# Policy and Regulatory Working Group

Consultation Paper 4

NOVEMBER 2021

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## Glossary and commonly used phrases

| | |
|---|---|
| Australian Energy Market Operator (**AEMO**) | The National Energy Market Operator and planner. |
| Australian Energy Regulator (**AER**) | The economic regulator and enforcer of the energy rules. |
| Cost reflective tariff | A tariff that charges the user based on underlying drivers of future investment. |
| Customer group | A way of aggregating customers that share similar characteristics, such as usage and behaviour patterns. |
| Distributed Energy Resources (**DER**) | Refers to smaller generation or storage units such as solar panels, batteries or electric vehicles. |
| Default assignment | Refers to customers being automatically assigned to a specific tariff when either connecting to the network or when their characteristics change (please note: default assignment may occur at different times depending on the distribution network service provider's tariff strategy). |
| Electric Vehicles (**EVs**) | A vehicle that derives all or part of their power from electricity supplied by the electric grid. |
| Embedded Network | Private networks which serve multiple premises and are located within, and connected to, our distribution network through a single connection point. |
| Embedded Network Customer | The end use customers within an embedded network. These customers are offered connection services and may purchase energy from within the embedded network. |
| Embedded Network Manager (**ENM**) | Embedded network manager is the entity responsible for facilitating the relationship between embedded network customers (child meters) and the broader National Electricity Market (NEM). The ENM is appointed by the embedded network owner. |
| Embedded Network Operator / Owner | The person or person(s) appointed to take care of procurement, billing, collection and customer service. The Embedded Network Operator is typically either the building owner or appointed by the building owner. |
| Flat rate tariff | A single fixed price for the use of the network, which does not vary with time of use. |
| High Voltage (**HV**) | High voltage means anything greater than low voltage, i.e. >= 1,000 volts. For the purpose of this document, high voltage commonly refers to electricity usage by large business customers. |
| Low Voltage (**LV**) | The National Electric Code considers voltages <1,000 volts to be low voltage. For the purpose of this document, low voltage commonly refers to electricity usage of small business or residential customers. |
| Mandatory assignment | Refers to a type of prescribed tariff assignment where customers must remain on the default network tariff the distributor assigns to them. |

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|---|---|
| Minimum demand on the minimum demand day | The “minimum demand day” identified the day where there was the lowest amount of demand on the network over the financial year. The minimum demand is then the lowest amount of demand at a given point in time on that minimum demand day. |
| Network Tariff | A charge, or a combination of charges, applied to the provision of network services, specifically, the provision of a customer’s connection to the shared electricity network and the delivery of the electricity used by that customer via that network. |
| Obsolete | Obsolete network tariffs are no longer available to new installations or able to be applied to an existing installation not already assigned to the obsolete tariff. |
| Opt in | A type of tariff assignment that occurs when a customer notifies their retailer of their desire to opt into a particular network tariff. |
| Opt out | A type of tariff assignment that occurs when a customer notifies their retailer of their desire to opt out of a particular network tariff. |
| Substation | Part of an electrical generation, transmission, and distribution system. Among other important functions, substations connect the high voltage transmission network and the low voltage distribution network – from which our residential customers and the majority of our business customers connect. |
| Tariff Class | A class of retail customers with similar characteristics that are grouped together so that similar customers pay similar prices. |
| Tariff Structure | Refers to the shape, form or design of a tariff, including its different components (or charges), as well as, in some cases, how they interact. Network tariff structures determine how a network operator calculates how much an individual customer is charged for using its network. |
| Time of use | A type of cost reflective tariff that applies different prices for electricity at different times of the day, week or year. |

## Glossary for Vehicles

| | |
|---|---|
| Battery electric vehicle (**BEV**)[1] | Vehicles that are solely powered by electricity and do not have petrol, diesel or LPG engine, fuel tank or exhaust. They are also known as plug-in EVs as they use an external electrical charging outlet to charge the battery. |
| Electric vehicle (**EV**) | A vehicle that derives all or part of their power from electricity supplied by the electric grid. They are powered by electricity rather than liquid fuels. |
| Internal combustion engine (**ICE**) | An engine which generates power by the burning of petrol, oil, or other fuel with air inside the engine. |
| Hybrid electric vehicle (**HEV**) | Hybrid vehicles that do not plug-in are not considered an EV |

[1] https://arena.gov.au/renewable-energy/electric-vehicles/

| | |
|---|---|
| Long range electric vehicle (**LREV**)[2] | CSIRO defined the LREV to include larger articulated trucks which perform the bulk of long distance road freight and has > 500+km range. |
| Short range electric vehicle (**SREV**)[3] | CSIRO defined the short range EV to be <500km and are assumed to fall into the following five vehicle classes: light, medium and large cars, rigid trucks and buses. |
| Plug-in hybrid electric vehicle (**PHEV**)[4] | Plug-in hybrid electric vehicles are powered by a combination of liquid fuel and electricity. They can be charged with electricity using a plug but also contain an internal combustion engine that uses liquid fuel |

[2] CSIRO Report June 2020, Projections for small-scale embedded technologies, Paul Graham and Lisa Havas
[3] CSIRO Report June 2020, Projections for small-scale embedded technologies, Paul Graham and Lisa Havas
[4] https://arena.gov.au/renewable-energy/electric-vehicles/

# 1. Introduction

## 1.1. Purpose of this document

The purpose of this paper is to:

- Develop an understanding of embedded networks (**EN**) and the impact different pricing structures have across different types of embedded networks.
- Explore the impact of future technologies on TasNetworks' distribution network, including how tariffs may be designed to accommodate the expected change in customers' behaviour when utilising distributed energy resources (**DER**).
- Review the peak windows for the small business consumption based network tariff (TAS94) and share our proposal for tariff assignment.

## 1.2. Objective of the workshop

The November workshop continues our conversation on the trends TasNetworks is seeing on the network. We are seeking to develop an understanding of our customer preferences of adapting network pricing to facilitate increasing levels of DER technology and embedded networks for the next regulatory control period (2024-29).

## 1.3. The Policy and Regulatory Working Group

The Policy and Regulatory Working Group will support the development and submission of TasNetworks' 2024-29 Regulatory and Revenue Proposal by providing advice on regulatory framework, forecasts and pricing strategy development.

Forums are currently forecast to continue on a quarterly basis, and we will monitor and review the frequency and length of the workshops during the later stages of engagement.

## 2. Executive summary

Our recent *"DER survey"* shows that our customers are investing in DER technologies in response to environmental changes. However, cost or the lack of return on investment are often quoted as constraints to current up take levels. Our customers are aware that technology (e.g. battery life), government policy and environment considerations (e.g. manufacturing and disposal processes) is evolving.

Analysis shows price responsiveness to peak and off-peak periods in respondents who are charged on the time of use consumption tariff (TAS93) and own multiple technologies, i.e. electric vehicles and batteries. However, for customers who don't own batteries, consumption patterns are similar to most other residential customers, except that their evening consumption lasts longer and tends to increase as the time of use windows move into off-peak (presumably as a result of charging their vehicles).

We have continued our analysis of embedded networks and have identified that the current network tariff structures do not provide equitable outcomes for all our customers. Different embedded network profiles have been investigated to assist us to design the most appropriate embedded network tariff(s).

Embedded Networks

- Current tariff structures benefit **embedded network operators** when compared to other users of the distribution network.
- Depending on the type of embedded network and the customers within the embedded network, **benefits** to the embedded operator **can be significant**[5].
- Developing and designing an **embedded network tariff** would assist in providing **equitable pricing outcomes** for all customers.
- Analysis indicates **different usage profiles** for embedded networks depending on the **type of customers** connected within the embedded network.

Distributed energy resources (DER) and emerging technologies

- **Electric vehicles** (EV) are an emerging technology in Tasmania and have the potential to increase energy consumption.
- Forecasts suggest that electric vehicle up take in Tasmania **by 2035** may be in excess of **100,000 vehicles**.
- Overseas experience has indicated that **unmanaged EV charging** could **increase** energy consumption during the **peak evening period** – often referred to as "convenience charging".
- Constraining EV charging to **short charging windows** overnight can create sharp increases in consumption and **another peak**. The UK experience indicates that **a long overnight charging window** is best to **smooth the load**.
- The results from our **DER survey** have been received, which has confirmed that there is some **pent up demand for electric vehicles** once the price point is reached.
- Analysis of our respondents' data shows that **customers who have a range of DER technologies**, including home batteries, **are able to shift their load**. It also shows that customers who are on the **time of use consumption** tariff (TAS93) **are price sensitive** and appear to be charging their vehicles during **off-peak**.

[5] The range of benefits for the embedded network operator range from $3,900 to $93,400 (based on indicative analysis). Noting that embedded network customers may or may not receive these benefits depending on their arrangements with the embedded network operator.

# 3. Pricing principles

At our June 2020 forum, members of the PRWG helped develop TasNetworks' pricing principles. These principles continue to guide our discussion regarding tariff reform and development.

### 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 particularly vulnerable customers 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.

### Simple

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

### 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.

### Choice

We will not stand as a barrier for customers who invest in distributed 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.

# 4. Embedded Networks

## 4.1. 2019-24 embedded network tariff proposal

In our last regulatory submission, TasNetworks proposed to introduce two embedded network tariffs. The proposal was to introduce tariffs that comprised of a service charge, as well as a peak and off peak demand based charge (Diagram 1). The service charge was based on the number of downstream connections within the embedded network[6].

The thinking underpinning the proposal included:

- Embedded network tariffs will ensure customers pay an equitable share of network costs while still allowing scope for embedded network owners and customers to realise savings; and
- Compliance with the National Electricity Rules (NER).

TasNetworks proposed that without a specifically designed tariff, the members of an embedded network potentially 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 would ensure that we protect equity outcomes for all customers, while offering embedded network owners and their customers the scope to reduce their network charges overall.

*Diagram 1 - Peak and off-peak windows in 2019-24 tariff proposal for low voltage and high voltage embedded networks*


TasNetworks informed the PRWG group of the two new embedded network tariffs prior to submission. However, due to the limited available data at the time, the engagement was largely principle based. TasNetworks received no substantive concerns of the embedded network approach from stakeholders and proceeded with its proposed introduction in our regulatory submission.

The Australian Energy Regulator (**AER**) did not accept TasNetworks' proposed embedded network tariffs and noted that further justification on the tariff and the tariff assignment was required. The following proposal improvement opportunities were identified:

- Clarify how the proposed embedded network tariffs are more cost reflective than existing network pricing arrangements and lead to a more equitable contribution towards the cost of the distribution network;
- Provide detail on how we quantified the price levels for the embedded network tariffs as well as information on existing embedded networks currently operating; and
- Explain the relative costs to provide network services for embedded networks with regard to density of consumption and diversified use when compared to the average customer for which embedded network customers are currently referenced to.

[6] The Embedded Network Manager is responsible for ensuring that all child NMIs are registered in the Market Settlement and Transfer Solutions system (MSATS). [PoC-Fact-Sheet-3---Role-of-the-Embedded-Network-Manager.pdf (aemo.com.au)]

## 4.2. 2024-29 embedded network tariff proposal

### 4.2.1. Re-cap

In our last paper[7] we modelled two types of customers that may comprise an embedded network in the future – independent living villages and shopping centres.

The independent living villages have been used as a proxy embedded network that have predominantly residential child connections. Two different types of shopping centre configurations – home improvement ('big box') centres and neighbourhood shopping centres – were investigated.

In addition to these configurations, TasNetworks has recently synthesised data to create a mixed embedded network, i.e. an embedded network that includes both residential and business customers within the network

For the purposes of this paper, these embedded networks will be referred to as follows:

| Type of embedded network | Description | Child connections | Consumption range |
|---|---|---|---|
| Townhouse / Village | Predominately residential households e.g. retirement village | – 49 townhouses<br>– 1 Leisure/community out-reach centre | 232MWh |
| Mixed – Apartment building[8] | Modern inner city apartment building with high energy efficiency, common facilities and solar panels. | – 30 Residential connections<br>– 3 Small Business connections (shared facilities) | 80MWh |
| Mixed – Solar | Mixed use complex, predominantly residential | – 1 Community centre<br>– 25 Small hospitality venues<br>– 68 Freestanding homes with solar | 1.9GWh |
| Mixed – No solar | Mixed use complex, predominantly residential | – 1 gym (operates 24/7)<br>– 1 Small supermarket<br>– 3 Small hospitality venues<br>– 89 Freestanding dwellings without solar panels | 1.0GWh |
| Big box centres | Similar to a home improvement centre | - Warehouse style shop<br>- Fast food restaurant (operates 24/7)<br>- Petrol station<br>- Leisure and goods retailers | 2.6GWh |
| Shopping Centres | Similar to neighbourhood shopping centres | - Supermarket<br>- Department store (operates 24/7)<br>- Small businesses e.g. bakeries, bottle shops | 3.0GWh |

[7] Additional Reading Pack, July 2021 https://www.tasnetworks.com.au/config/getattachment/68a21c74-b3f8-4b26-bdaf-c1fddbd4867f/meeting-4-consultation-paper.pdf

[8] The mixed apartment building is based on 6 months of data from a new build within Hobart. All other embedded network types have been synthesised using 12 months of data based on the type of child connections described.

### 4.2.2. Achieving equitable pricing outcomes

Central to our last PRWG engagement, was a discussion on the whether an embedded network was equitable under our current tariff suite. In response, TasNetworks has prepared information to quantify whether there are benefits to customers within an embedded network under the current tariff structure (assuming all savings are passed on by the embedded network manager) compared to customers who are connected directly to the distribution network.

#### 4.2.2.1. Embedded network connections less than 1GWh

Where consumption for an embedded network is lower than 1GWh the embedded network will be connected to the low voltage network.

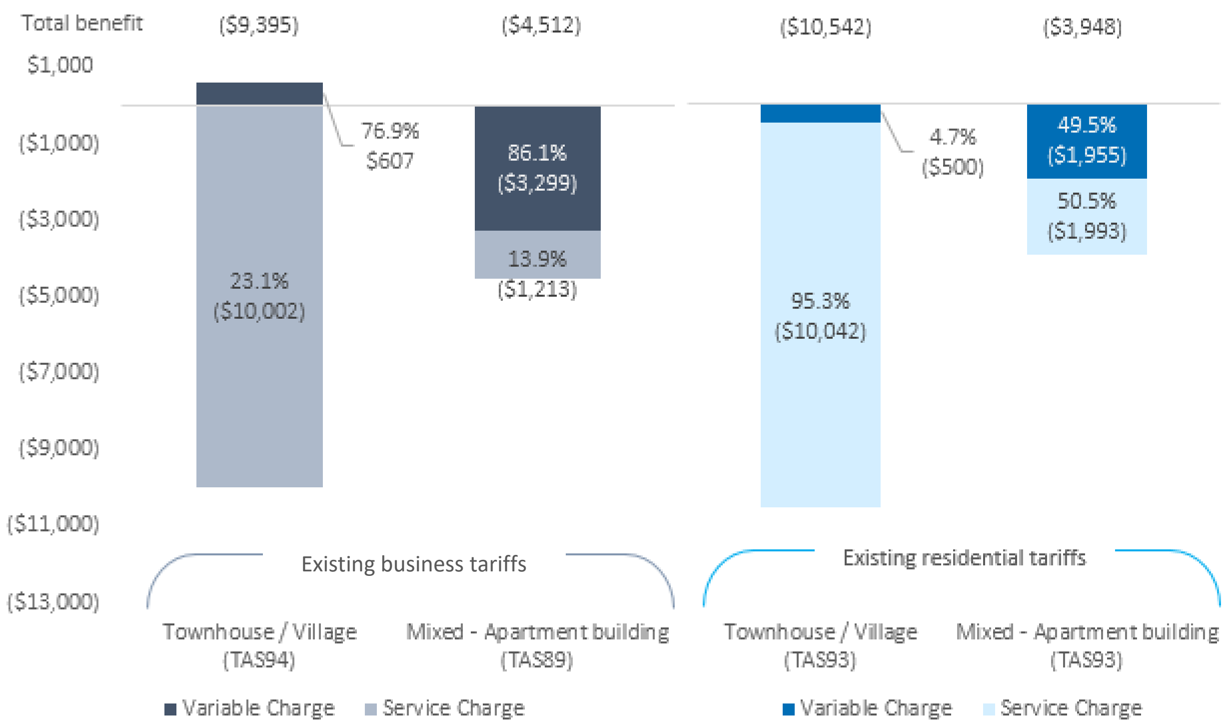
Where consumption for the embedded network exceeds 1GWh the embedded network may be connected to either the high voltage or the low voltage network. This section shows the benefits under our current tariff structure for embedded networks.

Out of the six embedded network types analysed, the only two embedded networks that are likely to be on the low voltage network predominantly contain residential premises – townhouse/village and the apartment complex.

Figure 1 shows the how the embedded networks would best benefit under the current commercial and residential tariff structures.

- **Townhouse/village** – under the current tariff structure, the residential time of use consumption tariff (TAS93) would provide the best benefit – mostly due to a reduction in the number of service charges. There are smaller benefits for the variable charges.
- **Mixed apartment building** – benefits for this building are not as great as the townhouse/village complex, and the large low voltage time of use demand tariff (TAS89) has resulted in the best overall benefit – 73 per cent of the benefit is a result of the variable charges.

*Figure 1 – Indicative low voltage embedded network – comparison of maximum pricing difference using the most optimal tariff where consumption is < 1GWh*



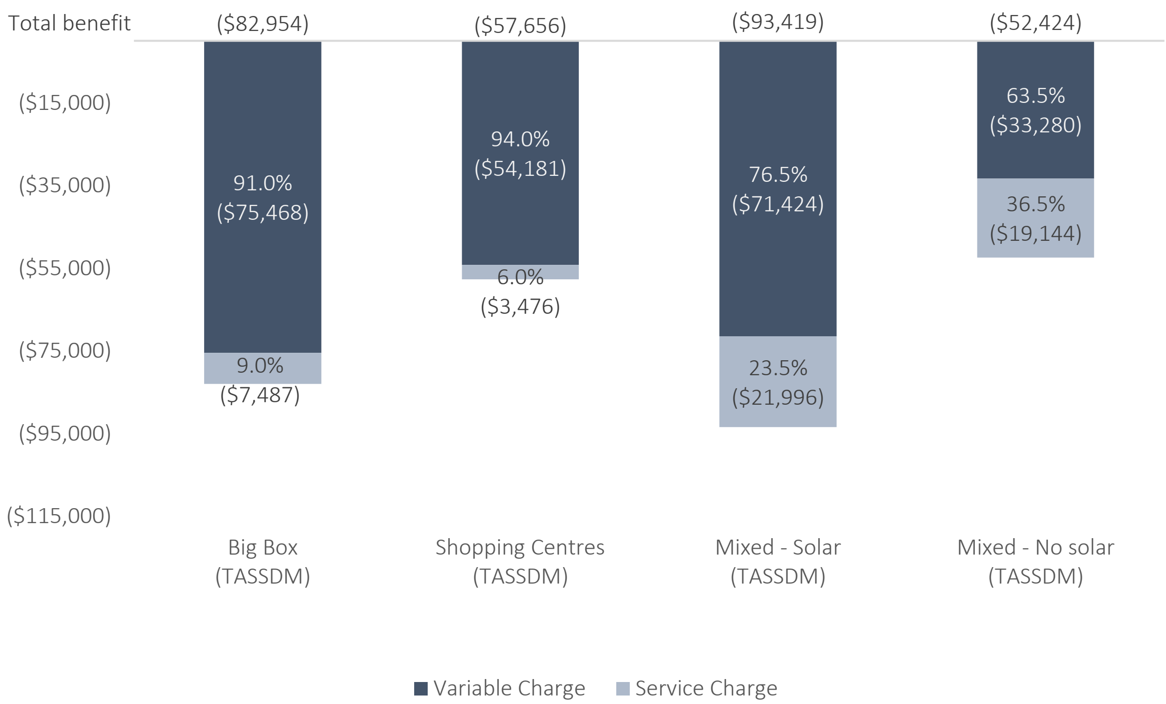
### 4.2.2.2. Embedded network connections greater than 1GWh

*Scenario 1: High voltage network connection for embedded networks with connections greater than 1GWh*

Under the current tariff structure, the embedded network customers would receive the most benefit if connected to TasNetworks' high voltage kVA specified demand tariff (TASSDM) compared to the aggregate of their current tariffs. Figure 2 shows the range of savings to be in the range of $52,000 to $93,500.

The majority of the savings for these embedded networks would be for variable charges. However, where there are households within the embedded network, savings for the service charges are in the range of 23 per cent and 36 per cent.

*Figure 2 - Indicative high voltage embedded network – comparison of maximum pricing difference using the most optimal tariff where consumption is > 1GWh*

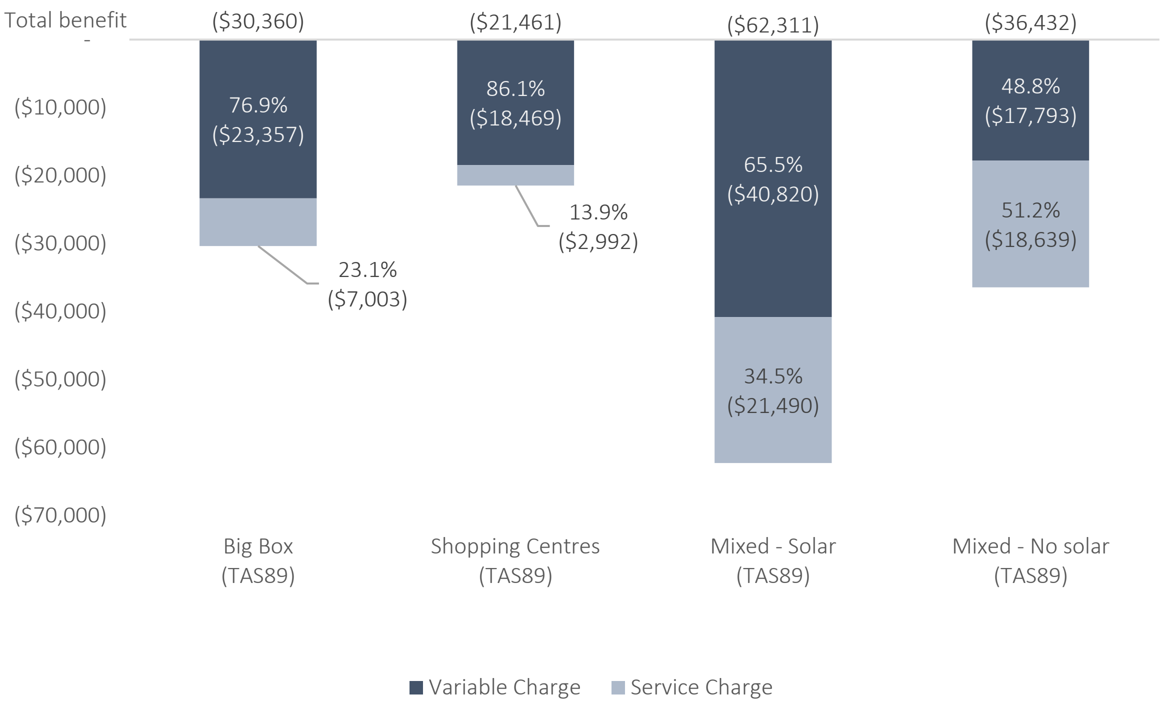



*Scenario 2: Low voltage network connection for embedded networks with connections greater than 1GWh*

In this scenario, it is assumed that the embedded networks would remain on the low voltage network (despite high consumption). Using the existing tariff structure, the large low voltage commercial time of use demand tariff (TAS89) provides the most benefit for all embedded networks where consumption is greater than 1GWh (Figure 3).

While remaining on the low voltage network reduces the total benefit for the embedded network, it also changes the proportional benefit between the variable and service charges, e.g. for the mixed network with a gym, small supermarket and residential customers, the benefit reduces from $52,000 to $36,500, and the proportional benefit for the fixed charge is 36.5 per cent (high voltage) compared to 51.2 per cent (low voltage).

*Figure 3 - Indicative low voltage embedded network – comparison of maximum pricing difference using the most optimal tariff where consumption is < 1GWh*




In both scenarios, embedded networks with a higher number of residential premises will receive a higher benefit for the service charge – predominantly due to the number of connections being reduced. The number of residential premises also impacts the profile of the embedded network:

- An embedded network with a higher proportion of residential premises within them tend to maintain the "duck curve" of the overall network (Figure 4). It should be noted that it is not known whether the embedded network with high solar penetration has batteries – it is entirely possible that this network could reduce its evening peak with batteries (if they are not currently installed).
- The embedded networks that only have business premises tend to reflect the known profiles of businesses (Figure 5).

*Figure 4 – Embedded networks with residential premises*

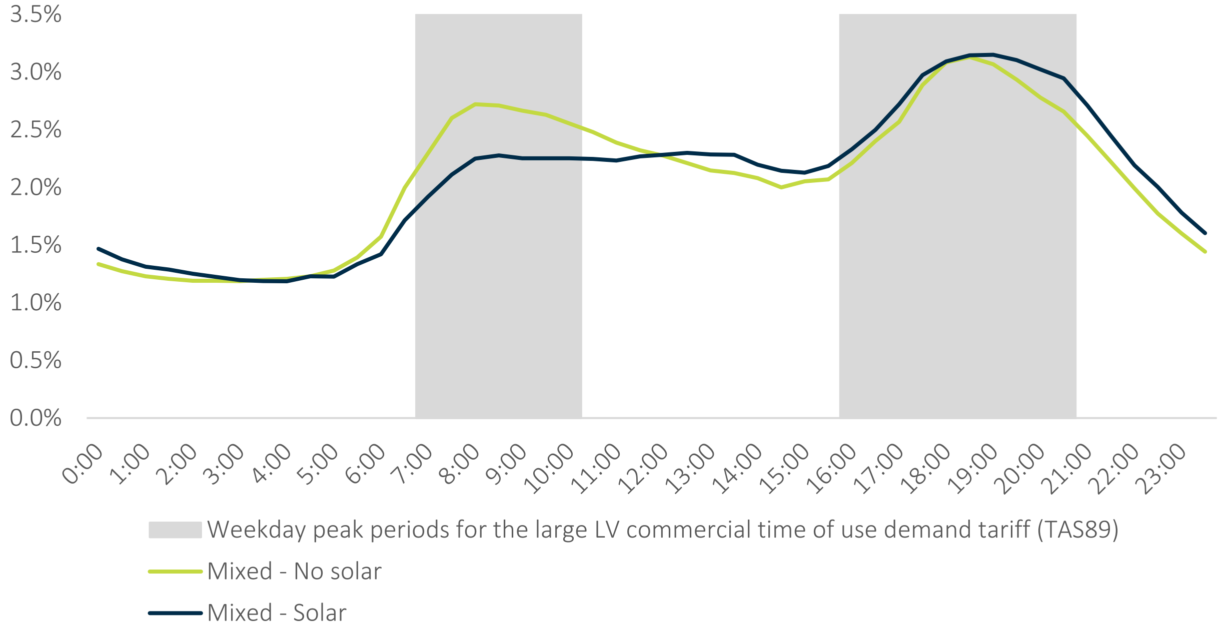
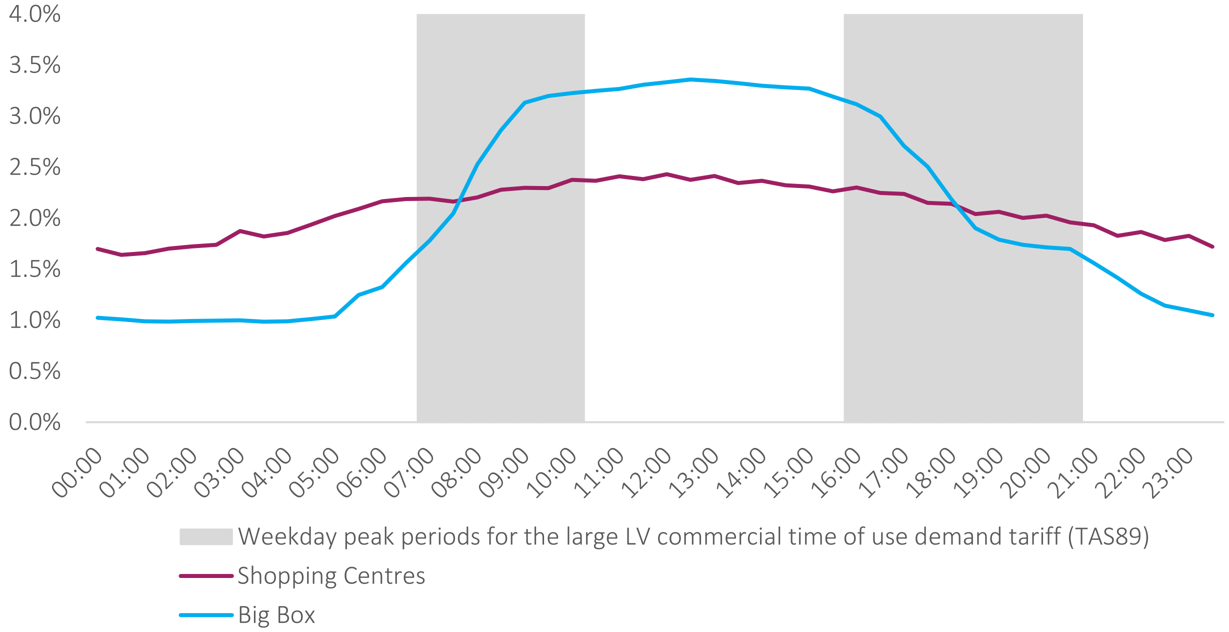



*Figure 5 – Embedded networks with business only premises*



# 5. Preparing for technological innovation

The impact of solar PV on the distribution network has become apparent over recent years – especially in other jurisdictions where solar PV penetration is highest. As observed in our third consultation paper released in June 2021[9] for PRWG, Tasmania has experienced a steady up-take of DER over recent years and we are starting to observe impacts on daytime minimum demand.

However, it is anticipated that electric vehicle use will increase over the coming years. Recent jurisdictional announcements from governments across the country are indicating a faster transition towards net zero. This transition may include faster up-take of electric vehicles. Recent modelling from the CSIRO, under a net zero scenario[10], suggests that by 2035 there may be approximately 100,000 electric vehicles in Tasmania using an additional 300 GWh of energy, in their rapid decarbonisation[11] scenario, electric vehicles could total approximately 300,000 by 2035, requiring approximately 750 GWh of energy. This is consistent with anecdotal evidence that there is pent up demand for electric vehicles and the results of our DER survey where 62 per cent of respondents who don't currently own an electric vehicle are considering purchasing one in the next 10 years (21 per cent are unsure whether they will purchase an electric vehicle in the next 10 years).

## 5.1. Impact of electric vehicles on distribution networks

### 5.1.1. The UK experience

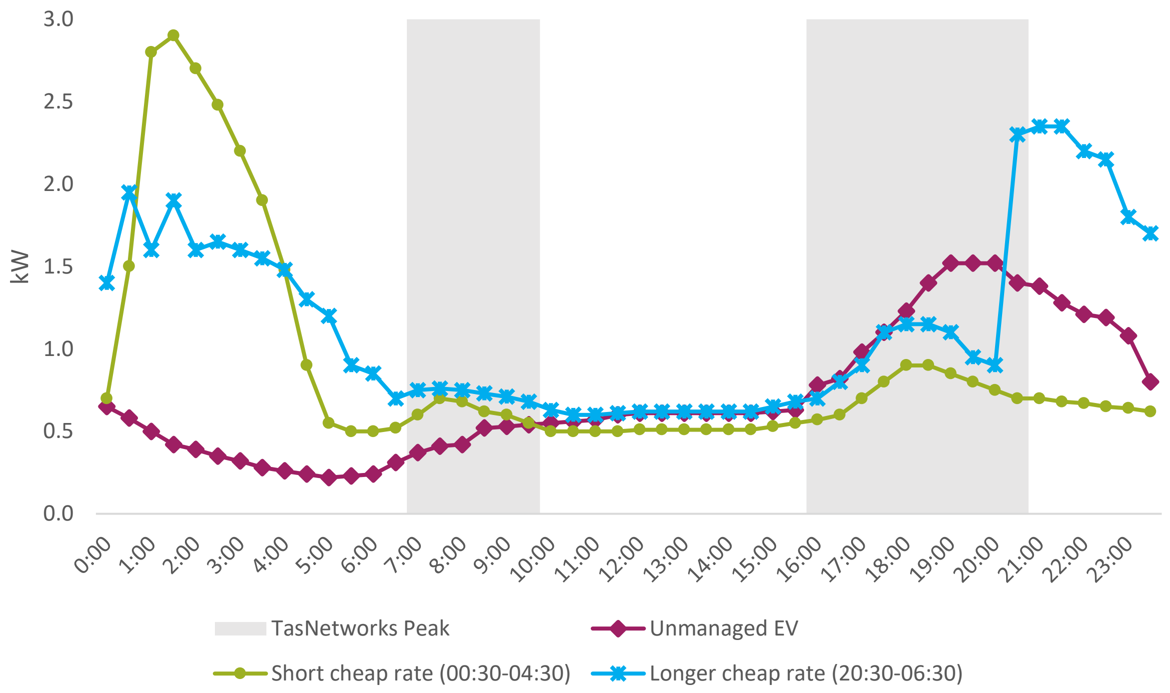
In the UK, electric vehicle charging is seen as the gateway to developing innovative tariffs for DER technologies. However, there are risks to providing a tariff only solution specific to a technology which may drive behaviours that create new issues, such as a new or extended peak period. Figure 6 profiles several scenarios experienced by a UK retailer for EV charging layered over TasNetworks' peak period. The three scenarios are:

- Unmanaged EV charging: in this scenario, unmanaged EV charging peaks during TasNetworks evening peak period and then declines over the late evening and overnight.
- Short cheap rate: the cheapest rate (0.045 pence/kWh) lasts for four hours in the early morning. In this scenario there is a new peak created between these hours, however the convenience charger has a minimal impact on the evening peak.
- Long cheap rate: the rates range between 0.045 – 0.055 pence/kWh for overnight charging commencing at 20:30 and finishing at 06:30 the following morning.

It is noticeable that the consumption during the day-time periods were almost identical for all three scenarios. Note: that for the short and longer cheap rates, the off-peak rates were three times smaller than the rate for the rest of the day.

[9] June 2021 Consultation paper
[10] Net zero would be where internal combustion engine (ICE) vehicles would not be available for sale beyond 2040.
[11] Rapid decarbonisation is where ICE vehicles are not available for sale beyond 2030 and are de-registered by 2045.

*Figure 6 - Electric Vehicle charging in the UK*




## 5.2. Distributed energy resources survey results

There is currently a lack of visibility in understanding the behaviour of existing electric vehicle owners and their impact on the distribution network. Therefore, at the end of July 2021, TasNetworks issued a *"Distributed Energy Resources Survey"* to understand our customers' views on distributed energy resources, including information on how and when our customers use energy storage and generation technology, such as solar PV, batteries and electric vehicles. The survey closed at the end of August. The response to the survey resulted in 322 respondents, of whom:

- the majority were located in Hobart and owned their own home,
- tended to be in full-time employment and earn higher than average incomes and
- had a diverse range of distributed energy resource technologies:
  - solar owners (n=134)
  - electric vehicle owners (n=71), and
  - battery storage owners (n=25).

Some respondents owned multiple technologies, however 51 per cent (n=163) did not currently own solar PVs, batteries or an electric vehicle.

## 5.3. Respondents on electric vehicles

A high proportion of respondents who own an electric vehicle live in Hobart, are more likely to be mature aged / retired, and own their own home. In addition, a high proportion of electric vehicle owners indicated that they would like to use their car battery for household consumption if the technology became available. Owners enjoy the convenience of charging their vehicles from home, usually overnight and on weekends.

Most electric vehicle owners who responded to the survey own either solar PVs or batteries. However, of the 30 per cent who don't own additional distributed energy resource technologies, most are considering installing solar PVs with approximately half of these respondents also considering installing batteries.

Just over a quarter of electric vehicle owners in the survey currently use TasNetworks' time of use consumption tariff (TAS93) and self-identified as having a very good understanding on how the tariff operates. Analysis of consumption patterns by electric vehicle owners was undertaken, from this analysis clear patterns of behaviour emerge depending on the type of DER technologies owned and the tariffs associated with the household (noting that some of the sample sizes are small).

- Figure 7 shows that customers with EVs plus household batteries have orchestrated their household use to be predominantly off-peak. However, those customers without batteries typically have the same profile as other residential customers with the exception of the late evening up-tick in energy use – this is presumed to be when they commence charging their vehicles.
- Figure 8 shows that these customers charge and use their energy anytime – reflecting the structure of the tariff. We do observe that there is a slightly higher peak in the early evening for EV owners with household batteries.

*Figure 7 - Electric vehicle user profiles for customers of the residential time of use consumption tariff (TAS93) in winter*

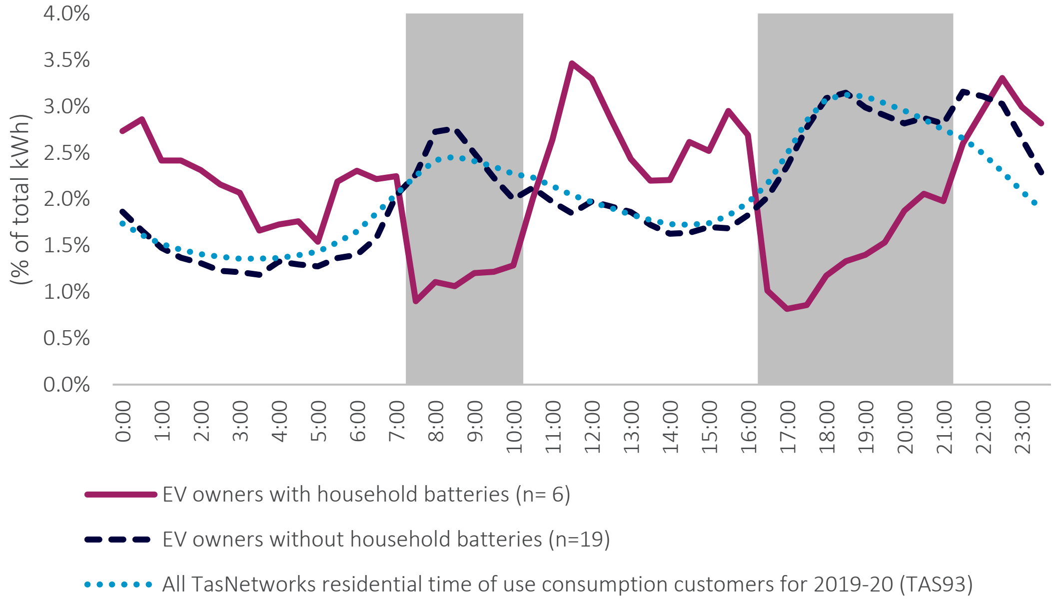
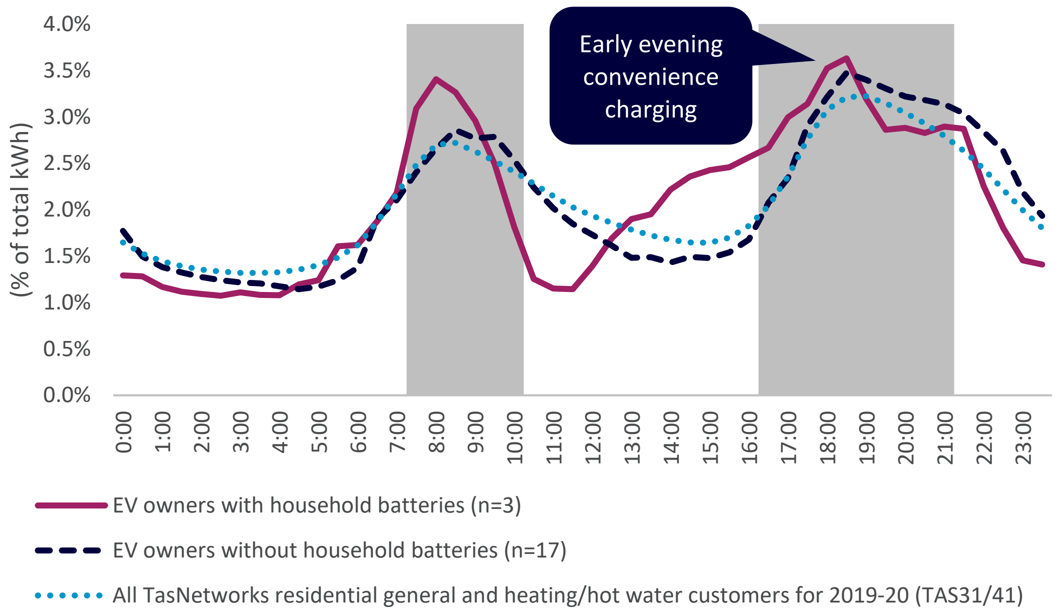


*Figure 8 - Electric vehicle user profiles for customers on the residential general and heating/hot water tariff (TAS31/41) in winter*

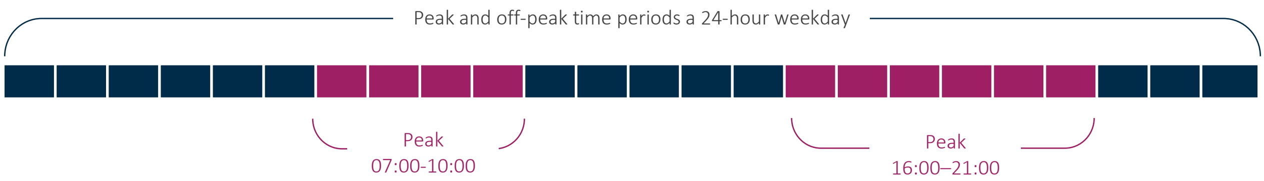



There are still those who are uncertain about the technology, particularly driving range, infrastructure (charging stations), initial upfront cost and the effects of pollution during the manufacturing process and battery disposal.

## 5.4. Residential DER tariff

TasNetworks currently has a residential low voltage distributed energy resource tariff (TAS97). This tariff is intended for private residential dwellings where electricity storage, generation or other electricity management devices have been deployed behind the meter. The network tariff structure includes demand based (kW) time of use charging components (Diagram 2), however the tariff has not as yet been taken up by customers.

*Diagram 2 – Peak and off-peak windows for the residential low voltage DER tariff (TAS97)[12]*




*Is this tariff fit for purpose in a rapidly changing market where technological changes and customer expectations are rapidly evolving?*

TasNetworks is seeking to develop a network tariff for our prosumers. Our prosumers are those customers who have invested in DER technologies and are able to shift and/or store their load to prevent the creation of additional peaks – similar to our EV owners with batteries in Figure 7. We would seek for these prosumers to participate in tariff trials during the next regulatory period (2024-29).

[12] This is weekdays only, weekends are off-peak

## 5.5. Preparing for our prosumers

Distribution networks have a base level of hosting capacity[13] for DER. The increase in export energy generation (through solar PVs) and potential increase in consumption (through increasing use of electric vehicles) may result in limitations of the distribution networks' intrinsic capacity. TasNetworks is seeking solutions to manage the intrinsic capacity of our network to minimise additional investment. Developing a network tariff for our prosumers offers one approach to managing our intrinsic network capacity. Prosumer tariffs should support allocative efficiency by signalling to these customers the cost of using the grid for certain services and reduce the extent that customers – who can only consume our traditional services – are not subsidising those who are able to benefit from DER technology.

A recent rule change related to access, pricing and incentive arrangements has clarified that two-way distribution services are available to customers. It promotes the use of two-way tariffs and incentives that enable customers to efficiently invest in, operate and use energy services, including export services. This allows DNSPs to offer two-way pricing for services to incentivise customers to innovate and maximise their return on the DER investments while improving equitable access to electricity services and deferring augmentation expenditure.

The introduction of a prosumer tariff would provide a pricing mechanism to customers who can shift their solar PV exports from the middle of the day (when demand is low, but solar radiation is high) to periods of high demand and defer the charging of electric vehicles to periods where the utilisation of the network is low.

TasNetworks is proposing two phases for our prosumers:

- **Phase 1** – work with the PRWG to update our current residential DER tariff (TAS97) to support our customers' use of solar PV, batteries and electric vehicles. We propose to implement these updates for the 2024-29 regulatory control period.
- **Phase 2** – to develop a trial for an export tariff[14] during the next regulatory control period (2024-29).

The purpose of the tariff trials will be to collect additional data, continue to monitor the uptake of solar PV, batteries and electric vehicles in the state, and understand customer intentions. More information on our stakeholder feedback in relation to tariff trials is outlined in section 6.3.

[13] 'Hosting capacity' refers to the amount of distributed energy that can be accommodated on the distribution system at a given time and at a given location under existing grid conditions and operations, without adversely impacting safety, power quality, reliability or other operational criteria, and without requiring significant infrastructure upgrades. TasNetworks will be completing a study into our intrinsic hosting capacity by the end of November.

[14] At the July 2021 PRWG workshop, our stakeholders told us their interest in TasNetworks trialling an export tariff in the next regulatory control period 2024-29. We have listened to our stakeholders and are not planning to propose an export charging network tariff in the next regulatory period and instead focus on understanding how to best design and implement this tariff for the Tasmanian environment.

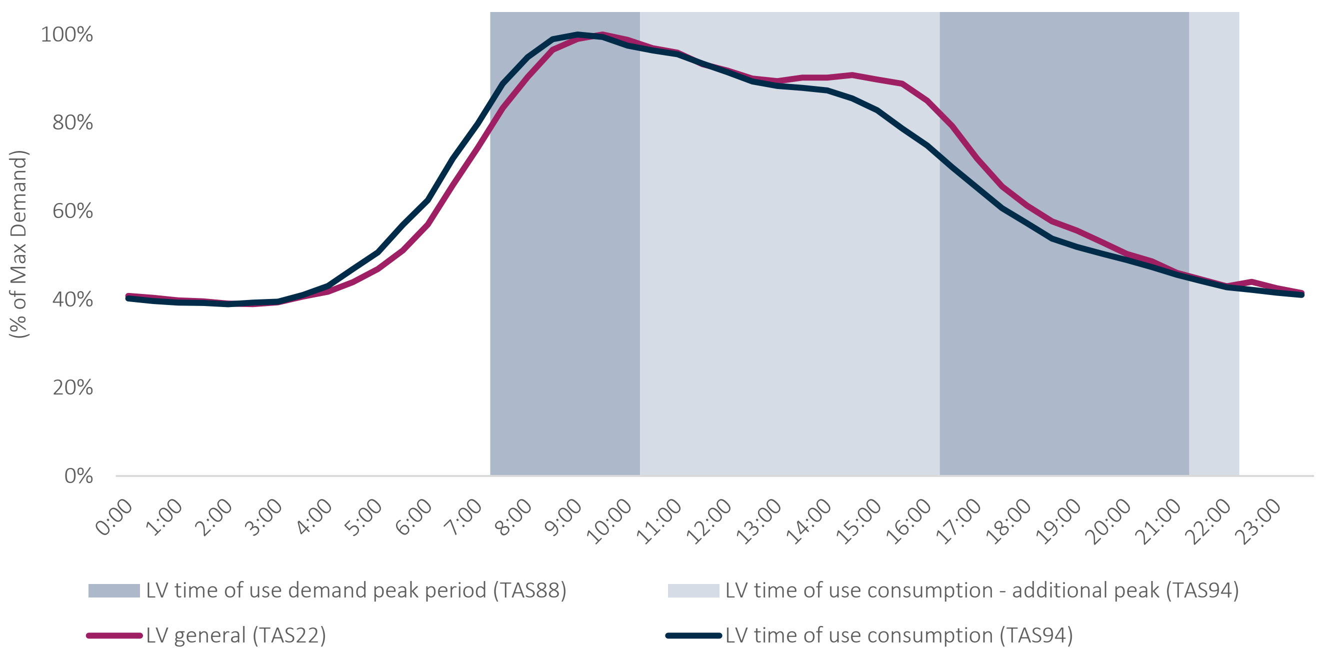
# 6. What we've heard

## 6.1. Network peaks

TasNetworks continues to monitor its peak time of use windows to ensure they align with areas of local demand and the network peaks.

The main network peak driver is residential demand, however business customers contribute to the network peaks. With the exception of our seasonal tariffs, the majority of our tariffs have peak charging periods during the time of peak demand on weekdays, i.e. 7:00am - 10:00am and 4:00pm - 9:00pm.  However, the small business low voltage time of use consumption tariff (TAS94) has a longer peak window than all other tariffs, where the weekday peak window is between 7:00am – 10:00pm (Figure 9).

*Figure 9 - Small business charging windows - comparison of the small business time of use consumption (TAS94) and commercial time of use demand (TAS88)*




We are proposing a more targeted tariff structure for our small business low voltage time of use tariff (TAS94) to be more reflective of the network peak time and the times of small business customers' operating hours.

Small business customers contribute to network peaks, but the main network peak drivers is residential demand. Therefore our time of use windows that apply

## 6.2. Tariff assignment

In our last meeting it was agreed that we would make the flat rate network tariffs obsolete – specifically the residential general light and power (TAS31), heating and hot water (TAS41) and business general light and power (TAS22) tariffs.

This approach was preferred over an alternative of providing an incentive for more cost reflective tariffs (in terms of price levels), because of the low involvement of customers in electricity products so a differential in price levels may not be impactful.  This approach also aligns with our pricing principles, which aim to provide simple and fair pricing to customers.

The definition of obsolete was discussed in the context of the lifecycle of a tariff (Diagram 3). The meaning of an obsolete tariff is to minimise the number of customers that can move onto the network tariff through a series of pre-defined 'triggers'.

It was decided that the time of use consumption network tariffs would be the default network tariff for customers under the following conditions:

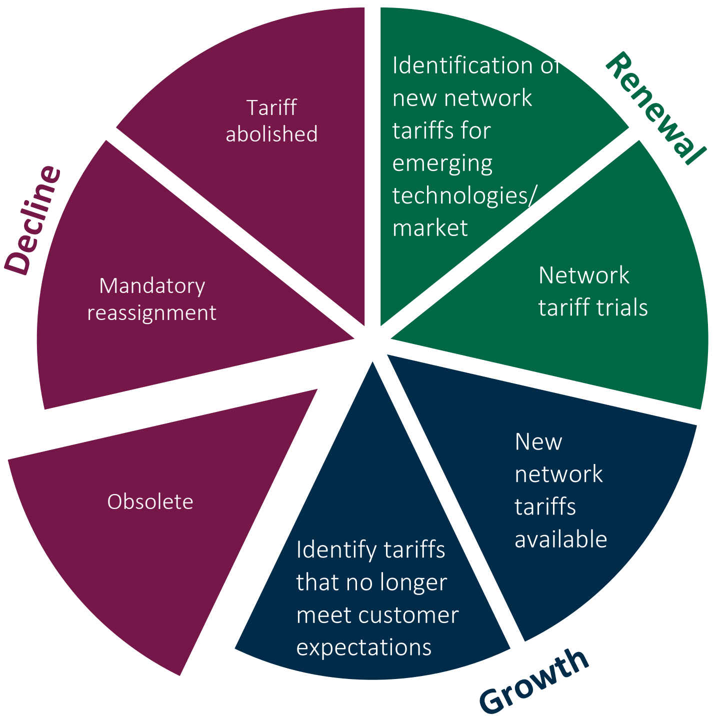
- New builds / connections.
- Where the customer has opted into a time of use consumption tariff.
- Moving house.

In these circumstances, when the tariff is obsolete, customers will not be able to nominate or revert back to a flat rate tariff. However, in order to protect our vulnerable customers we will include a 12 month data sampling period when a meter is:

- Upgraded under the meter replacement program.
- Replaced due to a fault.

We have investigated whether additional customer protections can be implemented for renters, i.e. 'move-out, move-in' customers. Unfortunately, there is no ability for us to track the customers' tariffs under previous tenancies and putting protections in place for this group is not easily managed at the network level.

*Diagram 3 - Tariff lifecycle*

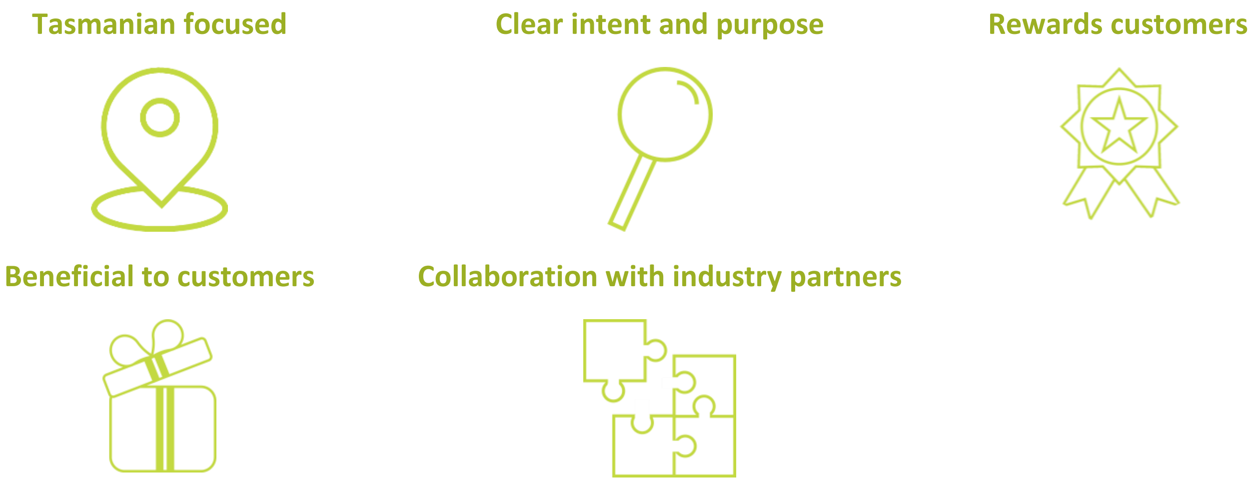



## 6.3. Tariff Trials

### 6.3.1. Principles

PRWG members identified five key principles to guide the development of tariff trial for the next regulatory control period, Figure 10.

*Figure 10 - Tariff Trial Principles*



### 6.3.2. Trials

PRWG members also provided suggestions for trials TasNetworks could consider running in 2024-29. The group determined a number of options for TasNetworks to consider, as outlined in the July Minutes and Actions.[15]

TasNetworks is considering the applicability of these options for the Tasmanian setting and is exploring options related to the following tariff trials: export charging and incentives, virtual NMI and a community battery trial.

## 7. TasNetworks' tariff strategy progress

| | Status | Completed on |
|---|---|---|
| Pricing principles | Reviewed | PRWG meeting Jun 2020 |
| Tariff assignment rules | Reviewed | PRWG meeting Jul 2021 |
| Tariff trial principles | Co-designed | PRWG meeting Jul 2021 |
| Tariff trial options | Identified | PRWG meeting Jul 2021 |
| Time of use consumption periods review | Ongoing | |
| Embedded network tariffs | Ongoing | |
| Review of residential distributed energy resource tariff (TAS97) | Ongoing | |
| Distributed energy resources – Tariff trial | | |

[15] https://www.tasnetworks.com.au/Documents/Manual-documents/Meeting-4-Minutes-and-Actions-pdf