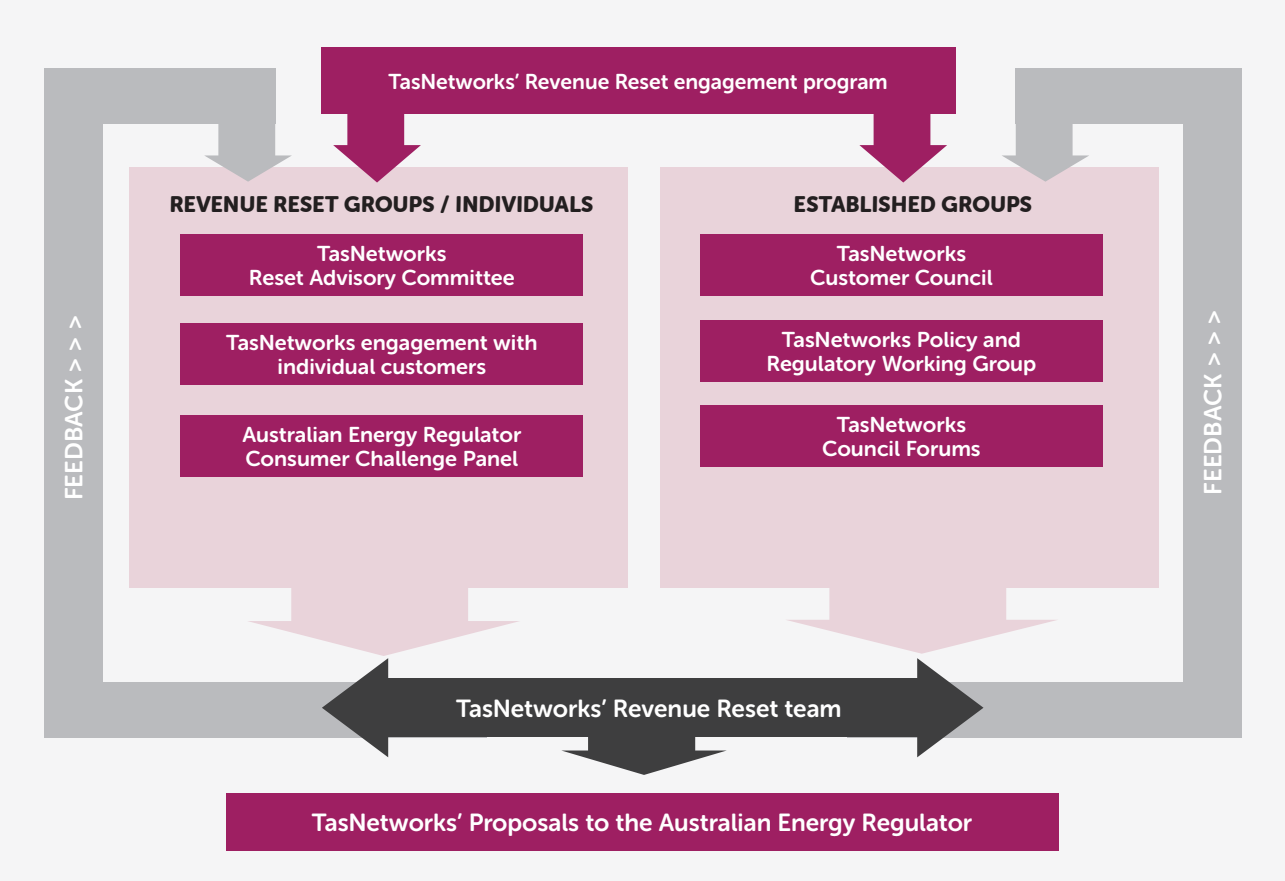
TasNetworks has engaged with its customers and stakeholders to develop its pricing strategy for the 2024-2029 regulatory control period. This section – "Talking with our customers and stakeholders" – summarises who TasNetworks' customers are, and how our engagement approach and activities led to the setting of tariffs for our standard control and alternative control services.

Our engagement approach builds on the feedback we received during the development of our first and second TSS, which applied in the 2017-2019 and 2019-2024 regulatory control periods. In response to the feedback, we conducted an extensive customer engagement process. This has involved engaging with end-use customers, retailers, and stakeholders to test their preferences and seek their input on all aspects of the TSS. The result is that the TSS has been strongly influenced by the views of customers and stakeholders.

We are continuing to reform our pricing strategy over multiple regulatory periods and have consulted on the additional new areas we are targeting for 2024-2029, including new and refined tariffs for emerging customer types. Our pricing strategy will continue to evolve in subsequent regulatory control periods, as further detailed in section 22.6.2.

Figure 4 summarises TasNetworks' customer and stakeholder engagement approach, as detailed in *Attachment 1 – Customer and stakeholder engagement summary.*

Figure 4. TasNetworks' customer and stakeholder engagement approach



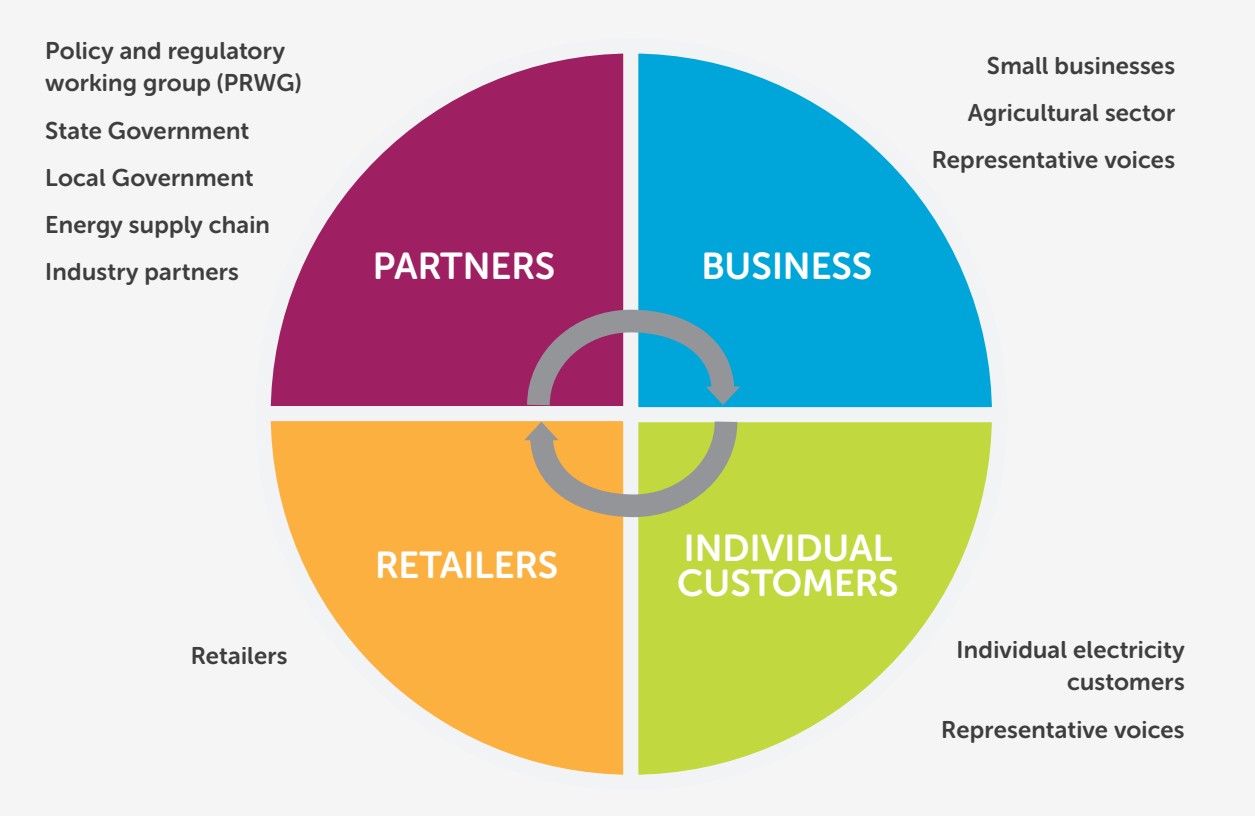
22.4 TasNetworks' customers and stakeholders

We do not limit the definition of a customer to only those who consume the energy delivered by our network. Our customer base includes electricity retailers as well as the wider Tasmanian community and their representatives, such as customer advocacy groups.

We have undertaken a range of engagement activities to gather feedback and understand the concerns of our end-use customers.

The information below, summarised in Figure 5, highlights the engagement undertaken specifically in relation to pricing and the feedback provided by our customers and stakeholders.

Figure 5. Who we engaged with to develop our pricing strategy



22.4.1 Partners

During the development of our regulatory proposal and TSS for the 2024-2029 regulatory control period we have been supported by a core group of highly engaged stakeholders in the form of our PRWG.

The PRWG, established in 2014, provides guidance on our customers' needs and acts as an advisory group on the development of our pricing's strategy. The broad representation within this group, which includes electricity retailers, energy advisors, customer advocates, renewable energy advocates and representatives of the business community, allows a diverse range of customer views to be represented, discussed and heard.

Since its inception, we have focused on building the capability of this group by growing their understanding of drivers underpinning network pricing. This allows our stakeholders to move beyond just providing feedback and instead partner with TasNetworks to build a pricing strategy.

We have collaborated with our stakeholders and sought their participation and input through hands-on activities related to a wide range of pricing matters, including the design of our pricing principles, tariff development, opportunities for tariff trials and the transition for tariff reform and tariff assignment.

22.4.2 Retailers

TasNetworks has sought to engage with all retailers that either currently operate in, or intend to enter, the Tasmanian electricity market, about network tariff reform throughout the development of our 2024-2029 tariff proposal. We have obtained feedback from retailers on our tariff assignment rules, revisions of existing network tariffs and the introduction of new network tariffs.

From this engagement our tariffs have been designed to maximise the probability of retailer pass-through of our pricing signals. This means a simple but effective tariff structure that can be communicated to customers and implemented in retailer billing systems.

22.4.3 Business

There are key stakeholders within the PRWG who represent Tasmania's business community, specifically the Tasmanian Small Business Council. In addition, the PRWG includes representation from organisations who specialise in providing energy services to businesses to optimise energy usage.

The Tasmanian Farmers and Graziers Association (**TFGA**) is included in the PRWG to represent agricultural industry in Tasmania. TasNetworks' also engages separately with the TFGA to address issues pertaining specifically to farmers and has engaged with them extensively on TasNetworks' em*POWER*ing Farms[2] trial and in relation to farmers' investment in Consumer Energy Resources (**CER**).

22.4.4 Individual customers

TasNetworks' recognises that capturing the lived experience of customers, in their own words, is the most powerful tool at our disposal to ensure our network pricing strategy continues to meet the needs of Tasmanians. Throughout the development of our 2024-2029 pricing strategy, we have sought feedback directly from end-use customers in a variety of ways.

The *DER Customer Survey* was able to quantify customer views and reached Tasmanians state-wide. The purpose and results of this survey are outlined further in section 22.5.4.

In May 2022, we engaged directly with customers via TasNetworks' People's Panel, providing information to enable our customers to engage with the pricing content.

Despite the challenges posed by COVID-19, we have been able to maintain a strong presence in the Tasmanian community. Our attendance at agricultural shows and science fairs provided us with the opportunity to speak with a diverse range of customers about our pricing strategy.

Each meeting and discussion, whether planned or not, was taken as genuine feedback and has been incorporated into our pricing strategy development.

22.5 Customer and stakeholder engagement

Over the past three years, TasNetworks has adopted a multifaceted engagement approach towards identifying the services that our customers wanted TasNetworks to deliver in the 2024-2029 regulatory control period.

In relation to standard control services, we have:

- facilitated pricing workshops with targeted stakeholders and customer groups
- hosted a TasNetworks' People's Panel pricing forum
- held two retailer information forums
- collated information from dedicated meetings with retailers, customers, and stakeholder representatives
- discussed with TasNetworks' Reset Advisory Committee (**RAC**) our pricing strategy for the 2024-2029 regulatory control period.

In relation to alternative control services, we have:

- considered, in conjunction with the PRWG, accelerating the recovery of the capital cost of TasNetworks' legacy meters
- consulted with the Local Government Association of Tasmania (**LGAT**) and some of its member councils regarding changes to the pricing of TasNetworks' asset relocation services (which are delivered as quoted services)
- worked with LGAT and a number of its members on revisions to TasNetworks' connections policy
- engaged with local governments in relation to TasNetworks' public lighting service offerings in the 2024-2029 regulatory control period
- discussed with representatives of the electrical contracting industry in Tasmania plans for TasNetworks to introduce a number of new services in the 2024-2029 regulatory control period which would see TasNetworks field crews undertaking work on private assets in a limited range of circumstances, specifically: the rectification of private asset defects under fault conditions, and the construction of private assets (e.g. private pole installation and power line construction) as a provider of last resort
- discussed with TasNetworks' RAC on the development of a metering strategy for the 2024-2029 regulatory control period.

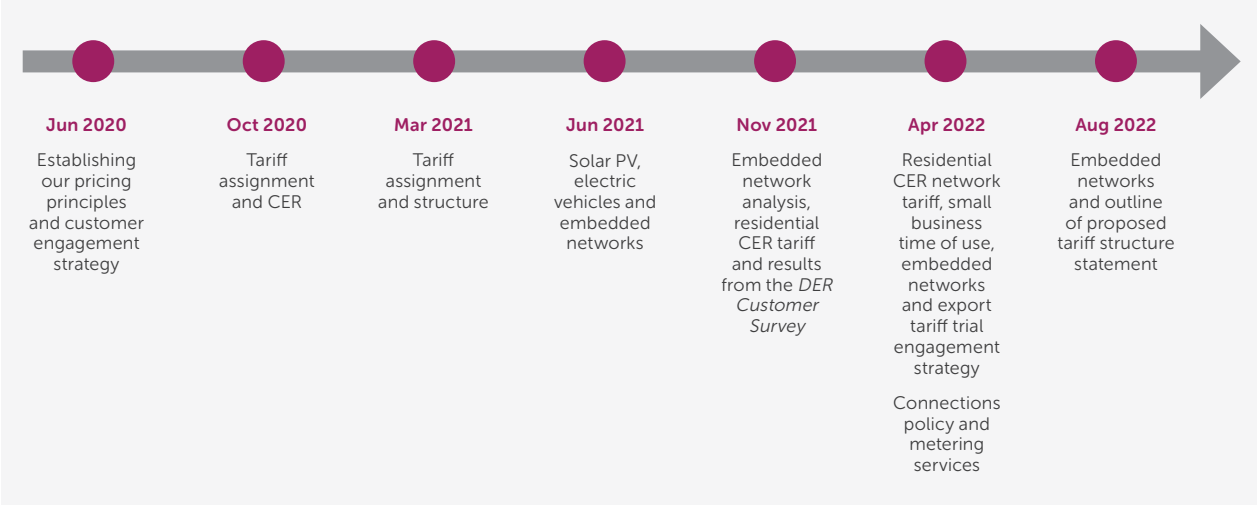
2 TasNetworks emPOWERing Farms

22.5.1 Pricing workshops

TasNetworks has facilitated workshops with the PRWG that were dedicated to the development of our 2024-2029 pricing strategy for both standard and alternative control services. These workshops provided a platform for two-way, transparent communication, with the aim of building effective relationships between TasNetworks, its stakeholders and customers.

Given the growing complexity of the electricity sector, a consultation paper[3] was provided by TasNetworks prior to each workshop to assist our stakeholders in engaging with us. These papers provided more detail on the topics we were looking to engage with our stakeholders on and included any recent analysis in relation to our network tariffs, any current or upcoming market changes, and the results of published customer surveys.

Figure 6. Engagement with our partners



22.5.1.1 Engagement to develop our pricing principles

Key outcomes: Design our pricing principles

Our initial engagement with the PRWG involved the development of our pricing principles. These principles have guided TasNetworks' development of our network tariffs and products, which has helped us refine our service offerings to ensure customer expectations are met (Figure 7).

3 All consultation papers, agendas, minutes and supplementary papers can be found on TasNetworks' website under the Policy and Regulatory Working Group section

Figure 7. TasNetworks' pricing principles for the 2024-2029 regulatory control period

Affordable

We offer an essential service and recognise that customers want affordability in the delivered cost of electricity. To support this, we will ensure sustainable network investment and that customers experiencing vulnerability will not be exposed to hardship as a result of our pricing or network tariff reforms.

Fair

We will provide transparent and cost reflective pricing signals so that all customers contribute to their portion of total network costs.

Consistent

We will avoid creating price shocks for customers and minimise upward pressure on the delivered cost of electricity.

Innovative

We will investigate innovative solutions that meet the changing needs of our customers and changes in technology.

Simple

Our network pricing will be both cost reflective and easy for our customers, retailers and stakeholders to understand.

Choice

We will not stand as a barrier for customers who invest in consumer energy resources, such as solar generation and battery storage. Our pricing will provide choice to our customers to best meet their energy needs, while not imposing on the needs of others or the network.

22.5.1.2 Cost reflectivity and tariff assignment engagement

Key outcomes: Review the default residential and small business network tariffs and determine the rebalancing approach for the small business time of use consumption tariff.

In 2020 we began discussions with stakeholders on the uptake of cost reflective network tariffs in relation to assignment policy changes. Stakeholders noted that time of use consumption tariffs are simple enough in structure to allow customers to appropriately understand and respond to the price signal. From this discussion, stakeholders, in conjunction with TasNetworks, concluded that the residential time of use consumption (TAS94) and small business time of use consumption network tariffs should remain the default network tariffs for all new residential and small business customers connecting to the network in 2024-2029.

TasNetworks provided insights into the current uptake of time of use consumption-based network tariffs and the forecast uptake for the remainder of the 2019-2024 regulatory period. This data and the discussions with our stakeholders suggested that TasNetworks' current network tariff assignment policy is not facilitating a significant take-up of cost reflective network tariffs and that additional levers should be considered. Our stakeholders encouraged us to do more to incentivise the uptake of cost-reflective network tariffs amongst residential and small business customers. In response to this recommendation, TasNetworks will work with the PRWG to consider complementary measures to encourage better uptake of cost-reflective tariffs.

Work in 2021 built on the feedback we obtained in the previous year. Together with our stakeholders we completed a deep dive, identifying barriers to network tariff reform. This included:

- understanding the impact of network charges on our customers
- determining whether there is a need to incentivise certain customer groups to take-up cost reflective network tariffs
- consider whether changes to TasNetworks' network tariff assignment policy could assist in increasing the uptake of cost reflective network tariffs.

It was acknowledged with the PRWG that engagement in electricity tariffs is low among customers, despite their awareness of retail electricity pricing as a cost-of-living issue. Because of this, the group reasoned that differential price levels may not be impactful, as many customers are unaware of alternate tariff offerings. However, stakeholders emphasised strongly that TasNetworks should include protections for our customers experiencing vulnerability. This would ensure we maintain the key pricing principles of fairness and equity in our pricing strategy.

From these discussions we designed, in collaboration with our stakeholders, TasNetworks' tariff assignment policy for 2024-2029, which includes providing a 'cooling off' period for customers placed onto a time of use network tariff as the result of an advanced meter installation. It was agreed that the proposed changes to our assignment rules will allow for a greater transition to cost reflective network tariffs, while providing our customers experiencing vulnerability with the opportunity to choose the best pricing option to suit their needs.

As a result of our engagement, our stakeholders helped refine our assignment policy – which is outlined in more detail in Section 22.7.2.

22.5.1.3 Time of use and rebalancing of the small business consumption tariff

Key outcomes: Review network time of use periods and determine the rebalancing approach adopted for the small business time of use consumption tariff.

During 2021, TasNetworks reviewed its time of use periods. The consumption on our current default residential time of use consumption network tariff (TAS93) was analysed and shared with PRWG members. In terms of the alignment of the tariff's time of use periods with peaks in demand for the network, the analysis demonstrated that the design of the current default residential network tariff (TAS93) continues to accurately reflect times of high network demand.

While this review of load data showed that the residential time of use periods align well with peak demand, it was found that the time of use periods applying to the consumption-based time of use tariff for businesses (TAS94) could be better aligned to reflect the collective load profile of the customers on that network tariff and times of high network utilisation. For example, small business consumption, unlike that of residential customers, declines on weekdays during the afternoon/evening peak period, and the contribution of the consumption of small businesses to maximum demand at a network level over the course of a weekend only fluctuates within a small range.

Our stakeholder's preference was to change the time of use periods for the low voltage small business time of use consumption tariff (TAS94) as outlined in section 22.7.3.

A change to the time of use periods required analysis on how to re-balance the tariff. At a subsequent workshop, TasNetworks presented to PRWG potential re-balancing scenarios for the small business time of use tariff. Three options were considered – an over-proportional increase in offpeak pricing, the application of even changes across the different time of use periods, and an over-proportional increase in peak period pricing. The PRWG voted in favour of applying evenly balanced time of use increases.

22.5.1.4 Redesign of existing CER residential tariff and development of new tariffs

Key outcomes: Identify changes to our residential CER tariff and develop the pricing components for a new embedded network tariff.

Our stakeholders told us that TasNetworks must provide future-ready pricing structures to ensure the best outcome for our customers. This includes providing choice to customers on how they meet their energy needs, but that customers without CER should not be disadvantaged in doing so.

As a result of this feedback, TasNetworks undertook a customer survey on CER intentions in 2021.[4] We discussed the growth of CER, its impact on the Tasmanian distribution network, opportunities to realise benefits for the network from CER and deliver value for all customers, including those without CER. The survey demonstrated the responsiveness of customers who own CER technology to time of use tariffs. As a result, TasNetworks introduced to PRWG the potential to amend the existing residential CER network tariff to better accommodate the forecast increase in demands on the network from CER (a summary of the survey is provided in section 22.5.4).

4 TasNetworks' DER Customer Survey

TasNetworks highlighted concerns about the evening peak period as customers with CER technology shift their demand to utilise the overnight off-peak too early, i.e., prior to the evening utilisation declining enough to enable batteries and/or electric vehicles to be charged. The PRWG were provided with a number of options to consider, including extending the evening and or morning peaks, changing to a consumption-based tariff or providing longer average demand windows (instead of half hourly demand).

At the first workshop in 2022, we extended the discussion and presented three additional options for the PRWG to discuss and vote on, which proposed changing the existing tariff from a time of use demand tariff to a time of use consumption tariff with a demand threshold. TasNetworks undertook further analysis to determine that the optimum maximum demand threshold was 8.5 kW per household, which was presented at the final workshop. The changes to this network tariff are discussed in full in section 22.7.4.

In addition to amending the structure of an existing network tariff, it was suggested by a key stakeholder that TasNetworks investigate implementing embedded network tariffs.

TasNetworks presented the key distinguishing features of an embedded network and discussed the current differences between those customers within an embedded network and those customers directly connected to the distribution network. Many PRWG members provided support for TasNetworks to propose an embedded network tariff for the next regulatory period, with several members expressing concerns about perpetuating current inequities by allowing embedded networks to choose a less appropriate network tariff.

To progress the development of the proposed new embedded network tariff we clarified the assignment rules for embedded networks under this tariff. TasNetworks proposed that only new embedded networks will be assigned to the embedded network tariff from 1 July 2024.

A capacity charge was assessed by a number of stakeholders as being a good means of determining the daily service charge. After collating the feedback provided by stakeholders, TasNetworks put forward a network tariff structure and assignment policy to the PRWG in 2022.

The embedded network tariff structure and assignment rules are discussed further in section 22.7.5.

22.5.1.5 Tariff trials and co-designing complementary measures to communicate on tariff reform

Key outcomes: Determine the purpose of our two-way pricing trial and identify key topics for communicating to our customers on tariff reform.

Following the release of the determination to allow DNSPs to charge rooftop solar owners for exporting power to the grid, numerous conversations were held with our stakeholders and the PRWG.

At the April 2022 meeting of the PRWG, there was a comprehensive discussion regarding TasNetworks' position to not introduce export tariffs in the 2024-2029 regulatory control period. This decision was informed by the take-up levels of solar PV in Tasmania, which lag the solar PV take-up levels in jurisdictions where export-driven network issues are being experienced. TasNetworks did discuss whether to conduct a trial for two-way network pricing in the 2024-2029 regulatory control period. PRWG members observed that the negative publicity surrounding the rule change would require TasNetworks to provide clear messaging around its intention for two-way network pricing, i.e., to clearly communicate to stakeholders that two-way pricing will not be introduced in the 2024-2029 regulatory control period, and to articulate that a trial may be undertaken before implementing such a tariff.

While stakeholder engagement is an evolving process, TasNetworks presented a proposed process for undertaking a trial during the 2024-2029 regulatory control period for two-way pricing and the stakeholders it was envisioned would be involved with TasNetworks' engagement on this topic. In addition, the PRWG co-designed the principles that would apply to tariff trials that may be undertaken in the 2024-2029 regulatory control period, including a trial for two-way network pricing (refer to section 22.7.9).

It was identified in 2021 that complementary measures were required to update and inform customers on tariff reform, changes to tariffs and the changing energy market. At the August 2022 workshop, TasNetworks sought input from our stakeholders through various engagement activities to identify who we need to engage with, on what topics and through what communication medium.

At the August 2022 workshop, our stakeholders identified four key topics to communicate with customers:

- pricing principles and how they assist in guiding tariff development
- rollout of advanced meters, and the impact this has for the energy sector
- time of use tariffs
- the progression of cost reflectivity and the need to make some legacy tariffs obsolete.

22.5.2 Retailer information forums

TasNetworks has sought to inform all Tasmanian retailers on our plans in respect to network tariff reform and alternative control services. TasNetworks held two information forums for all retailers that either currently operate in, or intend to enter, the Tasmanian electricity market.

Our forums included representatives from over five different retailers. At both forums, TasNetworks provided an overview of its pricing strategy for the 2024-2029 regulatory period, including the introduction of new network tariffs, changes to existing network tariffs and TasNetworks' tariff assignment rules. TasNetworks also shared its approach to alternative control services, in particular focussing on changes to our metering strategy for 2024-2029.

Figure 8. Retailer engagement

22.5.3 Dedicated meetings

Throughout our three-year engagement process for the development of our pricing strategy we have held dedicated meetings with a range of diverse stakeholders.

Throughout the course of our engagement, we met with:

- Government representatives
- Industry bodies
- Customer representatives
- Interested stakeholders
- Community groups
- Electric vehicle wholesalers
- Interstate network service providers.

22.5.4 Surveys

In 2021, TasNetworks issued a survey[5] to gain a better understanding our customers' views on CER, including how and when our customers use energy generation and storage technology, such as PV solar panels, batteries and electric vehicles. Of the 322 respondents to the survey:

- the majority were located in Hobart and owned their own home
- respondents tended to be in full-time employment and earn higher than average incomes
- had a diverse range of consumer energy resource technologies.

While some respondents owned multiple CER technologies, just over half (51 per cent) did not currently own either solar PVs, batteries or an electric vehicle.

TasNetworks' DER survey found that:

- generating electricity for self-consumption is the main driver of customers' investments in solar PV panels
- more than half of solar PV owners intend to install battery storage in the next ten years, to better utilise off peak rates and self-consume during peak times
- while EV owners prefer to charge their vehicle whenever it is convenient – which is mostly at home overnight or on weekends – they do change their charging times in response to time of use tariffs.

In addition, we completed analysis of existing consumption patterns of customers with CER. This analysis showed clear patterns of behaviour, depending on the type of CER technologies owned and the tariffs associated with the household (noting that some of the sample sizes are small).

The analysis of customers' load profiles and the customer survey helped form the initial view that a refined network tariff could meet the needs of more active prosumers. The survey provides evidence that we are seeing the rise of a growing prosumer group in Tasmania and that this group is expected to continue to grow in the 2024-2029 regulatory period.

5 TasNetworks' DER Customer Survey

22.5.5 Engagement with our agricultural customers

During the period 2019-2021, TasNetworks undertook the em*POWER*ing *Farms* trial to increase our understanding of our agricultural customers. A component of this trial included undertaking network tariff analysis on a range of farms, including crops, dairy, cattle and lambs. As well as our dedicated seasonal irrigation time of use consumption tariff (TAS75), we offer several network tariff options to our agricultural customers that are also available to our business customers more generally.

The trial included both qualitative and quantitative research to understand farmers' relationship with energy, their knowledge of the network and tariffs, energy retailers, and the composition of their bill. The quantitative research involved analysis of consumption data from interval meters across several farms. This information was used to explore the suitability of current network tariffs and the potential for other pricing options. The results of the quantitative and qualitative analysis are contained within the final project report.[6]

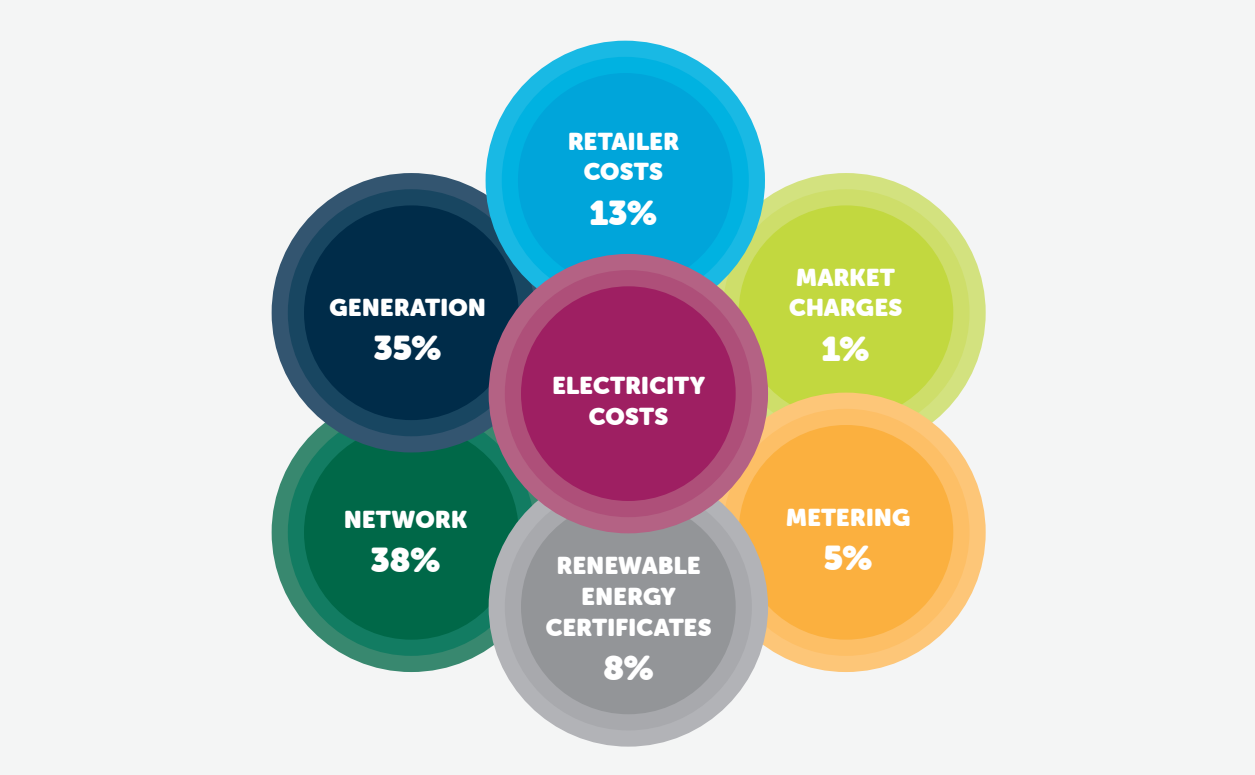
In addition to the em*POWER*ing *Farms* trial, we have also been engaging with farmers regarding the trialling of a tariff that supports the utilisation of CER across a number of connection points on an individual farm. Expressions of interest have been sought for this trial.

6 TasNetworks emPOWERing Farms

22.6 Pricing strategy overview

As the DNSP in Tasmania, TasNetworks sets the network tariffs used to recover revenue required to build, operate and maintain the poles and wires. This section of the TSES address the distribution costs of supplying energy – which is just one component of the total electricity bill that customers pay, refer Figure 9.

Figure 9. Indicative cost components of electricity costs for a typical residential or small business customer (2022-2023)[7]



TasNetworks' pricing strategy is to provide network tariff options that best meet the needs of our customers and reduce long term network expenditure. This involves adjusting the prices of our existing network tariffs by unwinding some long-standing cross subsidies and developing new network tariffs that incentivise customers to shift their energy usage outside of peak times.

These measures aim to encourage customers to use the network more efficiently and is referred to as 'cost reflective pricing'. The purpose of cost reflective pricing is to deliver a pricing signal to retailers and their customers during periods of peak demand. Reducing peak demand may reduce the need for future augmentation investment, thereby reducing costs for customers over the long term. Cost reflective pricing also provides better signalling of future costs for those customers wanting to use more electricity, particularly in peak times. The benefits of pricing reform are detailed further in subsequent sections.

7 Office of the Tasmanian Economic Regulator standing offer price determination 1 July 2022 - 30 June 2023

22.6.1 Our tariff reform strategy

This is the third TSS TasNetworks has developed which builds on the foundation of our previous work, including our customer and stakeholder feedback.

TasNetworks has developed a pricing strategy that spans multiple regulatory control periods, as shown in Figure 10. Each regulatory control period provides the opportunity to review our strategy progression and ensure we are keeping pace with changing customer needs and technology uptake.

The AER approved our first TSS for the 2017-2019 regulatory control period. This was the 'establishment' phase of our reforms that set a pathway for the subsequent periods by introducing the nature and objectives of our strategy to stakeholders and introducing new cost reflective network tariffs as a choice for customers, via their retailer.

In April 2019 the AER approved our second TSS for the 2019-2024 regulatory control period. This represented the continuation of TasNetworks' pricing reform by making the time of use consumption-based network tariffs as the default for newly connecting residential and small business customers.

For the upcoming 2024-2029 regulatory control period, we are proposing to:

- continue the gradual process of unwinding the discounts that exist in some of our network tariffs
- introduce new embedded network tariffs
- refine the existing residential CER network tariff and the small business time of use consumption tariff
- refine our tariff assignment rules to reflect our tariff strategy
- propose to undertake tariff trials to inform tariff settings for the next regulatory control period (2029-2034).

Figure 10. TasNetworks' tariff reform strategy

22.6.2 Our long-term vision for pricing

As shown in Figure 10, TasNetworks has a long-term strategy to deliver tariff reform. We recognise that by 2030, Australia's renewable energy transition will be well underway and that people and businesses will continue to invest in solar PV and batteries to generate and store their own electricity and use it to power their homes, businesses, and cars.

The uptake of electric vehicles is also expected to accelerate by 2030 and more so by 2050. AEMO[8] is forecasting that Tasmania will have approximately 62,000 electric vehicles by 2030 and significantly increasing by 2050 in the most likely step change scenario. In addition, AEMO is also forecasting 518 MW of solar PV by 2030 – a 93 per cent increase on 2022-23 levels.

This drives the need to ensure our tariffs are fit for purpose to facilitate the emergence of new technologies and increasing demand on the network through electrification. As part of this, it is important that our tariffs send appropriate, cost reflective, pricing signals to customers about how behaviour impacts the costs of providing and operating the network.

In developing our pricing strategy, we carefully considered these future scenarios, trends and customer preferences to ensure our plans are in the long-term interests of our customers. We have utilised the results of nation-wide surveys and research to inform our understanding of the uptake of new technologies, such as solar PV, battery storage and electric vehicles, to meet the energy needs of Australian customers. The *DER Customer Survey* that was conducted provided further local insights which inform our pricing strategies.

Future advances in technology, increasing number of models and public charging infrastructure will continue to evolve and provide a dynamic environment in which to operate.

8 AEMO's Inputs assumptions and scenarios workbook, 30 June 2022

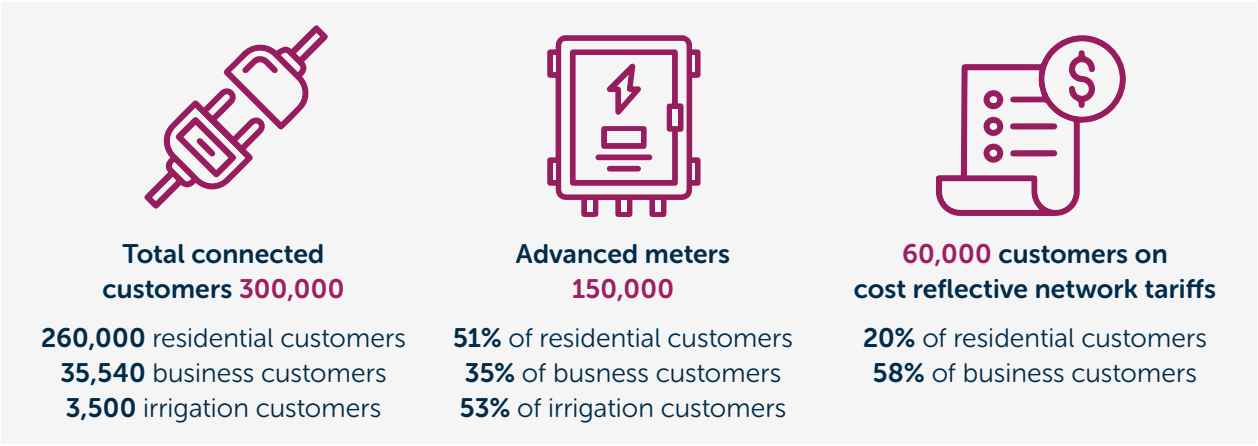
Preparations are underway for this uptake and subsequent demand on the network. One of the ways we are preparing for electric vehicle growth is by ensuring we have appropriate network tariff options available for all customers, including those who wish to invest in CER such as electric vehicles.

TasNetworks is preparing for this future now by laying the foundations. We are enabling the move to a more sustainable electricity system and ensuring the delivery of safe, reliable, and affordable electricity for all consumers. Our enduring focus is to deliver value to electricity consumers through sustainable prices.

22.6.3 Customers on our network

The figure below provides a summary of the different customers that use our network.

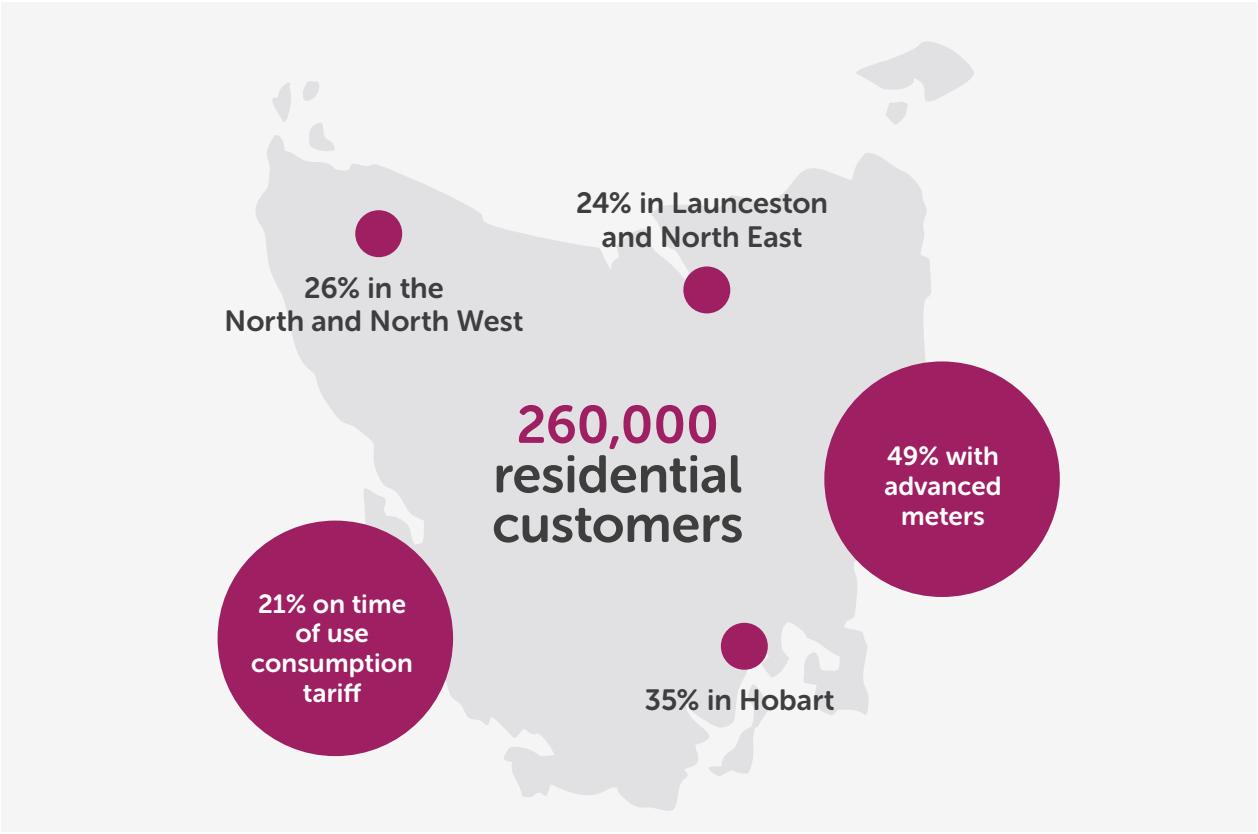
Figure 11. Customers on TasNetworks' distribution network



22.6.3.1 Residential customers

The residential customers in our network area are diverse. They range in location, age, medical needs, financial means, household make-up and how they source energy (e.g., whether they have embedded generation such as solar PV).

Figure 12. Our residential customers



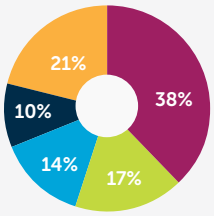
22.6.3.2 Our business customers

We have a diverse range of businesses connected to our network, including retail, real estate, construction, health, education, professional services, transport and industry. Tasmania also supports a large agricultural industry, which has long been a key part of Tasmania's economy.

We offer our business customers a range of network tariffs. The tariffs available include time of use consumption tariffs, demand only tariffs, tariffs for CER and a dedicated irrigation tariff for our agricultural industry.

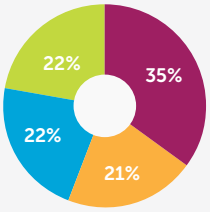
Figure 13. Our business customers

Proportion on number of customers by National Meter Identifier (NMI):



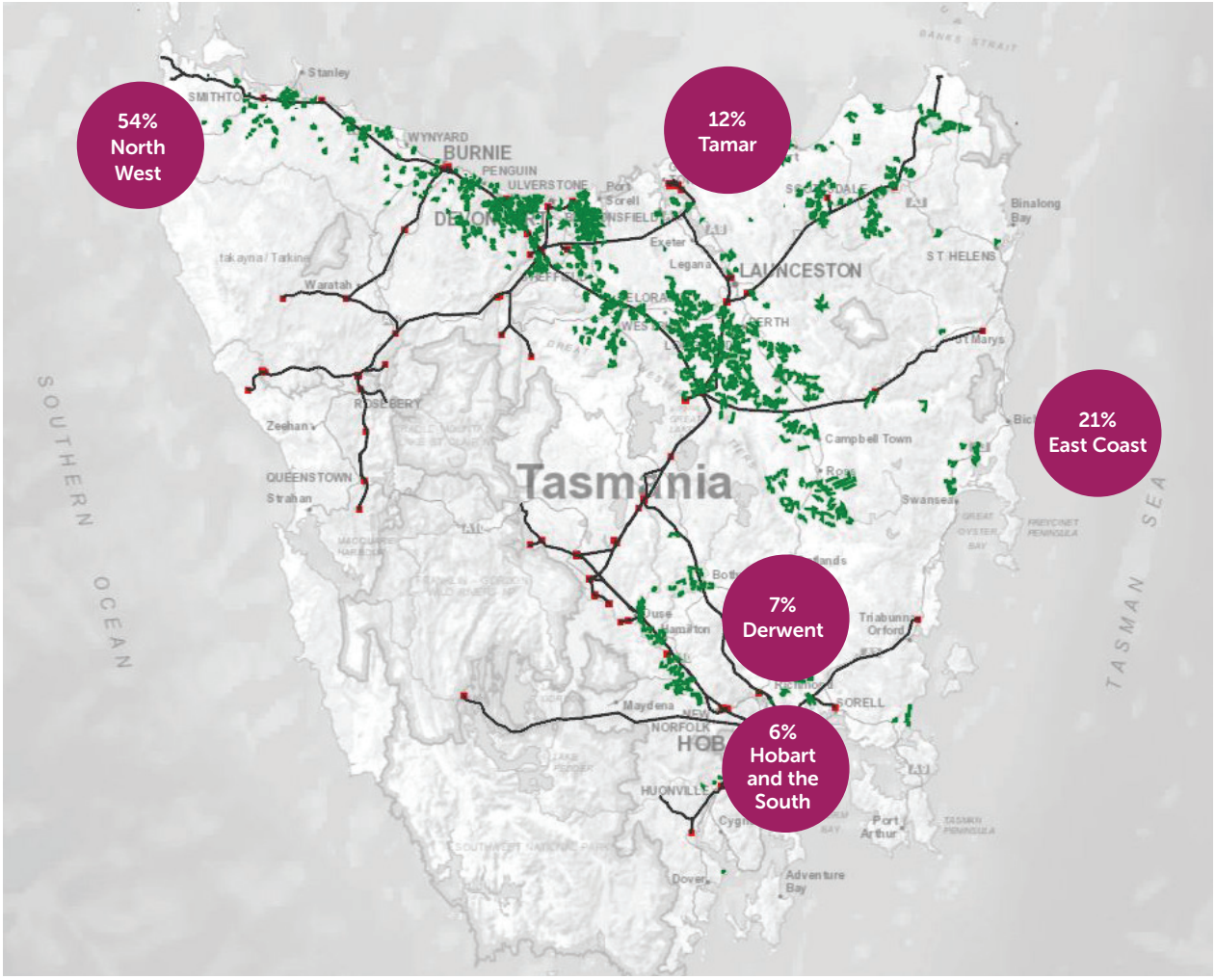
- 38% Shops/Buildings (offices)
- 17% Factory/construction
- 14% Hospitality, Education and Cultural Activities
- 10% Primary industries
- 21% Other, incl mining, sports facilities, medical and emergency.

Proportion on size of kWh consumed:



- 35% Factories/construction
- 21% Shops and Buildings
- 22% Hospitality, Education and Cultural Activities
- 22% Other.

Figure 14. Our irrigation customers



22.6.4 The evolution of prosumers

Prosumer
The rise of the prosumer who seeks to actively trade energy as a source of revenue.

Electric Vehicles
Increased uptake of Electric Vehicles adding additional load and usage patterns on the grid, e.g. uncontrolled charge times / fast chargers.

DER (behind the meter)
Increased uptake of Distributed Energy Resources altering the dynamics/role of the traditional grid, e.g. update of rooftop solar.

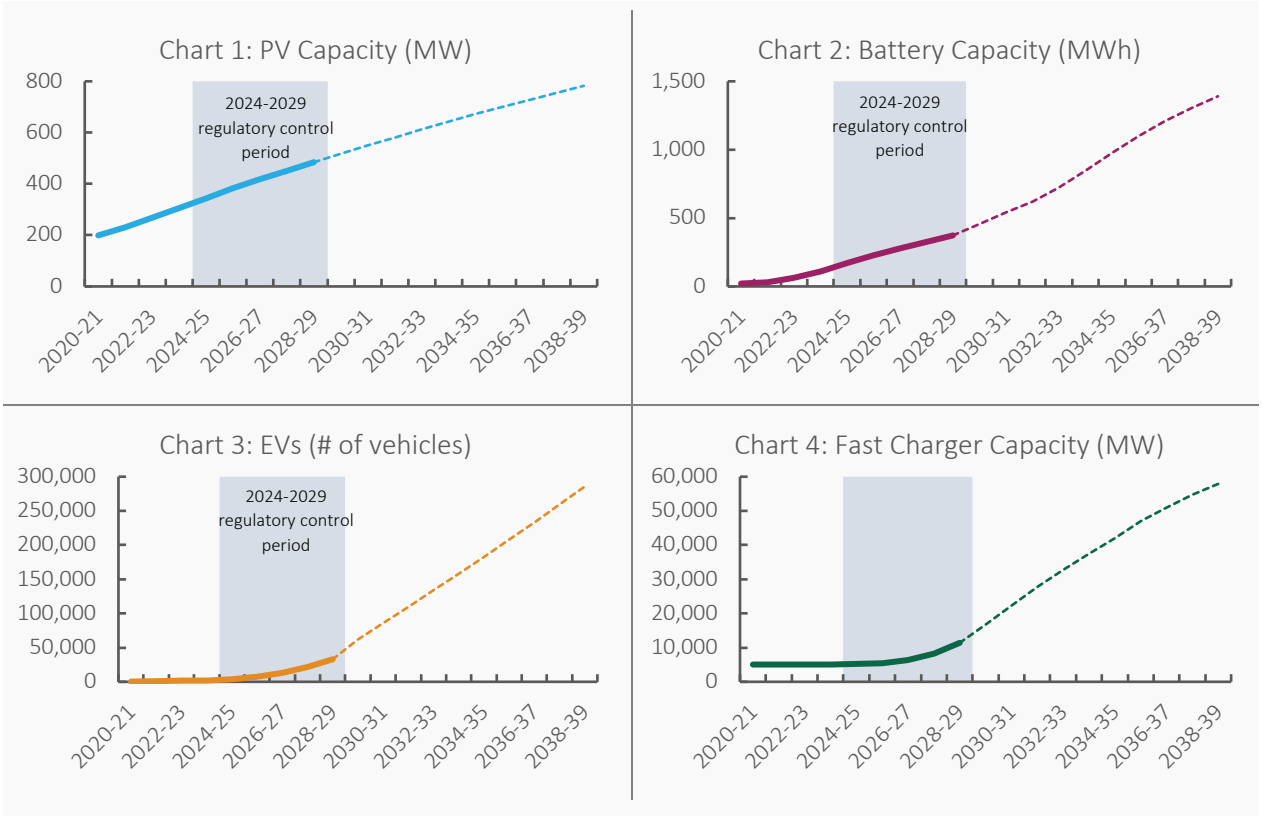
Batteries (Grid side)
Non-traditional infrastructure/technology providing alternative solutions to grid stability challenges.

The way our customers are using our distribution network is changing and our tariffs need to adapt accordingly.

Prosumers are more involved in the electricity industry than most, enabled by a growth in technology. They take an active role, at times enabled by technology, in meeting their energy needs and expect more varied ways to interact with and be part of the energy market. Tasmania has seen a steady growth of new CER technologies over the past decade, and we expect this to increase during 2024-2029 and beyond. Figure 15 shows forecasts for CER penetration based on AEMO's "step change" scenario from the 2022 ISP which indicates consistent growth in solar PV over the 2024-2029 regulatory control period and beyond, however for EVs, fast chargers and batteries, growth is more constrained over the 2024-2029 regulatory control period, after which growth is projected to accelerate.

The 2022 ISP provides forecasts out to 2050, which indicates that solar PV deployment is expected to be installed on most domestic properties[9]. Some of the increased solar PV generation could be stored either in household batteries, for use at a more beneficial time, or utilised to recharge EVs. Tasmania's battery capacity is estimated to increase substantially, and approximately 600,000 EVs are estimated to be on Tasmanian roads by 2050. The pace of EV uptake could result in significant additional load to the low voltage network.

Figure 15. TasNetworks forecasts for CER penetration[10]



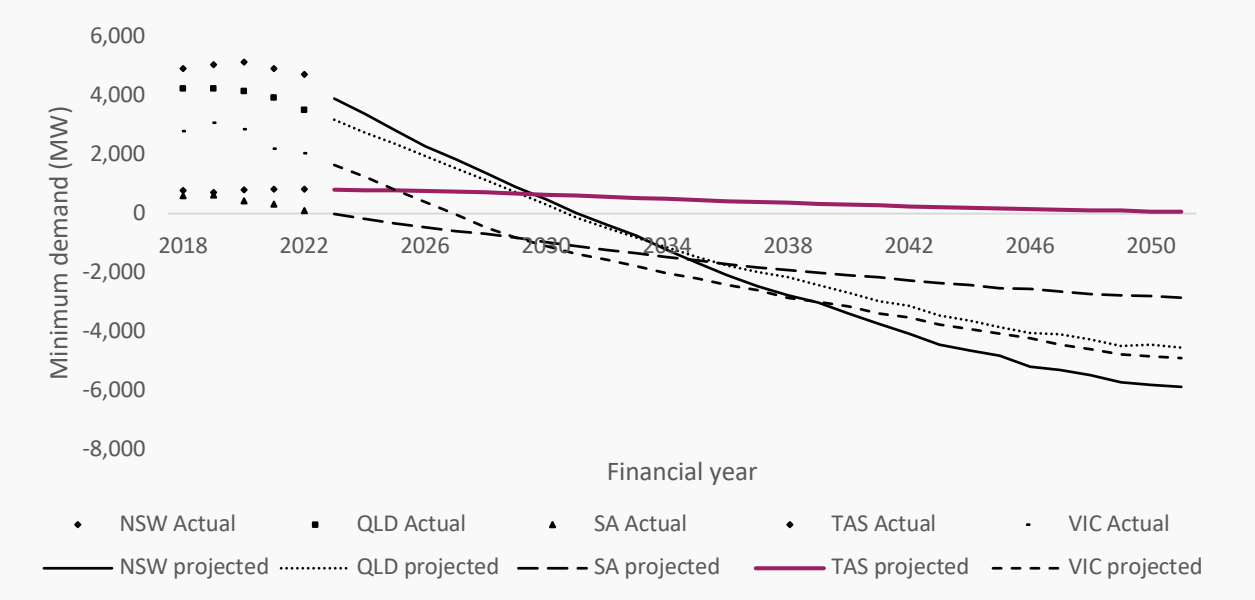
9 Total estimated PV capacity is 1,085 MW by 2050, AEMO's Integrated System Plan, 2022

10 Based on AEMO's Step Change scenario, 2021

TasNetworks has observed some impact of solar PV on the midday minimum demand on our distribution network in recent years (Figure 17) however, the current experience in Tasmania does not compare to the minimum demand issues occurring in other jurisdictions where solar PV penetration is higher.

As per AEMO's Electricity Statement of Opportunities (**ESOO**), as shown in Figure 16, Tasmania's minimum residential and business demand, which is expected to continue to occur in summer, is shown to be considerably more stable than other NEM regions. Tasmania is the only NEM region in which minimum demand is not expected to be negative (i.e., representative of net exports) by 2050. This is in large part due to Tasmania's relatively low levels of solar PV generation. At the aggregate level, this indicates that Tasmania is less likely to experience issues relating to solar PV exports (especially in the short to medium term) as the network as a whole will be demanding generation, even during minimum demand periods. Potential issues related to solar PV exports is considered further in TasNetworks' export tariff transition strategy (refer section 22.12).

Figure 16. Comparison of summer minimum residential and business demand by NEM region[11]

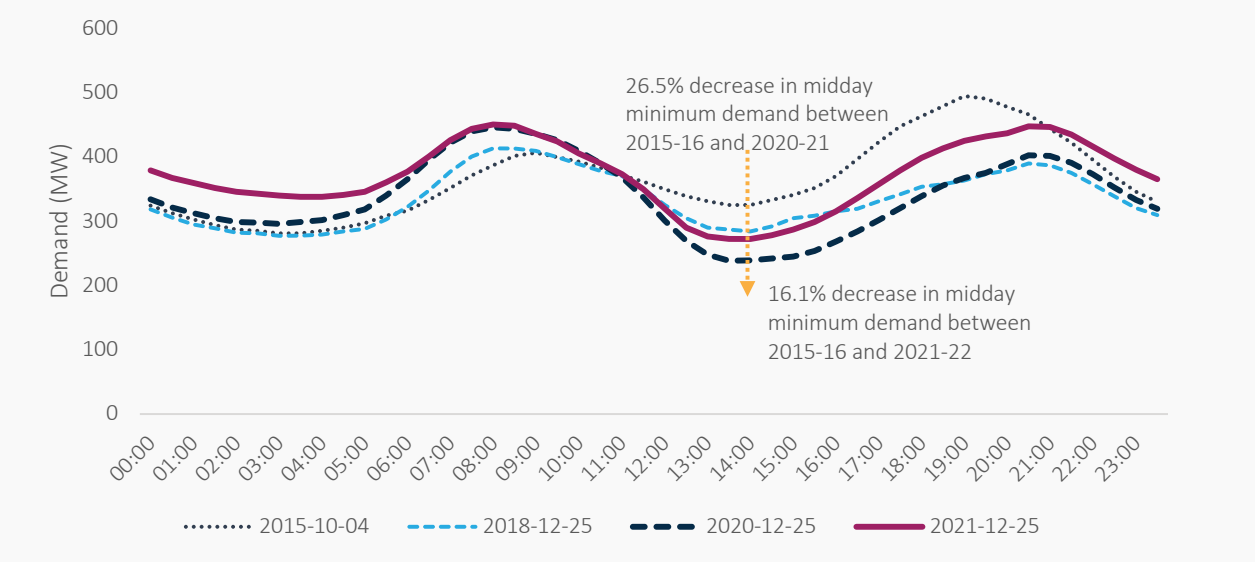


22.6.4.1 Tasmania's current minimum demand

Tasmania's midday minimum occurs during the summer months – mainly during the Christmas period, due to a lack of heating load on the distribution network. As investment in solar PV increases, midday minimum load is likely to decline further, especially if the solar PV capacity increases to the predicted levels as shown in Chart 1 in Figure 15. This is also aligned with Figure 16, above. TasNetworks has been monitoring its minimum demand (Figure 17) and while minimum demand has decreased since 2015, the declining trend seen in 2020-21 has somewhat reversed in 2021-22.

11 Sourced from AEMO's 2022 ESOO (Central Scenario), based on AEMO's 2022 ESOO (Central scenario), version as at 20/09/2022

Figure 17. Network minimum demand



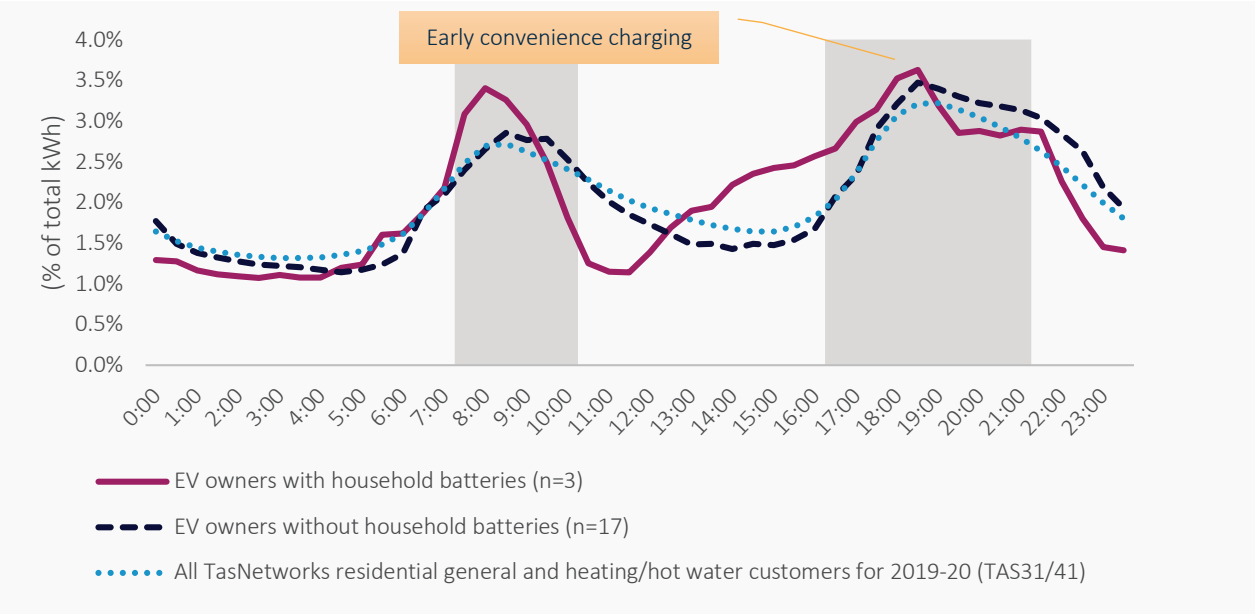
22.6.4.2 Forecast network impact from EVs

Chart 3, Figure 15 shows the forecast increase in the number of electric vehicles for Tasmania. For the purposes of our tariff redesign, we have utilised information from our *DER customer survey* to assess the residential EV charging impact on the network.

During the 2024-2029 regulatory control period we forecast the rate of EV uptake to increase, and further accelerate into the subsequent regulatory control periods with an estimated 286,000 EVs on Tasmania's roads by 2039.

TasNetworks' *DER customer survey* suggested a growing desire by Tasmanians to purchase an electric vehicle in the next regulatory control period. The data collected via the survey showed the charging behaviour of EV owners (Figure 18), providing an early indication of what may occur if widespread EV "convenience charging" occurs.

Figure 18. Electric vehicle user profiles for customers on the residential general and heating/hot water tariff (TAS31/41) in winter

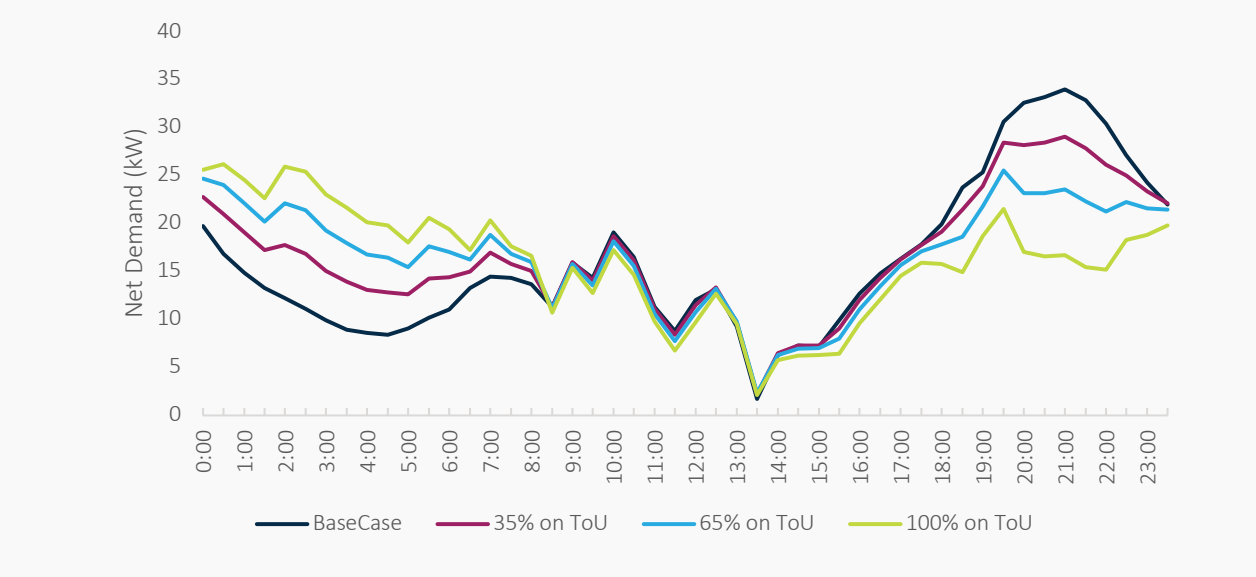


Feeder analysis[12] showed that future network constraints are primarily driven by the uptake of forecast EVs. Network demand on a winter weekday in 2050 would be significantly higher if all customers with EVs are on the residential time of use consumption tariff (TAS93). Network limits would be breached in the evening peak, however spare capacity would be retained in the early hours of the morning.

12 20 low voltage feeders were used in the analysis which included a representation of eight different network types, e.g., central business district (overhead and underground), urban residential (overhead and underground), mixed customer usage

Figure 19 shows that, if approximately 35 per cent of customers transition to a time of use tariff with incentives to charge vehicles in the early morning, the size of the evening peak reduced – but not sufficiently to alleviate some network constraints across some feeders. If, by 2050, approximately 65 per cent of customers take up a new time of use tariff that encourages early morning charging, the evening peak will further reduce and would result in no network investment being required. Moving 100 per cent of customers to a new time of use tariff with beneficial early morning charging rates would likely create another peak requiring network investment to facilitate EV charging during the early morning.

Figure 19. Effect of time of use profiles on the winter weekday demand profile



22.6.4.3 CER Future impacts

Modelling suggests that the uptake of solar PV, when considered with EV uptake, is insufficient to cause network constraints during the next regulatory control period[13]. Experience with our early adopters of EVs suggest that most customers will have access to charging their vehicles at home – this combines maximum customer convenience with minimum consumer cost.

However, there is uncertainty of the impact on demand from commercial fast chargers. It is assumed that these fast chargers are rarely used, and the impact to the network is likely to be localised. The uncertainty of the placement of fast charging stations on Tasmania's road network makes it difficult to determine the network impact, e.g., the placement of some chargers in rural areas or peak holiday regions will impact the network at different times or may have seasonal variation.

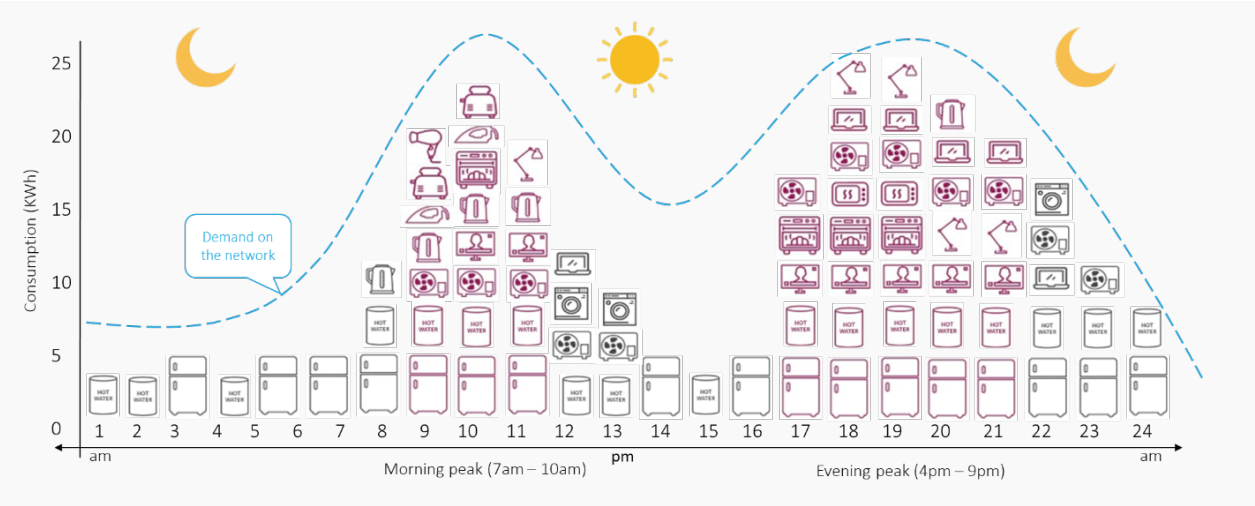
The electrification of transportation will continue to be monitored by TasNetworks throughout the next regulatory control period, particularly to establish whether the excess solar PV generation is soaked up through the charging of electric vehicles and whether commercial fast chargers are impacting on demand.

22.6.5 The benefits of pricing reform

When developing networks tariffs, our aim is to better reflect the costs incurred by TasNetworks that result from customer decisions to use electricity at specific times. Customers are gradually beginning to switch to time of use network tariffs – presently approximately 19 per cent of customers, as compared to three per cent at the beginning of the 2019-2024 regulatory control period. However, 82 per cent of residential and 72 per cent of business customers remain on the flat rate tariffs. The problem with this arrangement is that the pricing signal these customers receive does not appropriately reflect the costs associated with network provision. The cost of providing the network is not driven by the amount of electricity customers consume, but by the capacity needed to meet generally short peaks in usage – which typically occur on cold weekday mornings and evenings as shown in Figure 20.

13 Network modelling assumed the level of EV demand during the daytime was sufficient to mask the additional PV generation and avoid export limits being breached

Figure 20. How our everyday usage contributes to short peaks on the network



22.6.6 What is in our 2024-2029 distribution pricing strategy

Our pricing strategy for 2024-2029 builds on the foundations developed in previous periods, including retaining the current time of use consumption-based network tariffs as the default tariff option for residential and small business customers. We have been guided by our stakeholders, network impacts and customer expectations as we transition our tariffs to support the needs of our customers and future technological developments. Our 2024-2029 distribution pricing strategy is summarised in Table 2.

Table 2. TasNetworks' distribution pricing strategy for the 2024-2029 regulatory control period

2024-2029 distribution pricing strategy	Resulting customer change
Amending our network tariff classes to produce a more streamlined structure	All customers
Altering our assignment rules to make the flat rate network tariffs obsolete for both residential and small business customers connecting to the network or upgrading their meter	Residential and small business customers
Retaining the current time of use consumption-based network tariffs as the default network tariff option for residential and small business customers	Residential and small business customers
Providing pricing options for our residential customers who are more actively engaged with their energy needs (such as electric vehicle owners)	Residential customers
Revising the peak windows for the time of use consumption-based network tariff for small business customers (TAS94)	Small business customers
Introducing new network tariffs designed specifically for embedded networks	All customers in embedded networks
Designing network tariff trials to understand the relationship between new technologies, pricing and network impacts	All customers
Continue removing cross-subsidies between tariff classes and network tariffs	All customers

22.7 2024-2029 pricing proposal

22.7.1 Amending our network tariff classes

We are proposing to amend our tariff classes and to implement a more streamlined structure which better meets the requirements of the Rules. This includes changes to our residential, business and unmetered tariff classes.

The development of our tariff classes for the 2024-2029 regulatory control period has been guided by the principles in the Rules, namely to:

- group retail customers together on an economically efficient basis[14]
- assign customers to tariff classes based on the nature and extent of their usage, their connection to the network and their metering technology[15]
- treat retail customers with similar connections and usage profiles on an equal basis.[16]

To enable alignment with the outlined criteria, we propose the following amendments to our existing tariff classes for the 2024-2029 regulatory control period:

- integrate the controlled and uncontrolled load tariff classes into the residential tariff class
- align the Individual Tariff Calculation (**ITC**) network tariff class with the business high voltage tariff class
- combine the unmetered and street lighting tariff classes into unmetered supplies
- include our new embedded network tariffs within our existing tariff classes.

Table 3 summarises our proposed tariff classes and provides a comparison to our current tariff class allocations.

Table 3. Proposed tariff classes for standard control services

2024-2029 regulatory control period Proposed tariff classes	2019-2024 regulatory control period Tariff classes	Typical customer characteristics
Low voltage residential	Residential low voltage *Uncontrolled energy* *Controlled energy*	Residential customers Low voltage connection
Low voltage small business	Small business low voltage	Small to Medium commercial customers Low voltage connection
Irrigation	Irrigation	Primary producers Low voltage connection
Low voltage large business	Large business low voltage	Medium to large industrial and commercial customers Low voltage connection
High voltage business	Large business high voltage *Individual tariff calculation*	Large industrial and commercial customers High voltage connection
Unmetered supplies	*Unmetered supply* *Street lighting*	Low demand installations with a relatively constant load profile Low voltage connection

14 NER 6.18.3

15 NER 6.18.4(a)(1)

16 NER 6.18.4(a)(2)

22.7.1.1 Integrate the controlled and uncontrolled load tariff classes into the residential tariff class

The controlled and uncontrolled load tariff classes both contain only a small number of tariffs, as shown in Table 4.

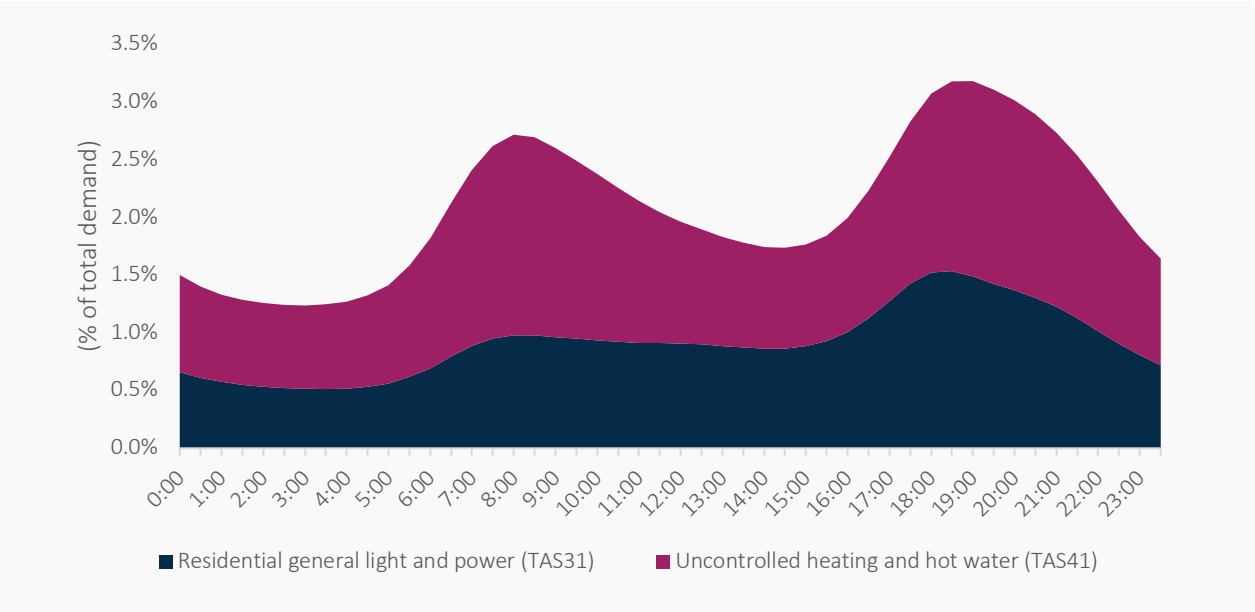
Table 4. Uncontrolled and controlled load tariff classes from the 2019-2024 regulatory control period

2019-2024 Tariff Class	Tariffs		Customer availability	Annual Consumption (FY 2021-22)
Uncontrolled Load	TAS41	Uncontrolled low voltage heating and hot water [proposed obsolete]	Residential customers Commercial customers	941 GWh (21% of total)
Controlled Load	TAS61	Controlled low voltage energy – off-peak with afternoon boost [obsolete]	Residential customers Commercial customers	35 GWh (0.8% of total)
	TAS63	Controlled low voltage energy – night period only	Residential customers Commercial customers	1.5 GWh (<0.05% of total)

All controlled and uncontrolled load tariffs are secondary tariffs, i.e., tariffs that can only be used in conjunction with other (primary) tariffs. Two of the three tariffs are either obsolete or proposed to be made obsolete in the 2024-2029 regulatory control period. It is therefore economically inefficient to retain separate controlled and uncontrolled load tariff classes. TasNetworks has analysed the affected tariffs in more detail and the following observations underpin our proposal to integrate both tariff classes into the residential tariff class:

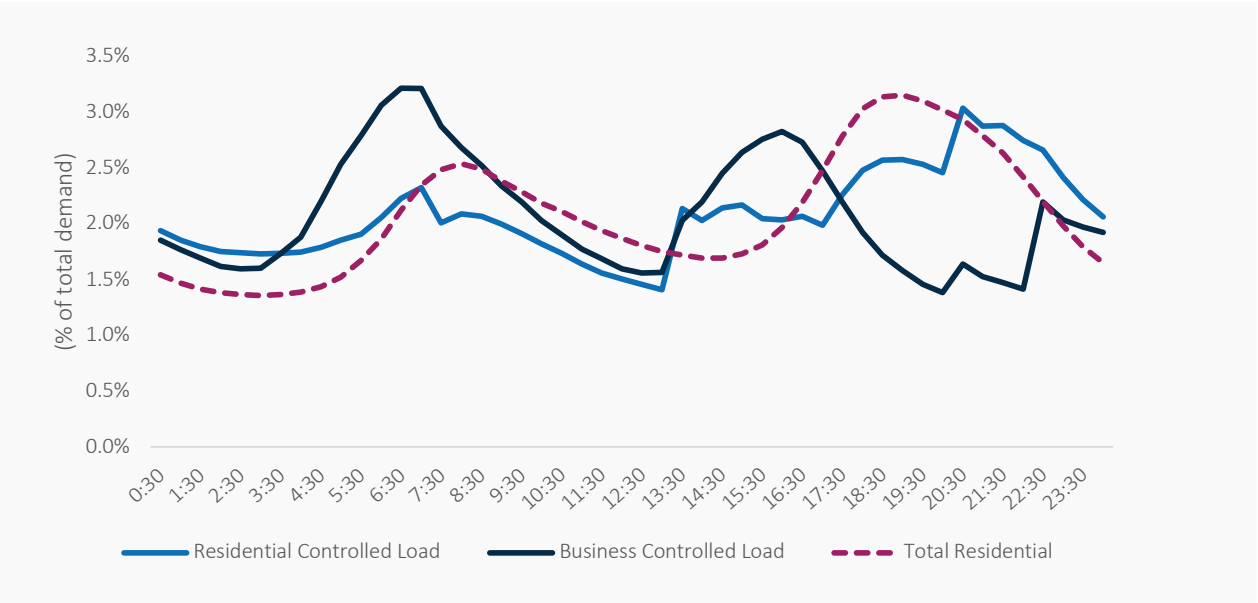
- Over 99 per cent of our uncontrolled load customers and over 96 per cent of our controlled load customers are residential. These proportions are unlikely to change, given both the majority of our controlled and uncontrolled load tariffs and the flat rate primary tariffs that are most commonly used in conjunction with these tariffs are either already obsolete or proposed to be made obsolete in the 2024-2029 regulatory control period (as outlined in section 22.7.2).
- The uncontrolled load heating and hot water tariff (TAS41) is used by the majority of our residential customers, in conjunction with the low voltage residential general light and power tariff (TAS31). The space heating and hot water loads associated with this tariff are a main driver of the distinct morning and evening peaks that characterise the overall residential load patterns (Figure 21). It is therefore closely intertwined with the residential tariff class, which is highlighted by the fact that one of TasNetworks' key strategic objectives is to remove the inherent discount of the heating and hot water tariff and to align it with the low voltage residential general light and power tariff, as outlined in section 22.6.6.

Figure 21. Residential Load Profile (TAS31/41)



- The controlled load tariff class accounts for less than one per cent of the Tasmanian total annual consumption. Around 92 per cent of this consumption is related to customers on the obsolete controlled load tariff with afternoon boost (TAS61), making it inefficient to retain the controlled load tariff class during the next regulatory control period. The controlled load tariffs are primarily used by residential customers, often in conjunction with the controlled load tariff. As a result, the demand profile of our residential controlled load customers closely resembles the overall residential demand profile. The same applies to our controlled load business customers who operate predominantly in the hospitality and dairy industries and whose load profiles display similar morning and evening peaks than the overall residential profile (Figure 22).

Figure 22. Controlled Load Customer Profiles

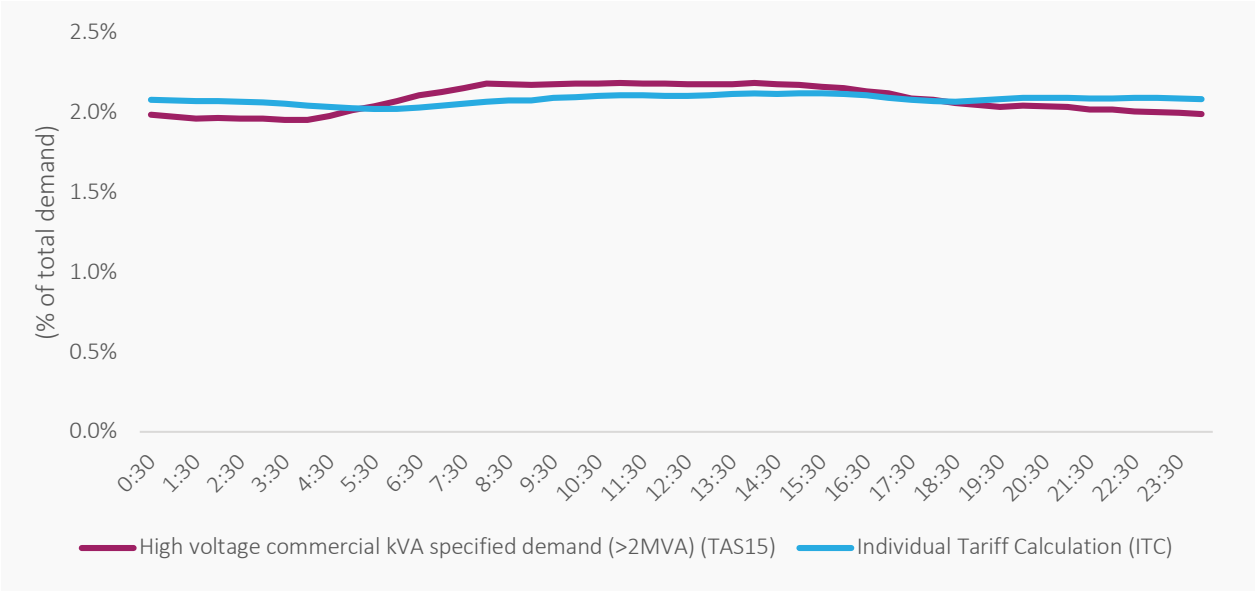


22.7.1.2 Include Individual Tariff Calculation in the high voltage tariff class

There are currently 10 high voltage customers that are assigned to the ITC tariff class which comprises a single tariff. It is TasNetworks' strategy to align these customers' charges with the business high voltage kVA specified demand >2 MVA tariff (TAS15) over time and to not offer new ITC arrangements where connection arrangements are consistent with other tariff class arrangements.

Current ITC customers were assigned to this tariff class based on their original connection arrangements. These customers are mostly large industrials whose load characteristics closely resemble other high voltage business customers, particularly those connected to the TAS15 business high voltage kVA specified demand >2 MVA tariff (Figure 23). TasNetworks therefore proposes to integrate the ITC tariff class into the existing high voltage tariff class.

Figure 23. High Voltage Business Load Profiles



22.7.1.3 Combine the unmetered and street lighting tariff classes into unmetered supplies

Both the unmetered supply and the unmetered street lighting tariff classes currently comprise a single tariff each. These unmetered connections are similar in nature and connected installations on both tariffs have relatively constant load profiles during times of operation. It is therefore proposed to combine these tariff classes in the next regulatory control period.

22.7.2 Altering our tariff assignment rules

The benefits of cost reflective pricing are more clearly realised if accompanied by sufficient uptake of cost reflective network tariffs. However, TasNetworks is mindful of the impact of pricing reform on customers when making changes to our network tariff assignment policy.

During the 2024–2029 regulatory control period we propose to transition an increasing number of customers to more cost reflective network tariffs by modifying our network tariff assignment rules.

22.7.2.1 The transition to cost reflectivity

As the transition to cost reflective tariffs continues across the NEM, mandatory assignment policies are becoming more prevalent, with customers being unable to opt out of a cost reflective network tariff.

We discussed options with our stakeholders to continue and accelerate the take-up of our cost reflective network tariffs. The discussion centred around electricity being a low involvement product, resulting in many customers being unaware of incentives that may be on offer via alternate tariff offerings. This suggests that differential pricing would be less impactful, resulting in our stakeholder's preference to transition our customers to cost reflective tariffs by revising our network tariff assignment rules.

We therefore propose that for the 2024–2029 regulatory control period our tariff assignment rules be changed to make the residential general light and power (TAS31), heating and hot water (TAS41) and the business general light and power (TAS22) network tariffs obsolete.[17] These three tariffs are referred to as flat rate network tariffs.

22.7.2.2 Background to TasNetworks' network tariff assignment policy

TasNetworks' network tariff assignment policy for the 2019-2024 regulatory control period specified that from 1 July 2019 the residential consumption-based time of use network tariff (TAS93) and the small business time of use consumption network tariff (TAS94) would be the default network tariffs for these customer classes. Customers are assigned, on an opt-out basis, to the relevant time of use consumption network tariff by default, in response to several 'trigger events':

- moved into newly connected premises from 1 July 2019; or
- upgraded their connection to the distribution network from 1 July 2019 (e.g., by changing from a single phase to multi-phase power supply); or
- modified their connection to the distribution network from 1 July 2019 (e.g., through the installation of solar panels); or
- have their existing accumulation meter replaced with an advanced[18] meter (e.g., when the existing meter reaches the end of its service life or fails).

This default network tariff assignment was not immediately applied but was delayed by 12 months from the trigger event date.[19] The 12-month data sampling period was implemented to provide customers with an opportunity to better understand their electricity usage, including variations over the year,[20] before choosing the network tariff that they wished to be assigned to in the future.

17 This is in addition to TasNetworks' low voltage controlled energy off-peak with afternoon boost (TAS61), which was made obsolete on 1 July 2019

18 An advanced meter refers to an electricity meter capable of measuring electricity usage in specific time intervals, enabling the application of network (and retail) tariffs that can vary by time of day

19 One trigger event will be applied per residential or small business installation as it is recorded at the national metering identifier level (NMI)

20 Note: Some customers may have access to less than 12 months of data (e.g., if a customer moves into a property during the data sampling period)

Figure 24. Total network uptake of cost reflective tariffs[21]

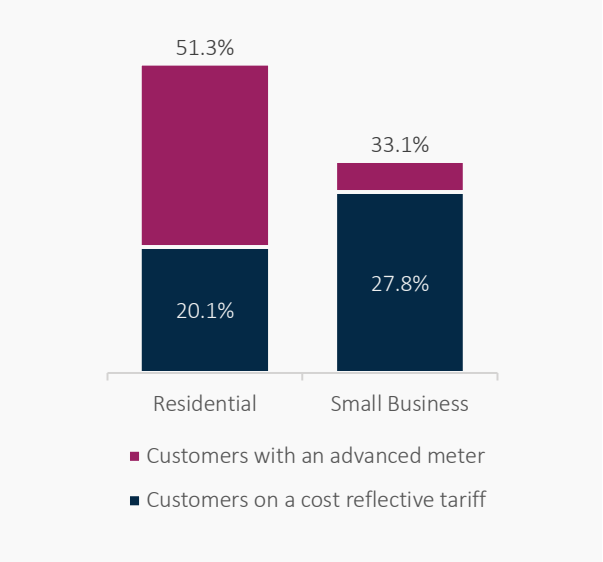
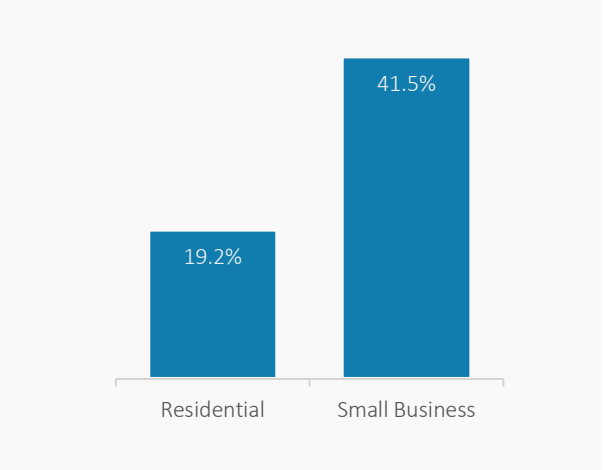


Figure 24 shows that just over 20 per cent residential customers are on cost reflective tariffs (despite over 50 per cent of these customers having an advanced meter). However, for small business customers, nearly 30 per cent are on the default time of use network tariff, even though only 35 per cent of small business customers have an advanced meter.

Figure 25. Uptake of cost reflective tariffs for new connections since 1 July 2019[21]



In addition, it has been observed that since 1 July 2019, approximately 20 per cent of new residential customers and 42 per cent of new small business customers have been assigned to the default time of use consumption tariffs (see Figure 25).

This relatively low rate of assignment of newly connected customers to our default time of use network tariffs has contributed to the low overall uptake of our cost reflective tariffs, especially for residential customers.

21 Figures are prepared as at 30 November 2022

22.7.2.3 Advanced meter rollout in Tasmania

The Tasmanian Government has committed to accelerating the rollout of advanced meters across the State, with the aim of reaching full deployment during TasNetworks' next regulatory control period.[22]

The current pace of the advanced meter rollout should result in approximately 33 per cent of customers still needing an advanced meter upgrade at the beginning of the 2024-2029 regulatory control period. This will see approximately 25-30 per cent of residential customers being potentially impacted by the proposed changes in the assignment rules and potentially needing a mechanism to opt-out.

22.7.2.4 Customer impact of tariff assignment policy

Residential customers

In Tasmania, many residential customers choose to be connected to the residential flat rate tariffs due to their reliance on electricity to provide home heating and hot water in a way not seen anywhere else in Australia. The uncontrolled low voltage heating network tariff (TAS41) currently provides customers with discounted network charges for hard-wired space heating and hot water systems.

During the 2024-2029 regulatory control period, TasNetworks will seek to continue the alignment of the price points of the heating and hot water tariff (TAS41) with the network tariff applying to residential customers for general power and light (TAS31) to remove the existing cross-subsidy. This means that the price of the TAS41 network tariff will continue to be slowly increased during the 2024-2029 regulatory control period, with parity with TAS31 expected to be achieved by June 2029.

Figure 26 shows the forecast change in network charges for customers[23] if they were moved from the current combination of the residential general light and power and heating and hot water network tariffs (TAS31/41) used by most residential customers to the time of use consumption tariff (TAS93) that is now the default residential network tariff. Our network charge comparisons indicate that at the beginning of the 2024-2029 regulatory control period, approximately 65 per cent of customers would benefit from switching to the cost reflective network tariff (TAS93) without making any changes to their use of electricity, with average annual network charge savings of approximately $21[24]. By the end of the 2024-2029 regulatory control period, around 66 per cent of customers are anticipated to benefit from a switch to the time of use consumption tariffs, with average annual network charge savings estimated to increase to around $25.

22 Tasmanian Liberals, Securing Tasmania's Future by delivering affordable, reliable clean energy

23 Calculations were undertaken for customers with an advanced meter throughout the entire 2021-22 financial year

24 Noting that the typical residential customer's savings are approximately $9 per annum

Figure 26. Annual network charge comparison for customers on the combined low voltage residential general light and power, with heating and hot water network tariff (TAS31/41)[25]

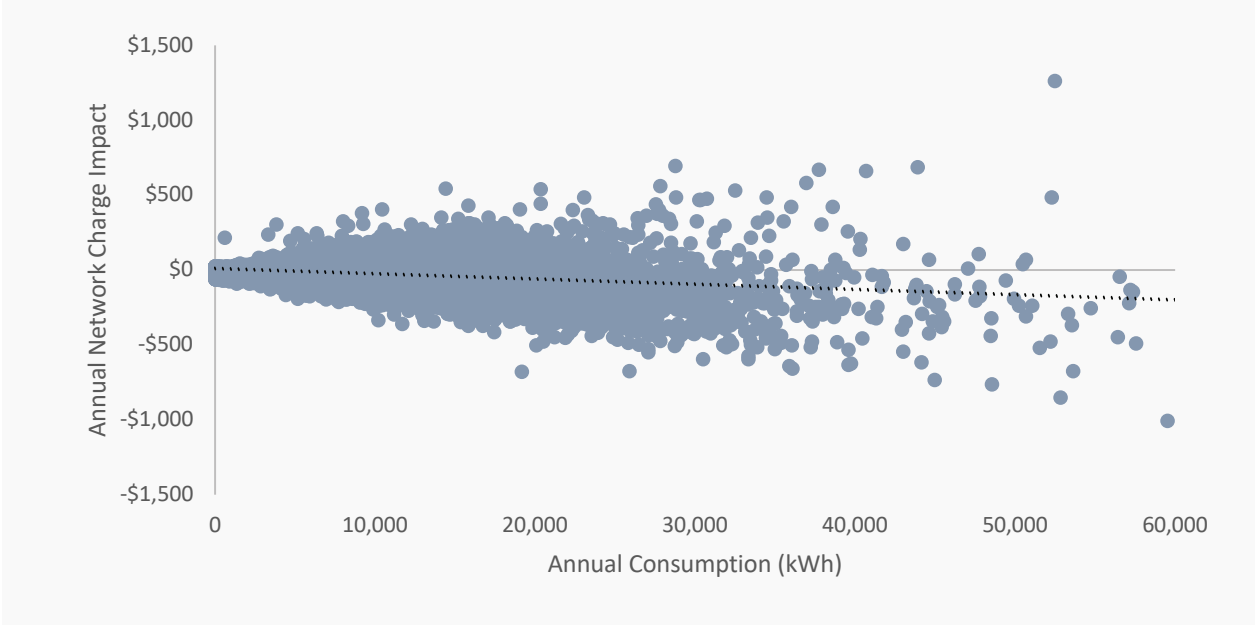
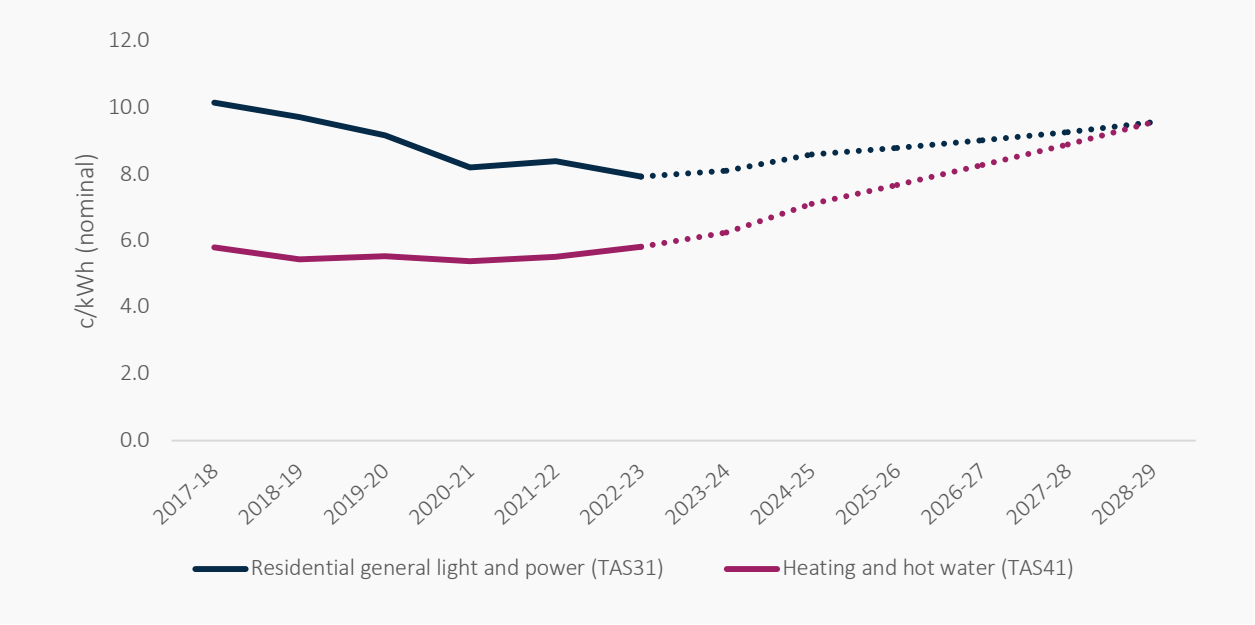


Figure 27 shows our current plans of fully aligning the energy charges of the TAS31 and TAS41 network tariffs by the end of 2028-29.

Figure 27. Projected alignment of the residential general light and power (TAS31) and the heating and hot water (TAS41) energy charges



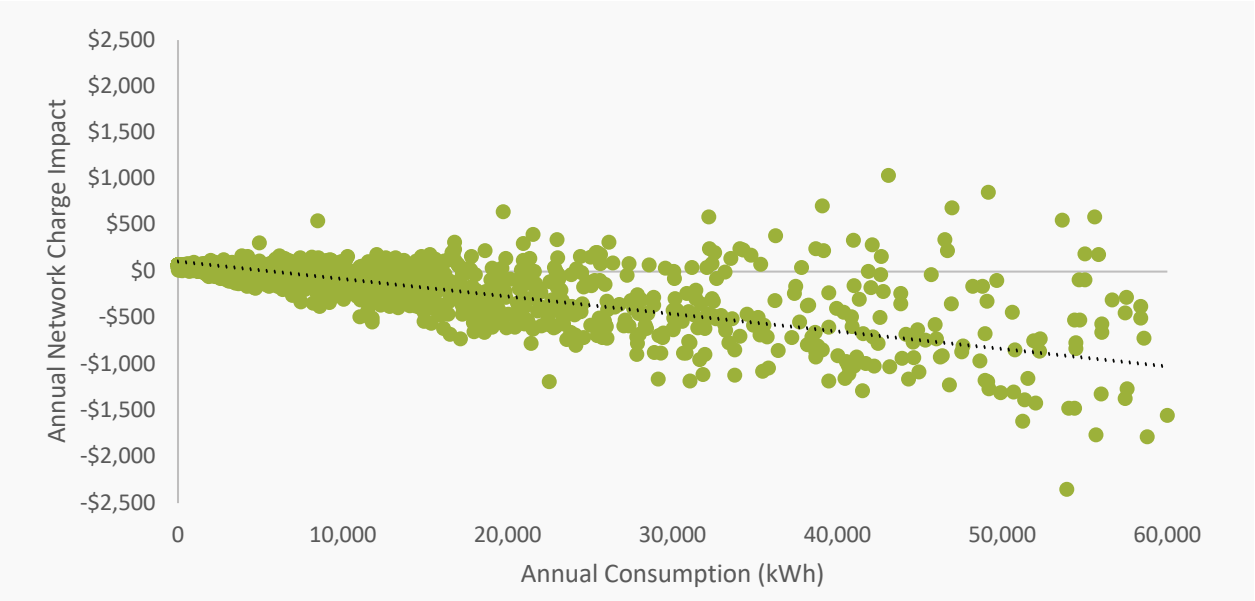
Small business customers

The proportion of small business customers taking up the cost reflective tariff when there has been a change of circumstance (e.g., advanced meter installation) is significantly higher as a proportion of the advanced meters that have been rolled out than for residential customers. Since the introduction of cost reflective time of use tariffs approximately 8,600 small businesses have moved onto the default time of use consumption tariff (TAS94).

25 Prepared using the indicative prices for 2024-25

Figure 28 shows the forecast change in network charges for customers on the small business low voltage general light and power network tariff (TAS22)[26] if they were to switch to the TAS94 time of use consumption tariff at the beginning of the 2024-2029 regulatory control period. Our network charge comparisons indicate that these customers have the potential to make significant savings on the small business time of use network tariff TAS94 as compared against the general network tariff (TAS22), and that TAS94 is likely to remain the more lucrative tariff options for the majority of our small business customers throughout the regulatory control period.

Figure 28. Annual network charge comparison for customers on the business low voltage general light and power network tariff (TAS22)27



22.7.2.5 Engagement and consideration of customer protections

The above information was provided to our stakeholders over multiple workshops. While our analysis shows that many residential and small business customers will benefit from changing to the default time of use consumption network tariff, stakeholders were cautious about making our flat rate network tariffs obsolete. During our engagement we heard multiple stakeholders clearly state that as we progress to greater cost reflectivity in our network pricing, customer protections need to be in place to protect those customers in vulnerable situations.

The stakeholder group identified 'trigger events' that are proposed to initiate a network tariff change that would cause concern if applied to customer in vulnerable situation. These were:

- advanced meter installation
- customers relocating to existing premises, e.g., moving house
- premises being connected to the distribution network for the first time
- opting-in to a time of use consumption tariff.

Some stakeholders called for a cooling off period to apply to all trigger events, so that any customer could move back onto a flat rate network tariff within a specified time. However, this would greatly delay our customers' ability to realise and receive the benefits identified in the earlier analysis associated with a move to cost reflective pricing.

Other stakeholders questioned whether we could identify specific customers experiencing vulnerability and exclude them from our assignment policy. However, excluding a specific group of customers from tariff reform would remove the ability for these customers to benefit from cost reflective pricing, and identification of such a group of customers would not be possible without additional data.

A compromise approach was reached where stakeholders supported continued network tariff reform with some limitations, specifically an opt-out period, to protect, to protect customers in vulnerable situations. This approach aligns strongly with our pricing principles, to provide fair and equitable pricing that provides a choice in pricing for all customers.

26 Calculations were only done for customers with an advanced meter throughout the entire 2021-22 financial year

27 Prepared using the indicative prices for 2024-25 and the tariff structure for the small business time of use consumption (TAS94) network tariff proposed in section of this paper

The proposal to make our flat rate tariffs obsolete was accepted by most of our stakeholders on the condition it was also accompanied with in-built customer protections, such as an opt-out period to allow for the metering data to be collected and analysed, and a more targeted transition to cost-reflectivity.

22.7.2.6 Network tariffs for abolishment

During the 2019-2024 regulatory control period, the following two network tariffs had been declared obsolete:

- TAS92 – Low voltage residential pay as you go (PAYG) time of use
- TAS101 – Low voltage residential pay as you go (PAYG).

As at 31 October 2022, there is one installation on the TAS92 network tariff, and 14 installations on the TAS101 network tariff (of which four installations have recorded zero consumption over the last 12 months). All installations are currently connected through an accumulation meter.

During the 2023-24 financial year (the final year of the 2019-2024 regulatory control period), TasNetworks will have aligned the network prices of TAS92 to the low voltage residential time of use consumption (TAS93) network tariff, and TAS101 to the low voltage residential general light and power network tariff (TAS31). Once the network tariffs have been aligned, customers will be reassigned to the relevant available network tariff prior to 30 June 2024 resulting in no customers remaining on these obsolete network tariffs. TasNetworks propose that TAS92 and TAS101 are abolished from 1 July 2024.

22.7.2.7 Summary of our proposed network tariff assignment policy

TasNetworks is proposing the following network tariff assignment policy:

- From 1 July 2024, the time of use consumption network tariffs for residential customers (TAS93) and small business customers (TAS94) will be the default network tariff. The residential general light and power (TAS31), small business general light and power (TAS22) and heating and hot water (TAS41) network tariffs will be made obsolete.[28]
- All existing residential and small business customers who, as at 30 June 2024, were assigned to an obsolete network tariff may continue to use those tariffs from 1 July 2024, until such time as there is a trigger event.
- Residential or small business customers that have their **meter upgraded or replaced with an advanced meter** on or after 1 July 2024, will be assigned to the default time of use consumption network tariff 12 months following the date of their meter being exchanged ('trigger date'). Prior to the conclusion of the 12-month period, customers may choose to opt-out of the default network tariff, nominate an alternative cost reflective network tariff or accept the reassignment to the new default network tariff.
- All **new residential and small business connections** on or after 1 July 2024 will be assigned to the default time of use consumption network tariff.
- A residential or small business customer who **voluntarily opt into a time of use consumption network tariff** on or after 1 July 2024 will be unable to revert to any of the obsolete network tariffs.
- Residential and small business **customers who move into established premises** will be assigned to the same network tariff(s) as the previous occupants of those premises. If the previous occupants of the property were assigned to a now obsolete network tariff, the new occupant will be assigned the same network tariff(s) unless they opt to change their network tariff, or have their meter upgraded.
- A residential or small business customers who installs an **electric vehicle fast charger**[29] at their premises will be assigned to TasNetworks' default time of use consumption network tariff.

Table 5 summarises the circumstances in which the 12-month opt-out period will be applied.

28 TasNetworks' low voltage controlled energy off-peak with afternoon boost (TAS61) was made obsolete on 1 July 2019. This network tariff assignment policy will apply to TAS61

29 TasNetworks' recognises the lack of visibility of EV charger installations and this assignment rule will be dependent on customers self-declaring an EV fast charger installation. An EV fast charger refers to a dedicated EV charger i.e., the EV is not charged from a regular household electricity outlet

Table 5. Our proposed default tariff assignment policy for residential and small business customers

Trigger events	Retain current network tariff	Default network tariff	Cost-reflective network tariff	12 month opt-out period
Advanced meter installation		✔		✔
New connection		✔		
Opt into alternative network tariff			✔	
Customer relocation	✔†			
EV fast charger installation		✔	✔	

† Refers to the network tariff(s) applying to the property the customer moves into, rather than the network tariffs applying to the customer's previous abode or business premises.

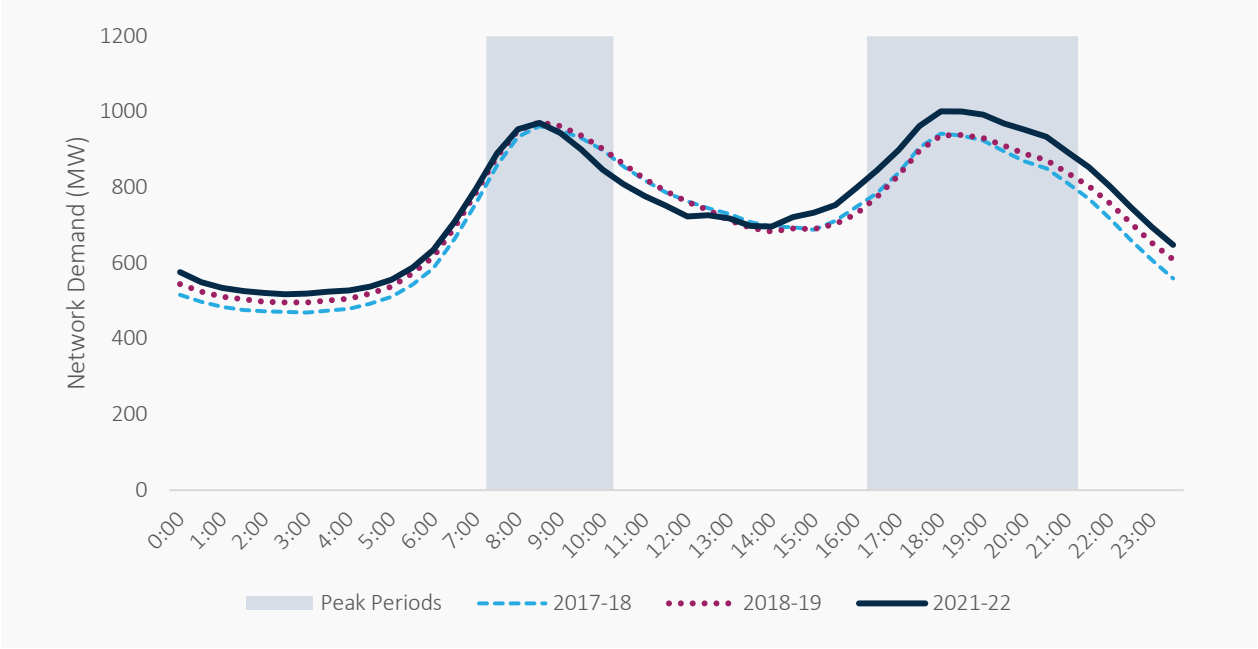
22.7.3 Peak window review

22.7.3.1 Monitoring our peak time of use windows

The main driver of TasNetworks' network peak is residential demand, with businesses also contributing. Historically the network peak usually correlated with cold winter mornings, yet we observe that the network peak became an evening peak for the first time during 2021-22 and exceeded 1,000 MW. This increasing evening peak is most likely a result of the large number of new residential connections – approximately 88 per cent of new connections since 1 July 2019 have been residential connections.

TasNetworks continues to monitor its peak time of use windows to ensure they align with times of local demand and network peaks. Figure 29 shows that the network peaks have not substantially moved between 2018-19 and 2021-22 and our time of use tariffs continue to be well aligned to times of high network utilisation.

Figure 29. Network peak day comparison



TasNetworks assessed the time of use periods for each tariff to ensure they were reflective of the collective load profile of the customers of that network tariff and overall network utilisation.

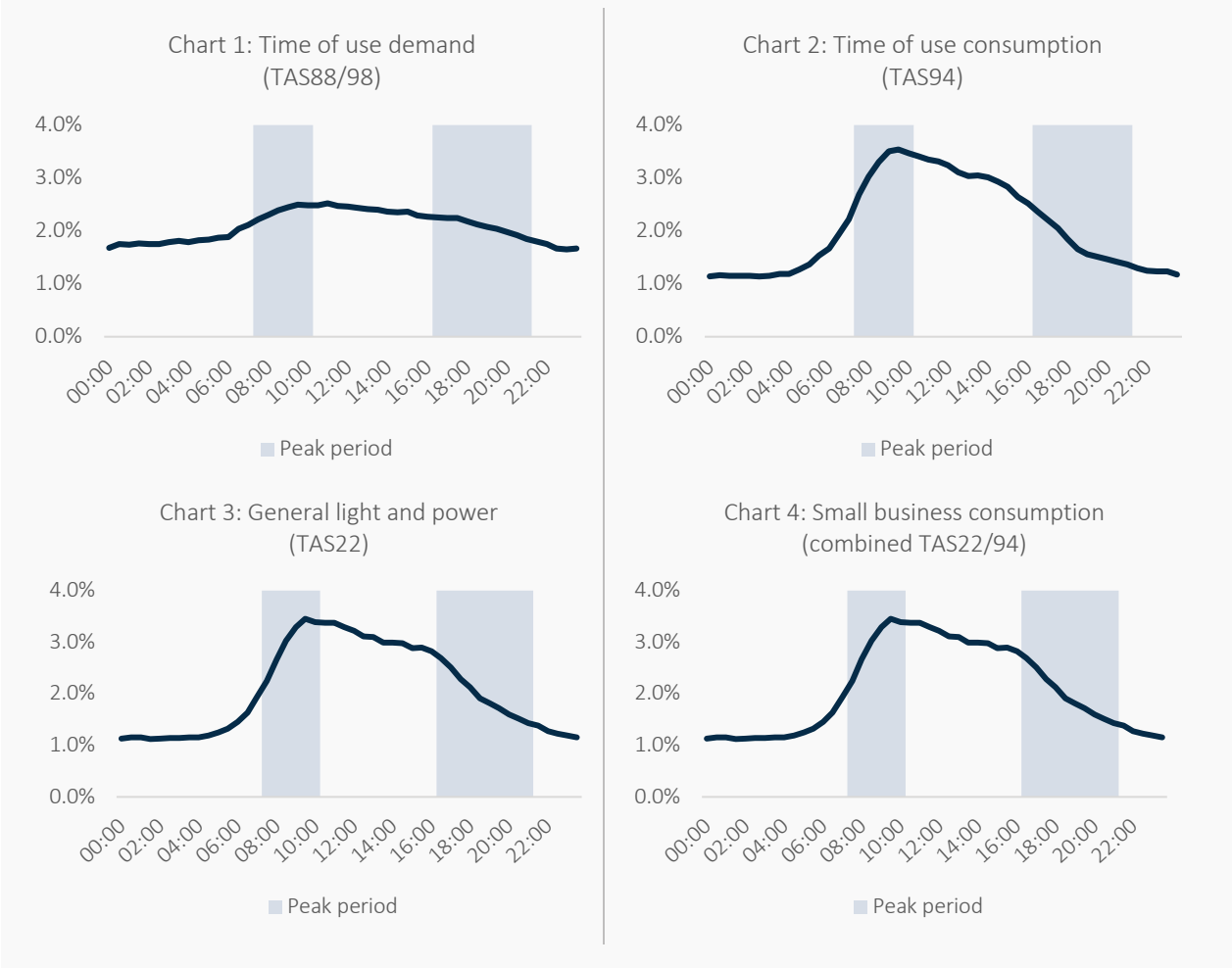
Figure 30 profiles small business customers on the low voltage network. Customers on the time of use demand (TAS88/98) network tariffs have a much flatter profile than the customers on the time of use consumption (TAS94) and the general light and power (TAS22) network tariffs. TasNetworks has also considered the profile of customers on the time of use consumption (TAS94) and the general light and power (TAS22) network tariffs.[30]

30 Analysis has shown that of customers who, during the 2019-2024 regulatory control period, moved from the general light and power network tariff (TAS22), approximately 85 per cent changed to the time of use consumption network tariff (TAS94)

Charts 2-4 in Figure 30 show the profile of customers on the time of use consumption tariff (TAS94) and the general light and power (TAS22) network tariff. The profiles of customers within these tariffs are similar, i.e., they tend to have higher consumption earlier in the day, which starts to decline from 10:00 onwards (the end of the morning peak period).

In collaboration with our stakeholders and given the combined profile of customers (Figure 29) a review of the time of use windows of the small business time of use consumption (TAS94) network tariff was undertaken to determine if it could be better aligned to reflect small business load patterns and times of high network utilisation.

Figure 30. Network utilisation and peak weekday time of use periods for business tariffs



22.7.3.2 Small business time of use peak charging review

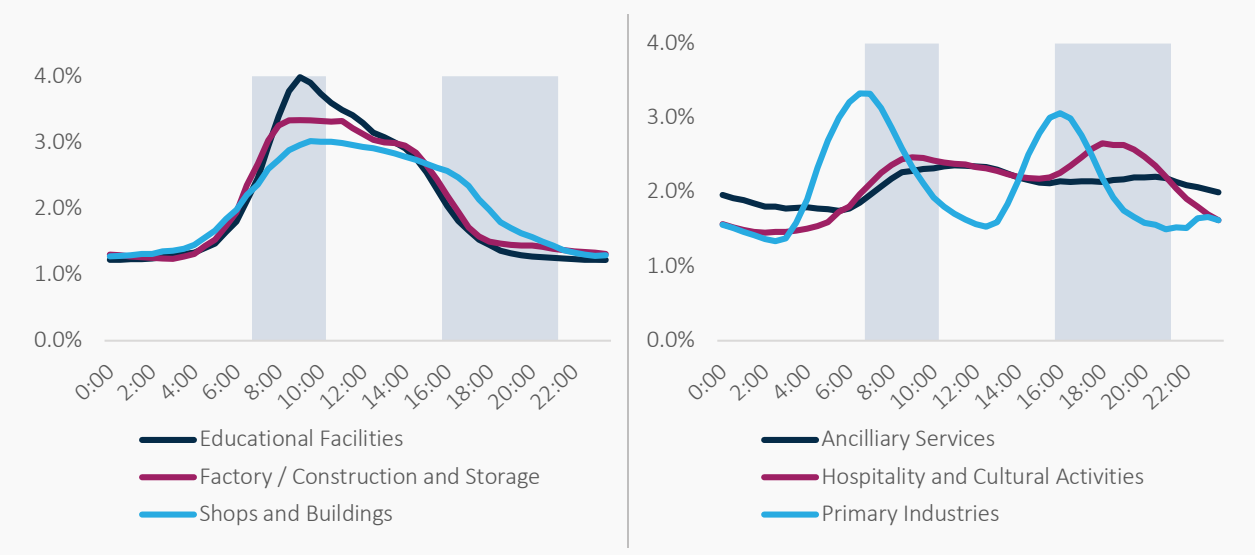
Our network has traditionally seen lower utilisation during the middle of the day, and with increasing solar PV being deployed across the network the opportunity presents to encourage increased day time network utilisation.

Figure 31 shows the load profiles of subsets of customers within the small business time of use consumption (TAS94) and general light and power (TAS22) network tariffs. Educational facilities, factories/construction and storage, and shops and buildings tend to have an early morning peak during the network peak period of 07:00-10:00, however, consumption declines during the middle of the day, with only shops and buildings maintaining close to the peak level of consumption during the late afternoon/early evening.

Conversely, hospitality and cultural activities, and primary industries have either a flatter profile, or have two distinct peaks in demand. Primary industries'[31] peak occurs at the beginning of the network peak. As would be expected, hospitality has higher consumption during the evening peak period, however consumption remains relatively flat from early morning until after lunch.

31 Note: Primary industries in this discussion does not include the irrigation (TAS75) network tariff. Dairy farmers and fish farms are the largest subgroup in primary industries in terms of annual consumption

Figure 31. Low voltage small business profiles



22.7.3.3 Proposed peak periods for the low voltage small business time of use consumption network tariff

In consultation with our stakeholders, it was agreed that the low voltage small business time of use consumption network tariff (TAS94) could be better aligned to the network peaks to further encourage usage during the middle of the day.

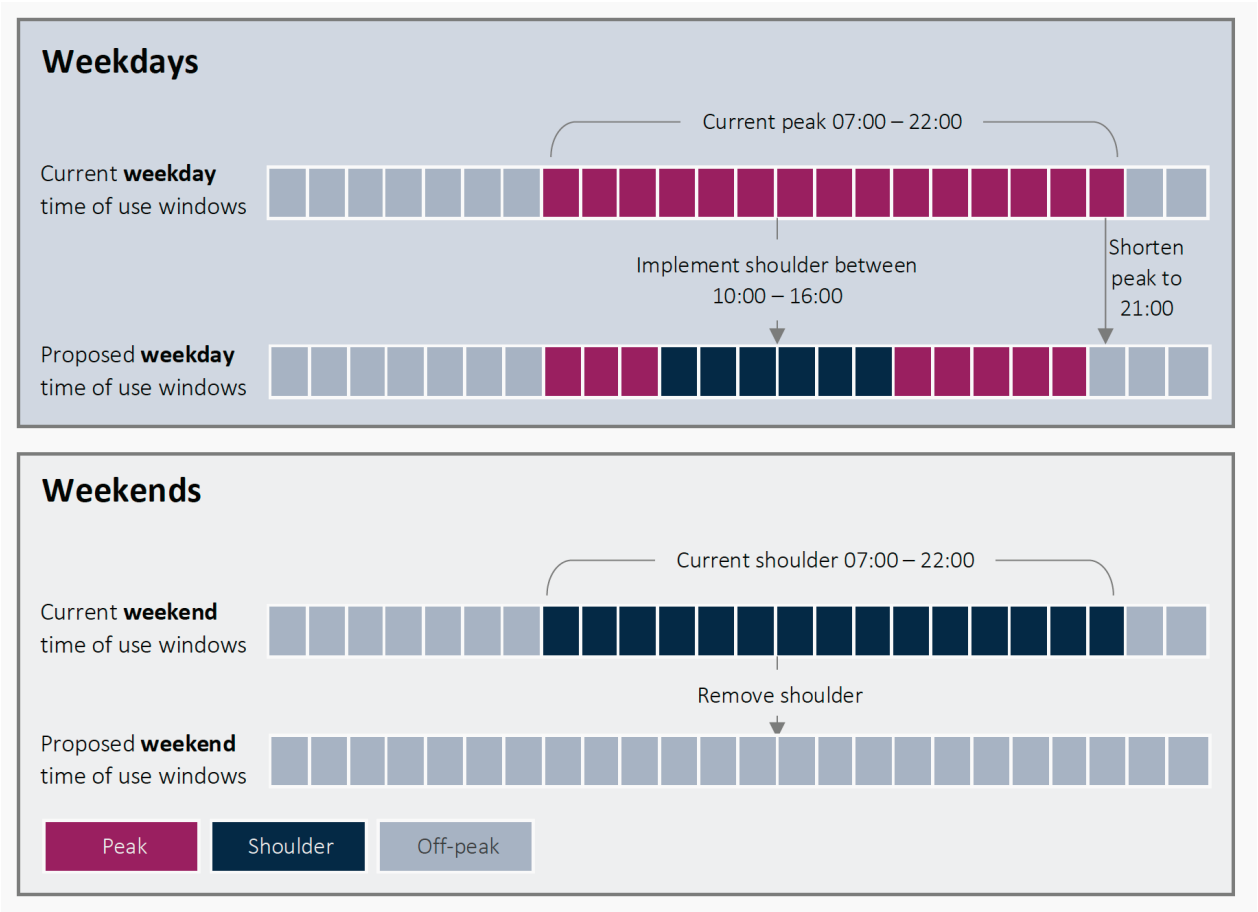
While small businesses contribute to peak demand during the network peak periods on weekdays, over the weekend, overall network utilisation for small businesses is lower than during the week and tends to fluctuate within a small range.

We propose to change the time of use charging windows for the small business time of use consumption network tariff (TAS94) as follows:

- During the weekdays we propose to introduce:
  - a shoulder period between 10:00 and 16:00
  - ensure the peak period reflects the network peaks between 07:00 to 10:00 and 16:00 to 21:00 (note the end of the evening period is earlier, changing from 22:00 to 21:00)
  - all other periods will be off-peak.
- It is proposed that the current shoulder period on the weekends (07:00 to 22:00) be removed. This results in the entire weekend (Saturday and Sunday only) being off-peak.

These proposed time of use periods are intended to provide an incentive to move discretionary loads (including electric vehicle fleet charging) into times of lower network utilisation, while reducing the likelihood of localised midday peaks in areas with a higher proportion of small businesses.

Figure 32. Proposed changes to the low voltage small business time of use consumption network tariff (TAS94)



22.7.3.4 Pricing for the revised small business time of use consumption structure

The revenue to be recovered from the low voltage time of use consumption network tariff (TAS94) needs to reflect the efficient costs of providing this service. Since this tariff is currently recovering (and is forecast to recover) close to 100 per cent of its total efficient cost (**TEC**), the tariff price has been set so that the total revenue recovered under the proposed structure closely aligns to the same revenue under the existing structure.

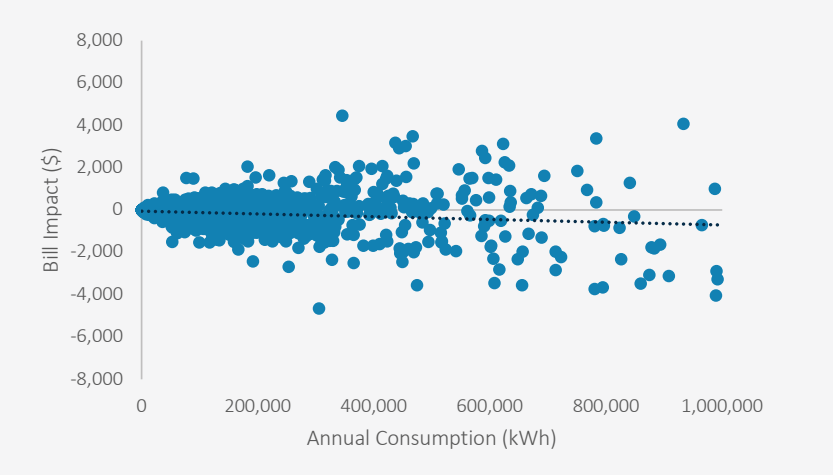
Figure 33 shows the customer impacts from switching the low voltage time of use consumption network tariff to the proposed time of use structure and charges in the 2024-2029 regulatory control period. The proposed charges represent an even increase of the current peak, shoulder and off-peak charges and are likely to reduce the network charges for approx. 76 per cent of our current TAS94 customers.

Figure 33. Customer impact to rebalancing[32]

Even time of use changes

Approximately 76% of current customers' network charges are expected to decrease under the proposed tariff structure in 2024-25 – on average by $108 pa.

Approximately 78% of customers are expected to experience a ±5% variation in their network charges – the majority of these customers is likely to experience a decrease.



32 Prepared using the indicative prices for 2024-25

22.7.4 Residential CER tariff review

22.7.4.1 Tasmania's prosumers and prosumer network tariffs

TasNetworks recognises the "pro" in prosumer as two-fold:

- either relating to production, i.e., a customer has become a producer of energy due to their investment in generation technology such as solar PV
- the proactive participation in the consumption and/or storage of energy through investing in batteries and/or electric vehicles.

In preparation for the anticipated growth in prosumers we are proposing to adjust the current residential CER network tariff to better target the behaviours and needs of our emerging prosumer, and to accommodate the increasing EV charging loads at residential properties in a way that benefits owners and sends a price signal to encourage efficient network utilisation.

During our stakeholder engagement, we discussed the opportunities and impact of increased CER connections to our distribution network. PRWG members considered a range of varying network challenges associated with the increased penetration of these technologies (solar PV, batteries and EVs) recognising that different technology has different challenges associated with it.

Our stakeholders also discussed how TasNetworks can develop a network tariff structure to prepare for the increased take-up of these technologies. As part of this discussion, we sought feedback on the inclusion of additional components to revise the existing CER demand-based network tariff, specifically by changing the tariff to a consumption-based tariff with a demand threshold and altering the time of use windows.

These proposed revisions are to promote the efficient use of the network by better targeting the behaviours and needs of our emerging prosumer customer and in turn, assist to minimise the cost of future investments.

22.7.4.2 Background to the CER network tariff

During the 2019-2024 regulatory control period, we offered a CER network tariff for residential customers (TAS97), which is a time of use demand-based tariff. However, we have learnt, through consistent stakeholder and customer feedback that residential customers have difficultly effectively using demand-based tariffs within a household context. This has resulted in a lack of an associated retail offering and no customers being assigned to the CER network tariff.

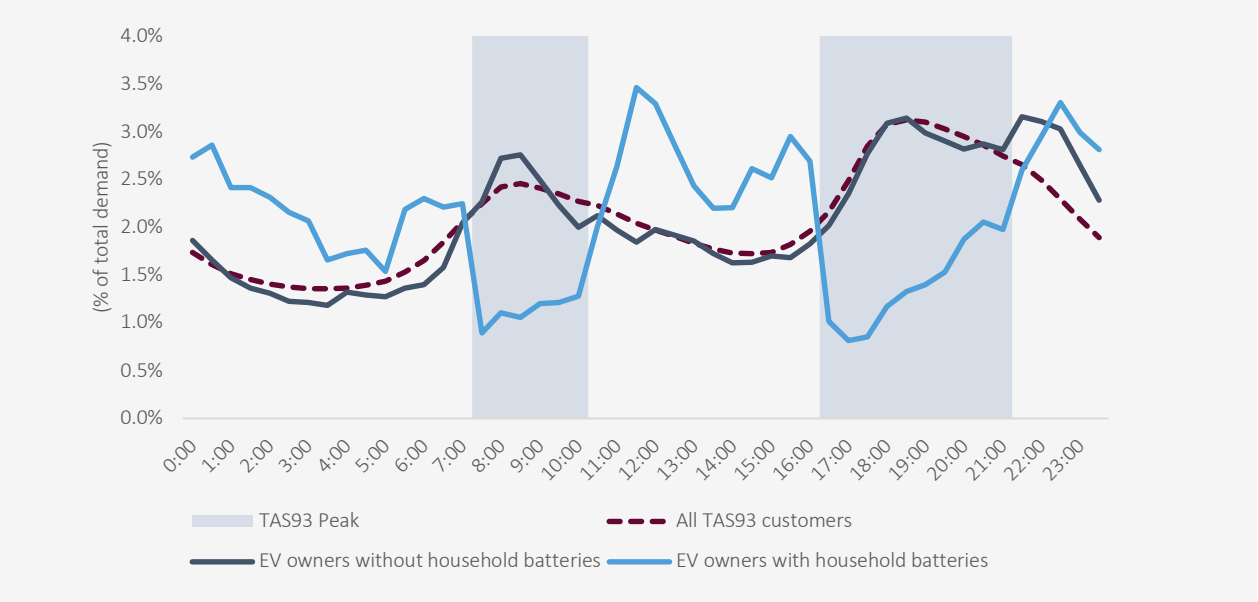
To provide an innovative additional tariff choice for customers, we sought to understand our customers' use of CER technologies, and whether these technologies have changed how customers use the network.

As described in 22.5.4 we undertook a survey to gain a better understanding our customers' views on CER.

The survey provided some important insights into the charging behaviours of EV owners. Whilst most customers stated that they preferred to charge their vehicle when it was convenient, we observed different behaviours from customers depending on their household tariff, for example:

- Customers who were on the combined flat rate tariff (TAS31/41), tended to charge their vehicles in the early evening. This indicates that customers were plugging in their vehicles to charge when they arrived home.
- This compared to customers on the time of use consumption tariff (TAS93), who were able to respond to price signals, and therefore tended to charge during off peak times (Figure 34). We also observed the following:
    - Customers with household batteries were even more responsive to price and demonstrated the ability to significantly reduce their consumption from the network during peak times
    - Customers tended to start charging immediately following the end of the peak period – potentially before peak consumption has significantly declined. Therefore, continuing this behaviour could lead to the evening peak being extended, or hitting a higher peak between 21:00-22:00.

Figure 34. EV charging profiles for customers with and without household batteries on the time of use consumption network tariff (TAS93)



22.7.4.3 Electric Vehicle Trials

To better understand the specific characteristics of CER owners and prosumers, numerous trials are currently conducted across Australia. A large proportion of these trials focusses on EVs, which are projected to add significant loads and pose new challenges to electricity networks in the near to medium future. TasNetworks is closely monitoring the outcomes and findings of these trials, and currently participates in the EV Grid trial to interact more closely with EV owners in Tasmania and to gain additional insights into this emerging customer group. The EV Grid trial is undertaken collectively by DNSPs in Victoria, ACT and Tasmania, and it aims to explore ways in which networks can effectively manage increased EV loads with minimal infrastructure upgrades.[33]

22.7.4.4 Our proposed amended CER tariff

We are proposing an innovative additional choice of network tariff for residential customers, involving revisions to an existing network tariff which have been developed with the growing number of prosumers in mind. The proposed network tariff represents a cost reflective alternative to the default consumption-based time of use network tariff (TAS93) to be made available through retailers, on an opt-in basis.

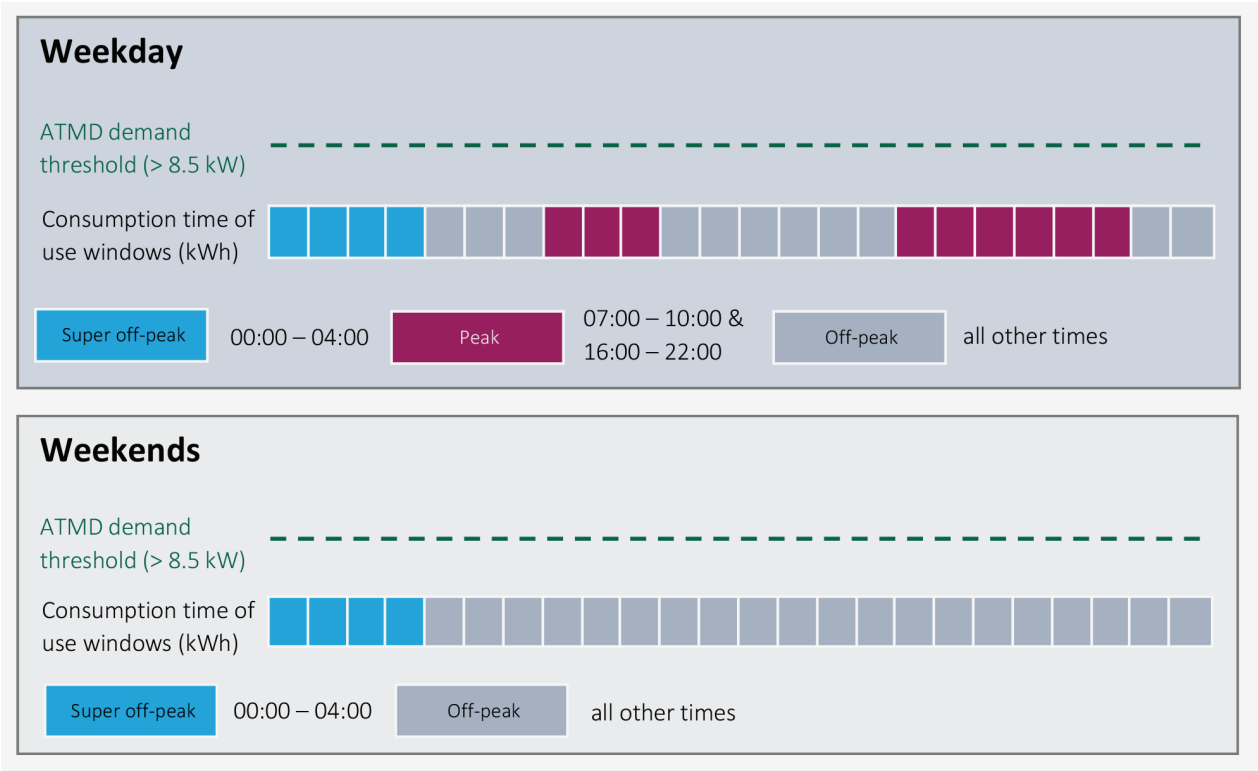
This proposed tariff is primarily a time of use consumption tariff which, from 1 July 2024, will include a new super off-peak period between midnight and 04:00, as well as a demand threshold that rewards customers who are able to keep their peak demand below an anytime maximum demand (**ATMD**) threshold. There are several key components to the proposed tariff:

- a super off-peak period between midnight and 04:00 on both weekends and weekdays
- a morning peak period between 07:00 and 10:00, with an extended evening peak period between 16:00 and 22:00 on weekdays.
- a demand threshold on any day (weekdays and weekends):
  - for any day on which the customer's daily ATMD remains below the demand threshold (i.e., ≤8.5 kW), no demand related charges would be applied
  - for any day on which the customer's daily ATMD exceeds the demand threshold (i.e., >8.5 kW), an excess demand charge would be applied to the difference between the ATMD on that day and the demand threshold.

Figure 35 illustrates the time of use periods applying to the revised network tariff.

33 Electric Vehicle Trial | EV Grid | Australia

Figure 35. Proposed structure of the residential time of use DER tariff (TAS97)



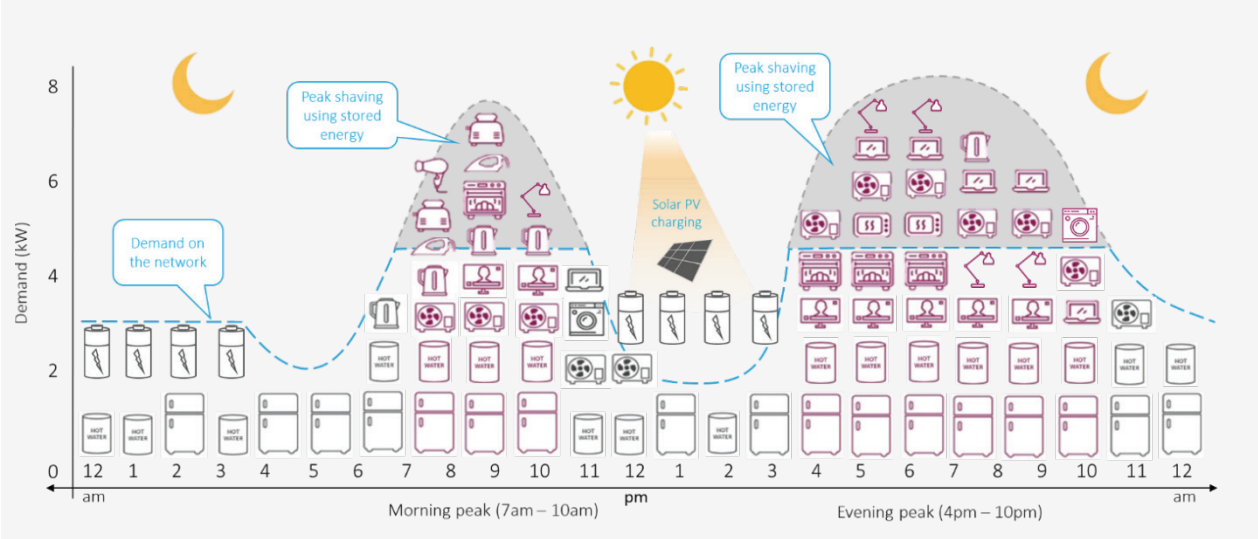
22.7.4.5 Peak shaving and stored energy

One of the purposes of the structure of this tariff is to encourage customers with storage devices to use their stored energy during peak periods, often referred to as "peak shaving", i.e., to reduce the amount of energy purchased from the network during the peak periods.

Customers who take advantage of the off-peak and super off-peak periods will potentially benefit from lower network charges. The reduction in peak demand on the network, or at least the lessening of growth in peak demand, made possible using battery storage with the support of time of use network pricing, means that, in the longer term the overall distribution customer base will benefit from reduced augmentation of the network.

Figure 36 illustrates the potential for customers with battery storage to use stored energy at peak times of the day when the delivered cost of energy on a time of use basis is at its highest, maximising the value of their batteries. The practice of peak shaving has the added benefit of potentially keeping a customer's peak demand below the residential CER network tariff's demand threshold of 8.5 kW.

Figure 36. Peak shaving using stored energy



22.7.4.6 Anytime maximum demand threshold

The ATMD threshold for the residential CER tariff has been set at such a level so as to not penalise the typical utilisation of household appliances, such as heating and hot water requirements even during winter.

Figure 37 shows that around 94 per cent of households' current maximum demand during peak periods is less than or equal to the 8.5 kW demand threshold being proposed as part of the residential CER tariff. This means that for the vast majority of residential customers, if they were to opt-in to the residential CER network tariff, they would not need to modify their current use of electricity in any way to avoid incurring charges for exceeding the demand threshold. Of the small percentage (around 6 per cent) of residential customers that do exceed a maximum demand of 8.5 kW during peak periods, 70 per cent have a maximum demand of no more than 10.5 kW, meaning that that they would incur demand charges based on a difference of 2 kW or less between their metered demand and the residential CER tariff's demand threshold.

Figure 37. Household maximum demand during peak periods

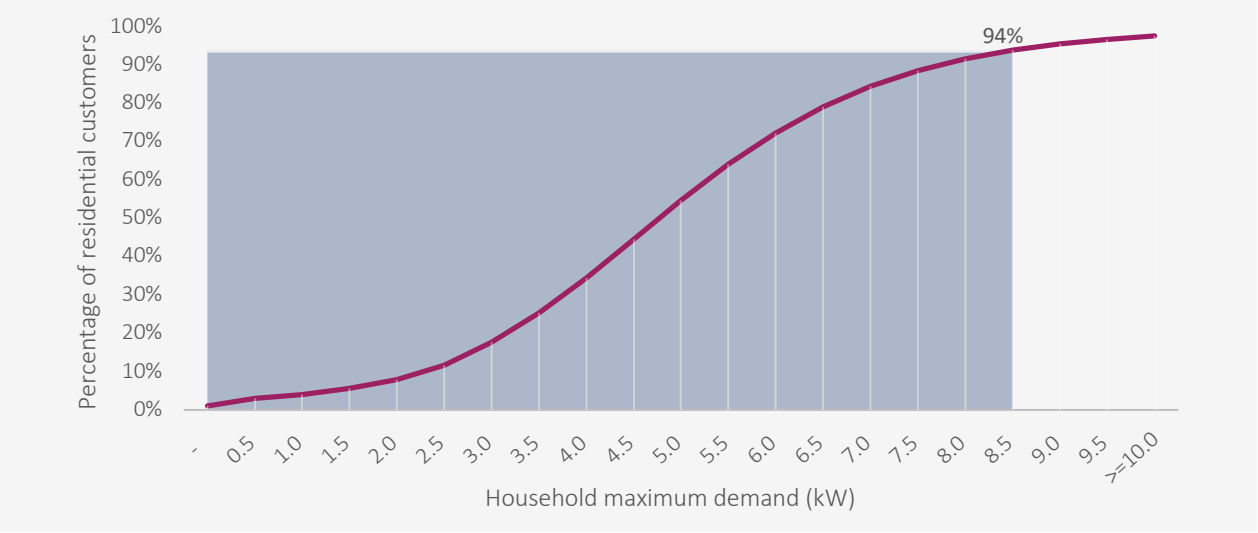
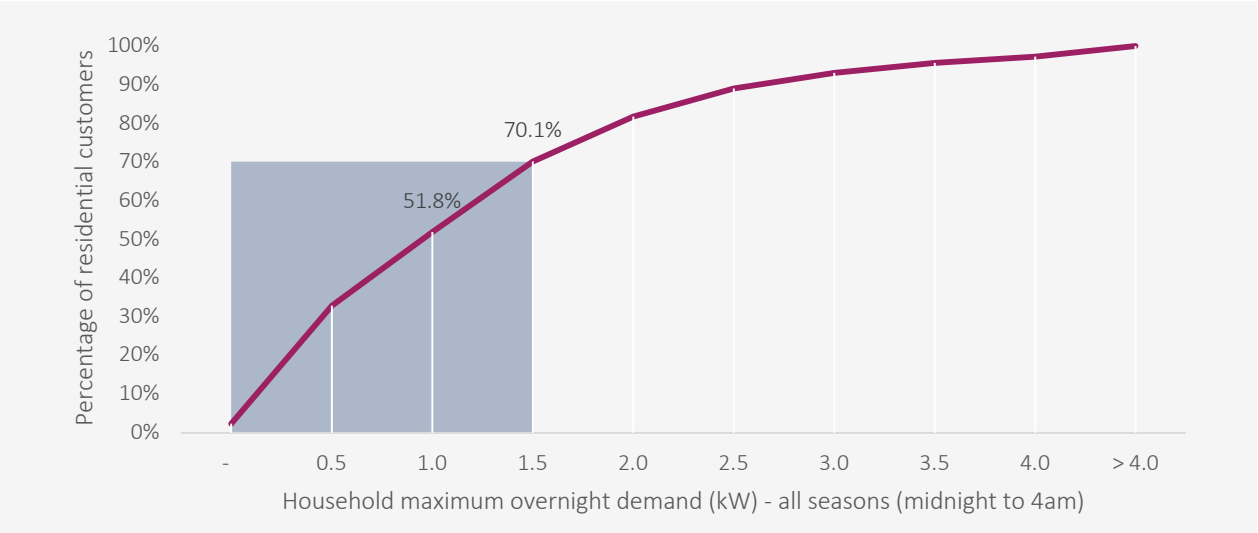


Figure 38 illustrates maximum demand amongst residential customers from midnight to 04:00, which aligns with the proposed super off-peak period timeframe for the residential CER network tariff. The graph shows that just over 50 per cent of households have a maximum demand of 1.0 kW or less between the hours of midnight and 04:00, while approximately 70 per cent of households have a maximum demand of 1.5 kW or less during the same period. This suggests that most residential customers could charge an EV using a 7.2 kW Level 2 charger during the proposed super off-peak period without exceeding the residential CER tariff's demand threshold or having to modify their use of electricity to keep demand under the threshold.

Figure 38. Overnight maximum household demand (kW)



The 8.5 kW ATMD threshold should provide sufficient 'headroom' overnight, when household energy use is usually at its lowest, to charge an EV during off-peak and super off-peak periods using a 7.0 – 7.5 kW charging station without exceeding the threshold. At that rate, four hours of charging during the super off-peak period alone should provide sufficient charge to cater for most customers' regular weekday usage. Plus, a further five hours of off-peak period charging is available between 22:00 and 07:00 the next day to add additional charge if greater range is going to be required in coming days, all without charging the EV during the more expensive peak periods.

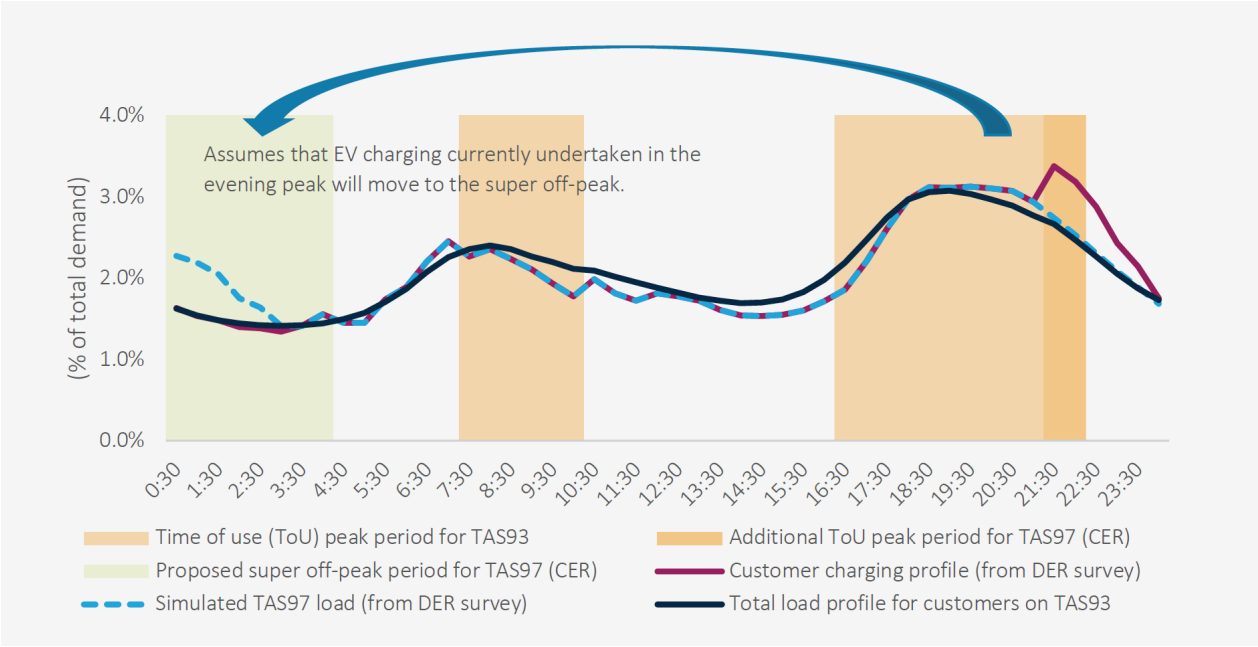
It is important to note that if the ATMD threshold is exceeded, the demand charges that are applied to the difference between the customer's actual maximum demand and the threshold (the excess demand) are not intended to be punitive. As is the case with the higher network charges applied to energy consumed during peak periods on the network, the pricing applied to a customer's excess demand is merely intended to provide a cost reflective pricing signal to customers, that their usage of electricity is imposing greater demands and, therefore, additional costs on the network

22.7.4.7 Customer Impacts

EV ownership information is not captured by TasNetworks. Our customer impact analysis of the proposed CER tariff is based on information where EV owners have been identified through specific trials or surveys, including the DER survey mentioned in section 22.5.4, the *ARENA EV Grid Trial*[34] in which TasNetworks is a participant (as outlined in section 22.7.4.3), and by reviewing the experiences of the impact of EV load in the UK.

Our customer impact analysis uses the load profile from customers on the residential time of use consumption network tariff (TAS93) and assumes that customers who take up the proposed CER tariff will respond to the price signals by shifting their EV loads from the evening peak period into the midnight to 4am super off-peak window (Figure 39).[35]

Figure 39. Electric Vehicle Owner Load Patterns (TAS93)



Additional EV charging scenarios were considered to ensure a wider range of potential customer impacts, were considered (Figure 40):

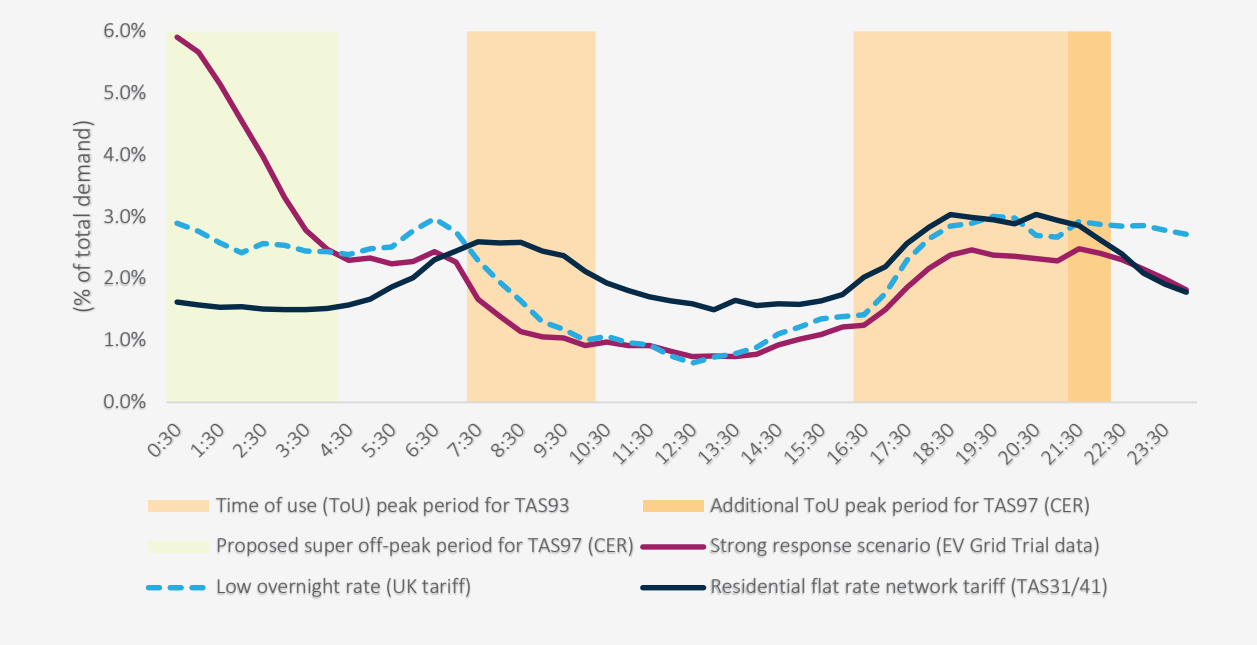
- Tasmanian customers participating in the A*RENA EV Grid Trial* has provided new insights into customers' charging usage. This data was used to develop a **strong response scenario**, where all EV charging is moved to the proposed super off-peak window (between midnight and 4am), i.e., this assumes that almost the entire EV charging load is moved into the proposed super off-peak period

34 Jemena Dynamic Electric Vehicle Charging Trial – Australian Renewable Energy Agency (ARENA)

35 This modelling assumes that only the excess consumption in the peak period moves to the super off-peak period

- TasNetworks has used the profiles of EV owners who participated in an **EV charging trial in the UK**. This scenario was selected due to similarly low overnight rates being offered.[36] It was interesting to observe that the overnight charging peak as a proportion of total demand was not as significant as TasNetworks' model for the strong response
- It is expected that the load profile for EV owners assigned to the **residential flat rate tariffs** (TAS31/41) are unlikely to see significant changes to when they use energy. It is expected that we will see 'convenience charging' of EVs to continue during the evening peak (as discussed in section 22.6.4.2).

Figure 40. Additional Electric Vehicle Owner Profiles



Initial customer impact analysis indicates that customers who switch from either the flat rate network tariff (TAS31/41) or the residential time of use consumption network tariff (TAS93) could make savings by:

- switching to the time of use CER network tariff (TAS97)
- changing their usage patterns by predominantly charging their EV between midnight and 4am.

A strong tariff response i.e., only charging your EV between midnight and 4am, could yield potential savings of up to 15%. Savings of up to 7 per cent could be made by customers on the residential time of use consumption network tariff (TAS93) and flat rate network tariffs (TAS31/41).

22.7.4.8 Use cases

Electric vehicles

Respondents to our DER Customer Survey[37], both EV owners and non-EV owners, stated that they would predominantly charge electric vehicles at home – mostly overnight. This is consistent with the EV ownership experience which is emerging in other parts of Australia and overseas. However, it is noted that new EV owners tend to 'top-up' their battery more frequently than more experienced EV customers, possibly due to higher levels of range anxiety.

The rate at which an EV can be charged in a residential setting, and the level of demand that charging a vehicle will place on the network, is determined by a combination of factors, including the customer's connection characteristics (single or three phase), the plugs and chargers installed in their home, the size of the vehicle's battery and state of charge, as well as the maximum charge rates of the vehicle and the charger. Ambient temperatures also play a part in determining how much charge and, therefore, range, can be added to an EV over a given period. Table 6 provides an indicative guide to the time it might take to add 60 kWh of energy to an EV's battery pack using a variety of charging technologies which are available for use in residential settings, ranging from a 230 volt general power outlet to a 22 kW Level 2 charger.

36 The utilised tariff structure offered low overnight rates between 10pm and 6am, but had a higher super off-peak to peak ratio than the proposed TAS97 tariff structure: Electric Nation Trial – UK

37 TasNetworks DER Customer Survey

Table 6. Types and levels of EV charging[38,39]

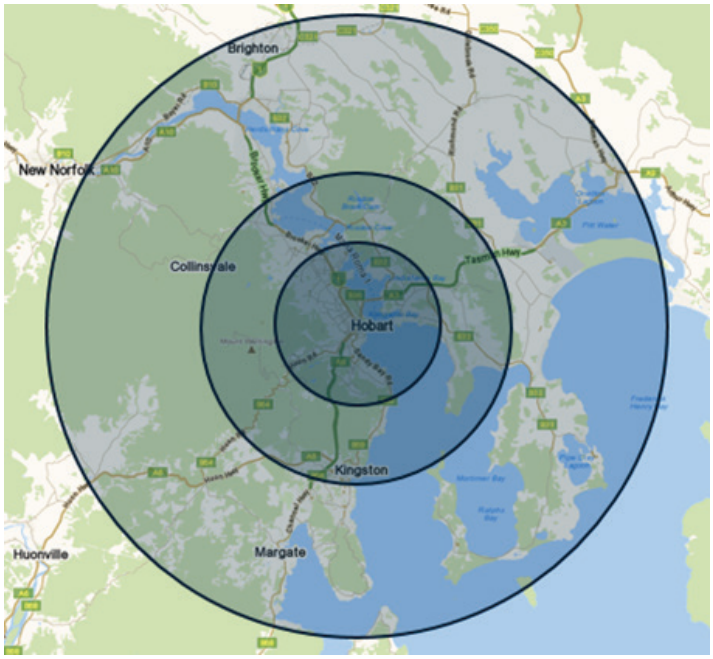
Type of EV chargers	Level 1 "Regular electricity outlet"		Level 2 "Dedicated home EV charging point"		
EV charging plugs (AC only)	230-volt AC up to 10A 2.3kW (single phase)	230-volt AC up to 15A 3.5kW (single phase)	230-volt AC up to 32A 7.2kW (single phase)	400-volt AC up to 16A 11kW (3 phase)	400-volt AC up to 32A 22kW (3 phase)
Time to charge 60 kWh battery	26-34 hours	16 hours	8 hours	6 hours	3 hours

The distance an EV can travel on any given charge depends on a range of factors. As a result, the distance an EV might be able to travel using the charge illustrated in the above table might vary from approximately 230 km for an EV that uses 26 kWh per 100 km to 375 km for an EV that uses 16 kWh per 100 km.

While much is made of range anxiety and the maximum range of different EV models, the reality for many people is that they infrequently travel distances approaching their vehicle's maximum range. Regular travel by private vehicle is likely to be limited to commuting and some incidental journeys.

Amongst Australian states and territories, Tasmania has a relatively disaggregated population and travel distances vary across the state. However, the majority of the population (approximately 70 per cent[40]) reside in urban areas. The following maps show examples of population centres in Tasmania and illustrate the sort of distances that commuters might travel in a day.

Hobart and surrounds



The inner suburbs of Hobart (represented by the inner circle) involve commutes of up to 10 km each way into central Hobart, and encompass suburbs like Glenorchy, Mt. Nelson and Lindisfarne.

The outer suburbs involve commutes of up to 15 km, one-way, into central Hobart, a distance which takes in areas like Austins Ferry, Kingston, Cambridge and the Hobart Airport.

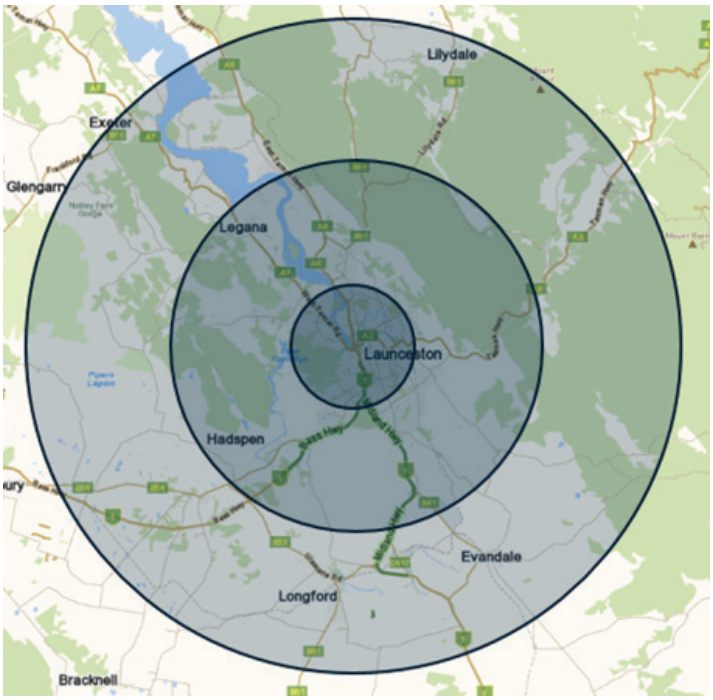
A number of 'dormitory' suburbs and towns in the greater Hobart area involve commutes of between 25-35 km, one-way, to reach central Hobart. This includes towns like Sorell, New Norfolk and Brighton.

38 EGen Electrical EV charging guide

39 Electric Vehicle Council

40 ABS Population Estimates (2017)

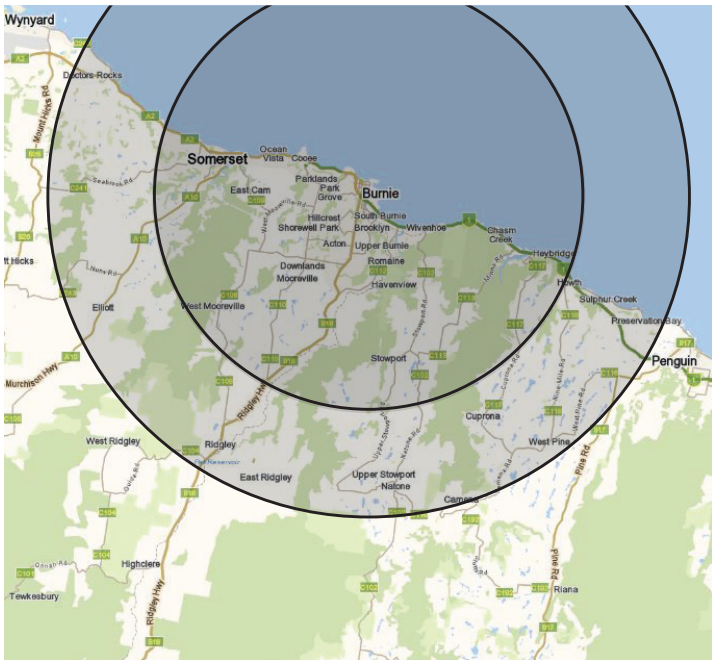
Launceston and surrounds



Launceston's inner suburbs (the inner circle) within 10-15 km of the city centre include the suburbs of Prospect Vale, Kings Meadows, Rocherlea and Riverside.

Launceston's surrounds, including the towns of Legana and Hadspen, are less than 25 km from the Launceston centre, with larger commutes of between 25 and 35 km including locations suchs as Evandale, Longford and Exeter.

Burnie and surrounds



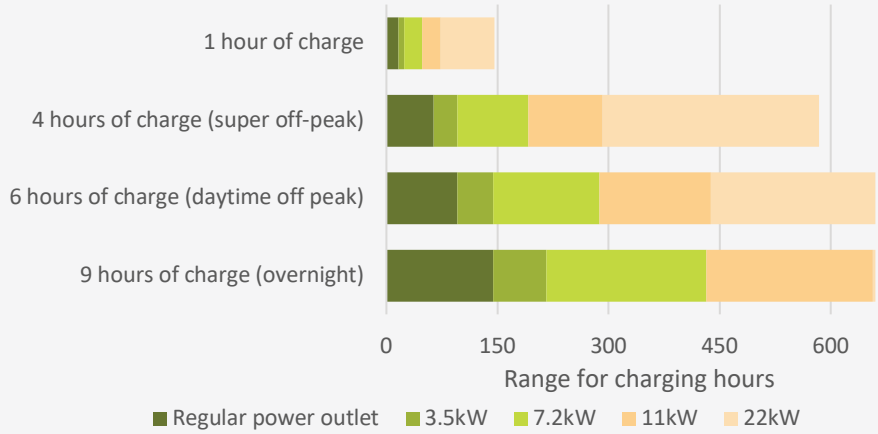
The City of Burnie occupies an area that can be described within a 10 km arc of the city's central business district. The communities of Cooee, Somerset, Stowport and Heybridge all fall within a 10 km radius of Burnie's centre.

Commutes of up to 15 km, one-way, would add the townships of Ridgley and Natone, with Penguin and Wynyard falling just outside a 15 km zone from Burnie's centre.

Devonport, the other city on the North West Coast is around 40 km from Burnie. For an EV which uses 18 kWh per 100 km, without making allowances for terrain etc., a round trip of 80 km between the two cities would consume in the order of 14-15 kWh, or about the amount of energy that a 7 kW Level 2 home charging station could add to an EV battery in about two hours.

It is acknowledged that some commuters will travel greater distances, in some instances over 100 km (return) a day.[41] Figure 41 shows that over four hours of charging at home using a 7 kW charger, a typical EV can add sufficient charge to its batteries to travel approximately 180 km (or approximately 45 km of range per hour of charging). On this basis, the four hour super off-peak period which is to be a feature of the revised residential CER network tariff should afford the vast majority of EV owners with sufficient access to a lower delivered cost of energy to charge their vehicles enough to cater for everyday use and even, with some planning, journeys that require the battery to be fully charged.

Figure 41. Estimated EV range for weekday off-peak or super off-peak charging[42]



Household batteries

Aside from encouraging customers with EVs to charge their vehicles overnight during the off-peak and super off-peak periods the residential CER network tariff has also been designed to maximise the financial benefits for prosumers who invest in battery storage and solar panels.

The time of use windows that apply to the residential CER network tariff help make it possible for prosumers to charge and discharge (or 'cycle') their batteries at least twice a day. If a prosumer with battery storage only does solar charging, their battery will cycle at most only once per day. Cycling a battery more than once a day by also drawing on the network for recharging can potentially reduce a customer's energy bills and shorten the payback period for their batteries, while at the same time reducing load on the network at peak times.

Prosumers assigned to the residential CER network tariff with appropriately sized solar panels and batteries will be able to:

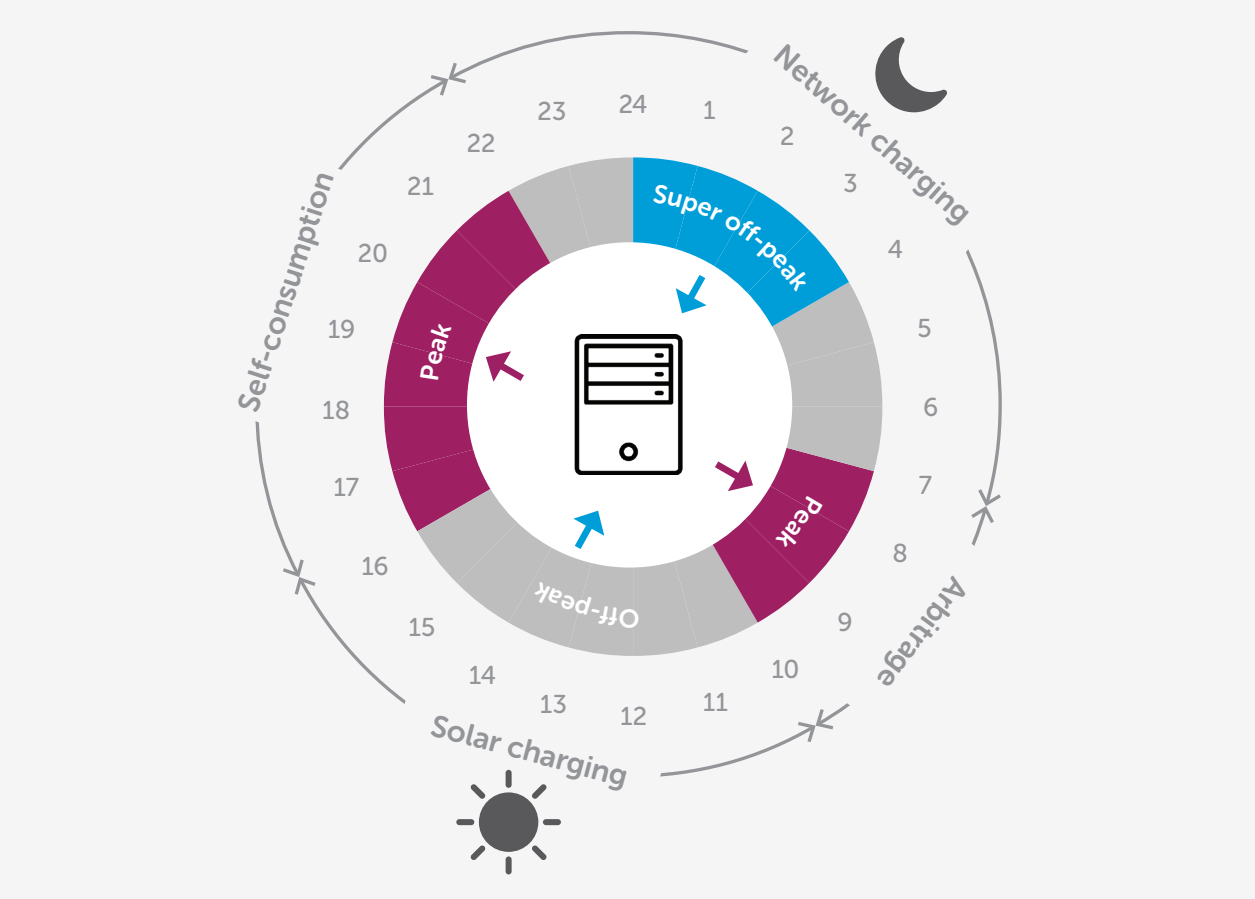
- charge their battery overnight during the super off-peak period (and the off-peak periods on either side of the super off-peak period, if necessary)
- discharge energy from the battery during the morning peak period
- recharge the battery using power generated by their solar panels during the day; and then
- discharge the battery again during the evening peak period, before repeating the same cycle the next day.

The following diagram (Figure 42) illustrates the interaction between the residential CER network tariff and the use of battery storage (and solar panels) to maximise the savings available to customers from time of use network pricing.

41 Examples of commutes greater than 100km per day include Deloraine to Launceston or Bushy Park to Hobart

42 How much will it cost to install an EV charger at home? Note: These times are estimates only and are not manufacturer endorsed. They assume a 15kWh/100km efficiency

Figure 42. Cycling battery storage using the residential time of use CER network tariff (TAS97)



Using the battery, solar panels and network in this way potentially delivers value for the customer by:

- **Maximising the value of the energy generated during the day**

  The energy produced using a customer's solar panels during the daytime off peak period can be stored for self-consumption during the subsequent afternoon/evening peak, when electricity prices are at their highest – and significantly higher than the feed-in tariff that could be earned by the customer if they exported the energy they produce for use by others.

- **Minimising the cost of energy taken from the grid to charge the battery**

  By recharging the battery overnight, when the delivered cost of energy is at its lowest, the customer can effectively buy electricity at off-peak rates, store it in a battery and then consume that energy during the subsequent peak period, saving themselves the difference between the peak and off-peak retail electricity prices.

Taking advantage of the differences in electricity prices that occur at different times of the day in this manner is a form of 'arbitrage'. For a residential customer on a time of use retail tariff, assuming a differential between peak and off-peak periods of around 13 cents per kWh,[43] if a customer with a 10 kWh battery were to fully charge their battery during the overnight off-peak period and discharge the battery completely during the subsequent morning peak period, without allowing for any efficiency losses, they would theoretically save $1.30 each day, or potentially around $474.50 a year.

If that same storage capacity were able to be recharged using solar panels during the course of the day, and the stored energy used during the subsequent evening peak, based on current peak retail pricing, the customer could conceivably save a further $3.46 each day, or just over $1,262 during the course of a year.[44] Using the common rule of thumb that one kW of solar panels will produce around four kilowatt hours of electricity per day, in theory an array of only 3 kW in capacity might be sufficient to charge a 10 kWh battery.

43 As per indicative 2024-25 pricing

44 As per indicative 2024-25 pricing

While in practice the actual results achieved may be something less than the above estimates, the use of the network to charge storage devices, rather than solely relying on solar panels, has the potential to unlock greater value from customers' investment in CER.

Energy can also potentially be discharged from the battery to keep a customer's demand below the 8.5 kW threshold applying to the residential CER network tariff, above which the customer would incur demand charges – or at least minimise any above-threshold demand if the customer is using an energy intensive appliance such as a level 2 home charger for an EV that draws more than 8.5 kW.

Why not a time of use demand tariff?

TasNetworks introduced time of use demand tariffs on an opt-in basis for both residential and small business customers in 2017, but to date neither tariff has been incorporated by retailers into their retail tariffs. Those demand-based network tariffs will continue to be available in the 2024-2029 regulatory period. However, our expectation is that the primarily consumption-based CER tariff for residential customers being proposed for the 2024-2029 regulatory control period will offer benefits for customers with CER that will make the tariff more appealing to retailers and customers alike than current demand tariffs.

The economic case for introducing demand charges in residential network tariffs is well documented. Well-designed demand tariffs are considered by many economists and experts involved in the economic regulation of electricity networks to better reflect the demands that individual customers place on networks, and to allocate costs more equitably between customers than consumption tariffs. However, the concept of demand is arguably a more difficult concept for most residential customers to understand than consumption.

Time of use demand tariffs are a concept that many residential customers have difficulty understanding – even those that might be more engaged with managing their energy usage and generation. Concluding in mid-2019, our *emPOWERing You* trial tested residential customer's responsiveness to a time of use demand-based network tariff and showed that participants found it easier to reduce consumption than to implement measures specifically aimed at reducing demand.

On an interval (time of use) basis there is also a direct link between consumption and demand, meaning that the pricing signals provided by a time of use consumption tariff are a good proxy for demand-based time of use pricing. Amongst *emPOWERing You* participants there was a strong correlation between consumption and demand. For example, for the majority (73 per cent) of participants the direction of the change in their maximum demand recorded during winter aligned with changes in their consumption.

In practice, network tariffs are required to strike a balance between cost-reflectivity and a range of competing tensions, such as equity, simplicity and technological neutrality. This can mean some design elements that might increase cost reflectivity may not be practical or be supported by customers.

The correlation between changes in consumption and demand suggests that if customers are willing and have the capacity to respond to time of use pricing signals, rather than relying on demand-based time of use tariff, changes in network peak demand could be achieved using a consumption-based time of use tariff, which has the advantage of being better understood by customers.

Why not a controlled load tariff?

Many Tasmanians are familiar with the concept of a controlled load tariff – if not the terminology – through their exposure to the off-peak tariffs which have been available to Tasmanians for many decades. The defining characteristics of controlled load tariffs are that electricity is only supplied for a specific end-use (e.g., hot-water heating and (storage) space heating) and for a limited number of hours each day, usually at a lower price than electricity supplied at other times of the day. Controlling load typically requires dedicated circuits in the customer's premises that are separately metered.

Traditionally, electricity distributors have been responsible for electing which hours electricity is supplied under controlled load arrangements as a means of limiting peak demand on the network. In the past, time clocks were used to control load on a set and forget basis, although other techniques exist and advanced meters now potentially make dynamic control of load possible.

In theory, a controlled load network tariff could be used to allow EV owners to connect a charging station in their home's garage to their meter box, via a dedicated circuit, giving access to a lower delivered cost of electricity for charging EVs at times that don't add to peak demand on the network. TasNetworks does not, however, consider that a controlled load tariff for EV charging represents a better solution than uncontrolled time of use network tariffs.

The use of controlled load arrangements and their reliance on separate circuits and metering may result in additional costs for the customer, including increased charger installation costs and additional supply charges and metering costs.

Controlled load tariffs also prevent customers from using energy at certain times of the day. This means customers may not be able to charge their EVs at times that suit them more than the charging periods offered under a controlled load arrangement or to charge their vehicle for unplanned or urgent trips.

Smart charging technology is increasingly putting load control into the hands of the customer, making it easier to respond to time of use pricing. Some EVs also feature on-board charging timers, which can be set to charge (or not) at various times, with those settings even able to be made location specific.

Lastly, because the time of use network tariff for residential customers with CER will apply to all the electricity a household consumes, rather than just the electricity supplied to a particular circuit and end use, customers will be able to take advantage of features such as the super off-peak period to do things other than charge an EV, like charge stationary batteries or power energy intensive appliances.

22.7.5 Embedded network tariff

22.7.5.1 Background

TasNetworks proposed two embedded network tariffs for the previous regulatory control period (2019-2024). The AER did not accept our proposal at the time, but provided critical guidance regarding how the case for these tariffs can be made by:[45]

- clarifying how any proposed embedded network tariff must be more cost-reflective than existing network pricing arrangements and lead to a more equitable contribution towards the cost of the distribution network
- explaining how the price levels for the embedded network tariffs are quantified as well as information on existing embedded networks currently operating on the network
- explaining the relative costs for embedded networks to provide network services with regard to density of consumption and diversified use when compared to the average customer for which embedded network customers are currently referenced to
- showing that differences in network pricing across tariff classes are incentivising the creation of embedded networks
- substantiating how the existence of any such incentive is not in the long-term interests of consumers.

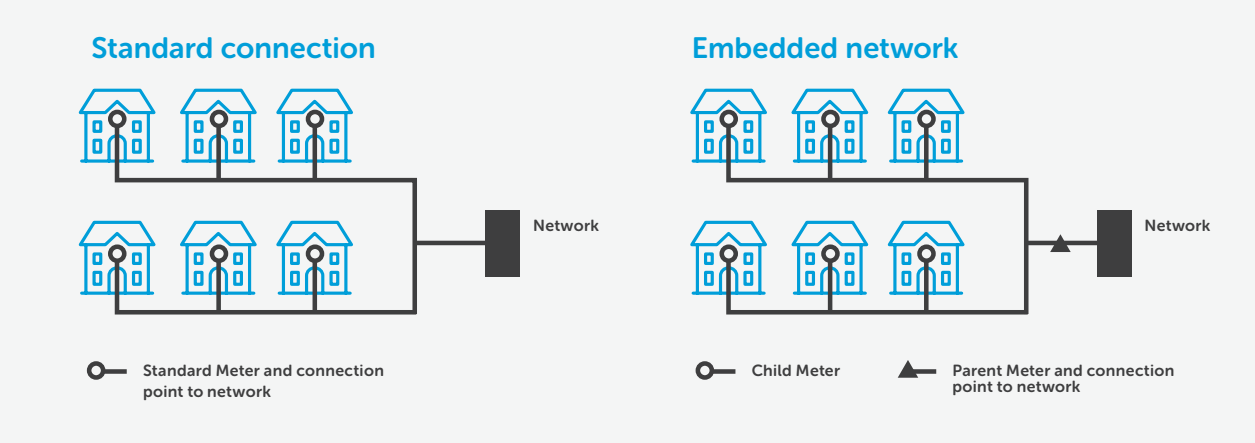
22.7.5.2 What is an embedded network?

Embedded networks are private networks that serve multiple premises located on the same property connected to the distribution network through a single connection point. The electricity that flows through this point is purchased by the embedded network operator and on-sold to its customers.

Common examples of embedded networks include shopping centres, retirement villages, apartment complexes and caravan parks. In the case of a shopping centre set up as an embedded network, the shopping centre owner or managing agent might be the embedded network operator and the individual shops within the shopping centre the members (or customers) of the embedded network. The customers of an embedded network are not customers of TasNetworks and neither their metering data nor any information relating to their metering identifiers is visible to TasNetworks.

Figure 43 shows how embedded networks differ from standard customer connections.

Figure 43. Comparison of an embedded network connection and a standard network connection



45 TasNetworks – Determination 2019-2024 | Australian Energy Regulator

The key differences are:

- an embedded network is supplied through a single connection "parent meter"
- TasNetworks does not know the connection arrangements beyond the parent meter
- all electricity that flows through the parent meter is purchased by the embedded network operator and on-sold to its customers within the embedded network.

Whilst embedded networks may be less common in Tasmania than interstate, in recent years TasNetworks has observed an increase in the level of interest from property owners and property developers in the use of embedded networks. Many of those enquiries have been from businesses in other states that specialise in embedded network management.

TasNetworks has identified the risk that, without a specifically designed network tariff, the operators of embedded networks (and, indirectly, the members of their embedded networks) may avoid making an equitable contribution towards the cost of the distribution network, resulting in these costs being borne by other customers. Dedicated embedded network tariffs could be used to ensure that equity outcomes are protected for all customers, while still offering embedded network owners and their customers the scope to reduce their network charges overall, by virtue of sharing a connection with the distribution network.

22.7.5.3 Rule requirements for embedded networks

Under the National Energy Law (**NEL**), the on-selling of electricity within an embedded network requires both an authorised retailer and network manager. For many smaller embedded networks, the full requirements of being an authorised retailer and network manager would be too onerous. Thus the AER has established a simplified authorisation process, with some owners of embedded networks having deemed exemptions from the need to register as a retailer or NSP. Gaining such an exemption does not release the embedded network manager/operator from all obligations with some customer protections remaining.

Managers of larger embedded networks must be accredited and registered with the AEMO and need to comply with a range of regulatory obligations and standards.

Since December 2017, customers within embedded networks in the NEM have been able to choose their electricity retailer in the same way as a customer connected to the grid.

However, in Tasmania the changes were not enacted meaning embedded network managers were not required to allow all its customers a choice in retailer. This has resulted in a different situation to that on the mainland such that in Tasmania embedded network managers of, for example, caravan parks and office blocks have no obligation to gain retailer authorisation and customers within these embedded networks have no choice in their retailer. The requirements to register as a network service provider or gain an exemption from the AER were enacted in Tasmania.

The fact that the changes to the NEM were not enacted does not prevent embedded network managers from registering and allowing its customers to choose their own retailer; it is just optional in Tasmania.

This has resulted in very few embedded networks being officially recorded on the AER register due to the different approach to retailer and network management. However, TasNetworks is aware there are a number of embedded networks operating within Tasmania and a number of configurations whose physical connection resemble an embedded network.

As a result, there have been limited opportunities to obtain data on known embedded networks. However, we were able to use a proposed commercial embedded network for a shopping centre, plus create synthesised embedded networks based on the likelihood of certain embedded network structures, such as, retirement villages, shopping centres, and apartment buildings to investigate the options for an embedded network tariff.

22.7.5.4 Achieving equitable pricing outcomes

Central to our engagement with stakeholders, was a discussion on whether an embedded network was equitable under our current tariff suite.

The pricing principles for distribution networks are outlined in the Rules, which would require an embedded network to:

- allow TasNetworks to fully recover the efficient costs it determines are associated with providing the standard control service to the embedded network
- ensure that standard control service revenue recovered from other customers is lower than would be otherwise be the case due to the introduction of the embedded network tariff
- minimise potential adverse bill impacts on customers within new embedded networks that are subject to the embedded network tariff, primarily by ensuring that customers with similar consumption profiles within and outside the embedded network are paying similar distribution charges
- incentivise the embedded network to consume electricity in a manner that minimises future network costs.

In addition to the pricing principles in the Rules, TasNetworks needs to ensure that embedded networks align to TasNetworks' pricing principles (section 22.5.1.1).

Figure 44 and Figure 45 summarise the tariff comparisons we undertook for potential embedded network connections, using the data sources described in section 22.7.5.3. The undertaken analysis highlights that our current network tariff suite creates considerable incentives for embedded networks to be formed from groups of geographically close individual network users to decrease the distribution network charge to the embedded network operator.[46] These incentives arise from the embedded network operator's opportunity to abate both the variable costs and the daily fixed charges that are usually paid by every metered customer by reducing the number of metered customers to one.

Figure 44. Abated costs for existing network users when mixed residential embedded networks are formed

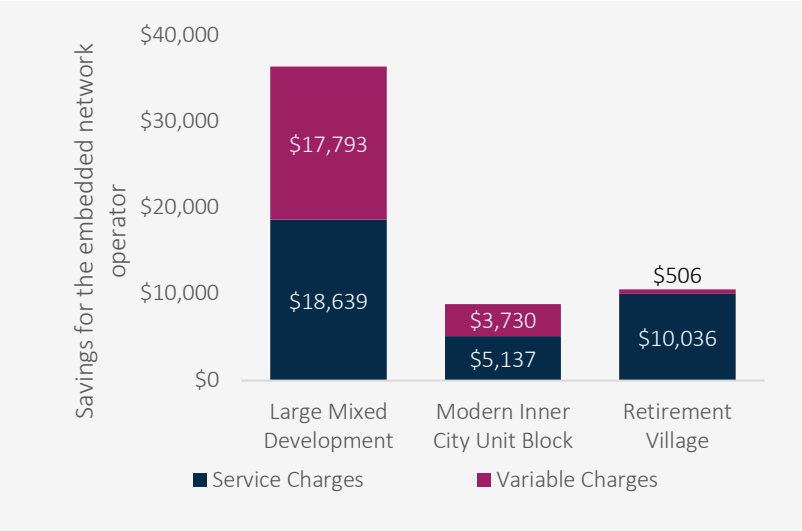
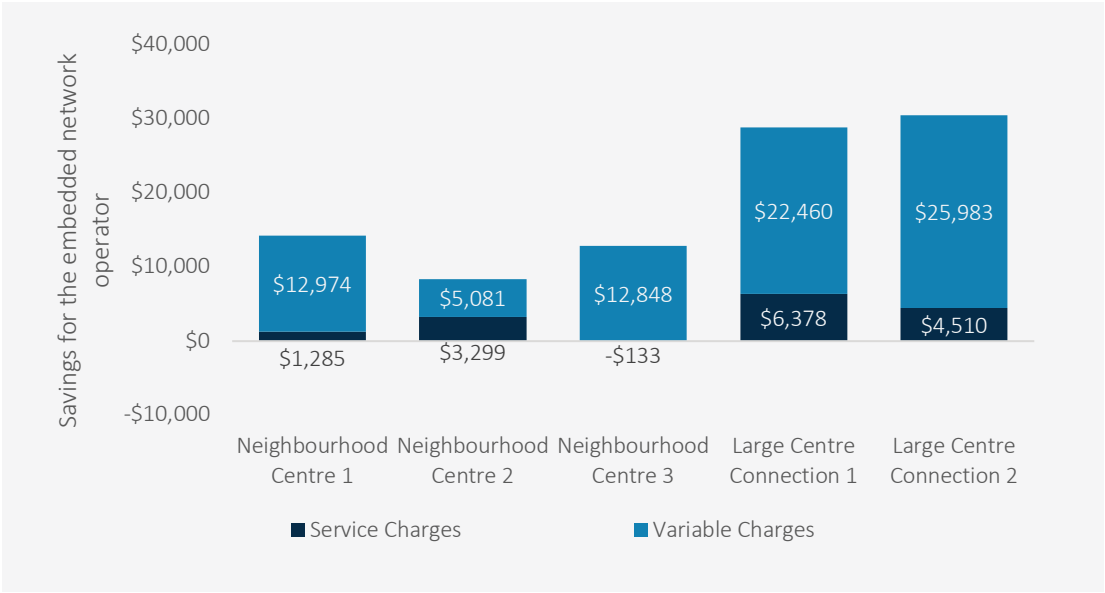


Figure 45. Abated costs for existing network users when low voltage commercial embedded networks are formed



This current inherent incentive gives embedded network operators the opportunity to decrease their costs by seeking a network tariff that provides them with the highest benefit. This is problematic as it means that part of the efficient costs attributable to the embedded network are being recovered from other network customers, resulting in both an efficiency and equity issue.

A purpose-designed embedded network tariff allows for pricing arrangements that will protect the equity outcomes for all our customers, while offering embedded network owners a charge that reflects their use on the network. An embedded network tariff would provide an opportunity for customers who can flatten their demand through embedded generation and/or storage capacity to be rewarded for doing so.

46 Based on embedded networks modelling undertaken during 2022. The potential savings of the modelled connections amount to 30-40 per cent of their current combined charges

22.7.5.5 Structures for our proposed embedded network tariff

Given the diversity of existing and prospective embedded network sites, our stakeholders have indicated a preference for any network tariff designed specifically for embedded networks to incorporate a capacity-based charge, rather than the fixed daily service charges that form part of the network tariffs applied to more homogenous customer groupings. The PRWG has previously identified that a single fixed connection charge would not be flexible enough to support the range of embedded networks that might exist.

Charging embedded network operators for the network capacity required to service the aggregate demand of their customers is a way of ensuring embedded networks make cost reflective contributions towards the cost of the network. A network tariff specific to embedded network operators is also a means of ensuring that embedded networks also benefit from the costs TasNetworks avoids by supplying an embedded network through a single connection point, rather than each customer within the embedded network having their own connection. This approach, and the need to ensure embedded networks contribute towards the cost of the network that reflects the characteristics of their load and their connection to the network, has been informed by our engagement with the PRWG.

To ensure the proposed tariffs recover the revenue allocated to the tariff in the most efficient way possible, it is proposed that the embedded network tariffs will have three components (see Figure 46):

- **Service charge –** a tiered daily charge based on the network capacity[47] of an embedded network at the embedded network's connection point to the distribution network
- **Demand charge –** based on the maximum demand an embedded network places on the distribution network during peak times (measured in half-hourly intervals)
- **Consumption charge –** a volumetric charge based on the energy consumed by an embedded network as a whole (and delivered to the embedded network via the distribution network).

Figure 46. Embedded network tariff charging components

The tiered service charge will recognise that embedded network owners are a diverse group of customers, with significant differences in the connection capacity and network capability required to support each embedded network (with expected maximum demand being the principal driver of that capacity).

The tiered arrangement is intended to provide more flexibility and greater cost-reflectivity than a fixed daily charge. Table 7 (below) sets out the proposed tiers associated with the service charges that will be applied to embedded networks connected at both low and high voltages. Customers assigned to the low voltage network tariff for embedded networks will be catered for by a range of four capacity tiers, whilst the network tariff for embedded networks connecting at high voltage will feature two capacity tiers.

Table 7. Proposed capacity tiers for embedded networks

	Capacity allowance	
Tier	**Low voltage**	**High voltage**
Tier 1	0-100 kVA [0-140 Amps]	0-750 kVA [0-1,000 Amps]
Tier 2	100-300 kVA [140-400 Amps]	750+ kVA [1,000+ Amps]
Tier 3	300-750 kVA [400-1,000 Amps]	n/a
Tier 4	750+ kVA [1,000+ Amps]	n/a

Embedded network operators will determine the required connection capacities in their contracts and the equipment is set up accordingly when the network connection is installed. We are proposing a maximum and minimum level of energy for each tier. There will be some overlap between low voltage and high voltage connection levels depending on where customers will ultimately connect – this will be determined by individual customer circumstances, preferences, and location.[48]

47 TasNetworks will undertake a review of the demand for embedded networks each year to ensure customers are assigned to the correct service charge tier. This will ensure that the service charge reflects changes in the load or connection characteristics of an embedded network that might arise, for example, as a result of growth within the embedded network or changes in the embedded networks' reliance on the distribution network due to the deployment of CER within the embedded network

48 Customer circumstances and preferences may include the willingness and/or ability to own and maintain high voltage equipment

It is possible that larger connections, such as shopping centres, may use multiple low voltage connections. This will involve multiple connection applications and the capacity charge of the embedded network tariff will apply to every connection individually.

The demand charges will be set based on the long run marginal cost (**LRMC**), ensuring that embedded network customers receive cost-reflective price signals regarding the demand they place on the network during times of network peak utilisation. To simplify the tariff design, only peak demand charges will be applied within the proposed tariff structures.

The volumetric and capacity charges' role is to recover the residual network costs. The ratio of the tiered capacity charge to the volumetric charge is a key tariff design decision as it will determine the proportion of residual cost recovery and the associated price signals being sent to customers via the two charging components.

The tiered capacity charge guides this charging component ratio, with the levels being a function of:

- the estimated cost of each tier of capacity
- the size of the embedded tariff capacity charge relative to daily services charges on the tariffs that potential embedded customers are currently assigned to
- the targeted amount of revenue to be recovered under each of the new tariffs applying the total efficient costs.

22.7.5.6 Proposed embedded network tariff assignment policy

The new embedded network tariffs will be assigned to all new embedded networks connecting to the distribution network on or after 1 July 2024.

TasNetworks' tariff assignment rules will not make it mandatory for existing embedded networks to move to the new embedded network tariff. Existing embedded networks will be permitted to remain on the network tariff they are assigned to as at 30 June 2024. However, if existing embedded network customers choose to change network tariffs after 30 June 2024, their only option will be to opt-in to the embedded network tariff which is most suited to their network connection, and once assigned to an embedded network tariff, an embedded network may not revert to a non-embedded network tariff.

While most embedded networks are served by a single connection to the distribution network, some larger sites, such as a large shopping centre, may potentially have multiple connections to the distribution network. Under these circumstances, each connection will need to be assigned to an embedded network tariff, meaning that the capacity charge, as well as the volumetric and demand-based charges, will apply to the multiple connections.

As discussed in section 22.7.5.3, there are Tasmanian specific differences to how embedded networks are regulated. This provides limited visibility of existing embedded networks. A decision to apply the retailer authorisation requirements in Tasmania may provide an opportunity for TasNetworks to review its tariff assignment policy in future regulatory control periods should existing embedded networks become visible to TasNetworks. However, before making a change to our assignment policy, analysis would be undertaken to understand the impact to the network and ensure alignment to our pricing principles.

22.7.5.7 Tariff class assignment

Considering the Rule requirements regarding tariff classes (as outlined in section 22.7.1), TasNetworks deemed it most appropriate to place embedded networks within existing tariff classes. The main reasons for doing this are:

- The proposed tariff assignment rules will not make it mandatory for existing embedded networks to move to the new embedded network tariff. The new tariff will only apply to new embedded networks. As a result, there will be new embedded networks assigned to the new tariffs while incumbent embedded networks can choose to remain assigned to their existing tariff under existing tariff classes (unless the incumbent embedded network operators choose to change tariffs). Therefore, not introducing a new tariff class will ensure that customers with similar characteristics will remain grouped together.
- The synthesised embedded networks' usage profiles and the nature and extent of their usage or intended usage of the distribution services are similar to those customers within the existing tariff classes that could embed (Figure 47 and Figure 48). This includes the two distinct load profiles that were identified within the group of commercial connections, i.e., shopping centres.

We may consider, in a future regulatory control period, to create a dedicated embedded network tariff class if there is sufficient evidence and uptake to warrant a new tariff class.

Figure 47. Load profiles of mixed residential embedded networks against typical customer usage profiles

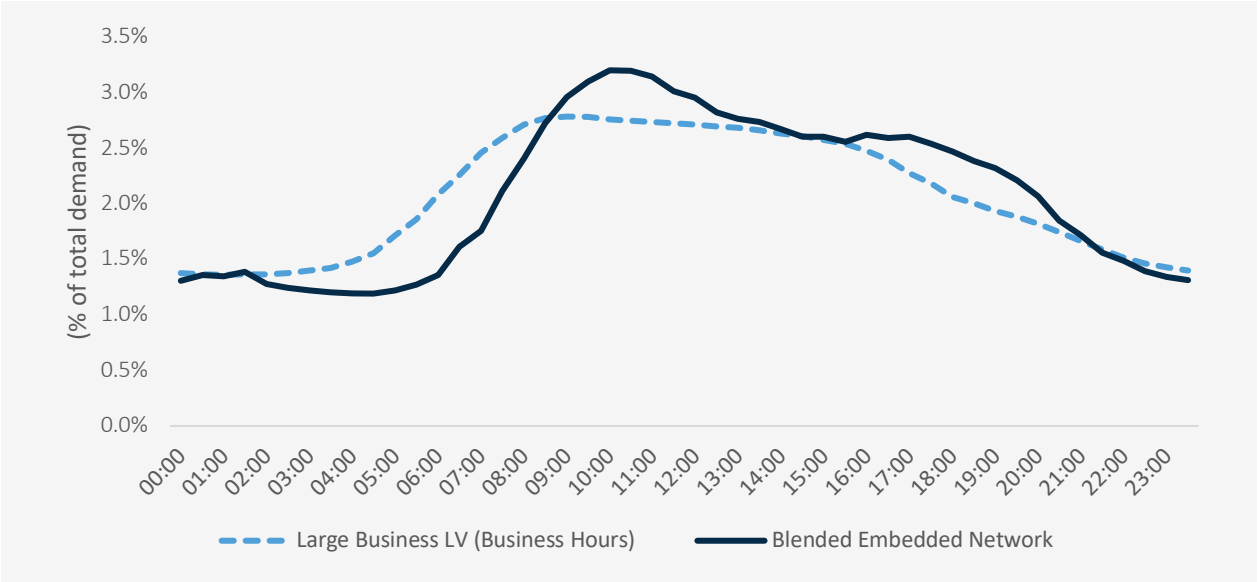
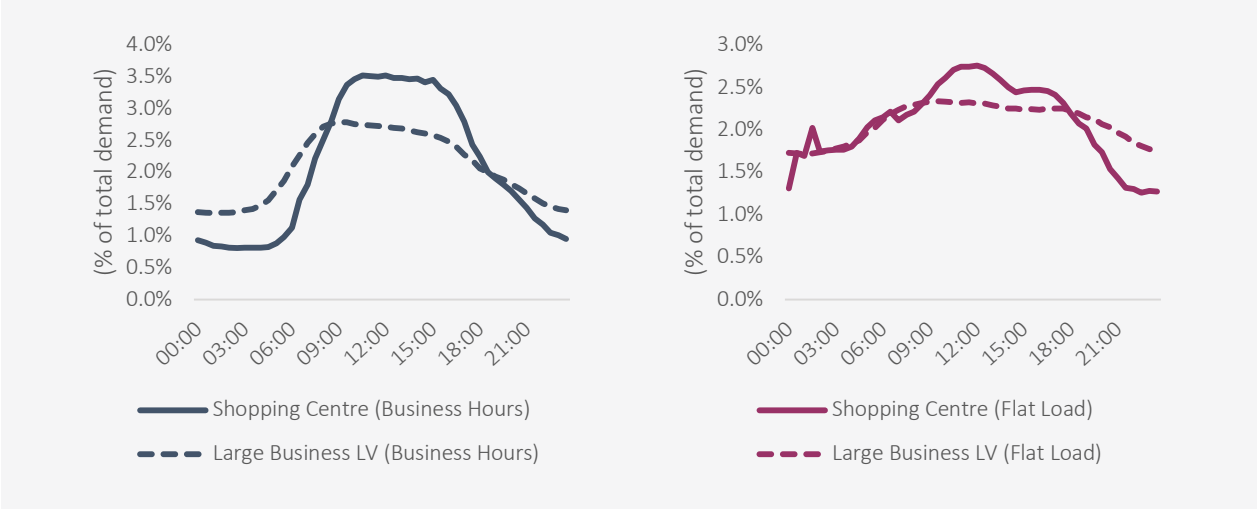


Figure 48. Load profiles of low voltage commercial embedded networks against typical customer usage profiles



22.7.5.8 Embedded network proposal for the 2024-2029 regulatory control period

For the 2024-2029 regulatory control period, TasNetworks is proposing embedded network tariffs for both the high voltage and low voltage distribution network. We propose to place our new embedded network tariffs within the existing commercial tariff classes (Table 8).

Table 8. Assignment of our proposed new embedded network tariffs to tariff classes

Embedded network tariff	Proposed tariff class
LV business embedded network (4 tiers)	Low voltage large business
HV business embedded network (2 tiers)	High voltage large business

The pricing of these tariffs aims to recover most of the revenue TasNetworks would earn from the embedded network members if they connected individually, while recognising that TasNetworks will realise some operational cost savings resulting from of embedded networks being formed. These savings mostly relate to reduced network liability and life support obligations as embedded networks are treated as single network connection points.

22.7.6 Complementary measures to tariff design

TasNetworks would like to help customers make more informed decisions about the network tariffs to which they are assigned and their use of electricity. Our stakeholders have told us that network tariff reform needs to be accompanied by clear communication and education programmes for customers.

To that end, a range of measures will be employed during the in 2024-2029 regulatory control period to complement the proposed tariff changes outlined in our TSS. The aim of these measures will be to facilitate more informed decision making by customers in relation to their use of electricity, their investments in electrical appliances and CER, and their choice of network tariff. TasNetworks wants to help customers understand how they can respond to changes in network pricing structures, such as network charges that reflect time of use.

Our complementary measures for 2024-2029 will include:

- the provision of up-to-date information which is easy for customers to access
- partnering with third parties who are trusted by customers as sources of information and advice about energy.

Updated and easy to access information

Our stakeholders have told us that network tariff reform needs to be accompanied by a strong communication and education programme for customers. They also consider it essential that TasNetworks works closely with retailers to ensure consistent messaging. Stakeholders have told us that customers 'want to be told once, by one party', rather than face potentially conflicting and confusing messaging from multiple sources.

The level of interest and engagement in a particular energy related topic for even an individual customer can also vary over time according to the circumstances in which they find themselves. For example, connection services and tariff selection for a new connection are likely to be of most interest to customers who are building a new home or business premises, rather than established homeowners. And in the coming regulatory control period, those customers are going to need to know that some of the tariffs that they have been used to may no longer be available to them for their new property. But with a range of issues to talk about with our customers and a large number of customers to reach, TasNetworks does not have the capacity to reach out to customers constantly in the hope that they'll receive our messaging.

Therefore, a key part of TasNetworks' communication strategy in relation to network tariffs and the pricing of alternative control services will be to ensure that customers have access to information from TasNetworks, whether directly or indirectly, during the information gathering phase of their decision-making process, neither too far in advance of their decision – possibly before they've identified the need for a particular service or product – nor after they've made their decision.

During TasNetworks' engagement with the PRWG, a consistent theme emerged: the need to ensure customers are well informed when choosing the network tariffs to which they are assigned and when making decisions about their use of electricity.
Our PRWG members suggested a number of topics relating to network tariff reform that will be of particular importance to residential and small business customers in the 2024-2029 regulatory control period.
Those topics were:

- Advanced meters
- Time of use tariffs
- Pricing principles
- Obsolete network tariffs.

There are approximately 300,000 households, businesses and institutions in Tasmania that take their supply of electricity from the network of poles, wires and underground cables which make up the electricity distribution network. Those customers exhibit varying degrees of interest, understanding and engagement in relation to the management of their use of electricity, ranging from sophisticated prosumers, innovators, and early adopters of new technologies to customers that prefer to 'set and forget', as well as customers experiencing vulnerability.

In the 2024-2029 regulatory control period, TasNetworks will employ communications strategies and messaging that will address, amongst other things, the issues of importance highlighted by the PRWG, in ways that are appropriate for the varying degrees of engagement and energy literacy across the wider customer base.

Partnering with third parties

Customers and stakeholders have told us that they first seek information on their energy needs, particularly about CER technology, through parties other than TasNetworks. In relation to EVs, for example, after family and friends, respondents to a *DER Customer Survey* conducted by TasNetworks cited the internet as a major source of information on EVs, along with car retailers and motoring associations like the Royal Automobile Club of Tasmania (**RACT**). Some respondents also mentioned websites such as the Australian Electric Vehicle Association (**AEVA**) website and EV manufacturers' sites.

The results of the *DER Customer Survey* also suggested that only a small proportion of residential and small business customers (6 per cent amongst respondents) consider TasNetworks and electricity retailers (3 per cent of respondents) as potential sources of information and advice in relation to their energy use.

On this basis, in addition to TasNetworks' own communications, a successful communication plan in relation to network tariff reform and pricing will require cross-industry cooperation and is likely to involve third parties acting in partnership with TasNetworks or as intermediaries.

During the 2019-2024 regulatory control period we partnered with an independent foundation to run a series of webinars relating to managing household energy needs. That series of webinars covered topics such as reducing hot water costs, understanding CER technology and efficient heating options. The response to those webinars was extremely positive, with the webinars being well attended and generating additional visits to TasNetworks' website.

In 2024-2029, we are looking to continue and expand our partnering with the third parties that our customers rely on for information about their household or business' energy needs so that we can provide the information customers need at the right point in their energy journey.

22.7.7 Tariff classes and tariffs for 2024-2029

Our proposed tariff classes and network tariffs for 2024-2029 are outlined in Table 9.

Table 9. Proposed tariff classes for standard control services

Proposed tariff class	Network tariff	Network tariff code	Type
Low voltage residential	Low voltage residential time of use consumption	TAS93	Published tariff – default
	Low voltage residential time of use demand	TAS87	Published tariff
	Low voltage residential time of use CER	TAS97	Published tariff
	Low voltage residential general light and power	*TAS31*	*Published obsolete tariff*
	Low voltage uncontrolled energy heating and hot water	*TAS41*	*Published obsolete tariff*
	Low voltage controlled energy off-peak [night only]	TAS63	Published tariff
	Low voltage controlled energy off-peak with afternoon boost	*TAS61*	*Published obsolete tariff*
	Low voltage residential PAYG time of use[49]	*TAS92*	*Abolished*
	Low voltage residential PAYG[50]	*TAS101*	*Abolished*
Low voltage small business	Low voltage small business time of use consumption	TAS94	Published tariff – default
	Low voltage small business time of use demand	TAS88	Published tariff
	Low voltage small business time of use demand CER	TAS98	Published tariff
	Low voltage small business general light and power	*TAS22*	*Published obsolete tariff*
Irrigation	Low voltage irrigation time of use consumption	TAS75	Published tariff
Low voltage large business	Low voltage large business time of use demand	TAS89	Published tariff
	Low voltage large business kVA	TAS82	Published tariff
	Low voltage embedded network Tier 1	TAS84T1	Published tariff
	Low voltage embedded network Tier 2	TAS84T2	Published tariff
	Low voltage embedded network Tier 3	TAS84T3	Published tariff
	Low voltage embedded network Tier 4	TAS84T4	Published tariff
High voltage business	High voltage kVA specified demand (>2 MVA)	TAS15	Published tariff
	High voltage kVA specified demand (<2MVA)	TASSDM	Published tariff
	Individual tariff calculation	TASCUS	Published tariff
	High voltage embedded network Tier 1	TAS14T1	Published tariff
	High voltage embedded network Tier 2	TAS14T2	Published tariff
Unmetered supplies	Low voltage unmetered supply general	TASUMS	Published tariff
	Low voltage unmetered supply public lighting	TASUMSSL	Published tariff

22.7.8 Proposed tariff structures

Table 10 shows the proposed network tariffs and network tariff structures for the 2024-2029 regulatory control period, including the proposed changes discussed above.

49 TasNetworks is proposing to abolish this network tariff for the 2024-2029 regulatory control period

Table 10. Proposed tariff parameters

Network tariff		Status	Primary or secondary tariff	Fixed charge	Consumption			Demand		Time of use periods in (AEST)			
					Time of use	Flat rate	Controlled load	Time of use	Flat rate	Peak	Shoulder	Super off-peak	Off-peak
Low voltage residential network tariffs													
TAS93	Low voltage residential time of use consumption	Default network tariff	Primary network tariff, may be used with TAS63	Daily service charge c/day	c/kWh	✖	✖	✖	✖	Weekdays 07:00-10:00 16:00-21:00	✖	✖	All other times
TAS87	Low voltage residential time of use demand	Opt-in	Primary network tariff, no secondary tariff available	Daily service charge c/day	✖	✖	✖	c/kW/day	✖	Weekdays 07:00-10:00 16:00-21:00	✖	✖	All other times
TAS97	Low voltage residential time of use consumer energy resources (CER)	Opt-in	Primary network tariff, no secondary tariff available	Daily service charge c/day	c/kWh	✖	✖	✖	c/kW[50]	Weekdays 07:00-10:00 16:00-22:00	✖	Anyday Midnight – 04:00	All other times
TAS31	Low voltage residential general light and power	Obsolete[51]	Primary network tariff, may be used with TAS41, TAS63, TAS61	Daily service charge c/day	✖	c/kWh	✖	✖	✖	✖	✖	✖	✖

50 This network tariff has a demand threshold, where if demand exceeds 8.5kW at any time, an excess demand charge is charged

51 Obsolete tariffs are no longer available for new installations. Existing installations on other network tariffs are also unable to be reassigned to obsolete tariffs. Customer installations that were, as at 1 July 2024, assigned to an obsolete tariff are able to remain assigned to that network tariff and will continue to apply to customers who move into those premises after that date according to the assignment rules outlined in the TSS, section 21.5.

Network tariff		Status	Primary or secondary tariff	Fixed charge	Consumption			Demand		Time of use periods in (AEST)			
					Time of use	Flat rate	Controlled load	Time of use	Flat rate	Peak	Shoulder	Super off-peak	Off-peak
TAS41	Low voltage uncontrolled energy heating and hot water	Obsolete[52]	Secondary network tariff, may be used with TAS31, TAS22	Daily service charge c/day	✖	c/kWh	✖	✖	✖	✖	✖	✖	✖
TAS63	Low voltage controlled energy off-peak [night only]	Opt-in	Secondary network tariff, may be used with TAS31, TAS93, TAS22, TAS94	Daily service charge c/day	✖	✖	c/kWh	✖	✖	✖	✖	✖	Energy will be available during certain times [52]
TAS61	Low voltage controlled energy off-peak with afternoon boost	Obsolete[52]	Secondary network tariff may be used with TAS31, TAS22	Daily service charge c/day	✖	✖	c/kWh	✖	✖	✖	✖	✖	Energy will be available during certain times[53]

52 Energy will only be available between 22:00 and 07:00

53 Energy will be available for a least nine hours between 20:00 and 07:00, and a further two hours between 13:00 and 16:30

Network tariff		Status	Primary or secondary tariff	Fixed charge	Consumption			Demand		Time of use periods in (AEST)			
					Time of use	Flat rate	Controlled load	Time of use	Flat rate	Peak	Shoulder	Super off-peak	Off-peak
Low voltage small business network tariffs													
TAS94	Low voltage small business time of use consumption	Default network tariff	Primary network tariff, may be used with TAS63	Daily service charge c/day	c/kWh	✖	✖	✖	✖	Weekdays 07:00-10:00 16:00-21:00	Weekdays 10:00-16:00	✖	All other times
TAS88	Low voltage small business time of use demand	Opt-in	Primary network tariff, no secondary tariff available	Daily service charge c/day	✖	✖	✖	c/kW/day	✖	Weekdays 07:00-10:00 16:00-21:00	✖	✖	All other times
TAS98	Low voltage small business time of use demand consumer energy resources (CER)	Opt-in	Primary network tariff, no secondary tariff available	Daily service charge c/day	✖	✖	✖	c/kW/day	✖	Weekdays 07:00-10:00 16:00-21:00	✖	✖	All other times
TAS22	Low voltage small business general light and power	Obsolete[52]	Primary network tariff, may be used with TAS41, TAS63, TAS61	Daily service charge c/day	✖	c/kWh	✖	✖	✖	✖	✖	✖	✖

Network tariff		Status	Primary or secondary tariff	Fixed charge	Consumption			Demand		Time of use periods in (AEST)			
					Time of use	Flat rate	Controlled load	Time of use	Flat rate	Peak	Shoulder	Super off-peak	Off-peak
Low voltage irrigation network tariff													
TAS75	Low voltage irrigation time of use consumption	Opt-in	Primary network tariff, no secondary tariff available	Daily service charge c/day	c/kWh	✖	✖	✖	✖	Winter (1 April – 30 September)			
										Weekdays 07:00-22:00	Weekends 07:00-22:00	✖	All other times
										Summer (1 October – 31 March)			
										✖	Weekdays 07:00-22:00	✖	All other times
Low voltage large business network tariffs													
TAS89	Low voltage large business time of use demand	Opt-in	Primary network tariff, no secondary tariff available	Daily service charge c/day	✖	✖	✖	c/kVA/day	✖	Weekdays 07:00-10:00 16:00-21:00	✖	✖	All other times
TAS82	Low voltage large business kVA	Opt-in	Primary network tariff, no secondary tariff available	Daily service charge c/day	✖	c/kWh	✖	✖	c/kVA/day	✖	✖	✖	✖
TAS84T1	Low voltage embedded network Tier 1	Opt-in[54]	Primary network tariff, no secondary tariff available	Daily service charge c/day	✖	c/kWh	✖	c/kVA/day	✖	Weekdays 07:00-10:00 16:00-21:00	✖	✖	✖

54 From 1 July 2024, all new connecting embedded networks on the low voltage network must select an embedded network tariff i.e., they are not eligible for other low voltage business network tariffs, however they may select the Tier that is most suitable for their embedded network

Network tariff		Status	Primary or secondary tariff	Fixed charge	Consumption			Demand		Time of use periods in (AEST)			
					Time of use	Flat rate	Controlled load	Time of use	Flat rate	Peak	Shoulder	Super off-peak	Off-peak
TAS84T2	Low voltage embedded network Tier 2	Opt-in[55]	Primary network tariff, no secondary tariff available	Daily service charge c/day	✖	c/kWh	✖	c/kVA/day	✖	Weekdays 07:00-10:00 16:00-21:00	✖	✖	✖
TAS84T3	Low voltage embedded network Tier 3	Opt-in[55]	Primary network tariff, no secondary tariff available	Daily service charge c/day	✖	c/kWh	✖	c/kVA/day	✖	Weekdays 07:00-10:00 16:00-21:00	✖	✖	✖
TAS84T4	Low voltage embedded network Tier 4	Opt-in[55]	Primary network tariff, no secondary tariff available	Daily service charge c/day	✖	c/kWh	✖	c/kVA/day	✖	Weekdays 07:00-10:00 16:00-21:00	✖	✖	✖
High voltage business network tariffs[55]													
TAS15	High voltage kVA specified demand (>2 MVA)	Opt-in	Primary network tariff, no secondary tariff available	Daily service charge c/day	c/kWh	✖	✖	✖	c/kVA/day	Winter (1 April – 30 September)			
										Weekdays 07:00-22:00	Weekends 07:00-22:00	✖	All other times
										Summer (1 October – 31 March)			
										✖	Weekdays 07:00-22:00	✖	All other times

55 Excluding Individual Tariff Calculations (TASCUS), which have customer-specific charging structures

Network tariff		Status	Primary or secondary tariff	Fixed charge	Consumption			Demand		Time of use periods in (AEST)			
					Time of use	Flat rate	Controlled load	Time of use	Flat rate	Peak	Shoulder	Super off-peak	Off-peak
TASSDM	High voltage kVA specified demand (<2 MVA)	Opt-in	Primary network tariff, no secondary tariff available	Daily service charge c/day	c/kWh	✖	✖	✖	c/kVA/day	**Winter (1 April – 30 September)**			
										Weekdays 07:00-22:00	Weekends 07:00-22:00	✖	All other times
										Summer (1 October – 31 March)			
										✖	Weekdays 07:00-22:00	✖	All other times
TAS14T1	High voltage embedded network Tier 1	Opt-in[56]	Primary network tariff, no secondary tariff available	Daily service charge c/day	✖	c/kWh	✖	c/kVA/day	✖	Weekdays 07:00-10:00 16:00-21:00	✖	✖	✖
TAS14T2	High voltage embedded network Tier 2	Opt-in[57]	Primary network tariff, no secondary tariff available	Daily service charge c/day	✖	c/kWh	✖	c/kVA/day	✖	Weekdays 07:00-10:00 16:00-21:00	✖	✖	✖

56 From 1 July 2024, all new connecting embedded networks on the low voltage network must select an embedded network tariff i.e., they are not eligible for other high voltage business network tariffs, however they may select the Tier that is most suitable for their embedded network

Network tariff		Status	Primary or secondary tariff	Fixed charge	Consumption			Demand		Time of use periods in (AEST)			
					Time of use	Flat rate	Controlled load	Time of use	Flat rate	Peak	Shoulder	Super off-peak	Off-peak
Unmetered supplies													
TASUMS	Unmetered supply general			Daily service charge c/day	✖	c/kWh	✖	✖	✖	✖	✖	✖	✖
TASUMSSL	Unmetered supply public lighting			✖	✖	✖	✖	✖	c/lamp watt/day	✖	✖	✖	✖

22.7.9 Tariff trials

As TasNetworks continues to implement its tariff reform pricing strategy, we will need to continue to develop tariffs that support changing technologies, and our customer's needs. As CER technology becomes an increasingly important part of Tasmania's energy mix, TasNetworks will continue to monitor the impact of CER on the network. In addition to addressing our customer's needs, the regulatory environment continues to adapt to the changing role of the electricity grid.

Network tariff trials develop our understanding of how TasNetworks can provide customers with appropriate levels of services and price offerings. It allows us to learn more about how specific customers respond to change – particularly where there are new technologies – and allow us to test innovative pricing solutions within a controlled environment.

In July 2021, TasNetworks consulted with our stakeholders to discuss options for tariff trials during the 2024-2029 regulatory control period, and the principles that will guide the development and implementation of trials. There was a wide-ranging conversation regarding the selection of potential trials, however the overarching theme demonstrated strong support in community-based programs to increase reliability, and to specifically target more vulnerable communities or those with lower network reliability. Key trials that were identified include:

- two-way pricing trial to provide better optionality with CER e.g., electric vehicles, vehicle to grid and export charging and incentives
- battery trials such as community batteries or reliability batteries
- business trials to provide more choice to businesses, including options to support electric vehicle charging for commercial providers
- on farm power sharing to support investment in CER in the agricultural sector.

22.7.9.1 Tariff trial principles

In July 2021, PRWG members identified five key principles to guide the development of our tariff trials for the next regulatory control period (Figure 49).

Figure 49. Tariff trial principles

22.7.9.2 Proposed tariff trials

In response to the increasingly important role of CER technologies in Tasmania's energy mix we propose to explore the following trials with our customers:

- two-way pricing trial
- on farm power sharing trial
- community battery trial.

The implementation and success of our proposed trial will be reflective of the community's ability to engage and participate in the proposed trials. TasNetworks will also consider the network issues that need remediating and the effectiveness of tariffs in altering customer behaviour that may contribute to lowering costs.

Two-way pricing trial

The regulatory environment is adapting to recognise the changing role of the electricity grid – from the traditional service of transporting electricity to customers, to using the network as a trading platform. That is, electricity networks are increasingly required to support an increase in the two-way flow of energy. This allows TasNetworks to seek an innovative tariff to provide customers choice in how they utilise the network more efficiently while recognising customer diversity – both in their use of the networks and how they value 'export services'.

TasNetworks may design and undertake an export tariff trial in the 2024-2029 regulatory control period, however it is expected that this would require evidence that CER exports were projected to drive network expenditure. This is set out more fully in our export tariff transition strategy.

Virtual NMI trial

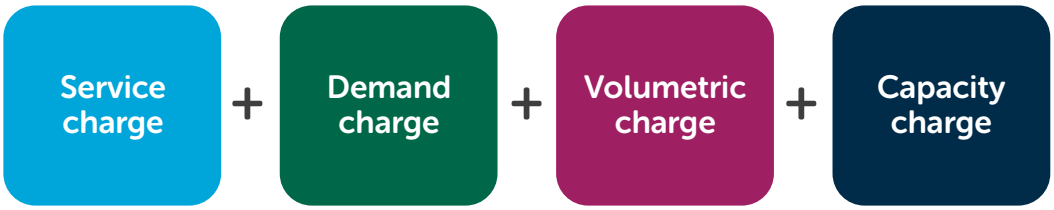
TasNetworks undertook consultation with the agricultural sector as an outcome of the emPOWERing Farms project. This consultation has resulted in a proposed trial to allow on-farm power sharing (referred to as the Virtual NMI Trial) under certain conditions. The premise of this trial is to improve investment outcomes for agricultural customers who innovate and invest in new energy technologies, such as wind farms and solar PV.

The purpose of developing this trial is to overcome the issues of agricultural businesses having multiple connections to the distribution networks across their property. Under current arrangements some properties that have invested in CER have been unable to offset their energy consumption at one connection against the generation of energy at another connection. Therefore, rather than using the surplus energy across multiple connections on the same property, owners must sell their surplus generated energy and then purchase the electricity back at a higher price.

This is primarily an issue encountered by customers who have a number of connections over a large geographical area within the same property. In 2021, TasNetworks proposed the parameters for a trial tariff (Figure 50) and released an expression of interest for the Virtual NMI trial targeting large agricultural customers:

- with advanced meters throughout their property;
- who hold multiple adjacent NMIs
- who are connected to the same high voltage feeder
- have greater that 30KW
- have a large amount of embedded generation installed on their property.

Figure 50. Proposed tariff components for a virtual NMI tariff trial



TasNetworks remains interested in recruiting agricultural customers for this trial for the 2024-2029 regulatory control period.

Community battery trials

PRWG showed great interest in implementing a community battery trial which provides a focus on the services being provided to communities where there is potentially network reliability issues or vulnerable communities.

During the 2019-2024 regulatory control period, TasNetworks undertook a community battery trial at a remote location – Derwent Bridge. This location was chosen due to reliability and power quality issues in the area.

TasNetworks will take the learnings from this trial to assess and evaluate the performance of community batteries and identify further trials and trial locations during the 2024-2029 regulatory control period. The outcome of these learning will inform how tariffs can support the storage and usage of energy through community batteries.

CUSTOMER IMPACTS OF THIS PRICING PROPOSAL

22.8 Introduction

This pricing proposal provides customers choice of network tariffs to best suit their situation. TasNetworks has been developing tariffs to minimise price impacts to customers and seeks to provide affordable options for all customers, while ensuring that customers contribute fairly to their portion of network costs.

Throughout this TSES, customer impact analysis has been provided to reflect the changes that are proposed to our network tariffs. This section will provide the indicative price paths of our network tariffs, and scenario analysis to reflect changing customer behaviours because of the uptake of new technologies, specifically solar PV, household batteries and EVs.

22.9 Indicative price paths

Our indicative price path reviews consider different sized households and small businesses to assess the impact of our prices on different customers. The following sections provide high level price path analysis by network tariff class.

22.9.1 Residential customers

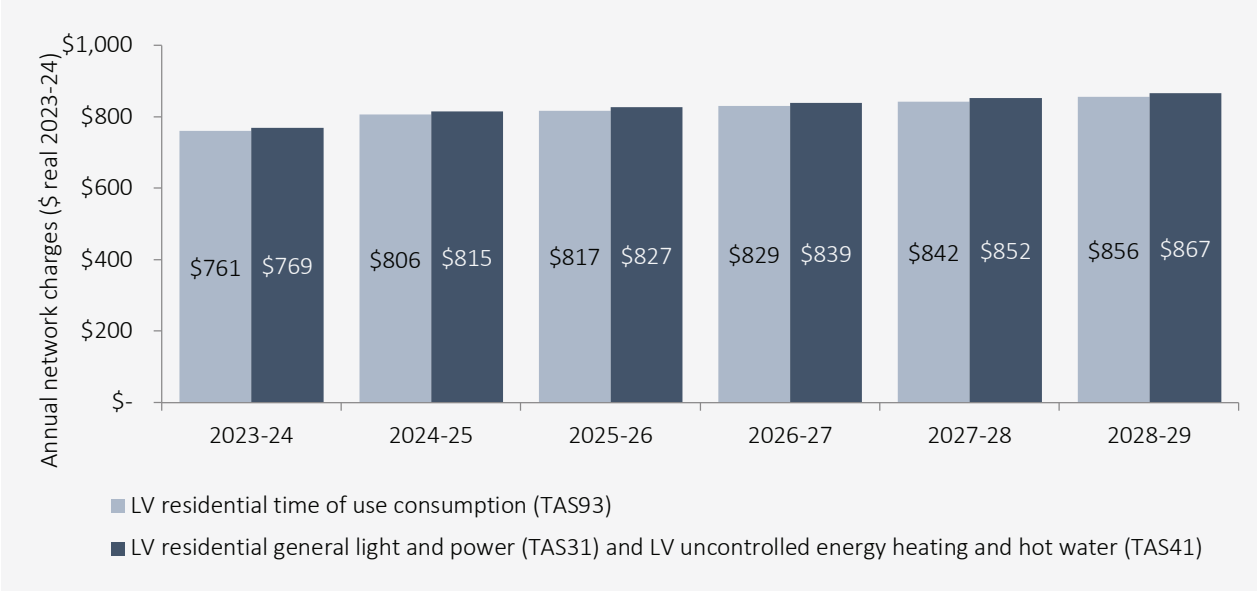
Approximately 80 per cent of residential customers use the flat rate network tariffs, of those approximately 94 per cent use the combined general light and power (TAS31) and uncontrolled heating and hot water (TAS41) network tariffs. The remaining customers are connected using the default network tariff – time of use consumption (TAS93).

Figure 51 provides a summary of the customer impact analysis for the 2024-2029 regulatory control period using an average consumption of 7,566 kWh per annum for residential customers on general light and power (TAS31) and uncontrolled energy heating and hot water (TAS41). The projections are built on indicative prices for the daily service charge and the per unit consumption charge (kWh). The different network tariffs have used the following specific underlying assumptions.

- Time of use consumption network tariff (TAS93), the peak and off-peak period are based on the following proportions – 33 per cent peak usage and 67 per cent off-peak usage, consistent with the average customer profile on this network tariff.
- General light and power with the heating and hot water (TAS31/41) network tariffs assumes that approximately 44 per cent of household usage is for general light and power, with the remaining 56 per cent for heating and hot water.

The annual movements between these two network tariffs are closely aligned. For customers using more or less energy, energy at different time of the day, or have different ratios for peak/off-peak or light and power/heating and hot water, the annual network charges may differ from that provided below. However, the direction is likely to be similar.

Figure 51. Annual network charge price path for a typical residential customer



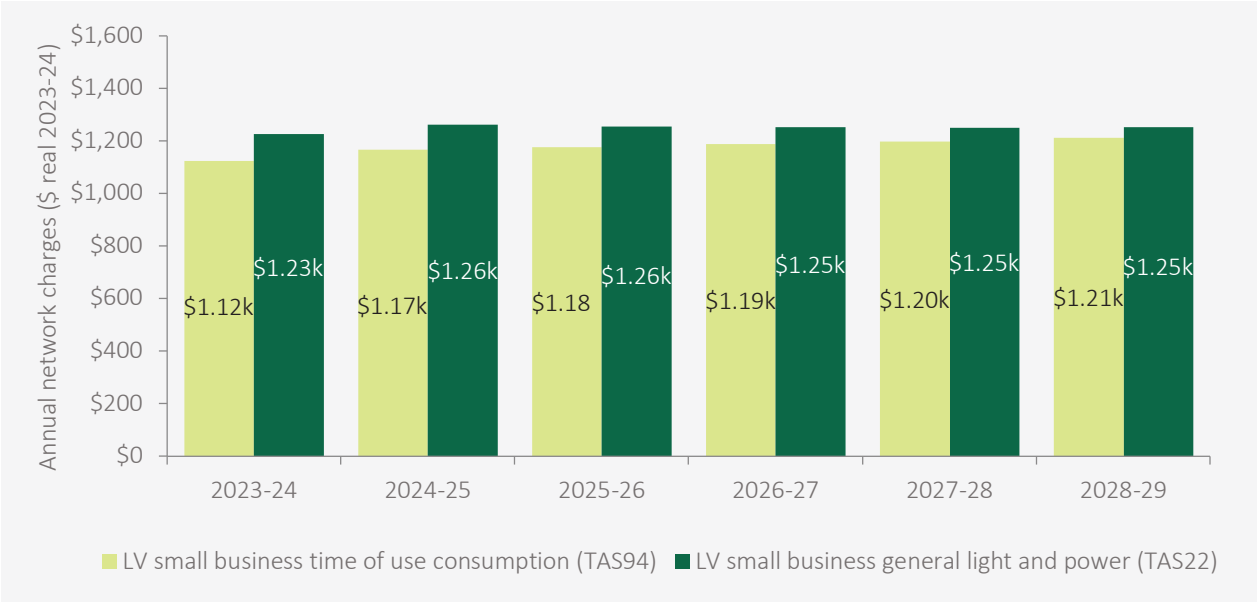
22.9.2 Small business customers

For the 2024-2029 regulatory control period, it is proposed that the time of use consumption network tariff (TAS94) time of use periods be changed. These changes are reflected in the indicative network charges in Figure 52. Based on interval metering data for small business customers, it has been assumed that small businesses use approximately 28 per cent of their energy during the proposed peak periods, 25 per cent during the proposed shoulder periods, and 44 per cent during the proposed off-peak periods. For customers with different load profiles, the outcomes differ.

Figure 52 provides the indicative price path using indicative prices for the daily service charge and the per unit consumption charge (kWh) for small business customers on TAS22 and TAS94 network tariffs and assumes average energy consumption is 10,711 kWh per annum. Network charges for these customers are expected to increase by around 0.9 per cent to 1.1 per cent in each year during the 2024-2029 regulatory control period (in real terms).

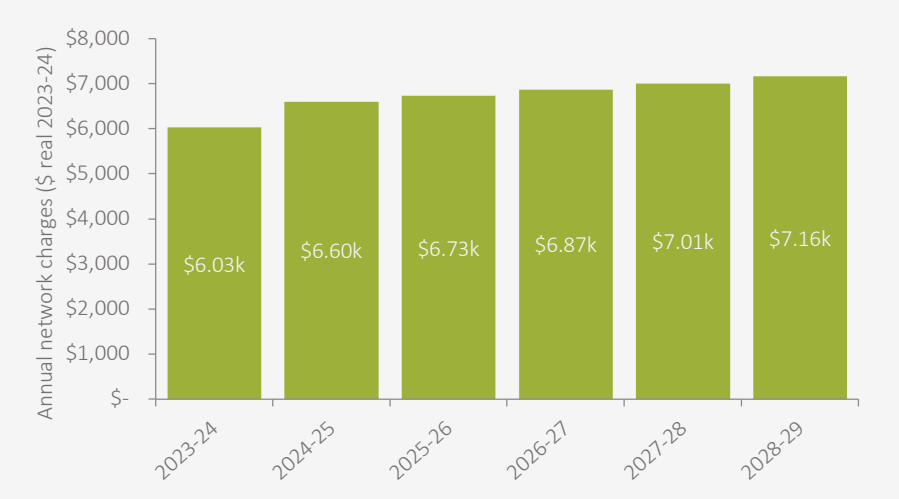
The small business general light and power (TAS22) network tariff is assigned to approximately 70 per cent of small business customers. However, over the 2019-2024 regulatory control period, uptake of the default time of use network tariff (TAS94) increased from 17 per cent.

Figure 52. Annual network charge price path for a typical small business customer on consumption tariffs



The low voltage time of use demand tariff (TAS88) has been taken up by a sub-group of our small business customer base who consume more energy than those on the consumption-based network tariffs. To analyse the typical customer outcomes for this tariff, an average monthly maximum demand of approximately 20 kW has been assumed for both peak and off-peak periods. This corresponds to an annual consumption of approximately 101 MWh (Figure 53). Network charges for these customers are expected to increase by around 1.9 per cent to 2.2 per cent in each year during the 2024-2029 regulatory control period (in real terms).

Figure 53. Annual network charge price path for a typical small business customer on the time of use demand (TAS88) network tariff



22.9.3 Irrigation customers

TasNetworks has provided a dedicated network tariff for irrigators across Tasmania, which is a time of use consumption-based network tariff (TAS75). The energy used varies depending on the time of day, which are defined differently in summer and winter (see Table 10 in section 22.7.8 of this document).

Using information gathered through our *emPOWERing Farms* project, our irrigators also have other low voltage business network tariffs available to them, these include:

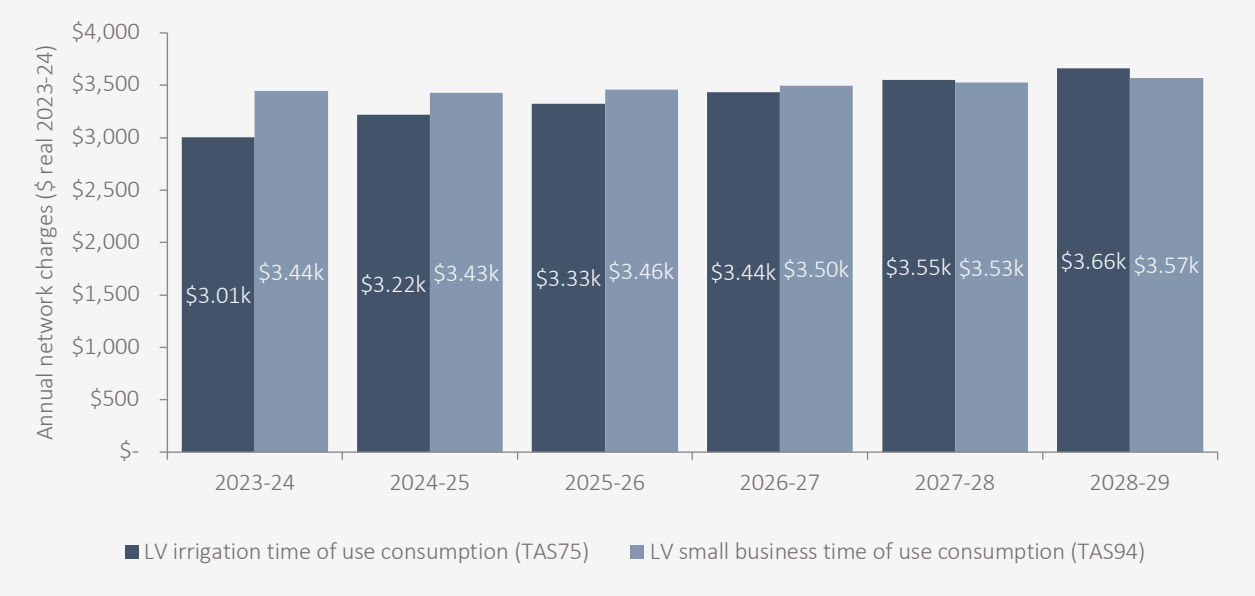
- Low voltage small business time of use consumption (TAS94)
- Low voltage small business time of use demand (TAS88)
- Low voltage small business time of use demand consumer energy resources (CER) (TAS98)
- Low voltage small business general light and power (TAS22).[57]

Figure 54 shows the price path for irrigators with an annual consumption of approximately 50,137 kWh per annum across a selection of network tariffs. It has been assumed that the average irrigator consumes 6 per cent of their energy during peak, 36 per cent during shoulder and 58 per cent during off-peak periods under the current TAS75 structure. It is noted that peak usage has been historically low as irrigators have tended to respond to the pricing signals. This chart shows that the low voltage irrigation network tariff (TAS75) remains an attractive option for primary produces required to irrigate. However, consistent with the advice provided through our *emPOWERing Farms* trial, we note that primary producers should evaluate their individual usage patterns and consider alternative network tariffs as applicable.

It is anticipated that annual network charges for irrigators will reach parity between the low voltage small business time of use consumption (TAS94) and the low voltage irrigation (TAS75) network tariffs during the 2024-2029 regulatory control period (assuming the consumption patterns noted above). Network charges for current TAS75 customers are expected to increase by around 3.2 per cent in each year during the 2024-2029 regulatory control period (in real terms).

57 Refer to the assignment rules in section 22.7.2 of this document

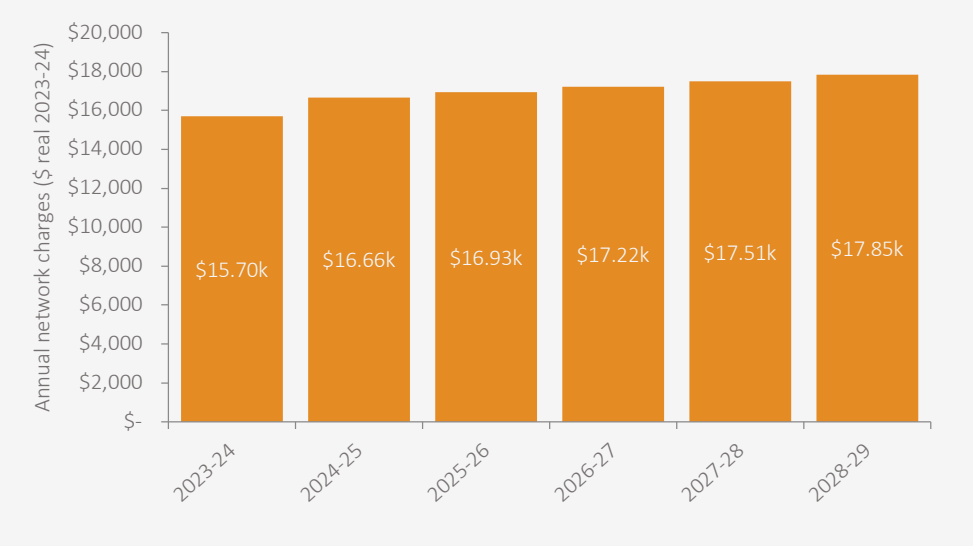
Figure 54. Annual network charge price path for a typical irrigation customer on low voltage consumption-based network tariffs



22.9.4 Large business customers (low voltage network)

Figure 55 shows a summary of the indicative annual network charges under the low voltage large business kVA demand network tariff (TAS82). This example of a typical large business customer assumes annual consumption of approximately 229 MWh per annum and an anytime maximum demand of 67 kVA, putting this customer into the mid-range of our large business customer base. Network charges for these customers are expected to increase by around 1.6 per cent to 1.9 per cent in each year during the 2024-2029 regulatory control period (in real terms).

Figure 55. Annual network charge price path for a typical large business customer on the low voltage kVA demand (TAS82) network tariff

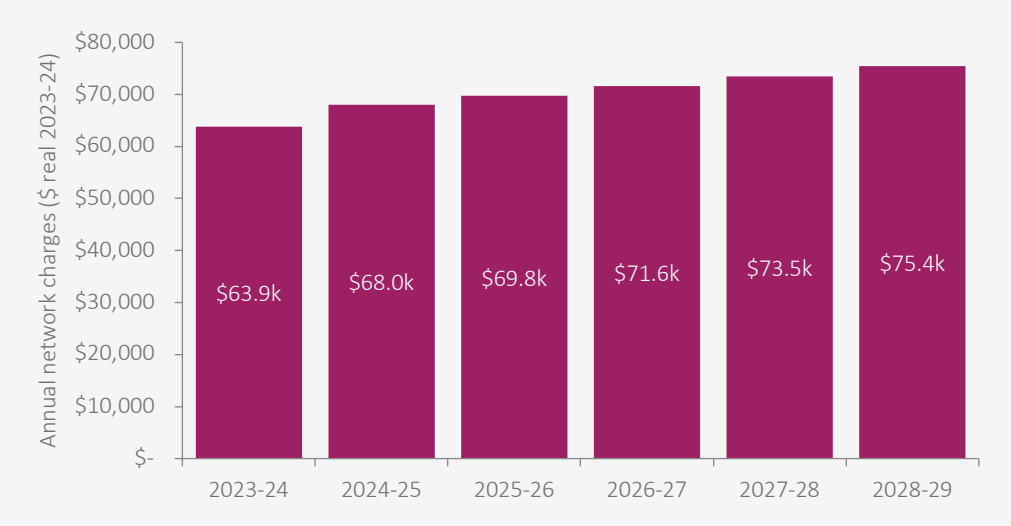


22.9.5 Large business customers (high voltage network)

Indicative network charges using the TASSDM – HV commercial kVA specified demand (<2MVA) have been used to calculate the indicative network charges for our large commercial customers (Figure 56). This price path uses approximately 2,058 MWh per annum with a specified demand of approximately 633 MVA. It is assumed that high voltage business customers use approximately 30 per cent of the energy they consume during peak periods, 32 per cent during shoulder periods and 38 per cent in off-peak times. Network charges for customers on this network tariff are expected to increase by around 2.6 per cent in each year during the 2024-2029 regulatory control period (in real terms).

Customers connected to the high voltage network also have the option of using the TAS15 network tariff (HV commercial kVA specified demand (>2MVA)). However, this network tariff only applies to a very small cohort of customers and incorporates site specific Transmission Use of System (**TUoS**) charges that depend on the characteristics of the connection, meaning that there isn't really an indicative customer that can be used as a basis for comparing network charges over time.

Figure 56. Annual network charge price path for a typical commercial customer on the high voltage commercial kVA specified demand (<2MVA) network tariff (TASSDM)



22.10 Residential customer behaviour analysis

Over the past five years, TasNetworks has undertaken the emPOWERing You trial and the DER Customer Survey with our residential customers. Insights from these key investigations have been used to form scenarios that reflect changes in customer behaviour under certain circumstances, related to uptake of technology and the impact of our network tariffs on customers experiencing vulnerability and disadvantage. TasNetworks recognises that there may be limited capacity for customers to physically change how they use electricity. However, customers can effectively reflect changes in network demand through technology (e.g., battery storage), which could strongly contribute to lowering network costs through tariffs and without changing how customers live their day to day lives.

This section analyses the customer impact for customers experiencing vulnerability and disadvantage, and examines several scenarios reflecting how a customers' potential energy consumption may change resulting from their investment in technology.

22.10.1 Studies and trials

22.10.1.1 emPOWERing You

The *emPOWERing You*[58] trial included the deployment of 600 off-market advanced meters to residential customers located in the municipality of Brighton in southern Tasmania which enabled the collection of usage data over a 12-month period. Extensive focus-groups, interviews and surveys were undertaken with participants to help us understand and communicate to customers the changing tariff offerings and the impact of these offerings.

Overall, the trial resulted in an observable reduction in participants' maximum demand, as well as their consumption, indicating some behavioural change, however participants' response was muted most likely a reflection on lifestyle.

Customers who were most likely able to respond strongly to cost reflective network tariffs were those who consume significantly more energy than the average, have larger households than the trial average, were most likely in paid employment and had above average household income amongst the trial participants.

TasNetworks continues to use the insights from this trial to continue developing and supporting our pricing strategy. The demographic data provided through the emPOWERing You trial, we have been able to identify customers who may be at a disadvantage or experiencing vulnerability.

58 emPOWERing You trial, Final report summary, August 2019

22.10.1.2 DER customer survey

The *DER customer survey*[59] was undertaken during 2021 and provided valuable insights into the purchasing intentions of our customers for DER technology. The majority of respondents were from wider Hobart in southern Tasmania, however there were some respondents from the north and north-west of Tasmania.

A number of respondents already owned some form of DER technology, however it was those respondents who owned household batteries or EVs that demonstrated the greatest ability to change their consumption habits.

Those customers who responded to the survey and had household batteries tended to shift their peak consumption into the off-peak periods of our time of use consumption (TAS93) network tariffs. It also demonstrated that customers with EVs on the time of use consumption tariff (TAS93) tended to have an additional evening peak between 9pm and 10pm – following the conclusion of the network tariffs peak period.

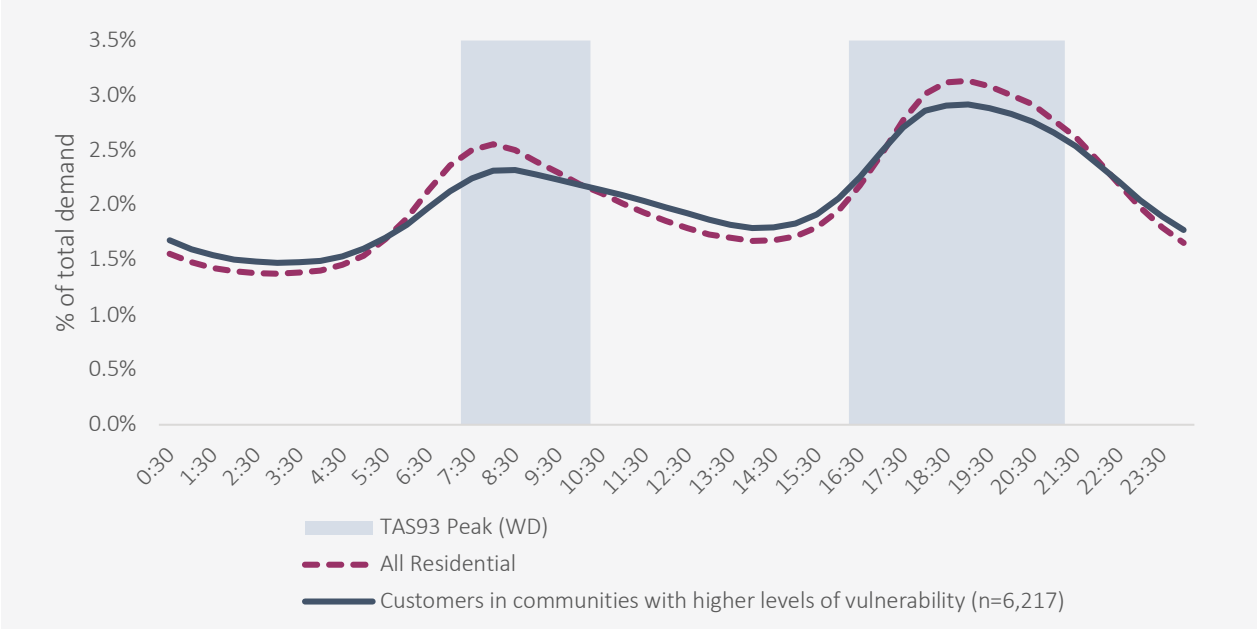
22.10.2 Customers experiencing disadvantage or vulnerability

TasNetworks combined information from the *emPOWERing You* trial and external sources such as the *Tasmania – Dropping off the Edge*[60] report to identify customers who experience higher-than-average levels of vulnerability or disadvantage. Data from around 6,200 households was used to better understand electricity consumption patterns within this customer cohort and to inform tariff comparisons between our general light and power (TAS31) and time of use consumption (TAS93) network tariffs. This data showed that customers with higher levels of vulnerability tend to have:

- relatively low levels of solar penetration – 11 per cent compared to the residential average of 16 per cent
- high levels of advanced metering (approximately 67 per cent compared with the residential average of 50 per cent)
- high levels of uptake of the time of use consumption network tariff (TAS93) (approximately 35 per cent compared with the residential average of 20 per cent). This is primarily a result of replacing the PAYG meters as part of the abolishment of the low voltage residential PAYG network tariff (TAS101).

Customers experiencing vulnerability and disadvantage tend to have lower than average consumption during the morning and evening peak periods and higher than average consumption during the middle of the day and overnight (Figure 57). Their average annual consumption is approximately 9,300 kWh (approximately 10 per cent higher than the residential average).

Figure 57. Load profiles of customers experiencing vulnerability or disadvantage



The identified consumption patterns result in relatively low proportions of peak consumption amongst customers experiencing disadvantage or vulnerability, which suggests that this group of customers are more likely to benefit more from time-of-use network tariffs than the average household.

59 TasNetworks' DER Customer Survey

60 Tasmania - Dropping off the Edge

Based on the indicative 2024-25 network prices, further analysis found that customers who experience vulnerability and currently use the residential general light and power network tariff (TAS31), 79 per cent of the 2,400 customers analysed would likely benefit from moving to the residential time of use consumption network tariff (TAS93), with average savings of around $42 per annum (Figure 58). This exceeds the proportion of all customers on the residential general light and power network tariff (TAS31) where 65 per cent are likely to benefit from switching to the residential time of use consumption network tariff (TAS93) with potential average network savings of approximately $21.

Figure 58. Annual network charge impact for customers experiencing vulnerability or disadvantage on the general light and power network tariff (TAS31)[61]

Compared to other demographics, these customers may not be as readily able to invest in technologies that could further lower their annual network bills. The next section investigates how an average customers' network charges may be influenced by changing consumption behaviour resulting from investing in CER technology.

22.10.3 Customer behaviour analysis with and without investment in technology

TasNetworks has approached the following scenario analysis by investigating two distinctly different groups of customers:

- Customers who do not respond to price signals – these customers may have invested in new technology, but have not fully optimised their utilisation of the technologies
- Customers who do respond to price signals and fully implement the advantages of new technologies.

Illustrative examples of customer profiles are provided (Table 11),[62] and the same "Base" profile was used in each scenario to measure the difference in energy usage of customers. Depending on the level of CER investment the illustrative customer profile has been provided to indicate the potential customer response, presented against:

- the time of use windows for the residential time of use consumption (TAS93) network tariff (for customers who do not respond to price signals)
- the proposed time of use windows for the residential time of use CER (TAS97) network tariff (for customers who do respond to the price signals).

The customer profiles have been identified through the data collected from TasNetworks' *DER customer survey.*

Where appropriate, an average customers' network charges have been calculated for the proposed residential time of use CER network tariff (TAS97) to demonstrate the appropriateness of this network tariff when household investment in CER technologies is high.

61 Prepared using the indicative prices for 2024-25

62 Illustrative examples provide an indication of the likely response, however may differ for individual circumstances depending on the customer's choice of network tariff and individual consumption requirements

22.10.3.1 Customers who do not respond to price signals

Throughout our cost reflective tariff discussions with stakeholders, we receive feedback in relation to customers that have a lifestyle that has them "locked into" a typical consumption profile i.e., customers use more energy during between 7am and 10am, and 4pm and 9pm on weekdays, therefore contributing to the network.

Three scenarios were developed for this group of customers:

- **Base scenario** where the average residential household consumption was approximately 7,600 kWh per annum and the customer profile reflects the average customer profile for our network.
- **Base scenario plus solar PV** accommodates those households that have invested in solar only. It is assumed that the annual consumption is reduced by approximately seven per cent to 7,100 kWh, resulting from using solar PV generation during the middle of the day. Note: the calculated network charges do not include savings made through the feed-in-tariff (**FiT**).
- The final scenario for this cohort includes the addition of **household batteries** to supplement the **solar PV installation**. It is assumed that any solar energy that is not consumed by the household is primarily used to charge the household battery, until the battery reaches its capacity. Any additional solar generation is then exported into the network. This scenario assumes a 5 kWh battery, which reduces the total annual consumption to around 6,000 kWh (i.e., a further 15 per cent compared to the previous scenario). It is further assumed that the customer does not calibrate the battery to respond to time of use price signals.

The analysis in Table 11 indicates that customers who have no CER technologies i.e., the "Base" scenario are better off using TasNetworks' time of use consumption (TAS93) network tariff when compared against the combined flat rate network tariffs (TAS31/41) – this is consistent with analysis conducted for our wider customer base, and for customers experiencing vulnerability and disadvantage. If the same customer invests in CER technology, the inherent savings resulting from reduced consumption are apparent, however the differential in network costs are marginal. Additional optimisation of storage would be required to further increase cost savings however, to maximise the value of their investment, these customers would need to respond to network pricing signals.

22.10.3.2 Customers who do respond to price signals

These scenarios reflect changing customer behaviours resulting from the investment in CER technologies. It is assumed that these customers are using time of use tariffs and aim to maximise their return on investment by responding to the charging windows of these tariffs. TasNetworks examined four CER uptake scenarios, and different responses to the residential time of use consumption (TAS93) and the residential time of use consumption CER (TAS97) network tariffs are modelled in each scenario. Under both tariff structures, customers are assumed to minimise their consumption during the respective peak hours. The modelled residential time of use consumption CER network tariff (TAS97) responses consider the extended evening peak window and assume an additional consumption shift into the midnight to 4am super off-peak period as well as a significant reduction of any excess demand above the 8.5 kW threshold. All scenarios use the "Base" customer profile established in section 22.10.3.1.:

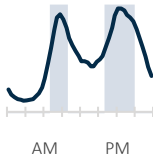
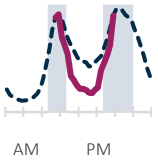
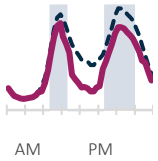
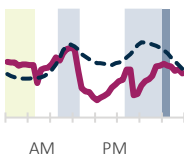
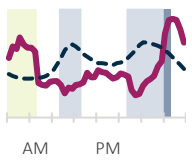
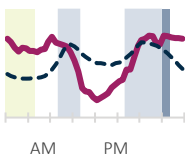
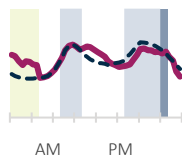
- Customers who have **household batteries installed with their solar PV** are assumed to have the same total annual consumption as the non-responder group (approx. 6,000 kWh pa). However, this group uses their batteries to lower their network charges by shifting consumption in response to time of use price signals.
- Those customers with **solar PV with household batteries** and have also invested in an EV are assumed to use any solar generation that is not consumed by the household or the battery to charge their EV. The EV charging is assumed to occur in the overnight period between midnight and 7 am. It is estimated that these customers will see an increase in consumption of approximately 21 per cent compared to non-EV owners with solar and batteries (from around 6,000 kWh to 7,300 kWh per annum).
- Customers who only have **solar PV and an EV**, but who have chosen not to invest in a household battery are assumed to use any solar generation that is not consumed by the household to charge their EV. Total annual consumption for this group is estimated to increase by around 13 per cent compared to non-EV owners with solar PV (from around 7,100 kWh to 8,000 kWh per annum).
- Customers who own an **EV** but have not invested in any additional CER technology are assumed to fully charge their EV through the network. This increases total annual consumption for this group to approximately 9,700 kWh, an increase of 29 per cent compared to non-EV owners without CER technologies.

In all scenarios, a moderate response to the proposed residential time of use CER network tariff (TAS97) has been assumed.

Table 11 summarises the findings of the undertaken analysis. The proposed residential time of use CER network tariff (TAS97) offers the best customer outcomes in all CER uptake scenarios, with estimated network savings ranging between eight and 22 per cent compared to the combined flat rate network tariffs (TAS31/41), and between 1.5 and 8.0 per cent compared to the time of use consumption (TAS93) network tariff.

Households who own the full range of CER technologies have the highest level of influence over how they consume energy. This group has the highest ability to shift consumption out of peak periods and therefore the strongest potential to realise network charge savings. While households without batteries can achieve some savings by moving to cost reflective network tariffs, they are less able to reduce their consumption during peak periods when compared to customers who have household batteries.

Table 11. Typical residential customer outcomes with different technology and network tariff combinations ($ 2024-25 nominal)

Scenario	Customers who do not respond to price signals and implement new technologies			Customers who respond to price signals and implement new technologies[f] The charts below provide an indicative customer profile where the customer responds to the relevant residential time of use consumption network tariff compared to the base.			
	Base ~7,600 kWh pa	**Base + Solar PV**[□] ~7,100 kWh pa	**Base + Solar PV + batteries**[§] ~6,000 kWh pa	**Base + Solar PV + batteries** ~6,000 kWh pa	**Base + Solar PV + batteries + EV** ~7,300 kWh pa	**Base + Solar PV +EV** ~8,000 kWh pa	**Base + EV** ~9,700 kWh pa
Key for charts: Peak (7am-10am, 4pm-9pm) Proposed super off-peak (midnight-4am)							
Residential general light and power plus heating and hot water (TAS31/41)	$843 ■	$800 ◆	$712 ◆	$712 ■	$821 ■	$881 ■	$1,028 ■
Residential time of use consumption (TAS93)	$830 ◆	$800 ◆	$706 ◆	$652 ◆	$696 ◆	$805 ◆	$971 ◆
Residential time of use consumption CER (TAS97) (assumes an additional response to the network tariff structure)	Not applicable	$801 ◆	$706 ◆	$625 ■	$640 ■	$795 ■	$947 ■

□ It is assumed that customers who only install solar PV do not substantially change their consumption profiles or behaviour. However, these customers do reduce their annual consumption, mostly through offsetting consumption during the midday off-peak, with any excess energy being exported to the network.

§ It is assumed that customers in this group install solar and batteries, but do not substantially change their behaviour.

Key for scenario outcomes (i.e., network pricing outcome depending on customer response and technology):

■ Worse customer outcome

◆ Neutral customer outcome

■ Better customer outcome

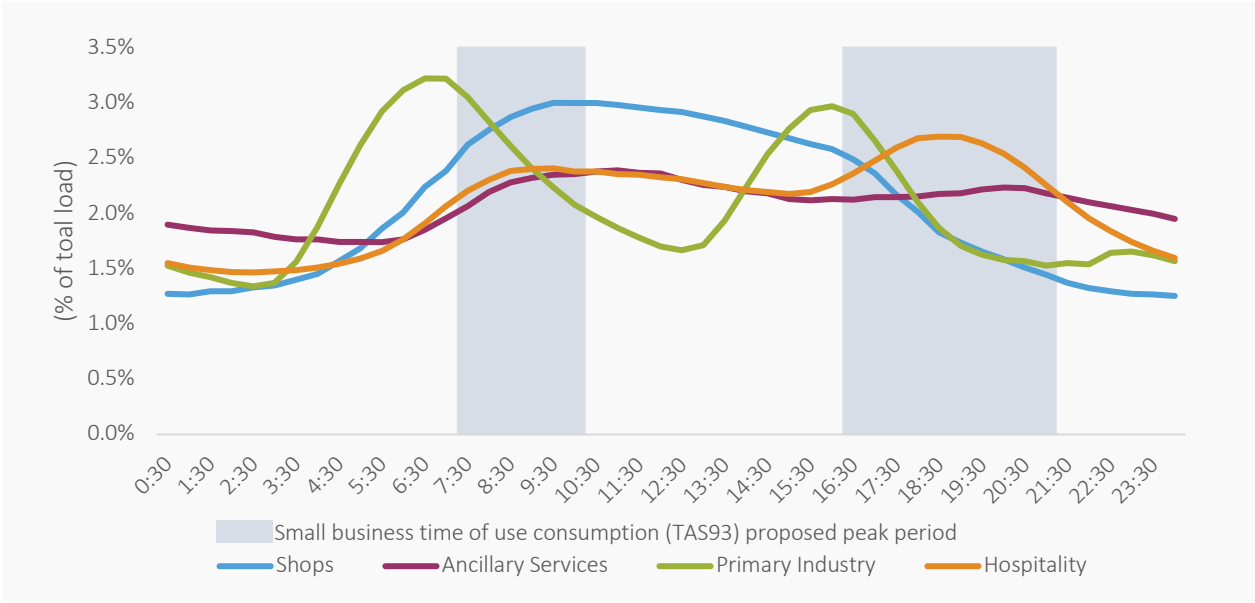
22.11 Small business impact analysis

TasNetworks is proposing to change the time of use periods for the small businesses time of use consumption (TAS94) network tariff in the 2024-2029 regulatory control period to:

- introduce a shoulder period during the middle of the day (10am – 4pm) on weekdays
- reduce the weekday evening peak period from 10pm to 9pm
- change the weekend shoulder period to off-peak all weekend.

TasNetworks' small business customers are diverse and include, but are not limited to, small industry, shops, hospitality, primary industries, educational facilities, and sports facilities. The load profiles of the most common industry types in Tasmania are shown in Figure 59 illustrating this diversity however, despite this, most businesses tend to have relatively consistent load profiles during their respective operating hours, and a common feature is the comparably high energy consumption through the middle of the day. For example, shops tend to operate between 8:30am and 5pm, the hospitality sector consumes energy all day with an increase in consumption during the evening, and our primary industry sector have a profile that reflect the early morning and early afternoon work patterns which predominantly occur prior to the network peak periods.

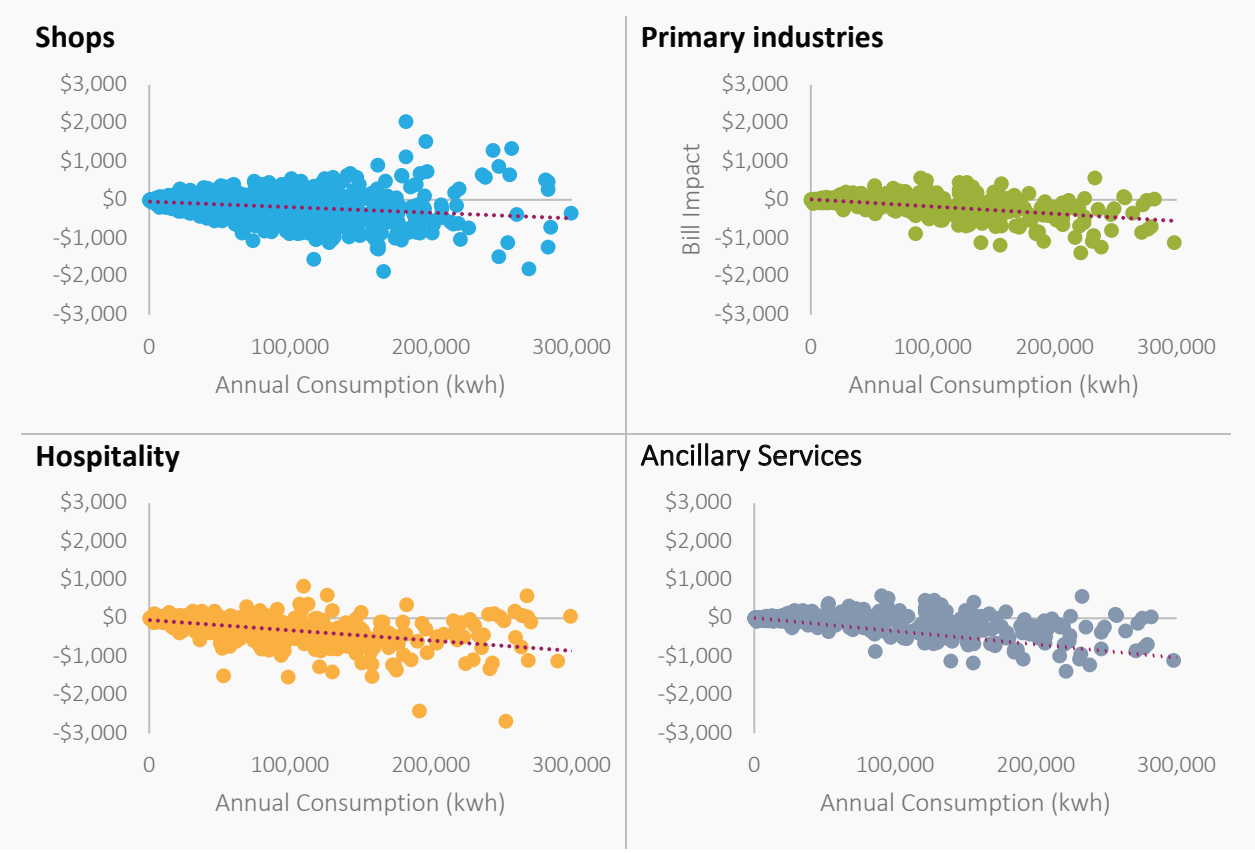
Figure 59. Small business industry load profiles



In section 22.7.3.4, Figure 33 shows the customer impact of changing the low voltage small business time of use consumption network tariff (TAS94) to the proposed time of use structure in the 2024-2029 regulatory control period for the entire small business customer group. TasNetworks has undertaken further analysis to better understand how the proposed network tariff changes impact key industries within our small business customer base.

Our analysis indicates that the proposed tariff changes, particularly the introduction of a midday shoulder period during weekdays, will likely benefit a wide range of industry types and result in network charge savings for the majority of our small business customers. The findings summarised in Figure 60 illustrates the indicative network charge outcomes for individual customers within these industries, relative to their level of total annual consumption. Each dot in the customer impact charts shows how a particular customer's indicative network charges are likely to compare under the proposed and existing tariff structures, dots below zero representing customers who are likely to incur lower charges under the proposed structure.

Figure 60. Small business time of use consumption (TAS94) rebalancing impact (annual network charge impact) [63]



The above analysis shows that the proposed changes will benefit those customers who use large proportions of their energy during the former peak windows, which have now become shoulder and off-peak periods.

63 Prepared using the indicative prices for 2024-2025

22.12 Export Tariff Transition Strategy

TasNetworks is required to set out its strategy for the introduction of export tariffs.[64] The determination of this provision in the NER was made by the Australian Energy Market Commission (**AEMC**) in August 2021.[65]

Export tariffs refer to the charging of CER exports at particular times (e.g., non-peak periods where there is excess supply) where CER exports contribute towards increased network costs. To incentivise customers, export tariffs would be expected to reward customers for the export of electricity at favourable times, such as peak periods.

TasNetworks is not proposing export tariffs in the 2024-2029 regulatory control period.

Rationale to TasNetworks export tariff transition strategy

TasNetworks has not yet established that solar PV exports are currently or expected to drive network expenditure and is therefore not able to justify the introduction of export tariffs in Tasmania for the 2024-2029 regulatory control period.

Tasmania has a relatively low penetration of solar PV installations compared to other jurisdictions. While solar PV capacity is expected to grow significantly throughout the 2024-2029 regulatory control period and beyond, solar PV generation will in large part be absorbed by storage (for later use, such as in peak times) and increasingly by electric vehicles. Tasmania has a comparatively stable minimum (and base) demand as discussed in section 22.6.4.

Importantly, any introduction of export tariffs would require there to be an attributable cost to the network related to the export of CER (likely solar PV). This relates to the intrinsic hosting capacity of the network, which was initially designed for the (one-way) delivery of electricity to load customers from large scale generation units. However, the network has some inherent ability to provide for two-way flows of electricity – facilitating the export from CER to other load points.

To determine whether CER exports will contribute to increased network costs, it is important to assess the intrinsic hosting capacity throughout the network. The hosting capacity will vary considerably throughout the network and at different times and will affect various customers differently. Assessment of the hosting capacity is also critical in planning for increased electrification of the system, such as to support increased electric vehicles in Tasmania. To fully inform whether there is a rationale for export tariffs to be introduced in the future, TasNetworks will also consider projections for CER installations, including solar PV, storage, and electric vehicles, all of which will influence how the hosting capacity is consumed.

Should there be a constrained hosting capacity in the short to medium term, and informed by aforementioned projections, TasNetworks will consider the design and results of tariff trials over the 2024-2029 period and prior to formally proposing export tariffs to be introduced in Tasmania to the AER. Tariff trials provide an avenue for innovation and are effective in testing customers' engagement and responsiveness to price signals. Export tariffs are only one type of trial that TasNetworks will consider over the 2024-2029 regulatory control period.

TasNetworks is eager to adopt the learnings from other distributors through their respective tariff trials but will also consider unique Tasmanian-specific considerations – such as Tasmania's peak supply and demand profiles which differ to mainland regions.

Tasmanian customers' sentiments regarding export tariffs, particularly two-way pricing, is a key consideration. This will continue to be tested with stakeholders through the PRWG.

There are likely to be benefits in reducing long term costs if customers can store excess CER generation and consume it later (peak times). However, price signals to contribute towards this outcome could be achieved through export tariffs or through time-of-use tariffs, such as those being proposed as part of TasNetworks' proposal.

64 NER clause 6.18.1A(2A)

65 National Electricity Amendment (Access, pricing and incentive arrangements for distributed energy resources) Rule 2021

ALTERNATIVE CONTROL SERVICES

22.13 Alternative control services tariff class

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

This section outlines our proposed changes to our metering, fee-based services and quoted services strategy.

Table 12. ACS strategy

Tariff classes	Typical customer
Ancillary services – fee based	Retail customers requesting standard services, including basic connection services, site visits and basic supply augmentations.
Ancillary services – quoted	Retail customers requesting non-standard services such as complex connection services.
Public lighting	State and local government.
Metering services	Retail customers.
Connection services	A retail customer requesting a routine connection service.

22.14 Fee based services

Fee based services are largely homogeneous services provided on request (often from retailers) for the benefit of a single customer, rather than a service supplied to customers collectively. Set fees are developed using approved labour rates and average timing and materials based on historical actuals.

22.15 Quoted services

Quoted services vary in scope and cost and are specific to an individual customers' needs. This precludes the utilisation of a set fee, requiring for each job a quote for the provision of the requested service, developed using approved labour rates.

22.16 Public lighting

Public lighting tariffs are developed based on the individual lighting types and do not include charges for the utilisation of TasNetworks' electricity network. Contributions towards the costs of the electricity network are recovered from public lighting customers through separate network tariffs.

22.17 Metering

TasNetworks' metering charges are made up of a capital charge, which recoups the cost of the meter, and an operational charge, which recovers the cost of reading the meter and managing the data. As with our network charges, rather than bill customers directly, TasNetworks recovers its metering costs from electricity retailers, which factor in those metering charges when setting their retail tariffs.

22.18 Connection Services

Basic connection services are provided via fee-based services. Complex connections that vary in scale and scope are provided as quoted services.

Appendix A – Setting our tariffs

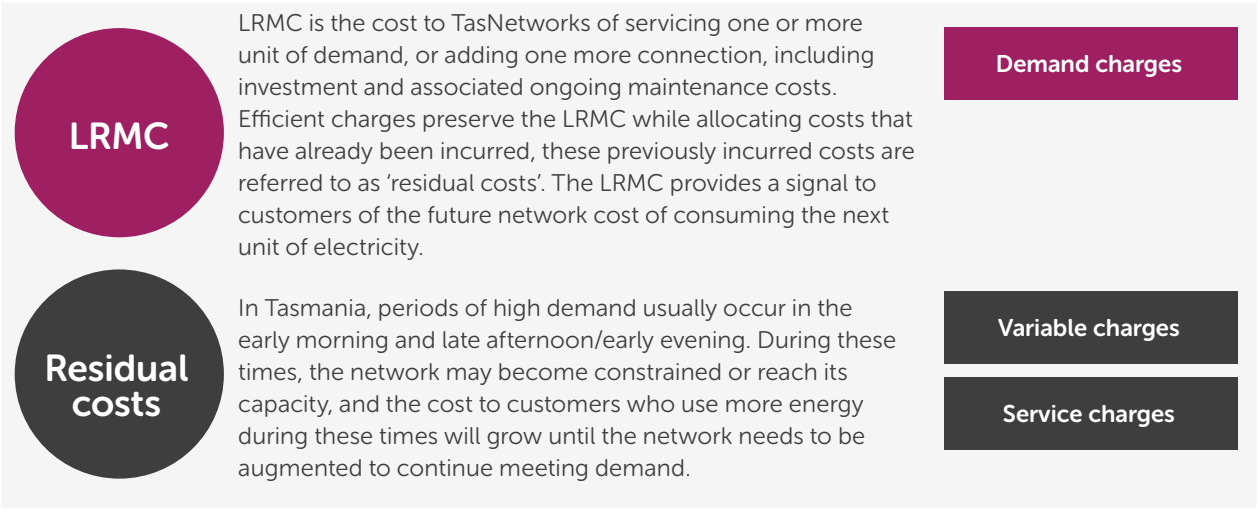
Our network tariffs are set to achieve our pricing objectives, like cost reflectivity, while taking into account forecasts of customer numbers, consumption and demand, and new connections relating to each network tariff.

Appendix A.1 What does efficient charging mean?

The NER state that our network charges for each customer should reflect TasNetworks' efficient costs of providing these services to that customer, meaning that the network charges for each of our services must be based on the LRMC[66] of providing the service to the retail customers assigned to the tariff.

The difference between LRMC driven costs and our allowed revenues are our residual costs (Figure 61).

Figure 61. Long run marginal cost and residual cost



However, if we set charges based only on our LRMC, we would not recover the required revenue. Therefore, to minimise distortions to our charging signals, the residual cost is equal to the total efficient cost[66] of that tariff.

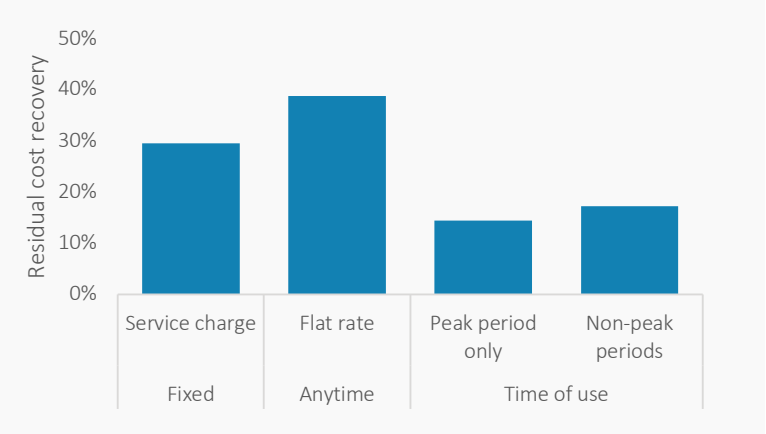
This approach means that our most efficient network charges – demand charges and peak consumption charges[67] – most closely reflect the LRMC estimate for those tariffs. Our least efficient network charges are anytime charges, these are reflected in our flat rate tariffs.

We have sought to allocate our residual costs – the difference between the LRMC-driven costs and our allowed revenues – in a manner that minimises distortions to efficient charging signals and encourages opt-in uptake to our cost-reflective tariffs. Figure 62 shows that where the charging parameters are not closely linked to the drivers of TasNetworks' costs, a higher allocation of residual costs is apparent, for example with our flat rate tariffs.

66 The methodology for calculating the LRMC is provided in TasNetworks' Distribution Pricing Methodology

67 LRMC are signalled through the more cost-reflective charging parameters which most closely relate to time of high network utilisation

Figure 62. Allocation of residual costs by charge category



How we apply efficient charging to our tariffs

Our tariffs are designed to align with the Rules' requirement that tariffs be based on LRMC and the recovery of our TEC. However, a different approach is taken for legacy tariffs compared to newer more cost reflective tariffs.

- **Legacy tariffs:** Legacy tariffs include our residential general light and power, plus the heating and hot water (TAS31/41), and our small business general light and power (TAS22) tariffs. These tariffs have been available to customers for a long period of time and exhibit varying degrees of cost reflectivity. We are gradually transitioning these tariffs towards full cost reflectivity across multiple regulatory control periods thereby minimising price shocks to our customers. Each year we incrementally transition our legacy tariffs closer to the target of cost reflectivity. We aim to have these tariffs fully aligned to their respective time of use tariffs by the end of the 2024-2029 regulatory control period.
- **New tariffs:** Any network tariffs recently introduced by TasNetworks have been designed to have a high degree of cost reflectivity from the outset. To encourage customer uptake of our more cost reflective tariffs, we have historically provided customers with a discounted price point. This is a transitional approach that has applied for demand based tariffs introduced during the 2019-2024 regulatory control period.

Appendix A.2 What does cost reflectivity look like?

When designing a new tariff, we determine the costs to be recovered from the tariff class, and design the charging parameters within a tariff, in order to reflect the long-term costs of providing that service to our customers. Effective price signalling is a consideration in the tariff design which includes understanding our customers' use of electricity and cost that use has on the network.

The charging parameters of our network tariffs are designed to:

- Recover revenue from our tariff classes that reflect the costs of providing services to customers within those tariff classes
- Send a price signal to customers about the cost of their use of the network through the selection of appropriate charging parameters.

Our network tariffs may include some or all the following components:

Figure 63. Network tariff components

Service charge

This charge relates to the connection to the grid. It is the ability for customers to receive energy.

Capacity charge

The maximum rate energy is used at the connection point. It refers to the maximum demand at a point in time (KVA).

Demand charge

Reflects the rate energy is used. It is measured using maximum demand at point(s) in time over a defined period (KVA or kW)

Consumption charge

Refers to the amount of energy used and is liked to a cost per unit of energy consumed over a period of time (kWh).

Within the consumption and demand components of a network tariff, there may be different tariff parameters to reflect customers' usage and their impact on the network, for example:

- Seasonality
- Anytime usage charges
- Maximum demand
- Specified demand
- Time of use.

These components of our network tariffs allow us to offer prices which are lower at times of spare capacity and higher prices at time when there is greater demand for electricity. Time of use reflects the potential investment required in the network during periods of high demand. The setting of time periods are referenced to system load profiles for the electricity network as a whole.

Setting demand charges with reference to the LRMC

The demand charge component of a network tariff is based on the LRMC calculated at the voltage level (for example, high voltage and low voltage), which is then applied to our tariffs. Our LRMC is determined by forecasting demand as well as forecast augmentation and relevant replacement capital expenditure[68].

Where we have been able, we have set the demand component of our network charges at, or approaching the LRMC for the relevant tariff class. The cost components of the estimates have been developed utilising the ten-year Program of Work (**PoW**) forecasts. The PoW forecast include the projects that are related to augmentation of the network as they relate to increasing capacity as well as a proportion of forecast replacement expenditure (**repex**), plus associated incremental operating expenditure (**opex**). Further information on how we have derived our LRMC is found in our Distribution Pricing Methodology.

The use of Total Efficient Cost in our tariff setting process

The total efficient cost methodology is used to determine the proportion of TasNetworks' total annual revenue requirement to be recovered from each network tariffs in a manner which reflects the cost of supplying customers who are using these tariffs. Transitioning tariffs towards full TEC recovery provides customers with efficient price signals and removes cross-subsidies within TasNetworks' suite of networks tariffs.

For the upcoming 2024-2029 regulatory control period, TasNetworks' TEC model:

- sends a clear and transparent price signal to our customers
- better capture where costs occur on the network
- increase TasNetworks' ability to fulfil our obligations to energy reform
- remove complexity and allow for the transparent allocation of costs
- respond to innovation
- manage impacts to customers.

The revenue is allocated to tariff classes and ultimately onto individual tariffs for each network level, by considering which tariff class uses which part of the network.

68 The methodology for calculating the LRMC is provided in TasNetworks' Distribution Pricing Methodology

Appendix A.3 Treatment of transmission costs

Transmission related costs are allowed to be recovered from our distribution customers. TasNetworks recovers a proportion of these costs in recognition of the distribution customers' use of the transmission assets for their power supply.

These are referred to as transmission use of system (**TUOS**) charges and are incorporated into all network tariffs. TUOS charges are generally recovered through the same tariff parameters as our distribution revenue[69] and the same tariff setting approach (as outlined in Appendix A.1 and Appendix A.2) is applied. The only exceptions are our high voltage business tariffs TAS15 and TASCUS1 for which locational TUOS charges are applied to enhance the cost-reflectivity of the price signals.

69 TUOS charges are not recovered through TasNetworks' Service Charges

Appendix B – Engaging customers in our pricing plan and tariff designs

To develop our pricing strategy for the 2024-2029 regulatory period, we have engaged extensively with a range of external stakeholders, including retailers, end-use customers and their advocates, regulators and government bodies. We have done this to understand their preferences and seek their input in relation to network tariff reform.

In particular, we have been supported by a core group of highly engaged stakeholders in the form of our PRWG. The group includes representatives from business and industry, the community sector, the electricity industry and renewable energy advocates.

Our initial engagement with the PRWG involved the design of our pricing principles. These principles guide the development of our network tariffs and products, which help us refine our service offerings to ensure customer expectations are met. Over the past 18 months we have held seven stakeholder workshops and published seven reading packs which provide information on the changes which have been occurring in the network, customer behaviour and market trends.

The following table summarises each of the PRWG engagement workshops conducted to date in support of the development of TasNetworks' regulatory proposal for the 2024-2029 regulatory control period.

Table 13. PRWG engagement and outcomes

Meeting	Forum purpose	Agenda	Form of engagement	Engagement outcomes
4 June 2020	The key purpose of the June forum was to collaborate on TasNetworks' pricing principles. The forum focussed on two key areas, customer engagement and pricing. The first half of the forum provided an overview of key customer engagement trends and TasNetworks' Revenue Reset engagement roadmap. The second half of the forum took a deep dive into TasNetworks' pricing principles. The forum concluded with an introduction on a new TasNetworks business initiative, the Customer Outage Review.	• Industry engagement trends and best practice, presented by Energy Consumers Australia (ECA). • Revenue Determination 2024-2029, timeline and milestones and engagement approach. • Activity – pricing principles collaboration.	PRWG engagement forum held via Skype	Members provided feedback on our draft pricing principles. From this feedback, we shaped our pricing principles for the 2024-2029 regulatory period.

Meeting	Forum purpose	Agenda	Form of engagement	Engagement outcomes
20 October 2020	The forum focussed on TasNetworks' pricing strategy, progress to date, barriers to the uptake of cost reflective tariffs and the emergence of CER. The first half of the forum focussed on the rollout of advanced meters and the uptake of cost reflective tariffs. Members were then asked to provide their input on what the barriers are to customers moving to cost reflective tariffs. The second half of the forum discussed the growth of CER, such as solar PV, electric vehicles and batteries, and the impact and opportunities on the Tasmanian distribution network. Following this, members were asked for their input on what they perceive are the key challenges of CER on the network.	• Purpose and objectives of pricing strategy engagement. • Pricing strategy re-cap: update on rollout of advanced meters and uptake of cost reflective tariffs. • Engagement activity – what are the barriers to TasNetworks' achieving its pricing strategy and why / how can we reduce these barriers? • Growth, opportunity and impact of CER. • What are the challenges of CER on the network and how can TasNetworks work with stakeholders to develop pricing options in response to the emergence of CER?	PRWG engagement forum held via Zoom	• TasNetworks shared the finalised pricing principles to complete the pricing principles development engagement. • Members provided key insights on how TasNetworks can achieve its pricing strategy. Feedback focussed on customer engagement and information provision relating to financial benefits of ToU pricing. • Members discussed a range of opportunities and impacts of DER. The feedback was varied but an underlying theme was that CER such as solar, especially in Tasmania, solely benefits the individual consumer (rather than the network or wider community) and so should be priced accordingly. • Members also requested further information from TasNetworks in the form of background information papers and releasing these to the wider public for further community consultation.

Meeting	Forum purpose	Agenda	Form of engagement	Engagement outcomes
3 March 2021	The forum objective was to determine whether there are any changes needed to our network tariff assignment policy. The forum's purpose was to continue the development of TasNetworks' 2024-2029 distribution pricing strategy and to demonstrate the pace of network tariff reform both in the NEM and Tasmania. Further, to identify and understand whether there are barriers that may be impacting the pace of reform in Tasmania, including: • understanding the impact of network charges on customers • determining whether there is a need to incentivise certain customer groups to take-up cost reflective network tariffs • whether changes to the network tariff assignment policy can assist with increasing the uptake of cost reflective network tariffs.	• Residential customer analysis • Residential engagement activity • Small business customer analysis • Small business engagement activity • Customer education engagement activity	PRWG engagement forum held face-to-face.	• The PRWG determined that a change is required to TasNetworks' tariff assignment policy for 2024-2029 to incentivise the take-up of cost reflective network tariffs, however the pace of change is yet to be decided. • PRWG members discussed the option of making the flat rate network tariff obsolete for both residential and small business customers over the next 5 – 10 years. • To determine the pace of this change, members noted that further information would assist in understanding customer impacts. • Members also discussed the option of introducing a discount for residential customers on the ToU network tariff relative to the flat rate network tariff but determined that quantification of the benefits of such a discount was required to better understand this option.

Meeting	Forum purpose	Agenda	Form of engagement	Engagement outcomes
1 July 2021	The workshop's objective was to demonstrate the trends TasNetworks is seeing on the network and understand customers' preferences in relation to using network pricing to facilitate increasing levels of DER technology and embedded networks. In particular, the forum centred on a discussion about TasNetworks' network tariff assignment policy, options for tariff trials and the potential introduction of an embedded network tariff in 2024-2029.	• Tariff assignment policy discussion – making the flat rate network tariff obsolete • Tariff trial options and co-design of principles governing any trial(s) • Embedded network discussion, including designing an embedded network tariff	PRWG engagement forum held face-to-face.	• The PRWG determined that a change is required to TasNetworks' tariff assignment policy in the next regulatory period to account for the growing uptake of DER, particularly EVs. • Three triggers were identified by the PRWG for making flat rate network tariffs obsolete for residential and small business customers: (1) new builds, (2) new connections when a customer moves into a property where the previous resident was on a ToU network tariff, and (3) when a customer chooses to move onto a ToU tariff (and is not permitted to revert back to flat rate). • Identified customer protections, include a cooling off period (potentially to first bill), better visibility of usage and differentiating between customers who choose to move onto a ToU tariff and just choose to change their meter. • Together with TasNetworks' representatives, the PRWG co-designed a set of tariff trial principles. • A number of tariff trial opportunities were identified for 2024-2029, including trials of export charging, community batteries and EVs. • Discussion was commenced regarding a possible network tariff for embedded network operators, with the PRWG indicating a preference for a capacity-based network tariff structure.

Meeting	Forum purpose	Agenda	Form of engagement	Engagement outcomes
16 November 2021	The purpose of the forum was to engage with PRWG members on aspects of TasNetworks' pricing strategy for the regulatory control period beginning on 1 July 2024 and ending 30 June 2029. Specifically, the workshop considered: • network tariff options that could better reflect the value of network connection for embedded networks • alternative time-of-use windows for the TAS94 small business network tariff • findings from a survey of customers with Consumer Energy Resources • possible revisions to TasNetworks' existing CER network tariff that might better suit the behaviours and needs of prosumers.	• Engagement roadmap • Embedded network tariffs • Reviewing time of use windows • Prosumer network tariff • Network tariff assignment rules	PRWG engagement forum held face-to-face, in conjunction with a meeting of TasNetworks' Customer Council. Topics relevant to both groups were explored in a joint session.	• A capacity charge was assessed by PRWG members as being a good means of applying, or passing-through, cost-reflective network charges to embedded network tenants. • The PRWG was supportive of the concept of a capacity-based charge as part of a network tariff designed specifically for embedded networks, although there was some support for the use of a smaller number of wider/less granular capacity allowances than the five-tier structure presented to the Group. • Concerns were expressed by PRWG members about perpetuating any current inequities if existing embedded network customers are allowed to remain on a less appropriate network tariff once an embedded network tariff had been introduced. • Of four alternative changes to the TAS97 network tariff for customers with CER put forward to the PRWG, extending the evening peak period emerged as the group's preferred option, ahead of extending the morning peak period and extending the duration of the average demand windows. • Feedback previously provided by the PRWG about the triggers for the default assignment of residential customers to time of use consumption-based network tariffs has been considered by TasNetworks' wider stakeholder base and used to shape the assignment rules that are to be proposed in TasNetworks' Tariff Structure Statement for 2024-2029.

Meeting	Forum purpose	Agenda	Form of engagement	Engagement outcomes
7 April 2022	The purpose of the forum was to ascertain PRWG members' preferences regarding network pricing to facilitate increasing levels of technology and embedded networks, and inform the PRWG of proposed changes to TasNetworks' connections policy and alternative control services for the 2024-2029 regulatory control period. The workshop's objectives were: • to build understanding amongst the PRWG of alternative control services and seek the group's input on TasNetworks' proposed metering services strategy • to present and consult on the revised tariff structure of TasNetworks' CER demand-based time of use network tariff • to inform and consult with the PRWG regarding revisions to the time of use periods applying to the small business time of use network tariff by TasNetworks • to confirm the approach being taken by TasNetworks' in developing a network tariff for embedded network operators • to seek PRWG endorsement of TasNetworks' proposed export tariff trial engagement.	• Alternative Control Services • Consumer Energy Resources • Export services • Small business time of use peak windows • Embedded network tariffs	PRWG engagement forum held face-to-face. In addition to members of the PRWG, officers from the AER and members of the AER's Consumer Challenge Panel attended the meeting in an observational capacity.	• PRWG members supported TasNetworks' proposal to fully recoup the remaining capital cost of its superseded accumulation meters by the end of 2028-29, instead of continuing the current rate of recovery that would take until 2030-31. It was agreed that this approach would better align the cost recovery with the reduced service life of the meters, while still delivering a reduction in the level of metering charges for customers. • A member of the PRWG suggested more wide-spread use of estimated meter reads by TasNetworks, as a means of reducing meter reading costs in the face of declining numbers of legacy meters and declining economies of scale as the rollout of advanced meters by electricity retailers in Tasmania continues. • A number of PRWG members expressed support for the use of a demand threshold as part of network tariffs applying to customers with CER, as a means of discouraging consumer behaviour that creates new peaks in demand in what are currently off-peak periods for the network. • In relation to TasNetworks' existing network tariff for customers with CER, PRWG members did not support either continuation of the existing tariff structure (but with extended peak period duration), or the use of an **ATMD** charge. Support was divided between two alternative modifications to the design of the CER tariff, with the introduction of a demand threshold and excess demand applying throughout the day rated by the group as the preferred option.

Meeting	Forum purpose	Agenda	Form of engagement	Engagement outcomes
				• It was noted that TasNetworks does not intend introducing an export tariff in the next regulatory period, but intends conducting a tariff trial in the next regulatory period. • PRWG members indicated a preference for preserving the existing relativities when setting the peak, shoulder and off-peak prices for small business customers on the small business time of use network tariff. • Any embedded networks tariff introduced in the coming regulatory period will only apply to new embedded networks. Existing embedded networks would also be able to switch to the new tariff on an opt-in basis, however won't be able to switch back to a non-embedded network tariff once assigned to a network tariff for embedded networks.

Meeting	Forum purpose	Agenda	Form of engagement	Engagement outcomes
16 August 2022	The purpose of the forum was to conclude discussions about the new network tariffs being proposed for the 2024-2029 regulatory period for embedded network operators and residential customers with CER, to test proposed improvements in the way TasNetworks prices quoted services and seek PRWG advice about the topics of importance to customers in relation to network tariff reform. Representatives of the AER were also in attendance to provide PRWG members with an overview of the Regulator's role in setting distribution network pricing.	• The role of the AER in price setting • Standard control services • Engaging with our customers • Alternative control services	PRWG engagement forum held face-to-face. In addition to members of the PRWG, officers from the AER attended the meeting in person and online.	• PRWG members were accepting of the analysis of residential customers' time of use metering data undertaken by TasNetworks to arrive at the proposal for an anytime maximum demand threshold of 8.5kW to apply to customers assigned to the residential CER network tariff in the 2024-2029 regulatory control period. • It was noted that if, approved by the AER, the proposed network tariff would be available to customers on an opt-in basis, as an alternative to the default residential network tariff applying in the 2024-2029 regulatory control period. • A proposal to reduce the number of labour categories used to price the delivery of quoted services from 16 to eight was generally supported by the members of the PRWG attending the workshop. • A proposal to reduce the number of labour categories used to price the delivery of quoted services from 16 to eight was generally supported by the members of the PRWG attending the workshop. • PRWG members rated the proposal to reduce the number of labour categories used to price quoted services highly against three of the pricing principles developed by the PRWG: Fairness, Simplicity, and Consistency. • It was noted that the methodology used to price quoted services is designed with competitive neutrality in mind, with the AER looking to ensure that the prices charged are both cost-reflective, consistent and transparent.

Meeting	Forum purpose	Agenda	Form of engagement	Engagement outcomes
				• The PRWG members in attendance were fundamentally supportive of a proposal to discontinue the practice of applying rebates to the cost of relocating assets based on the age of the assets being removed, in the interests of improving customer equity and providing a more cost-reflective, efficient price signal to parties that request asset relocations in the future. • It was noted that TasNetworks does not stand to receive more income from the relocation of network assets as a result of the change, but that the change result in those requesting asset relocations paying the full cost or removing and replacing the assets. • The change will increase the cost of asset relocations for the customers/third parties that request them, although the overall cost to TasNetworks of removing assets and relocating network infrastructure will be unaffected. • To guide TasNetworks' customer communications in the future, PRWG members were asked to vote for the issues which they considered would be of the greatest relevance to end-use customers in the coming regulatory control period. Four topics were voted as the topics having the greatest importance: ` - advanced meters - time of use tariffs - pricing principles - obsolete network tariffs.

Not all customers want the same things from their electricity network, nor do stakeholders always agree on the actions they think TasNetworks should take in relation to a particular issue. Through our engagement activities we have tried to capture feedback from a diverse range of customers and stakeholders. The following table summarises the key questions and suggestions raised by members of TasNetworks' PRWG regarding issues relevant to TasNetworks' regulatory proposal for the 2024-2029 regulatory period.

Table 14. Issues raised by customers

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Information provision	Customers need more information to make a decision on which tariff option best suits their needs. Information needs to provided during the meter change process, with a call to action regarding tariff choice. Working together on local research on effective customer education and understanding customer behaviour in response to tariff options. Provision of data and information on usage and trends.	TasNetworks will provide further background papers to the PRWG and wider public to facilitate further community consultation.	PRWG members	20 October 2020	Policy and Regulatory Working Group
Financial benefits of ToU tariffs	There is an opportunity to provide customers with information on the most appropriate ToU tariff, including: • more data on customer's usage of electricity on a ToU basis and evidence that time of use is of benefit • more education required on different tariff types	TasNetworks provided PRWG members a response regarding the research on the benefits of cost reflective network tariffs at the following PRWG in March 2021. TasNetworks stated that the rollout of advanced meters was providing better insights into customers' network usage. TasNetworks has agreed to develop complementary measures to keep customers better informed.	PRWG member	20 October 2020	Policy and Regulatory Working Group
Simple language	Information shared with customers regarding the best tariff option for them should be provided in simple, easy to understand language. More information on what tariff options could be provided in association with relatable customer groups, i.e. large, working family or stay at home couple.	Feedback shared with retailers.	PRWG member	20 October 2020	Policy and Regulatory Working Group

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
CER	Customers without CER shouldn't be disadvantaged. The CER input should be of prime benefit to the owner. TasNetworks needs to understand the drivers of customers considering CER and the impact on the network of a CER. Lack of understanding of localised value of CER, otherwise it costs to use the network – change the mentality.	TasNetworks agrees that continued monitoring of network utilisation is required to better understand localised issues relating to CER.	PRWG member	20 October 2020	Policy and Regulatory Working Group
CER Network Impact	The world is changing. The use of solar PV micro-embedded generation is increasing, and TasNetworks needs to manage the current network but also understand what the network will look like in 2050. TasNetworks needs to plan for this network and understand how trials, such as the Bruny Island Battery Trial, would be possible on the wider network.	Future-ready pricing structures.	PRWG members	20 October 2020	Policy and Regulatory Working Group
Public engagement	TasNetworks needs to consult extensively. Seeking public submissions would be one way of getting more stakeholders involved and help TasNetworks get more 'buy-in' and acceptance of its plans for the coming regulatory control period. To this end TasNetworks should develop various scenarios, with case studies, publish them and then have lots of meetings/ consultations.	TasNetworks will provide further background papers to the PRWG and wider public for further community consultation.	PRWG members	20 October 2020	Policy and Regulatory Working Group
Network benefits of ToU	Members requested information from TasNetworks that would explain the network impact of a 20 per cent reduction in peak demand by residential customers, to help quantify the benefit of making changes to TasNetworks' tariff assignment policy (i.e. making the flat rate network tariff obsolete).	TasNetworks committed to providing this information at the next PRWG (June 2021).	PRWG member	3 March 2021	PRWG, March 2021

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Tariff assignment	TasNetworks' tariff assignment policy should be changed for 2024-2029 to incentivise the uptake of cost reflective network tariffs, however the pace of change is yet to be decided.	Tariff assignment policy information will be provided to our customers to help them understand the pace of tariff reform. Changes to our assignment rules to be shared 16 November 2021.	Consensus throughout PRWG group	3 March 2021	PRWG, March 2021
Engaging with customers	In order to engage with customers, TasNetworks should consider using representative bodies to access distinct customer groups.	TasNetworks will consider how to best utilise representative groups as part of its forward engagement strategy.	PRWG member	3 March 2021	PRWG, March 2021
Pricing strategy	There was strong consensus from within the group that a change is required to TasNetworks' pricing strategy to prepare for the significant uptake of CER likely in the next regulatory period. This includes changes to TasNetworks' tariff assignment rules, tariff trials and the introduction / revision of new CER tariffs.	Response to be shared at 16 November 2021 workshop.	Consensus view amongst PRWG members	3 March 2021	PRWG, March 2021
Tariff assignment	Members indicated a preference to include customer protections when making any changes to tariff assignment rules that make flat rate network tariffs obsolete, including a cooling-off period.	Incorporated in our proposed assignment rules. 12-month cooling off period applied to customers who are placed on ToU Consumption due to advanced meter installation (as opposed to new connections). Shared 16 November 2021.	General consensus from the group	1 July 2021	PRWG, July 2021
Tariff assignment	Another customer protection was differentiating between choosing to go on a ToU network tariff and choosing just to go on an advanced meter.	Incorporated in our proposed assignment rules. A 12-month cooling-off period will be applied to customers who are placed on a ToU consumption-based network tariff due to advanced meter installation (as opposed to new connections). Shared with the PRWG on 16 November 2021.	PRWG member	1 July 2021	PRWG, July 2021
Tariff trials	Members opined that any trials conducted by TasNetworks must have a clear intent and purpose defined prior to starting the trial.	This point has been addressed in the co-designed tariff trial principles developed in conjunction with the PRWG.	PRWG members	1 July 2021	PRWG, July 2021

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Tariff trials	Members indicated a strong preference for TasNetworks to explore trial opportunities related to community-batteries. Members shared that this would allow a wider range of customers to share in the benefits of renewable energy technology.	TasNetworks is exploring options for a community battery trial in 2024-2029.	PRWG members	1 July 2021	PRWG, July 2021
Embedded Networks	Members shared a preference for TasNetworks to explore a capacity-based tariff structure for any purpose-designed embedded network tariff.	TasNetworks will present capacity charge options for consideration by the PRWG at the 16 November 2021 workshop.	General consensus from the group.	1 July 2021	PRWG, July 2021
Relationship between tariff reform and service classification	A question was raised regarding the linkage between the tariff change proposals which the PRWG was being asked to consider and changes to TasNetworks' framework and approach which had been proposed to the AER by TasNetworks.	It was explained that the two issues are not directly related. The processes for developing and approving the tariffs used to recover the cost of providing services is not part of the framework and approach setting process.	PRWG member	16 November 2021	PRWG, November 2021

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Embedded networks	One stakeholder questioned the need to recover a greater contribution towards the cost of the shared network from embedded networks than would result from the application to an embedded network operator of the network tariffs that are currently applied to individual residential or small-business customers. It was suggested by that stakeholder that this scenario would be at odds with the reduction in costs for networks (and retailers) associated with the presence of embedded networks, and that any reduction in costs for the network should be reflected in the network tariffs applied to embedded networks.	When the PRWG first considered the issue of equity in relation to embedded network operators, the Group agreed that having embedded networks pay the same network service charges as a residential customer was not equitable. In the interests of greater cost reflectivity and, therefore, equity, it may also be appropriate for any embedded network tariffs to distinguish between embedded networks connected at low and high voltages – noting that residential customers and most small businesses are connected at low voltage, and to apply the same network tariff to an embedded network operator taking supply at high voltage would exacerbate any inequity. TasNetworks concurs with comments made to the PRWG by the AER that cost-reflectivity is a principle the AER likes to adhere to in relation to embedded networks, and on that basis, TasNetworks maintains the position that embedded networks should face network pricing similar to that which is applied to customers with similar connection characteristics and load profiles.	PRWG member	16 November 2021	PRWG, November 2021

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Embedded networks	A member of the PRWG questioned why the operator of an embedded network would voluntarily opt-in to an embedded network tariff arrangement involving higher network charges than those applied to single residential customers, and that this called into question the need for a network tariff specifically for embedded networks. The down-stream customers of embedded networks were also characterised by the PRWG member as being vulnerable, the implication being that a greater contribution towards the cost of the shared network from embedded network operators would be passed on to those vulnerable 'tenants' by the owner/operator of the embedded network.	At the time of the query, TasNetworks was continuing to develop its thinking in relation to embedded networks and remained open to alternative arguments, including the possibility that there may not be sufficient demand for a network tariff specifically designed for embedded networks to warrant its development. Consideration to date in relation to embedded network tariffs has focussed on new connections with a view to the tariff being the charging mechanism for these new customers, while remaining opt-in for existing customers. As noted by several stakeholders, there is an equity issue with the current arrangements, which don't distinguish between an embedded network that supplies multiple downstream customers and a stand-alone single customer with their own network connection, with the biggest beneficiaries of this imbalance being larger embedded networks. It was suggested by one stakeholder that applying embedded network tariffs to larger commercial enterprises operating embedded networks would help protect customers in vulnerable situations.	PRWG member	16 November 2021	PRWG, November 2021
Embedded networks	Should TasNetworks introduce a network tariff(s) specifically for the operators of embedded networks, and were that network tariff to be based on a number of tiered 'capacity allowance', a query was received regarding how often customers on such a network tariff would be able to change their nominated capacity level.	It was noted that business customers assigned to TasNetworks' existing 'specified demand tariffs' are permitted to request a mid-year change to their nominated demand once a year, in addition to the process of annual review. TasNetworks will take into account the PRWG's feedback when designing the terms and conditions applying to any network tariff proposed specifically for embedded networks operators.	PRWG member	16 November 2021	PRWG, November 2021

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Small business time of use windows	The PRWG accepted the position presented by TasNetworks that the time of use periods applying to the consumption-based time of use tariff for businesses (TAS94) could be better aligned to reflect the collective load profile of the customers on that network tariff and times of high network utilisation. Of the three options put-forward to the PRWG by TasNetworks to gauge support for revised time-of-use windows for the TAS94 tariff, an option involving removal of the weekend shoulder period which is part of the current tariff design was considered to align well with the load profile of typical business customers, although for different reasons all three options received not dissimilar overall levels of endorsement.	TasNetworks has incorporated the PRWG's feedback into the small business time of use network tariff being proposed for the 2024-2029 regulatory control period.	PRWG members	16 November 2021	PRWG, November 2021
Legacy metering	A member of the PRWG suggested the more wide-spread use by TasNetworks of estimated meter reads, as a means of reducing meter reading costs in the face of declining numbers of legacy meters. Estimated meter reads were employed early in the Covid-19 pandemic and, for customers on a quarterly billing cycle, two estimated reads could be used per annum, alternating with meter reads.	The scope for TasNetworks to use estimated meter reads under the current rules is not clear and would need to be investigated before contemplating such a course of action. Estimated meter reads can also sometimes lead to bill shocks when trued-up by subsequent meter reads, in cases where an estimated meter read materially understated a customer's consumption of electricity. Self-reading of meters by customers is another alternative to site visits by a meter reader that is sometimes used in order to reduce the scope for a customer to receive a bill from the retailer based on an inaccurate estimate.	PRWG member	7 April 2022	PRWG, April 2022

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Demand thresholds	When considering potential demand-based elements of network tariffs designed for customers with CER, members of the PRWG sought clarification of whether TasNetworks could cut a customer's supply off if they exceeded a certain level of demand.	There is currently no network tariff under which TasNetworks disconnects customers if they exceed a particular load. Some tariffs, such as the high voltage specified demand tariffs applying to some business customers, impose higher demand charges if customers exceed their nominated maximum demand. But the customer is not disconnected or their load restricted. Any demand threshold applying to a revamped network tariff for customers with CER would need to be determined in conjunction with TasNetworks' engineering teams and draw on analysis of customers' loads. This includes consideration of minimum demand due to solar exports, although – unlike some distribution networks in other states – Tasmania is yet to experience the situation where exports of energy by customers exceed minimum levels of demand on the network.	PRWG member	7 April 2022	PRWG, April 2022
Primary versus secondary tariffs	Are the CER tariffs being considered intended to be primary or secondary network tariffs, in the way that the space heating and hot water tariff (TAS41) has been a secondary tariff to the general network tariffs applying to residential customers and small businesses?	If a customer opts-in or is assigned to a CER network tariff, that tariff will apply to the customer's entire load profile.	PRWG member	7 April 2022	PRWG, April 2022
Time of use tariffs and daylight savings time	How do the time of use periods associated with any of the CER tariff options under consideration interact with Daylight Savings in Tasmania?	The network is operated, and network tariffs time of use periods framed with reference to Australian eastern standard time.	PRWG member	7 April 2022	PRWG, April 2022
Tariff trials and CER tariffs	Does TasNetworks intend making changes to the existing CER tariffs in the next regulatory control period, based on the feedback it receives from the PRWG, or is it TasNetworks' intention to merely conduct a trial of those changes?	TasNetworks' intention is to make changes to the existing CER tariffs in the next regulatory control period, not to conduct a trial of those changes.	PRWG member	7 April 2022	PRWG, April 2022

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Export tariffs	Does TasNetworks intend introducing an export tariff in the next regulatory control period?	TasNetworks does not intend introducing an export tariff in the next regulatory control period, as CER take-up levels in Tasmania lag behind the levels in other states where export-driven network issues are being experienced. TasNetworks may conduct a trial of an export tariff in the next regulatory control period, as well as draw on the experience of other jurisdictions. Tasmania is not yet facing the imbalance during the middle of the day between renewable energy production and the demand for electricity that is being experienced in other states and territories, which lessens the impetus for the introduction of export charges.	PRWG members	7 April 2022 16 August 2022	PRWG, April 2022 PRWG, August 2022
Export tariffs	When the prospect of export charges, as a result of changes to the National Electricity Rules to recognise the provision of export services by networks, was first announced, the announcement attracted a lot of negative publicity. The messaging about not introducing an export tariff in the next regulatory control period needs to be communicated to customers and stakeholders by TasNetworks.	TasNetworks accepts the advice from the PRWG in relation to the sensitivities surrounding export charges and will focus in the immediate term on the rationale, if any, for export tariffs to be potentially introduced, which may justify a two-way pricing, export tariff trial being undertaken in the 2024-2029 regulatory control period.	PRWG member	7 April 2022	PRWG, April 2022

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Export tariffs	Why should embedded generators pay export charges when large generators connected to the transmission network do not?	The introduction of export charges for embedded generators connected to the distribution network is not necessarily just about charging for exports, and there is the potential for export pricing to be used to encourage and reward exports in certain circumstances, such as a times of peak demand on the network. Further, generators face different charges and revenues depending on whether they connect to a transmission network or a distribution network. They also receive different levels of service. Unlike embedded generators, large transmission connected generators do not have 'firm' access to the network in order to export the energy they produce, having to be 'dispatched' by the Australian Energy Market Operator before they can inject energy into a transmission network. In this sense, the network service being provided to embedded generators and large generators supplying the wholesale market could be said to be quite different. Generators connected to a transmission network also typically have to pay for any dedicated connection assets, which can include a length of transmission line linking the generator with the backbone network if there are no other generators or load customers connected to that line.	PRWG member	7 April 2022	PRWG, April 2022

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Time of use pricing	Some PRWG members support the use of stronger network pricing signals (in terms of the differential between peak and off-peak network charges), in the interests of preserving the pricing signal by the time if flows through into retail pricing. Alternatively, other PRWG members expressed the view that stronger pricing signals may not sit well with many small businesses, which may have limited capacity to move their time of use.	This was noted at the meeting, and it was agreed that a fair pricing signal, consistent with the PRWG's voting outcomes, would be developed.	PRWG members	7 April 2022	PRWG, April 2022
Quoted service labour rates	Over 85 per cent of the local governments polled supported a reduction in the number of labour categories used by TasNetworks to build quoted services pricing for the coming 2024-2029 regulatory period. Council stakeholders considered that reducing the number of labour categories would make it easier to achieve pricing consistency between similar jobs and between customers and make it easier for customers to understand what they are being charged. Members of TasNetworks' PRWG were also broadly supportive of the proposal, considering that it would deliver improvements in fairness, simplicity and consistency.	TasNetworks noted the feedback received and will be proposing a reduction of quoted service labour categories for the 2024-2029 regulatory control period.	Local governments PRWG	19 May 2022 16 August 2022	Online council forum PRWG, August 2022
Public lighting	Over 90 per cent of councils polled supported a proposed strategy to replace all legacy public lights with LED fittings.	TasNetworks noted the feedback received and will progress the strategy to replace all legacy public lights with LED fittings.	Local governments	19 May 2022	Online council forum
Advanced metering	Do customers pay for the replacement of their accumulation meters with advanced meters?	Meters are changed over by retailers, not TasNetworks, with any cost recovery managed by the retailer.	Local governments	19 May 2022	Online council forum

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Demand charges	Is TasNetworks looking to apply a flat fee based on the maximum kW drawn in a month? This would be a disincentive to the adoption of electric vehicles.	The proposed residential CER tariff is predominantly a consumption-based tariff with a demand threshold. The demand charge will only be charged if the customer exceeds the threshold. The pricing arrangements of this tariff are yet to be finalised, but it is likely that the demand charge will be based on the daily ATMD where it exceeds the threshold, noting that the customer would only pay for the difference between the threshold and the ATMD. E.g., if the threshold is set of 7kW and the customer's ATMD for a particular day is 7.5 kW, they would be charged an excess demand charge for the day based on the 0.5 kW by which the threshold was exceeded.	Local governments	19 May 2022	Online council forum
Demand charges	What sample size was used by TasNetworks in its analysis of minimum and maximum demand amongst residential customers that informed the proposed ATMD threshold of 8.5 kW proposed for the residential CER tariff?	There was no sampling used, in that load data for every residential customer with an advanced meter was included in the analysis (noting that approximately 40 per cent of residential customers currently have advanced meters). The measurement of maximum demand is based on average demand over 30 minute intervals as the advanced meters in use in Tasmania record usage (i.e. consumption) over 30 minute intervals, which can then be converted into a demand figure for that interval.	PRWG member	16 August 2022	PRWG, August 2022

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Demand charges	Given the lack of customer familiarity with the concept of demand, will customers assigned to the proposed network tariff for residential customers with CER be understood by customers?	The tariff is to be made available on an opt-in basis, targeting prosumers, who tend to be more heavily engaged in managing their energy use and interested in the technology to do so, and are likely to be more able to understand the different elements of the proposed network tariff. There are also two elements to the pricing principle in the Rules regarding understanding of network tariffs: a requirement that customers be able to understand a network tariff and/or that a retailer is able to incorporate the network tariff into their retail offering.	PRWG members	16 August 2022	PRWG, August 2022
State Government policy and network pricing	Questions were received about the interaction between State Government policy and the AER's regulatory determinations.	The AER is an independent economic regulator. The network revenues set by the AER are an input cost of retail electricity prices and are levied on all retailers with customers in Tasmania. In setting the standing offer tariffs applying to residential and small business customers who have not opted-in to a market offer, the Tasmanian Economic Regulator is effectively setting the retail price of electricity, of which network charges are but one component.	PRWG members	16 August 2022	PRWG, August 2022

Theme	Customer feedback	TasNetworks' response	Raised by	Date raised	Forum
Pricing signals	What means exist to compel retailers to incorporate the cost reflective network tariffs that TasNetworks has collaboratively developed with customers into their retail tariffs if a retailer doesn't want to do so?	Retailers are not economically regulated by the AER in the same way that the AER sets network revenues and approves network prices. There is nothing (in a regulatory sense) to prevent retailers from offering flat retail tariffs. As long as TasNetworks is giving an efficient pricing signal in relation to use of the network the AER has no problem with retailers continuing to offer flat tariffs. There is no longer just one retailer servicing residential and small business customers in Tasmania and competition can encourage innovation. When the number of customers assigned to cost reflective network tariffs reaches sufficient levels, experience interstate suggests that retailers will incorporate these network price signals into their retail tariffs.	PRWG members	16 August 2022	PRWG, August 2022
Obsolete network tariffs	Noting plans to make a number of flat consumption based network tariffs obsolete during the coming regulatory control period and transition customers to time of use tariffs, customers need to know that they're going to be transferred to new tariffs and the opportunities and risks this presents.	The phasing out of existing network tariffs, particularly any that may have been in use for some time, is acknowledged by TasNetworks and the PRWG as one of the key communication issues identified for the coming regulatory control period.	PRWG members	16 August 2022	PRWG, August 2022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