evoenergy

Appendix 7.1: Tariff Structure Explanatory Statement

for the ACT electricity distribution network
2024–29

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1. Executive summary

The pace of change in the energy industry over the last decade has been significant, with increased uptake in renewable energy technologies. This includes the unprecedented uptake of rooftop solar, home battery storage and electric vehicles (EVs) – commonly referred to as distributed energy resources (DER). In addition, smart meters have begun to be installed, and there is a legislated commitment to transition to net zero emissions in the Australian Capital Territory (ACT). These changes present both challenges and opportunities for the ACT electricity network. A key instrument to help manage these changes is an electricity network tariff structure that reflects network costs, providing clear price signals that enable efficient network use and investment decisions. Evoenergy (the ACT electricity network operator) proposes a network tariff structure for the 2024–29 regulatory control period suitable for present and future ACT consumers.

Evoenergy has engaged widely and deeply with the ACT community, retailers, aggregators and the ACT Government to understand what is most important as the energy landscape changes. The central theme gathered from stakeholder feedback was to ensure the ACT network tariff structure supports renewable energy technology. Evoenergy also heard that this progress must be balanced to ensure network pricing is equitable and fair for Canberrans, including those who are less able to readily adopt renewable energy technology. The proposed changes to the ACT network electricity tariff structure aim to strike a balance between supporting advances in the adoption of renewable energy technology and improving equity in the network pricing structure.

1.1 Residential tariff reform

Network tariff reform for residential consumers is the focus of Evoenergy's 2024–29 Tariff Structure Statement (Attachment 7). The proposed changes to the residential tariff structure are designed to send cost-reflective price signals about the expected future use of the network by residential consumers. The network load associated with the forecast uptake of renewable energy technology will be considerably different from the current network load. Hence, the proposed tariff reforms are designed to address the times and seasons at which the network (in residential areas) is expected to peak in the future.

Initially, Evoenergy considered introducing a new residential tariff designed for the future consumer with rooftop solar, a home battery and a home energy management system. Such a tariff was trialled during the current regulatory period (2019–24); however, in the interest of keeping the network tariff structure simple (as per feedback from stakeholders), this tariff is no longer being proposed. Rather, the experience and lessons learned from the tariff trial have been incorporated into newly proposed structural changes to new versions of the residential demand tariff and the residential time-of-use (TOU) tariff.

1.2 Commercial tariff reform

Since Evoenergy's commercial network tariffs are highly cost-reflective following reforms during the 2019–24 regulatory period, Evoenergy is proposing relatively minor amendments to the existing commercial tariff structure in the 2024–29 regulatory period.

A key feature of the commercial tariff reforms is the proposed introduction of a new tariff designed for large-scale batteries that connect to the ACT distribution network. This proposal reflects the anticipated development of stand-alone, grid-scale batteries connecting to the ACT distribution network, including community batteries. Evoenergy has been trialling this tariff structure during the current regulatory period (2019–24) and has used this experience to propose a well-developed tariff structure designed to recognise the uniqueness of large-scale battery operations.

In addition, Evoenergy proposes to trial a tariff designed for EV public charging stations in the 2024–29 regulatory period. The trial tariff structure will be finalised closer to the proposed trial commencement on 1 July 2025.

1.3 Export tariffs

In recent years, an imbalance between the supply and demand of electricity has been widening. This typically arises in residential areas in the middle of the day when electricity demand is relatively low, and exports from rooftop solar are high. As the imbalance continues to widen, additional investment will be required to manage voltage fluctuations on the ACT network.

In response to this challenge for electricity networks, the Australian Energy Market Commission (AEMC) changed the National Electricity Rules (NER) to integrate DER more efficiently into the network.[1] Accordingly, Evoenergy proposes the introduction of export price signals in the 2024–29 regulatory period.

Evoenergy heard from customers and stakeholders the importance of introducing export pricing in a measured and gradual way. This approach is reflected in Evoenergy's proposed export tariff structures, tariff levels and assignment policy. The introduction of export pricing also reflects the needs of Evoenergy's network requirements. While Evoenergy's network currently has the capacity to host exports on most days, the network will require upgrades in the future as exports to the network continue to increase in line with the uptake of rooftop solar and home batteries.

1.4 Proposed tariff reforms

The network tariff reforms proposed by Evoenergy in the 2024–29 regulatory period have been informed by extensive consumer engagement and learnings from tariff trials carried out in the 2019–24 regulatory period. The proposed reforms are summarised in Table 1 .

Table 1 Summary of proposed tariff reforms

Tariff	Tariff reforms proposed for 2024–29
Residential	
Proposed TOU tariff	• Introduce a 'solar soak' low charge, between 11am and 3pm daily, to soak up solar that is exported to the electricity network. • Introduce an inclining block charge overnight to signal that high demand (e.g., EV fast re-charging) could lead to new peak demands that impose higher network costs due to required network upgrades. • No morning peak period as the network is not typically constrained in the morning.
Proposed demand tariff	• Introduce a 'solar soak' low energy consumption charge, between 11am and 3pm daily, to soak up solar exported to the electricity network. • Introduce an off-peak demand charge between 8pm and 9am. • Introduce a seasonal peak demand charge with higher demand prices in the high season (winter months from 1 June to 31 August), and lower charges in other months.
Export tariff	• Secondary tariff (added to a consumer's primary tariff). • Export tariff includes an export rebate (5pm–8pm) and export charge (11am–3pm). • Gradual transition of customers to secondary tariff over the 2024–29 regulatory period.
Trigger Events	• Objectively defined trigger events that prompt a review of the need for pre-specified changes that strengthen Evoenergy's residential tariff reforms.

[1] AEMC, Access, pricing and incentive arrangements for distributed energy resources, Rule determination, 12 August 2021.

Low voltage (LV) commercial	
kVA capacity tariffs	• Provision to review capacity charges in extenuating circumstances, as negotiated between Evoenergy and individual consumers.
Streetlighting tariff Small unmetered loads tariff	• Remove fixed charge; only apply energy consumption charge.
Large-scale battery tariff	• New tariff for large-scale, stand-alone batteries connected to the distribution network. • Different peak and off-peak periods depending on the large-scale battery location (residential or commercial area).
High voltage (HV) commercial	
All tariffs	• Provision to review capacity charges in extenuating circumstances, as negotiated between Evoenergy and individual consumers.
Large-scale battery tariff	• New tariff for large-scale, stand-alone batteries connected to the distribution network. • Different peak and off-peak periods depending on the large-scale batteries' location (residential or commercial area). • (Different prices to LV commercial large-scale battery tariff, above.)

Note: All times refer to Australian Eastern Standard Time (AEST).[2]

The tariff structures and assignment contained in the Australian Energy Regulator (AER) approved tariff structure statement (TSS) will form the basis of Evoenergy's annual pricing proposals for the financial years 2024/25 to 2028/29. The AER will conduct a review process for annual prices to check consistency with the TSS, compliance with pricing principles, and other requirements, such as the control mechanism under the AER's distribution determination.

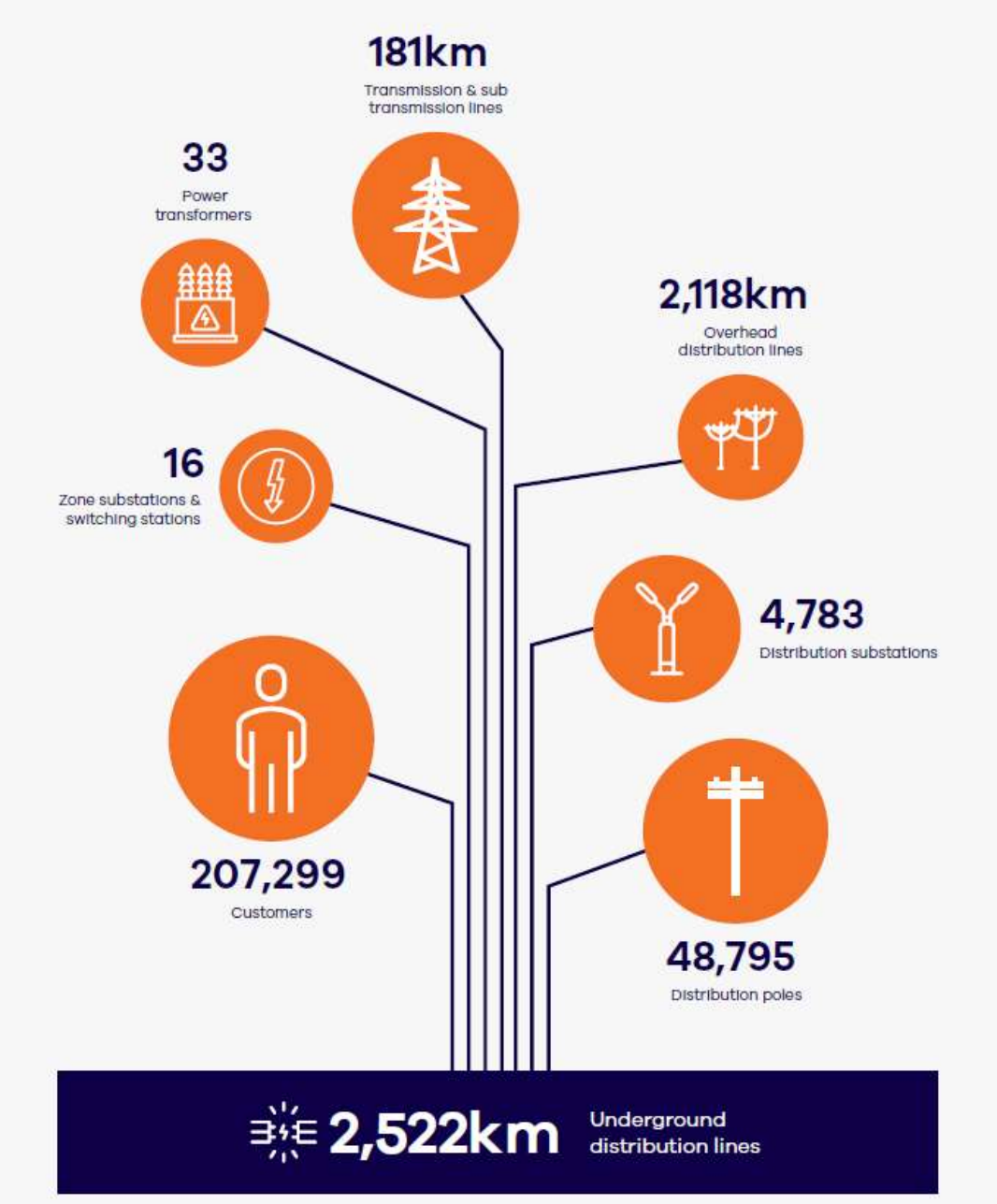
[2] AEST is the time zone 10 hours ahead of Coordinated Universal Time (UCT+10hours). AEST is used in the ACT from the first Sunday in April to the first Sunday in October. Australian Eastern Daylight Time (AEDT) is used during the remainder of the year (UTC +11hours). TOU times will therefore advance by 1 hour from the first Sunday in October until the first Sunday in April each year.

2. Introduction

1.1 About Evoenergy

Evoenergy owns and operates the electricity network in the ACT and gas networks in the ACT and surrounding New South Wales (NSW) areas. Within the ACT, Evoenergy operates and maintains a network of poles, wires, transformers and other equipment to distribute electricity safely and reliably to consumers. The Evoenergy network is an essential part in the process of moving electricity from where it is generated to where consumers use it. Figure 1 below provides an overview of Evoenergy's electricity network.

Figure 1 Evoenergy's electricity network

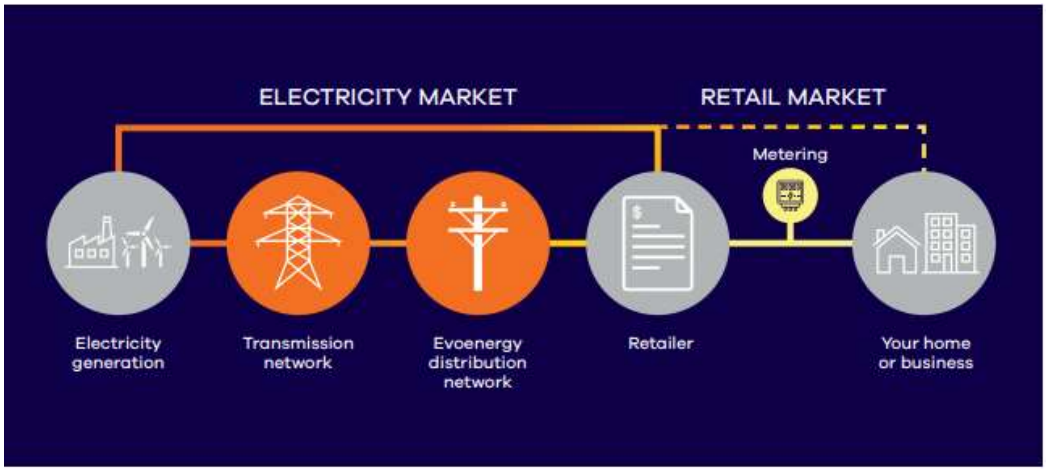


Source: Evoenergy Annual Planning Report 2022

The electricity supply chain is shown in Figure 2. Electricity is produced at generation sites (power plants, solar farms, wind farms, etc.) and then transported through transmission lines to substations,

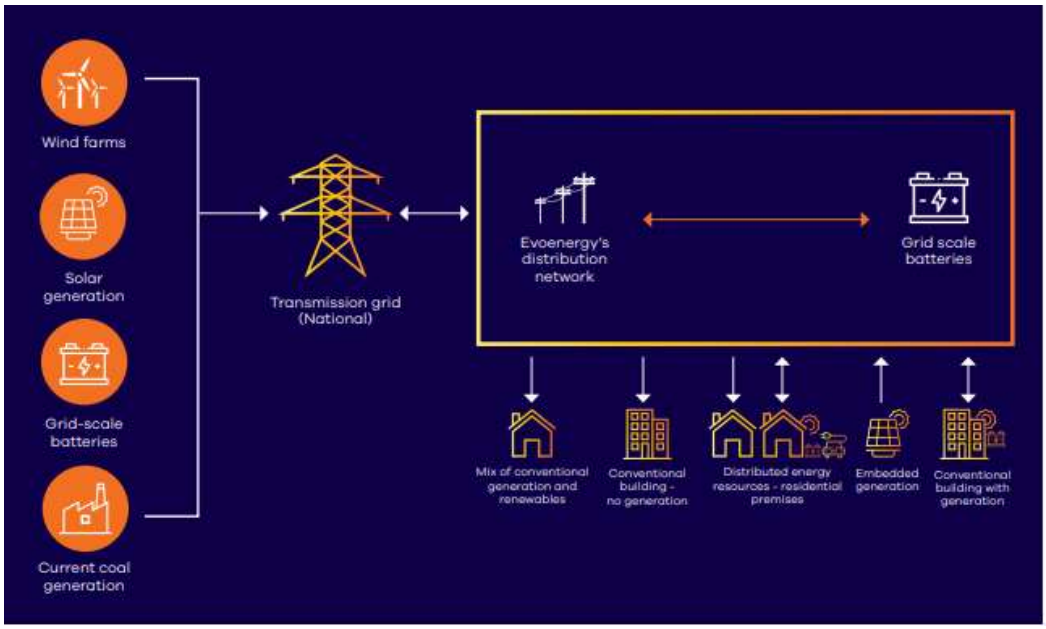
which reduces its voltage to a level that can flow through distribution lines and substations to ACT homes and businesses. While the electricity network delivers (transports) electricity, a retailer's role is to purchase the electricity from generators and package up those and other costs (including network costs) to the end customer.

Figure 2 Electricity supply chain



The ACT electricity network, like all electricity distribution networks, was initially designed and constructed to only deliver centrally generated electricity to consumers (i.e., a one-way flow of electricity). As more consumers install roof top solar and home batteries, the network is increasingly used to export electricity from consumers' premises to the network (i.e., two-way flows of electricity). Evoenergy's traditional role of managing the one-way flow of energy to customers is evolving into that of a distribution service operator (DSO), which facilitates two-way energy flows and enables the efficient use of customer and network assets. The transition of the electricity network from one-way to two-way flows is illustrated in Figure 3 below.

Figure 3 Role within a two-way energy delivery chain



2.2 Objective of this document

Evoenergy has prepared this Tariff Structure Explanatory Statement (TSES) as an accompanying document to the proposed TSS, both of which have been submitted to the AER in accordance with the NER. The TSES provides Evoenergy's consumers and other stakeholders with clear and accessible information about current network tariffs, and how these tariffs are proposed to change in the future. It explains how Evoenergy intends to structure its network tariffs in the future, focusing on reforms for the 2024–29 regulatory period. The proposed changes are discussed with reference to the unique challenges and opportunities Evoenergy faces as the ACT network operator.

The NER requires network businesses such as Evoenergy to develop a proposed TSS that clearly shows how the pricing principles have been applied to develop price structures and indicative price levels, typically for a five year regulatory period.[3] The TSES should be read in conjunction with the TSS.

2.2 Structure of this document

Table 2 Structure of the TSES

	Section	Description
2	Introduction	Introduces this TSES.
3	Background	Summarises Evoenergy's previous tariff reforms and describes key features of its network.
4	Key concepts and existing tariffs	Explains the meaning of key terms and presents Evoenergy's existing tariff structure.
5	Consumer engagement	Describes how Evoenergy engaged with stakeholders and incorporated their feedback in its proposed tariff reforms.
6	Approaches to setting tariffs	Explains the overarching two-step framework for setting prices for each tariff.
7	Pricing principles	Describes how Evoenergy's proposed approach complies with the pricing principles set out in the NER.
8	Tariff strategy	Summarises key principles that underpin Evoenergy's proposed tariff reforms based on feedback from stakeholders.
9	Proposed tariff reforms	Presents Evoenergy's proposed tariff reforms for the 2024–29 regulatory control period.
10	Proposed tariff assignment	Explains how Evoenergy will assign customers to network tariffs.
11	Export tariff transition strategy	Summarises Evoenergy's proposed approach to introducing export charges and rewards
12	Network bill impacts	Presents indicative network bill impacts of Evoenergy's proposed tariff structure.
13	Alternative control services	Sets out how prices are set for alternative control services.

[3] NER, clause 6.18.1.

3. Background

3.1 History of Evoenergy's tariff reforms

Evoenergy began introducing cost-reflective tariffs over 15 years ago. Cost-reflective pricing provides network electricity charges that reflect the cost of providing electricity network services to consumers. Evoenergy's first TSS applied from July 2017 to June 2019.

The cost of expanding the network to facilitate more energy imports by customers is driven primarily by increases in peak demand, rather than customer's total energy use. Hence, a key theme of Evoenergy's tariff reforms has been introducing tariffs with charges based on customers' demand. This is typically achieved via a demand charge within a demand tariff, since demand tariffs better reflect the driver of network cost (i.e., they are more 'cost reflective').

In its first TSS, Evoenergy reformed the network tariff structure to include highly cost-reflective demand tariffs as the default for residential and small business consumers with Type 4 meters (referred to as 'smart meters'). Below is a summary of the approved changes resulting from the first TSS:

- **Residential consumers**: a new peak period demand tariff was introduced on 1 December 2017 for residential consumers whose premises were fitted with a smart meter. This start date aligned with the timeframe for metering contestability. For consumers without smart meters, Evoenergy better aligned price levels with the long-run marginal cost[4] of serving those customers.
- **LV commercial consumers**: a new peak period demand tariff for LV commercial consumers was introduced on 1 December 2017 while continuing to offer cost-reflective tariffs for consumers in the LV commercial tariff class.
- **HV commercial consumers**: given that HV commercial consumers already had a highly cost-reflective network tariff structure, Evoenergy maintained the existing tariff structure for HV commercial consumers and consolidated the number of tariffs from four to three.

The introduction of demand tariffs for residential and commercial customers with an installed smart meter provided customers with a more cost-reflective option compared to the existing tariff structure. These became Evoenergy's default tariffs to enable more active management and control of the distribution component of electricity bills for customers who manage when and how they use electricity.[5] Customers that default to the demand tariffs can opt-out to a TOU tariff.

From 1 December 2017, Evoenergy closed the following less-cost reflective tariffs to customers with smart meters:

- Residential Basic Network (code 010 and 011);
- Residential 5000 Network (code 020 and 021);
- Residential with Heat Pump Network (code 030 and 031); and
- General Network tariff (code 040 and 041).

Customers assigned to these tariffs may remain on them until they receive a smart meter. Given that consumers with a smart meter are automatically assigned to a demand tariff (with a provision to opt-out to a TOU tariff), the above tariffs are expected to become obsolete by 2030, as per the draft Metering Review released by the AEMC on 3 November 2022.[6]

[4] The concept of long run marginal cost is explained in section 7.1.
[5] Assuming retailers passed on the tariff structure to consumers.
[6] AEMC, Draft report: Metering Review, 3 November 2022. Available at: https://www.aemc.gov.au/market-reviews-advice/review-regulatory-framework-metering-services

Box 1 – Meter types

Most residential and small business customers have an accumulation meter, although smart meters are becoming more prevalent because all new and replacement meters must be 'smart meters' (since December 2017).

Meter types:

- **Accumulation meters** (Type 6): measure the total electricity a customer uses. These meters are read manually. Customers with accumulation meters are limited regarding tariff options. They are generally on a tariff that has a fixed charge and a single charge on total energy used.
- **Interval meters** (Type 5): record electricity use in 30 minute intervals. These meters are read manually. Customers with interval meters can be assigned to tariffs with prices that vary according to the time of day (e.g., TOU tariffs).
- **Smart meters** (Type 4): record electricity use in close to real-time. These meters are remotely read. Customers with smart meters can generally be assigned to any type of tariff structure, including demand-based tariffs.

Large business customers (typically using at least 160 MWh per annum) have either a type 1, 2, 3, or 4 meter. Some connections to the network, such as for streetlighting, have an unmetered connection, referred to as a Type 7 meter.

In its second TSS, which applies from July 2019 to June 2024, Evoenergy focused on refining the tariff structure for LV and HV commercial consumers to sharpen price signals, increase cost reflectivity and encourage efficient use of the network. The reforms approved by the AER included the following.

- Replaced kVA anytime demand charges with kVA peak demand charges, which created a greater incentive for large commercial consumers to actively manage their maximum demand during the peak demand window.
- Refined the tariff assignment policy for commercial consumers.
- Closed access to one of the controlled load tariffs for new LV commercial connections as it sent a contradictory message to commercial consumers about the commercial peak window.

Given the significant changes to the residential tariff structure during 2017, Evoenergy made limited changes to residential tariffs in its second TSS. This allowed Evoenergy to assess the lessons and feedback from these earlier tariff reforms to progress its journey towards tariff cost reflectivity further.

3.2 ACT regulatory context

As with all electricity distribution network service providers (DNSPs) in the National Electricity Market (NEM), Evoenergy is regulated under the National Electricity Law (NEL) and the NER. The AEMC is responsible for setting the NER, while the AER monitors and enforces compliance with these regulatory requirements.

Once approved, this third TSS will remain in place from 1 July 2024 to 30 June 2029. The tariff structures in the approved TSS will remain substantially unchanged over the financial years 2024/25 to 2028/29. Evoenergy sets prices for those tariff structures to recover its approved revenue in annual pricing proposals that Evoenergy submits to the AER. Evoenergy cannot increase the revenue it is allowed to recover, which is set by the AER.

The Independent Competition and Regulatory Commission (ICRC) regulates ActewAGL Retail's standing offer electricity prices for small customers in the ACT. ActewAGL Retail is subject to price regulation by the ICRC for the current four-year period (2020/21–2023/24). The upcoming retail regulatory period will cover part of the upcoming network regulatory period.

3.3 Jurisdictional context

The ACT is an active leader in actions to reduce greenhouse gas emissions, passing *The Climate Change and Greenhouse Gas Reduction Act 2010 (ACT)* in 2010 "to promote the development of policies and practices to address climate change, to set targets to reduce greenhouse gas emissions and to provide for monitoring and reporting in relation to the targets."[7] As the owner and operator of both the electricity and gas networks in the ACT, Evoenergy has a critical role in supporting the transition needed to reduce emissions in the energy system over the next decade and beyond.

The following subsections provide an overview of the ACT's net zero emission target and the uptake of DER in the ACT. (DER are consumer-owned devices that can generate or store electricity or have the 'smarts' to actively manage energy demand.) ACT Government incentives and customer appetite to be more energy self-sufficient has led to an increase in the adoption of DER, including solar PV systems, home batteries and EVs. The increased uptake of these technologies and the changing ways consumers choose to use and share electricity is changing the role of network operators, including Evoenergy. Consequently, Evoenergy has carefully considered appropriate tariff reforms to support a two-way electricity network that efficiently uses both customer and network assets. The forecast uptake of DER is outlined in the subsections below, followed by an overview of the ACT network and an explanation of ACT retail bills.

ACT: net zero emissions by 2045

The ACT Climate Change Strategy sets a plan to achieve net zero emissions by 2045 (based on 1990 levels).[8] In August 2022, the ACT Government set out its position to pursue an electrification pathway to achieve that target in its paper *Powering Canberra: Our pathway to electrification*.[9] The paper flags the ACT Government's intent to release the first stage of an Integrated Energy Plan in 2024, informing how it plans to transition the ACT away from fossil fuel use.[10]

The vast majority of the ACT's greenhouse gas emissions are from transport (more than 60 per cent).[11] To address this, the ACT Government released the Zero Emissions Vehicle Strategy in July 2022.[12] This included commitments to phase out sales of new light internal combustion engine vehicles by 2035 and to roll out more EV charging stations to ensure at least 180 publicly available stations by 2025.[13]

Evoenergy's proposed tariff reforms have been developed with consideration and analysis of how the ACT electricity network is expected to be used as the ACT transitions to a net zero emissions future.

Electric vehicles (EVs)

Given that EVs can be recharged via the electricity network, Evoenergy's network has a fundamental role in enabling the decarbonisation of the transport sector as the ACT moves to a net zero emissions future. This new load will provide challenges and opportunities for Evoenergy.

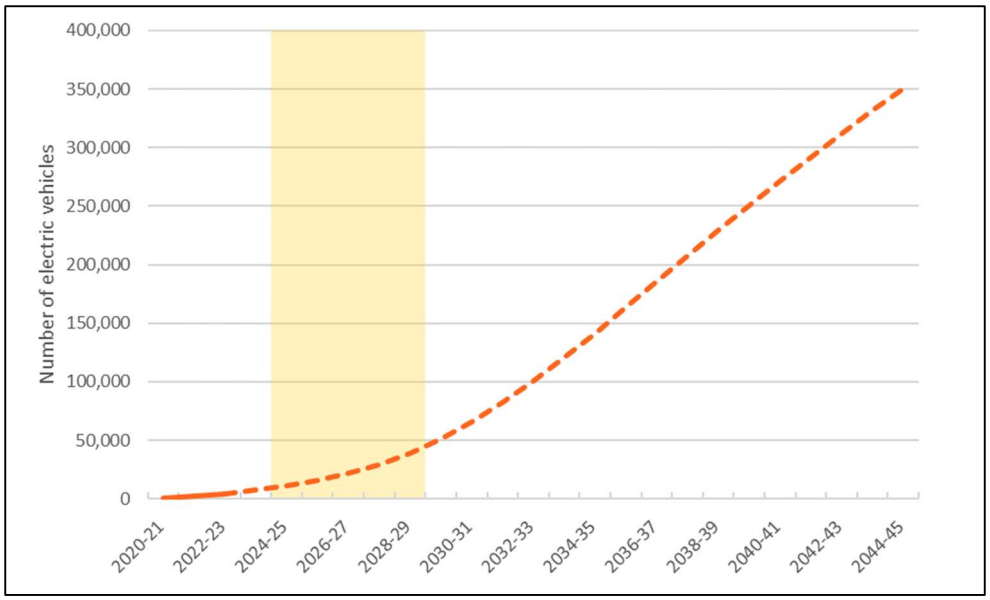
The tariff reforms proposed for the 2024–29 regulatory period consider appropriate price signals that enable the network to continue to operate efficiently as EV recharging becomes more prominent. Given the projected rate of EV uptake and its impact on the network is uncertain, Evoenergy proposes to incorporate flexibility into its future tariff structure so that price signals can change in line with the adoption of EVs. Feedback from Evoenergy's consumers clearly states they are seeking an electricity

[7] *The Climate Change and Greenhouse Gas Reduction Act 2010* (ACT), 2010. Available here: https://www.legislation.act.gov.au/a/2010-41/
[8] https://www.climatechoices.act.gov.au/policy-programs/act-climate-change-strategy
[9] ACT Government, *Powering Canberra - Our pathway to electrification*, ACT Government Position Paper, August 2022, p 5.
[10] ACT Government, *Powering Canberra - Our pathway to electrification*, ACT Government Position Paper, August 2022, p 5.
[11] ACT Government, *ACT's Zero Emissions Vehicles Strategy 2022 - 30*, July 2022, p 2.
[12] ACT Government, *ACT's Zero Emissions Vehicles Strategy 2022 - 30*, July 2022.
[13] ACT Government, *ACT's Zero Emissions Vehicles Strategy 2022 - 30*, July 2022, p 16.

network that is fit for purpose as the electrification of transport accelerates. This includes the transition of public transport and commercial fleets as well as privately owned vehicles. The innovative tariff mechanisms proposed to handle the increased uptake of EVs in a cost-reflective manner are described in section 9.

The ACT already has the highest per capita rate of EV sales (by state/territory) in Australia.[14] This trend is expected to accelerate in anticipation of the achievement of the net zero emission target set by the ACT Government (see Figure 4 below).

Figure 4 Forecast number of electric vehicles



Source: Evoenergy fo*recasts*

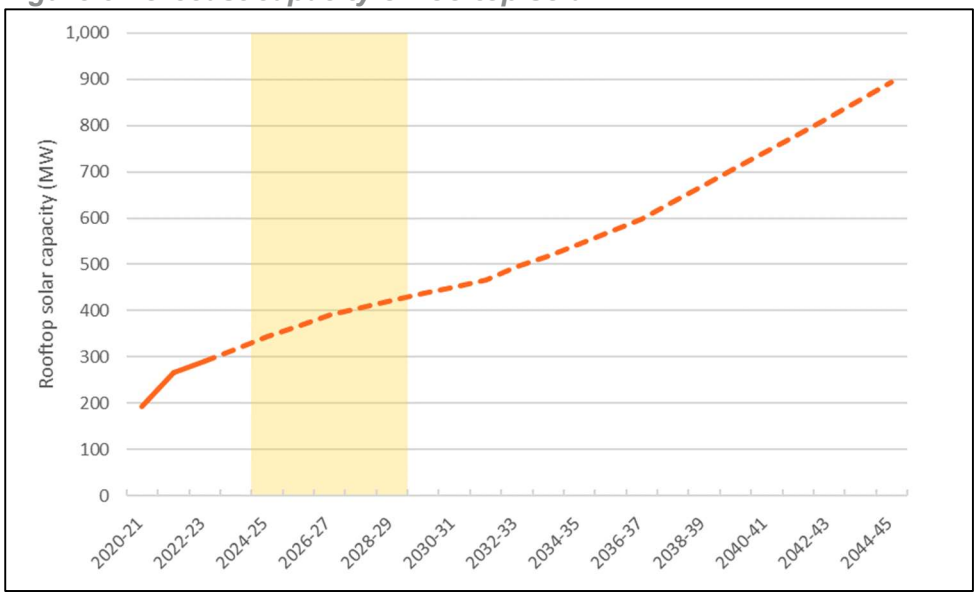
Note: The yellow highlighted period represents the 2024–29 regulatory period.

Solar PV installations

The uptake of rooftop solar photovoltaic (solar PV) systems in the ACT increased significantly during the 2019–24 regulatory period, almost doubling from 3,808 unit installations in 2019 to 6,466 unit installations in 2022 (as of 18 November 2022).[15] With a total of 45,000 solar units installed in the ACT,[16] approximately 25 per cent of Evoenergy's customers now have rooftop solar PV. Evoenergy expects this strong trajectory to continue throughout the 2024–29 regulatory period as customers increasingly look to take control of their electricity bills and contribute to the transition to a cleaner energy system. Evoenergy expects the capacity of rooftop solar PV to increase by 33 per cent over the next regulatory period (2024–29), and by around 60 per cent over the next two regulatory control periods, as illustrated in Figure 5.

[14] As at September 2022, EV sales in the ACT represented 9.5 per cent of total vehicle sales. See: Electric Vehicle Council, *State of Electric Vehicles*, October 2022, p 10.
[15] Clean Energy Regulator, *Postcode data for small-scale installations*, 18 November 2022, available at https://www.cleanenergyregulator.gov.au/RET/Forms-and-resources/Postcode-data-for-small-scale-installations#SGU--Solar-Deemed, accessed 7 December 2022.
[16] Ibid.

Figure 5 Forecast capacity of rooftop solar PV



Source: *Evoenergy's forecasts.*

Note: The yellow highlighted period represents the 2024–29 regulatory period.

Solar irradiance is generally highest in the middle of the day, so generation from rooftop solar PV peaks at that time. The self-generated electricity that customers do not use is typically exported into the network for other customers to use. However, when most self-generated electricity is exported to the network during the middle of the day, it coincides with the time of day when demand (in primarily residential areas) is generally relatively low. This can create localised imbalances between demand and supply that cause the voltage on the network to fluctuate. These voltage fluctuations can put at risk the safe and reliable provision of the network services Evoenergy provides, which results in additional costs to manage these risks.

Evoenergy proposes a range of tariff reforms to address the opportunities and challenges arising from the forecast increasing uptake of solar PV. These reforms are discussed in section 9.

Home battery storage

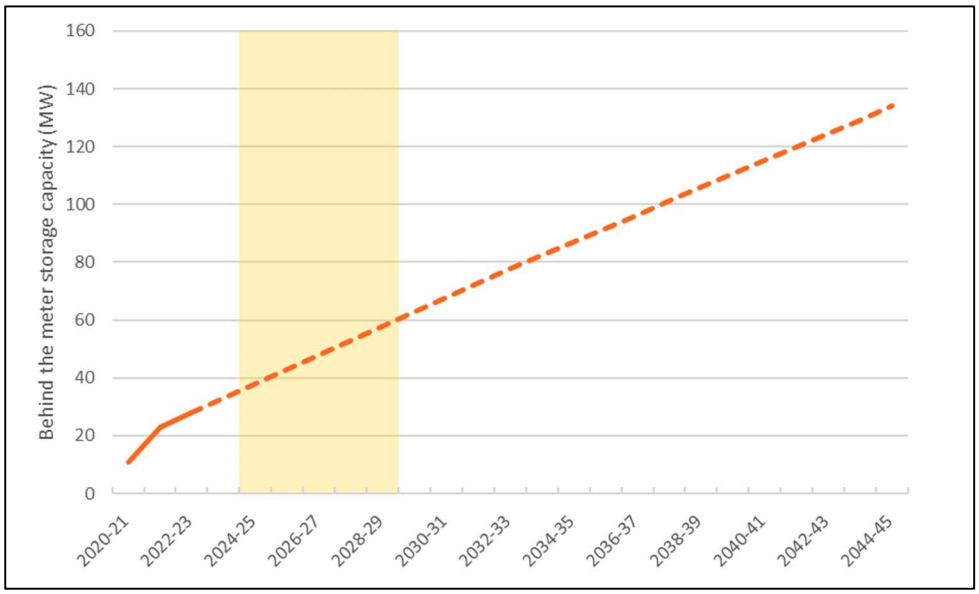
Home batteries can store energy either imported from the electricity network or self-generated from a customer's solar PV. Batteries can then discharge that electricity to meet that customer's electricity needs later or for use by other customers by exporting into the electricity network.

The number of customers that have invested in battery storage systems on their premises – also known as behind-the-meter storage – is growing from a low base. In 2019, 337 batteries were installed (at the same time as solar PV) in the ACT. By 2022, batteries installed had increased by over 2.5 times to 868 units (as of 18 November 2022).[17] The rate of battery installations is expected to continue ramping up as the cost of battery storage falls.

Evoenergy expects the aggregate capacity of home batteries to increase by approximately 50 per cent over the next regulatory period (2024–29) and by almost 120 per cent over the next two regulatory periods, as illustrated in Figure 6.

[17] Clean Energy Regulator, *Postcode data for small-scale installations*, 18 November 2022, available at https://www.cleanenergyregulator.gov.au/RET/Forms-and-resources/Postcode-data-for-small-scale-installations#SGU--Solar-Deemed, accessed 7 December 2022.

Figure 6 Forecast capacity of behind-the-meter storage



Source: Evoenergy's forecasts.

Note: The yellow highlighted period represents the 2024–29 regulatory period.

Home batteries present a significant opportunity to improve the efficiency of how a customer uses the network by:

- Recharging their battery from the network during the middle of the day when there is excess electricity supply on the network (i.e., to soak up solar exported onto the grid at that time).
- Storing self-generated solar, thereby reducing the imbalance between supply and demand in the middle of the day.
- Freeing up excess network capacity in the evening by discharging stored energy.

The benefits of DER – both solar PV and home batteries – will be compounded as Home Energy Management Systems (HEMS) become more prevalent. HEMS enable customers to schedule both their demand and supply (from solar and/or batteries) to minimise the costs they impose on the network, thereby reducing their network electricity bill.[18]

HEMS have the potential to dramatically increase responsiveness to cost-reflective tariffs since they allow the management of energy use and DER:

- with minimal or no marginal effort;
- without any adverse effect on the amenity they receive from energy appliances; and
- so as to provide the opportunity to reduce the network component of the electricity bill.

[18] This assumes the customer is on a cost reflective tariff.

Large-scale batteries

Evoenergy expects to receive a number of connection applications from large-scale batteries in the coming years, with the Federal Government committing to three community batteries,[19] and the ACT Government committing to install at least 250 MW of batteries.[20]

Large-scale batteries have the potential to both impose network costs (similar to other large customers) and reduce network costs (through their ability to address import or export related network constraints). This is because, in contrast to many of Evoenergy's other customers, large-scale batteries are not primarily 'consumers' of electricity. Rather, these batteries are typically commercial entities that import and export energy at different times, participate in wholesale electricity markets and provide various services (e.g., Frequency Control Ancillary Services (FCAS)).

The sophisticated nature of their activities means that large-scale batteries are uniquely placed to respond to highly cost reflective price signals and contribute to improving network utilisation. To do so will require large-scale batteries to respond differently depending on where in the distribution network they are located (i.e., in a commercial or residential area).

Evoenergy has been trialling a tariff suitable for large-scale batteries during the 2019–24 regulatory period. This experience is used to propose permanent large-scale battery tariffs in the 2024–29 regulatory period, as described in section 9.

ACT network charges and retail bills

Evoenergy's network costs are one component of the final bill that ACT customers receive from electricity retailers. A customer's final electricity bills reflects a combination of costs incurred in providing customers with electricity which can be summarised into two components:

- **Network component**: primarily covers the poles and wires required to deliver electricity.
- **Retail component**: covers the electricity retailer's costs, including the actual cost of purchasing the electricity.

The network component specifically includes the following:

- **Distribution costs**: the cost of installing, operating and maintaining poles and wires that deliver electricity from the substations to homes and businesses.
- **Transmission costs**: the cost of high voltage lines that deliver electricity from the large electricity generators to substations.
- **ACT Government levies, taxes, and tariffs**: the energy industry levy, the utilities network facilities tax, and the feed-in tariffs for small, medium, and large-scale solar and wind. Evoenergy doesn't control the jurisdictional-specific components of the bill.
- **Metering costs**: the cost of providing applicable electricity metering services.

The retail component of the bill includes energy purchase costs (retailers purchasing electricity from generators and hedging those costs), and retail costs and margins (reflecting retailer operating costs).

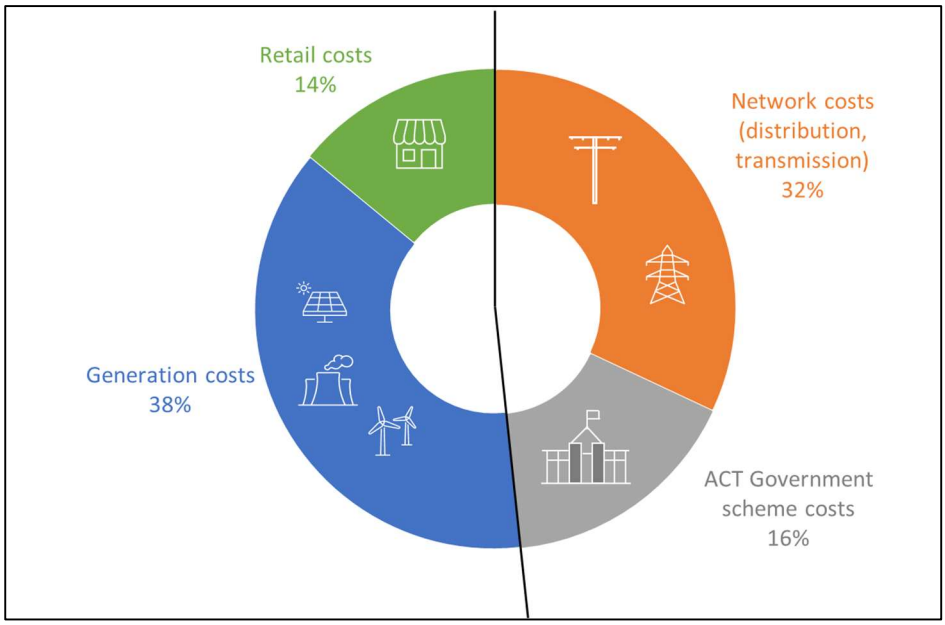
Evoenergy doesn't control the structure of retail tariffs, although some retailers choose to incorporate the structure of Evoenergy's network tariffs in their retail offers to customers. As the operator of the electricity distribution network in the ACT, the way in which network prices are set and passed through by retailers and can influence how customers consume electricity, which has implications for

[19] The Canberra Times, Federal Labor's Chris Bowen promises community batteries in Casey, Dickson and Fadden, 28 March 2022, available at https://www.canberratimes.com.au/story/7675065/labor-promises-community-batteries-for-act/, accessed 26 October 2022.
[20] ABC News, ACT Labor promise Canberra-wide network of renewable energy batteries if elected, 30 September 2020, available at https://www.abc.net.au/news/2020-09-30/biggest-renewable-battery-promised-act-labor-election/12715314, accessed 26 October 2022.

the future cost of providing a safe and reliable network service. Importantly, only the network component of the electricity bill is determined as part of this five-year regulatory review process.

Figure 7 shows the components of an average annual electricity bill based on 2022/23 prices. The charges that Evoenergy passes on to retailers (inclusive if ACT Government levies) typically make up around half of a typical customer's electricity bill.

Figure 7 ACT electricity bill composition



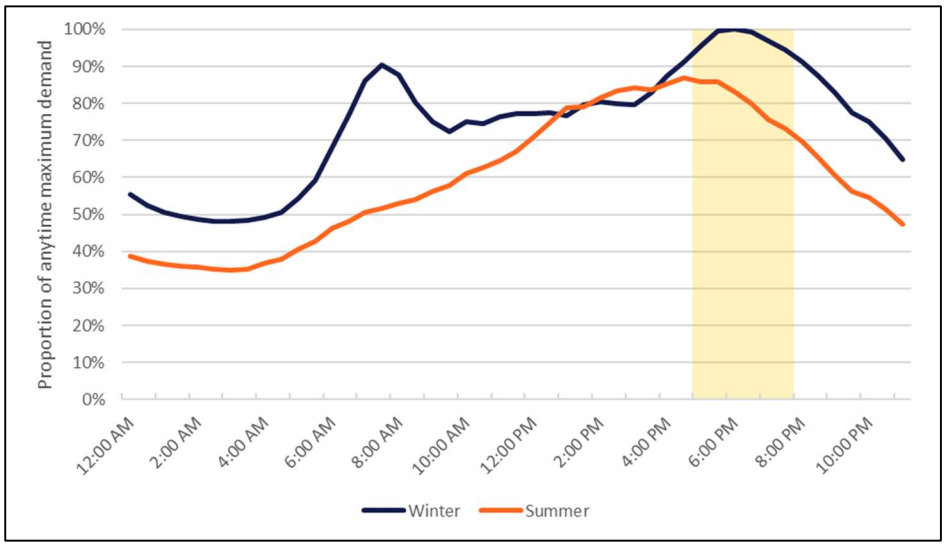
Source: ICRC, Retail electricity price recalibration 2022–23*: standing offer prices for the supply of electricity to small customers, 6 June 2022.*

3.3 The ACT electricity network

Evoenergy's costs are typically driven by peaks in demand which are often caused by customers using heating or cooling appliances on very cold or hot days. Although these peaks in demand have historically occurred in either summer or winter, the highest peaks generally occur in winter. Demand in cold winter months typically spikes in the morning when customers wake up before plateauing during the day and reaches a much higher peak in the evening when customers are home using electrical appliances, including heaters.

Figure 8 illustrates this profile of network demand across the highest peaking day in the winter and summer of 2020/21. Peak network demand is typically lower in summer (orange line) compared to the winter peak (blue line), which was 10 per cent higher in 2020/21.

Figure 8 Maximum Demand on peak demand day 2020/21



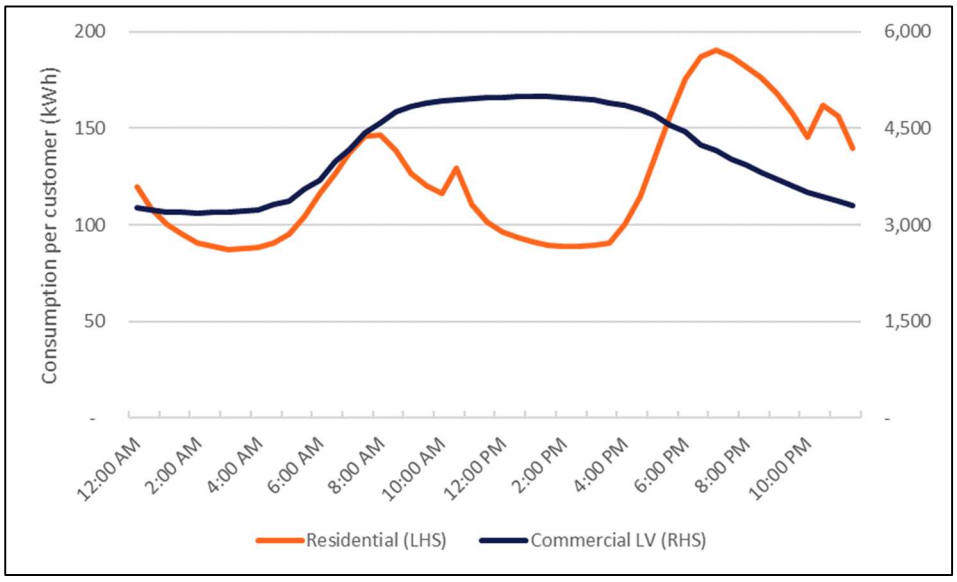
Source: *Evoenergy zone substation data.*

Notes: The yellow area represents the evening peak period (5pm–8pm AEST). Winter peak day was 10 June 2020, and the summer peak day was 25 January 2021.

Evoenergy selected 2020/21 as a representative year for analysis purposes because it was least affected by the COVID-19 lockdowns and bushfires, which primarily occurred in 2019/20 and 2021/22.

Figure 9 shows a typical profile of residential and commercial loads on the Evoenergy network over a 24 hour period. It shows that a residential customer typically uses the most electricity in the morning and evening, while a commercial customer typically uses the most electricity in the middle of the day during typical business operating hours.

Figure 9 Residential and commercial load profiles 2020/21 (consumption per customer, kWh)

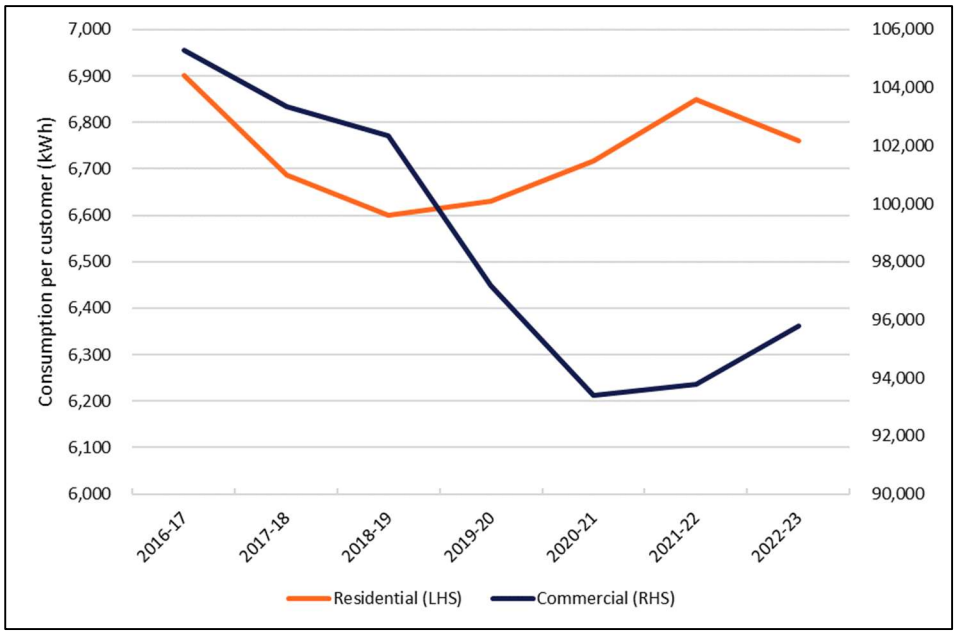


Source: Evoenergy cus*tomer data*

Figure 10 below provides an alternative view of residential and commercial network use over time. This is based on the historical electricity consumed per residential and commercial customer. Firstly, it

shows that ACT residential customers typically use between 6,600 and 6,900 kWh per year, while (small, medium, and large) commercial customers currently use around 96,000 kWh per year. Secondly, it shows that consumption per residential customer has increased in recent years, potentially due to the COVID-19 pandemic. The pandemic resulted in lockdowns which meant many residential customers stayed at home, thereby increasing their electricity usage. For the same reason, consumption per commercial customer fell. In 2022/23, these trends have begun to return to historical levels.

Figure 10 Residential and commercial consumption (consumption per customer)



Source: Evoenergy.

Note: 2022/23 is an estimate.

Evoenergy explains the key features of residential and commercial customer demand in more detail in section 9. It also describes how very low levels of demand in the middle of the day in residential areas of the network are increasingly becoming drivers of future network costs and how Evoenergy is responding with innovative tariff reforms.

4. Key concepts and existing tariffs

This section describes key tariff-related concepts for the current 2019–24 regulatory period, which provide important context to the proposed reforms for the upcoming 2024–29 regulatory period.

Key terms that Evoenergy uses throughout this TSES are summarised below and described in more detail in the subsections that follow.

- **Tariff class**: group of consumers that have similar characteristics.
- **Tariff component**: the name given to each of the charges that comprise a tariff.
- **Charging parameter**: information regarding how and when a tariff component and level is applied.
- **Tariff**: the name given to a selection of charging components.
- **Tariff level**: the price that is charged for each tariff component.

4.1 Tariff classes

Evoenergy serves approximately 206,000 residential and commercial electricity consumers[21] assigned to three groups – called tariff classes – based on their characteristics.

Tariff classes are important for consumers because they determine the selection of tariffs that are available to them. The NER requires tariff classes to be established by grouping retail customers on an economically efficient basis and avoiding unnecessary transaction costs. Evoenergy therefore groups consumers into tariff classes based on the following two features that reflect the way consumers use Evoenergy's network.

- The nature of their connection activities –residential or commercial.
- The level of the network to which they connect – low voltage (LV) or high voltage (LH).

Customers connected to the LV network connect at less than 11,000 volts (11kV), which are typically connections at the street level. Commercial and residential customers can connect to the LV network; hence there are two tariff classes for the LV network – LV residential and LV commercial.

Customers connected to the HV network connect at or above 11 kV. These customers are required to make a capital contribution towards their connection assets and transformers. These customers also have the option of owning and operating their own HV assets. There is only one tariff class for the HV network because only commercial customers can connect to that part of the network.

On this basis, Evoenergy has and proposes to continue to have the following three tariff classes.

1. LV residential customers
2. LV commercial customers
3. HV commercial customers

4.2 Tariff components

Historically, Evoenergy's tariffs have typically comprised a mix of the following tariff components.

- Fixed network access charge
- Energy consumption charge
- Maximum demand charge
- Capacity charge

[21] Evoenergy, 2024-29 Regulatory Proposal.

In 2021, the AEMC finalised a change to the NER to incorporate DER into electricity networks more efficiently.[22] This change included the provision to allow DNSPs to introduce export pricing. The type of export charges that could be applied are described below, following a description of traditional import charges.

Fixed network access charge

The fixed network access charge is a fixed daily charge (typically charged in cents per day) that does not vary with electricity consumption, demand or capacity. It is charged per consumer for residential consumers, and per connection point or account for LV and HV commercial consumers.

The fixed network access charge is based on the cost of constructing and maintaining connection assets and servicing consumers in each tariff class, including consumer-related costs such as network call centre costs.

Energy consumption charges

Energy consumption or usage charges apply to each unit of electricity consumed. The cents per kilowatt hour (c/kWh) or cent per kilovolt hour (c/kVAh) rates may vary:

- with the level of consumption (with higher rates applying above certain thresholds); or
- with the time-of-use (with lower rates applying outside peak periods).

Demand charges

Maximum demand charges are levied on each unit of a customer's maximum demand (in c/kW/day or c/kVA/day), measured at each connection point (households typically have one connection point, but commercial customers can have more than one connection point).

Maximum demand is equal to the highest demand calculated coincident over a 30-minute clocked interval (starting on the full or half hour) during the billing period, which is typically a calendar month. Maximum demand charges may also be seasonal, meaning the demand charges vary according to season. Maximum demand charges provide a price signal about the relatively high cost of providing capacity to meet demand. They also provide incentives to consumers to smooth their load more evenly and improve their power factor, which allows the network to deliver energy more efficiently. These price signals have proven to be effective demand management tools.

Capacity charges

Evoenergy's capacity charges are levied on a similar basis to maximum demand charges (in c/kVA/day) but are applied to maximum demand measured over a much longer, historical period. Specifically, the capacity charge is based on the customer's highest demand recorded coincident over a 30-minute clocked interval (starting on the full or half hour) during the previous 13 months, including the current billing month.

Evoenergy commenced the application of maximum demand and capacity charges for most commercial tariffs several years ago. Maximum demand and capacity charges are based on the cost of providing capacity to meet a consumer's maximum demand. They are intended to provide incentives for consumers to manage their load on the network. Applying these charges has further strengthened Evoenergy's price signals, providing incentives to use the network efficiently.

[22] AEMC, *Access, pricing and incentive arrangements for distributed energy resources,* 12 August 2021. Available at: https://www.aemc.gov.au/rule-changes/access-pricing-and-incentive-arrangements-distributed-energy-resources

Export charge and rebate

An export charge is levied on electricity exported to the network, from a customer's premises, during a specified charging window. An export charge is a positive charge/price (just like import prices). Under the NER, export charges will apply to exports beyond a basic export level (approved by the AER) for ten years (see section 10).

An export rebate is provided for electricity exported to the network, from a customer's premises, within a specified charging window. An export rebate is a negative charge/price, and hence, it is designed to reflect the network benefit of exports during that charging window. Export charges and rebates can vary by season.

Critical peak export charge/rebate

Customers on tariffs with a critical peak export charge/rebate are notified (by Evoenergy) of upcoming critical peak events up to 48 hours before the event commences. The maximum duration of each critical peak event and the number of times a critical peak event can be called are set out in the charging parameters. Customers who export during a critical peak event will receive a charge or rebate (depending on the tariff component) based on electricity exported within the critical peak period.

4.3 Charging parameters

Charging parameters refer to the specific features of tariff components including how and when a tariff component is applied. Charging parameters are designed to promote efficient use of the network. This particularly applies to energy consumption and demand tariff components that aim to send price signals about future network costs. For example, the charging parameter for the Evoenergy residential off-peak charge for energy consumption is currently 10pm–7am AEST.

Charging parameters thereby enable better manage the network portion of electricity bills, by signalling how to use the network efficiently. Importantly, the charging parameters that can be applied depend on the metering technology installed at a customer's premises.

4.4 Existing tariffs

Each tariff class contains a set of tariffs, and each tariff is structured to include a unique set of tariff components with specific charging parameters. More cost-reflective tariff structures include demand-based tariff components, with charging parameters that apply those demand price signals when demand (on the network used by a customer) typically peaks. Evoenergy has been progressively implementing more cost-reflective tariffs over time, with the uptake of those tariffs boosted by the continued deployment of smart metering technology.

On 1 December 2017, in line with the timing of the Metering Rule Change,[23] Evoenergy introduced peak demand tariffs for residential and LV commercial consumers with smart meters. Prior to the implementation of peak demand tariffs for small consumers, all new small consumers were assigned to the TOU tariff as the default tariff and were able to opt-out to flat or block tariffs.

HV commercial and large LV commercial consumers have historically been offered tariffs with demand and/or capacity tariff components, which provide incentives to manage their peak demand, together with TOU consumption charges to provide incentives to consume energy more efficiently.

The subsections below briefly describe Evoenergy's existing key tariffs for consumers in each of the tariff classes. These tariffs are important context to Evoenergy's proposed reforms. Specifically, the

[23] AEMC, *National Electricity Amendment (Expanding competition in metering and related services) Rule 2015*, 26 November 2015.

proposed tariff reforms for the 2024–29 regulatory period are modifications of the existing residential demand and TOU tariffs.

Existing residential tariffs

This subsection describes the key features of Evoenergy's existing key tariffs for residential customers.

Residential demand tariff

The residential demand tariff gives residential customers the opportunity to actively manage and control the size of the network component of their electricity bills by considering when and how they use electricity. [24]

The demand tariff includes the following three tariff components.

- A fixed network access charge.
- An anytime energy consumption charge.
- A maximum demand charge based on the customer's highest 30-minute demand between 5pm and 8pm (AEST) each calendar month.

Since 1 December 2017, the residential demand tariff has been the default tariff for residential customers with a smart meter installed.

Residential TOU tariff

The residential TOU tariff provides an opportunity for customers with the necessary metering capability to respond to price signals and manage their network electricity bill. [25]

The residential TOU tariff comprises the following tariff components.

- A fixed network access charge.
- An off-peak, shoulder and peak energy consumption charge applies at different times of the day.

Customers with a smart meter can opt-out of the residential demand tariff and into the residential TOU tariff once in a 12-month period.

Other residential tariffs

Customers on the Residential Demand or TOU tariffs can also opt-in to one of the off-peak tariffs (off-peak 1 and off-peak 3), which apply to controlled loads to encourage electricity usage at off-peak times.

From 1 December 2017, the Residential Basic, Residential 5000, and Residential Heat Pump tariffs were closed to Evoenergy customers with a smart meter,[26] because these tariffs are not sufficiently cost-reflective. Customers currently assigned to these tariffs remain on them until they change to a smart meter. Evoenergy's assignment policy means these tariffs will become obsolete over time.

[24] Assuming the retailer passes on the network tariff structure.
[25] Ibid.
[26] Residential customers with a replacement smart meter can remain on their existing network tariff until 12 months after their smart meter is installed, however they can opt-in to the Residential TOU or demand tariffs according to the assignment policy.

Existing low voltage commercial tariffs

This subsection describes the features of Evoenergy's existing key tariffs for LV commercial customers.

LV kW demand tariff

The LV kW demand is the default tariff available to LV commercial customers with a smart meter, and without a current transformer (CT) meter.[27] The tariff gives LV commercial customers the opportunity to actively manage and control the size of the network component of their electricity bills by considering when and how they use electricity.

The LV kW demand tariff comprises the following tariff components.

- A fixed network access charge.
- An anytime energy consumption charge which varies with the level of consumption but not the time of day.
- A maximum demand charge based on the customer's highest 30-minute demand between 7am and 5pm (AEST) on weekdays, during the billing period.

General TOU tariff

The General TOU tariff provides an opportunity for customers with the necessary metering capability to respond to price signals[28] and manage their network electricity bill.

The General TOU tariff comprises the following tariff components.

- A fixed network access charge.
- An off-peak, shoulder and peak energy consumption charge, which applies at different times of the day.

Customers with a smart meter can opt-out of the LV kW demand tariff and into the General TOU tariff once in a 12-month period.

kVA demand

The kVA demand tariff is the default tariff available to LV commercial customers with a smart meter and a CT meter installed. The kVA demand tariff comprises the following tariff components.

- A fixed network access charge.
- An off-peak, shoulder and peak energy consumption charge, which applies at different times of the day.
- A maximum demand charge based on the customer's highest 30-minute demand during peak business times during the billing period.

[27] CT meters are used to measure a proportion of the current passing through a connection. A multiplier is then applied to the measure to estimate the total kWh. Connections to Evoenergy's network that are rated at 100Amps or greater have CT meters and the appropriate compliant metering installed.
[28] Assuming that the retailer passes on the network tariff structure.

Existing high voltage commercial tariffs

This subsection describes the features of Evoenergy's existing tariffs for HV commercial customers.

HV commercial demand tariff

To qualify for the HV commercial demand network tariffs, consumers must take their energy at high voltage (nominal voltage not less than 11 kV) and make a capital contribution towards their connection assets and transformers. HV commercial consumers have the option of owning and operating their own HV assets. There are three HV commercial tariffs, each with the same structure, which comprises the following tariff components.

- A fixed network access charge per connection point.
- An off-peak, shoulder and peak energy consumption charge, which applies at different times of the day.
- A maximum demand charge based on the customer's highest 30-minute demand during peak business times during the billing period.
- A capacity charge based on the customer's highest 30-minute maximum demand during peak business times during the last 13 months, including the billing month.

Table 3 sets out Evoenergy's existing tariff classes, tariffs, and tariff components. Evoenergy's proposed new tariffs are introduced separately in section 9.

Table 3 Existing tariff classes, tariffs, and tariff components

				Consumption charges (kWh)						Demand charges		
Tariff class	Tariff	Tariff code	Fixed	All time	Block tariff	Peak	Shoulder	Off-peak	Controlled load off-peak	Demand (kW)	Demand (kVA)	Capacity (kVA)
Residential	Basic*	010	✓	✓								
	TOU	015	✓			✓	✓	✓				
	Res 5000*	020	✓		✓							
	Res heat pump*	030	✓		✓							
	Demand	025	✓	✓						✓		
	Off-peak (1)	060							✓			
	Off-peak (3)	070							✓			
LV commercial	General*	040	✓		✓							
	General TOU	090	✓			✓	✓	✓				
	Small unmetered	135	✓	✓								
	Streetlighting	080	✓	✓								
	LV kW demand	106	✓	✓						✓		
	LV kVA demand	101	✓			✓	✓	✓			✓	
	LV kVA capacity	103	✓			✓	✓	✓			✓	✓
HV commercial	HV demand	111** 121** 122	✓			✓	✓	✓			✓	✓

*Obsolete to new customers from 1 December 2017.

**Obsolete to new customers from 1 July 2019.

4.5 Tariff trials

In addition to introducing tariff reforms in the 2019–24 regulatory period via the second TSS, Evoenergy also introduced tariff trials described below. A detailed description of these tariff trials and the outcomes is explained in Addendum 7.1.6.

Residential battery tariff

Evoenergy designed a residential battery tariff trial for residential customers with controlled batteries and EVs, supported by modern renewable energy technologies. The tariff trial provided a unique opportunity for Evoenergy to test new network tariffs that could be suitable as the uptake of renewable technologies increases across the network in the future.

The residential battery trial tariff comprised the following tariff components.

- A fixed network access charge.
- An off-peak, shoulder and peak energy consumption charge, which applies at different times of the day.
- A seasonal maximum demand charge based on the customer's highest 30-minute demand during peak times during a calendar month.
- A seasonal export charge.
- A critical peak export rebate.

The design of this tariff informed Evoenergy's proposed tariff reforms, explained in section 9.

Large-scale battery tariff

Given that a number of large-scale batteries are expected to be introduced to the ACT electricity distribution network, Evoenergy trialled a tariff designed for large-scale, distribution network-connected, stand-alone batteries.

The large-scale battery tariff provided Evoenergy with an opportunity to test customer responses to highly cost-reflective price signals. The trial was particularly important given that large-scale batteries generally respond to a range of price signals (including wholesale prices and FCAS), not only network price signals.

The tariff structure of the large-scale battery tariff comprised the following tariff components.

- A capacity charge based on the customer's highest 30-minute maximum demand during the last 13 months, including the billing month
- A seasonal maximum demand charge based on the customer's highest 30-minute demand during peak times during the billing period
- A net consumption charge based on the difference between the electricity imported and exported by the customer.
- An export critical peak rebate.
- An export critical peak charge.
- An avoided / incurred transmission use of system (TUOS) charge.[29]

This trial tariff informed Evoenergy's proposed new large-scale battery tariffs, which are explained in section 9.

[29] This element was not treated as a tariff component, rather a direct payment/rebate based on the customers' maximum demand at the time the nearest distribution zone substation experienced peak demand each calendar month.

5. Consumer engagement

5.1 Consumer engagement principles and program

Evoenergy has focussed on engaging with the community throughout the development of the proposed network tariff reforms. Evoenergy spent time with local energy consumers through various channels to understand what they value most and their priorities and expectations regarding future network tariffs. The principles underlying the consumer engagement program are set out in Table 4 below.

Table 4 Evoenergy's stakeholder engagement principles

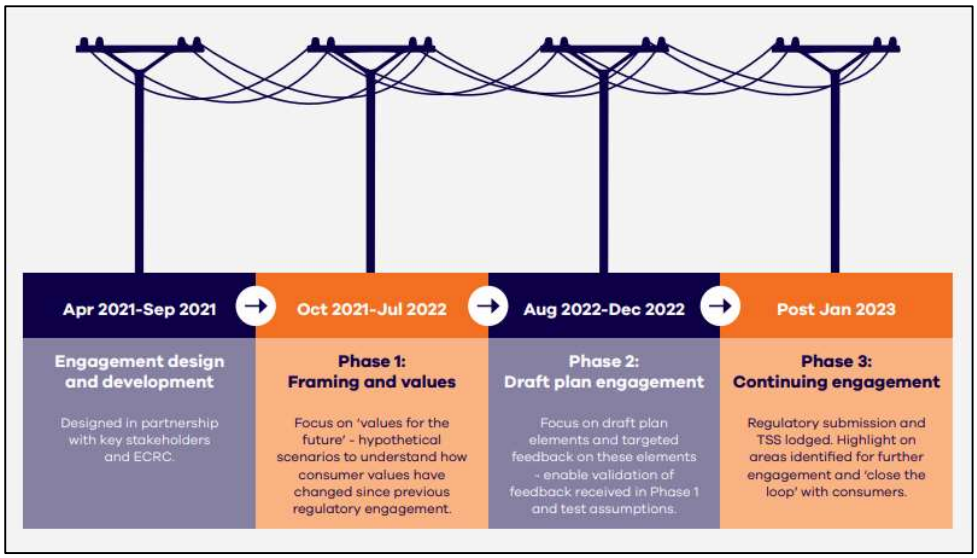
Principle	What this means to Evoenergy	What it means to stakeholders
Adaptive	• Tailored approaches (not one size fits all) • Moving with the times	• Flexible and tailored engagement communication to meet stakeholder needs • Engagement on your terms
Curious	• Eagerness to learn and discover new things • Welcoming multiple perspectives	• We will listen to you — you will be heard • Inclusive engagement practices
Brave	• Evaluating our engagement practices • Having courageous conversations and seeking feedback	• You can hold us accountable • We will ask you for feedback on our engagement
Honest	• Providing information that is clear, accurate, relevant and timely • Transparency around the purpose, scope and outcomes of our engagement	• We will use plain language that helps you make informed contributions • You will be able to read reports on our engagement activities on our website
Committed	• Dedicating time and resources to engagement • Acting with integrity — doing what we say we'll do	• We are around for the long haul — our engagement is ongoing • We will explain how your input impacts our work and your experiences

Evoenergy's long standing Energy Consumer Reference Council (ECRC) was consulted to develop a consumer engagement strategy to inform TSS engagement, using the principles outlined above in Table 4 to underpin the strategy. In line with Evoenergy's broader regulatory consumer engagement strategy, TSS engagement aimed to achieve the following goals.

- Inform, consult, involve and collaborate with electricity consumers, key stakeholders and other Canberra community members about the future of ACT electricity network tariffs.
- Gather diverse consumer input to inform the development of the TSS.

The TSS engagement program was delivered over three phases, as shown in Figure 11 and explained below.

Figure 11 Consumer engagement program phases



Phase 1: Framing and consumer values

Phase one of the engagement program focused on understanding how the values of energy consumers have changed since the last TSS was developed. Evoenergy sought to understand what's important now, and what Canberrans thought would be important as the energy landscape changes.

During phase one, Evoenergy engaged with a range of stakeholders about TSS matters. This included detailed engagement on tariff options such as retaining existing tariffs, transitioning to new tariffs, and proposed tariffs for exporting to the grid. The following engagements were undertaken in phase one.

- Workshops with the Community Panel[30]
- Workshop with the Community pricing panel[31]
- Survey of ACT EV owners and intentional owners
- Deliberative forums
- ECRC meetings
- Engagement with the broader community via social media and traditional media (i.e., media release, news item on website)

Phase 2: Draft plan engagement

Building on the engagement in phase one, phase two provided stakeholders with an opportunity to provide feedback on Evoenergy's draft plan for the proposed TSS before its submission to the AER (January 2023). The draft plan contained information about Evoenergy's TSS consumer engagement program (phase one) and the proposed tariff reforms Evoenergy was considering at that stage of the TSS' development.

Evoenergy undertook a range of engagement activities between August and December 2022 to promote the publication of the draft plan and seek feedback on its content. This included the following forums.

[30] Evoenergy established a Community Panel to engage directly with the ACT community about the 2024-29 regulatory proposal. It involved a group of 20 randomly selected community members who reflect the diversity of the ACT community.
[31] Evoenergy established a Community Pricing Panel to engage directly with the ACT community about the 2024–29 TSS. It involved a group of 29 randomly selected community members who reflect the diversity of the ACT community.

- Workshops with the Community panel
- Workshop with the Community pricing panel
- 'Energy Matters' workshops with large energy users
- Meetings with retailers, aggregators and the ACT Government
- Workshop with ACT Council of Social Services (ACTCOSS)
- ECRC meeting
- Engagement with the broader community via social media and traditional media (i.e., media release, news item on website)
- Invitation to stakeholders who had registered interest in the development of the Electricity Distribution Network Determination 2024-29 (EN24) draft plan to provide feedback and make a submission

These engagement activities were supported by updated information on Evoenergy's 'engage with energy' website.[32] This website was developed to provide information about Evoenergy's 2024–29 regulatory proposal and TSS matters to facilitate increased understanding and feedback opportunities for the general public.

Phase 3: Continuing engagement

Following Evoenergy's proposed TSS submission in January 2023, Evoenergy intends to continue engaging with the community.

Table 5 summarises the engagement activities, topics of engagement, stakeholders engaged, promotion, feedback mechanism and where the engagement sat on the International Association for Public Participation (IAP2) spectrum. The table separates the engagement activities into tariff trial and TSS engagement. The table is followed by a detailed description of the key engagement activities and the feedback received.

[32] www.engagewithenergy.com.au

Table 5 Stakeholder engagements

Stage		Engagement topics	Stakeholder group	Promotion	Feedback mechanisms	IAP2 Spectrum
Tariff trial engagement	**Community workshops at community hall** December 2020 May 2021	• Electricity network • Load profiles • Electricity bills • Cost-reflective tariffs • Tariff trial • Future customer	• Residential customers	• Website • Mailing list • Social media • Community presentation	Customer workshops	Consult
	Meetings with large-scale battery proponents December 2020, February 2021, March 2021, August 2021, February 2022	• Battery operation impacts on network • Tariff trial principles, structure • Bill impacts • Capacity charge adjustment	• Commercial customers	• Invitation	One-on-one meeting	Involve
	ECRC meetings October, December 2020	• Approach to customer engagement • 2024-29 Tariff Structure Statement • Cost-reflective tariffs	• Residential customers • Vulnerable customers • Commercial customers	• Invitation	Workshop	Involve
	ACT Government March 2021	• Tariff trial overview • Large-scale battery tariff trial	• ACT Government	• Invitation	One-on-one meeting	Inform
	One-on-one meetings with aggregators May 2021, August 2021	• Tariff trial overview • Tariff trial structures • Indicative prices • Indicative bill impacts	• Aggregators	• Invitation	One-on-one meeting	Involve
	Retailer meetings August, September, December 2021	• Future changes to the network • Tariff trial overview • Tariff trial structures • Load profiles • Export tariffs	• Retailers	• Invitation	One-on-one meeting	Involve

Stage		Engagement topics	Stakeholder group	Promotion	Feedback mechanisms	IAP2 Spectrum
		• Cost-reflective tariffs				
TSS Engagement	**Community pricing panel** 5 meetings. April, May, October 2022	• Energy industry, tariff overview • Future changes to the network • Cost-reflective tariffs • Tariff options • Bill impacts • Export pricing	• Residential customers • Vulnerable customers	• Community presentation	Customer workshops	Collaborate
	Deliberative forums May, June 2022	• Solar soak charge • Export pricing	• Residential customers • Vulnerable customers	• Invitation	Customer workshops	Collaborate
	EN24 community panel November 2021 – June 2022	• Network tariff overview • Network funding and bills • Cost reflective tariffs • Future network pricing • Export pricing • Engagement feedback (including from vulnerable customers)	• Residential customers • Vulnerable customers	• Community presentation	Customer workshops	Collaborate
	EV survey March 2022	• EV ownership, use, recharging habits, willingness to change	• Residential customers	• Website • Social media	Survey	Consult
	Retailer meetings August 2022	• Future use of the network • Tariff reform options • Export tariffs • Provided copy of Draft EN24 plan	• Retailers	• Invitation	One-on-one meeting Written submission	Involve

Stage		Engagement topics	Stakeholder group	Promotion	Feedback mechanisms	IAP2 Spectrum
	Aggregators November 2022 December 2022	• Proposed tariff reforms • Tariff assignment	• Aggregators	• Invitation	One-on-one meeting	Inform
	ACT Government July 2022 September 2022 Utility Industry Regulator's Forum (November 2022)	• Proposed tariff reforms • Export pricing • Inclining block charge	• ACT Government	• Invitation	One-on-one meeting Forum	Involve
	ACTCOSS November 2022	• Network tariff reform • Export pricing	• Vulnerable customer representatives	• Invitation	Workshop	Involve
	ECRC December 2020 – December 2022	• Tariff pricing options • Implementation of new tariffs • Consumer engagement update	• Residential customers • Vulnerable customers • Commercial customers	• Invitation	Workshop	Involve
	Draft EN24 plan August 2022	• Consumer engagement feedback • Proposed network tariff reforms	• Residential customers • Vulnerable customers • Commercial customers • ACT Government • Retailers • Aggregators	• Website • Mailing list • Social media • Community presentation	One-on-one meetings Written submissions	Involve
	Energy Matters August 2022	• Commercial tariff reforms • Export pricing	• Commercial customers	• Community presentation	Customer workshop	Involve

Community pricing panel

The community pricing panel was established to explore a range of network pricing issues to inform the TSS. The pricing panel comprised 29 representative ACT community members, including six participants from the broader EN24 community panel. The panel was initially presented with contextual information to enable informed feedback on detailed proposed tariff reform and assignment options. The pricing panel met four times in phase one, and the outcome of their deliberations was used to inform the tariff reforms presented in the draft EN24 plan. The community pricing panel met a fifth time in phase two (October 2022). This meeting was initiated by the AER, and its purpose was to gauge support for Evoenergy's proposed tariff reforms. The sessions were online meetings and used a series of online tools to gather feedback, including the meeting chat function, 'Slido' (for live polls), and surveys. Appendix 7.1.1 provides the community pricing panel meeting agendas, summaries, feedback and material provided to panellists. The key feedback received from the community pricing panel is summarised in Table 6 below.

Table 6 Community pricing panel – feedback

Session	Topics discussed	Feedback received	Evoenergy's response
One 12 April 2022	• Electricity supply chain • Monopolies • Cost-reflective tariffs • Future use of the network	• In session one, 70% knew there were retail and network tariffs; 30% didn't know. • Panellists wanted more information about network costs, pricing, the future of the network, impacts of change.	• Provide more information about network costs, pricing, the future of the network, and the impact of change in subsequent sessions. • Useful context for subsequent sessions.
Two 26 April 2022	• Bill impacts for different network tariff structures • Background and load profiles: • Electric vehicles • Solar • Batteries • Future challenges and opportunities for the network	• Uptake of renewable technology presents both opportunities and challenges. • Avoid disincentivising EV purchases. • Opportunity to use EVs for load balancing/flattening. • Range of views on whether it's fair or unfair for all customers to pay for network upgrades required to export.	• Consideration of price/bill impacts to test whether they are likely to disincentivise EV purchases. • Consideration of tariff charging parameters that assist EV owners to flatten their load. • Consideration of introducing export tariffs gradually (in response to mixed views on its fairness).

Three
17 May 2022
	• Export pricing
	• Tariff options:
	  ○ TOU
	  ○ Demand
	  ○ New battery
	  ○ Tariff assignment
		• 65% of panellists prefer simpler TOU tariff option.
		• 67% of panellists support the proposed demand tariff as it better reflects network costs.
		• 88% of panellists support the proposed residential battery tariff because it incentivises 'responsible' exporting which helps even out peak demands.
		• Fairly evenly split views on how customers are
			• Panellists' tariff preferences are addressed in the proposed tariff reforms and tariff assignment policy (see section 9).

Session	Topics discussed	Feedback received	Evoenergy's response
		assigned to tariffs in the future.	

Four
 	
31 May 2022
	• Indicative bill impacts
	• Export tariff:
	  ○ structure
	  ○ assignment policy
	  ○ timing (introduction)
		• Majority considered indicative prices were reasonable.
		• Over half considered the proposed tariff changes were fit for future use of the network.
		• Majority prefer an export tariff with a charge and rebate.
		• Majority preferred mandatory assignment (to export tariff) for all new export customers, and opt-in for existing export customers.
		• Strong preference to introduce export tariffs in the 2024–29 regulatory period.
			• Proposed export tariff structure includes both an export charge and rebate.
			• Export tariff is proposed to be introduced in the 2024–29 regulatory period, with new exporting customers defaulting to the export tariff, and existing export customers opting in.

Five 24 October 2022	• Proposed tariff reforms • Proposed tariff assignment • Indicative customer impacts • Two-way pricing (structure, assignment, customer impacts)	• Panellists supported the proposed tariff reforms and assignment policy, with scores of 3.9 out of 5. • Generally comfortable with the indicative customer impacts, with a rating of 3.4 out of 5. • Support for the introduction of export tariffs, with a score of 3.7 out of 5.	• This proposed TSS includes the tariff reforms and assignment policy presented, and generally supported at that session.

Deliberative engagement pricing workshops

Targeted focus group sessions were conducted to deep dive into specific elements of the proposed tariff reforms. Held over two nights, the focus groups comprised consumers that represented four energy personas — current solar users, those open to installing solar in the future, those not open to solar, and vulnerable consumers. These groups were recruited through quantitative research undertaken in March 2022 which surveyed 640 Canberrans to understand their attitudes and uptake of renewable energy technology. These face-to-face workshops explored consumer sentiment on the introduction of a solar soak charge and two-way pricing, as summarised in Table 7.

Table 7 Deliberative engagement pricing workshop – feedback

Session	Topics discussed	Feedback received	Evoenergy's response
One 24 May 2022	• 'Solar sponge' ○ Low electricity charge during the middle of the day, designed to soak up excess solar	• Uncomfortable with the term 'solar sponge' as it has a negative connotation of taking advantage of solar customers. • Non-solar customers would have an opportunity to access the benefits of solar. • Customers could program electrical appliances in the middle of the day (solar soak period). • Comfortable that some charges (outside the middle of the day) would increase to compensate for low 'solar soak rate. • When asked whether solar customers were willing to (essentially) provide their excess solar generation to non-solar customers at a low (solar soak) rate, they responded affirmatively. • 'Solar soak' charge could disincentivise solar installations.	• Evoenergy has changed the term 'solar sponge' to 'solar soak'. • Communication about the new solar soak charge needs to be clear, with messaging about ways in which customers can utilise the new charge to reduce their network bill. • Given the general level of support for this, Evoenergy proposes to introduce a 'solar soak' charge into the newly proposed residential TOU and demand tariffs.
Two 8 June 2022	• Export pricing ○ Charge/reward applied to electricity sent from customers' premises to the network	• Some considered it a fairer way to charge. • Some considered it unnecessary given relatively low bill impacts. • Export pricing may encourage battery uptake and discourage solar uptake. • Include an export charge and export rebate. • Introduce in 2024–29 regulatory period. • Opt-in for existing customers; mandatory for new export customers.	• Evoenergy undertook bill impact modelling to test whether the export tariff was likely to rationally disincentivise solar installations and incentivise battery uptake and concluded this was unlikely. • Export tariff structure includes both an export charge and rebate. • Export tariff is proposed to be introduced in the 2024–29 regulatory period, with new exporting customers defaulting to the export tariff, and existing export customers opting in.

Draft EN24 plan

Evoenergy's draft EN24 plan was publicly released on 24 August 2022, marking a significant milestone and moving the proposed TSS into phase two of the consumer engagement program.

A range of communication and engagement activities were undertaken within the five week consultation period (24 August to 30 September 2022) to enable a broad range of consumers and stakeholders the opportunity to ask questions, provide feedback, and/or make a written submission to

Evoenergy within the consultation period. The feedback received was used to inform this proposed TSS.

Communication and engagement on the Draft EN24 plan included two TSS specific questions to provide an opportunity for targeted, meaningful and accessible engagement on TSS matters. In response, Evoenergy received submissions from the ACT Government, the ACTCOSS, the Electric Vehicle Council, and a retailer. In addition, feedback was received from seven members of the public as well as comments on social media. A copy of the draft EN24 plan is provided in Appendix 7.1.3, and a detailed outline of the feedback received is documented in Appendix J. The TSS specific feedback is summarised in Table 8.

Table 8 Draft EN24 plan – feedback

Question	Feedback received	Evoenergy's response
Do you think the proposed future tariff structure is appropriate to support the ACT transition to Net Zero 2045 (NZ45)?	• Only 4 responded directly to this question, with 3 indicating they didn't think the proposed tariff structure was appropriate for the future. • One respondent considered that export charges could disincentivise solar installations. • The use of smart technology, such as HEMS, should be used to respond to proposed cost-reflective price signals. • ACTCOSS supports Evoenergy's aim to provide cost-reflective network tariffs, especially as this will help maximise efficient use of the network, minimise extreme spikes in demand and manage capacity constraints stemming from greater electrification. Evoenergy and retailers need to consider education programs to support the introduction of the proposed tariffs. • Proposed tariff reforms could change consumer behaviour with the potential to introduce new demand peaks. Evoenergy should ensure proposed tariffs are fit for the long term. • ACTCOSS considers introducing an export tariff will support equity and fairness for cost recovery. Low-income households are less able to afford DER to help reduce energy bills and already spend disproportionately more on energy. • Given the proposed tariff structure (as per the Draft EN24 plan) is more complex than the structure in 2019–24, it may impact the adoption of more cost-reflective tariffs by retailers and the effectiveness of price signals. Concern by a retailer that complex tariff structures or more tariff choices could lead to retail customer churn and increased retail operating costs (that are passed onto consumers). • A retailer suggested the term 'solar sponge' may add complexity to tariffs. The suggestion that existing and widely understood terms such as 'peak', 'shoulder' and 'off-peak' may be more effective.	• In response to this feedback, the proposed TOU and demand tariffs presented in the draft EN24 plan have been simplified and aligned. • Evoenergy is no longer proposing to introduce a new residential tariff (e.g. the residential battery tariff), partially in response to feedback about simplicity. • Given the proposed gradual introduction of export tariffs, Evoenergy considers introducing an export charge unlikely to disincentivise solar installations. • Evoenergy has engaged with aggregators to discuss options for greater implementation of HEMS. • Evoenergy has amended the term 'solar sponge' to 'solar soak'. • Evoenergy intends to continue closely monitoring network peaks to check for potential new overnight peak demands. The inclining block charge (within the proposed TOU tariff) will be varied according to network requirements. This charge is not designed to disincentivise the use of the network, but rather signal the cost associated with the use of the network, and thus, it is designed to be cost-reflective.

Question	Feedback received	Evoenergy's response
	• The proposed inclining block charge (proposed TOU tariff) may create new overnight peaks and disincentivise the use of EV smart chargers.	
Are there specific aspects of the proposed tariff structure that you support or would like to know more about?	• The ACT Government was interested in more information regarding the inclining block charge (in the proposed TOU tariff) and associated customer impacts. They were also keen to understand how the proposed inclining block charge is balanced against tariffs (i.e., controlled load tariffs) that encourage usage overnight. • The ACT Government sought information regarding the basic export level, customer impacts associated with the proposed export tariff, and any additional service improvements or expected curtailments. • The ACT Government was interested in community-scale battery models that could allow customers to store surplus solar generation during peak export periods and defer it for consumption in peak import periods. They also queried possible exceptions for customers exporting surplus solar to a community-scale battery.	• Evoenergy intends that the second tier of the inclining block is sufficiently high that only customers with very peaky overnight loads who impose additional network costs are exposed to it. Evoenergy met with the ACT Government to discuss this matter. • Controlled load tariffs are an effective tool for managing overnight loads. Residential ACT customers can opt-in to a controlled load tariff,[33] and Evoenergy does not propose to change this in the 2024–29 regulatory period. The number of customers (with a smart meter) on controlled load tariffs is relatively low. Hence, the controlled load tariff has a narrower effect than the inclining block charge within the proposed TOU tariff. • An export tariff structure based on a user-pays/helper-is-rewarded approach is a sound economic platform. • Export tariff customers will pay a charge for exports above the basic export level, reflecting export services that the existing network can provide without further investment. That charge is based on the marginal cost of exports, i.e., the future network costs required to expand the network's intrinsic hosting capacity above the existing level. Evoenergy only curtails solar PV generation when it is required to maintain the safe and reliable operation of the network. • The export charge may be offset by the export rebate and customers' solar feed-in tariff. • Hence, Evoenergy does not propose creating exceptions for particular exporting customers. • To support and encourage the uptake of large-scale (including community) batteries, Evoenergy has trialled a tariff and proposes its introduction in the 2024–29 regulatory period. This tariff is designed to recognise the network benefit costs that large batteries can provide/impose.

[33] Off peak (1) Night tariff, code 060; Off peak (3) Day and Night, code 070.

Other consumer engagement

The cornerstones of Evoenergy's TSS engagement program included the activities covered in detail above. In addition, Evoenergy undertook a series of other engagements summarised in Table 9.

Table 9 Other consumer engagement – feedback

Activity	Topics discussed	Feedback received	Evoenergy's response
Energy Matters Major commercial customers engaged through online forums focused on TSS matters.	• Proposed refinement to the capacity charge • Export pricing – whether commercial customers seek a tariff that offers two-way pricing	• Supportive of the proposed change to the capacity charge. • Comfortable with the existing tariff structure. • Major commercial customers are not seeking a two-way tariff.	• Evoenergy intends to propose a refinement to the capacity charge to enable an ex-ante review of the charge (see section 9). • Evoenergy is not proposing to introduce two-way pricing for commercial customers in the 2024–29 regulatory period.

EV survey
 	
Survey of ACT residents who own or intend to own an EV
	• Motivations for EV ownership, usage, and recharging
	• The role of price in deciding when and how to recharge
	• Willingness to change recharging behaviour based on pricing
		• Strong preference to recharge at home, particularly those with a fast charger (31%).
		• EV owners avoid recharging in the morning (7am–9am).
		• Non-solar EV owners are more inclined to recharge overnight.
		• EV owners with a fast charger more likely to charge during the evening peak period.
		• EV owners charge during peak periods for convenience rather than necessity.
		• Overnight recharging is as much about being ready for tomorrow as the cost savings.
		• EV owners have flexibility to change recharging time, so opportunity to change recharging behaviour.
		• The optimal point to influence behaviour is 20–40% (saving). At 40%, 9/10 would try to avoid peak times. At 30%, this equates to a saving of $160/year (30% off the network bill).
		• 1/3 of EV owners 'extremely open' to a third-party taking control of their recharging.
			• The network load profile could change substantially as a result of EV re-charging.
			• The findings from this survey were used to inform tariff reforms that address the expected increased uptake of EVs in the ACT during the 2024–29 regulatory period. Specifically, the introduction of:
			  ○ inclining block charges overnight in the proposed residential TOU tariff; and
			  ○ off-peak demand charges overnight in the proposed residential demand tariff.

Activity	Topics discussed	Feedback received	Evoenergy's response
EN24 Community Panel (Appendix G)	• Network tariff overview • Network funding and bills • Cost reflective tariffs • Future network pricing • Export pricing • Engagement feedback (including from vulnerable customers)	• Interest in tariff choice and understanding different tariffs. • Suggestions that landlords and government should provide opportunities for 'others' to access the benefits of solar. • Some consider export tariffs as a disincentive to move to renewable energy sources (solar and battery). • Evoenergy should recognise and support shifts to more sustainable energy use and generation.	• Based on keen interest in tariffs (at early meetings), Evoenergy formed a community pricing panel to focus on network tariff reform. • Bill impact modelling indicates export tariffs are unlikely to disincentivise renewable energy investment.
'Have your say' survey Survey of ACT residents (Appendix I)	• Network tariffs • Network service delivery • Climate change • Energy use	• 1/3 of survey respondents did not know what tariff they were on. • More than half of survey respondents want to receive cost reflective price signals (i.e. know when it's more and less expensive to use electricity). • Half of survey respondents believe it's fair to use tariffs to encourage export at peak times. • 65% of respondents believe everyone should pay for network upgrades to enable self-generated export to the grid (i.e., solar), while 11% are unsure, and 24% believe that only customers with solar should pay for upgrades required to export to the network.	• This feedback reinforces Evoenergy's strategy to continue progressing cost reflective tariff reforms. • To date, the cost of network export services has been paid by all consumers. Hence, customers are accustomed to this approach. The opportunity to improve the equity of charging for export services (as per the NER) will be new and require clear communication and time to adjust to a new way of pricing.
ACTCOSS workshop (Appendix K)	• Overview of Evoenergy • The regulatory process for tariff reform • The energy transition • Energy issues facing vulnerable customers	• Export pricing could be a disincentive to take up solar. • The tariff reform and the regulatory process are complex. • Vulnerable customers have difficulty accessing renewable energy technologies. • Transparency and clear communication are needed.	• Evoenergy undertook bill impact modelling to test whether the export tariff was likely to rationally disincentivise solar installations and concluded that this is unlikely given the relatively small export charge compared to the investment in a solar PV system. • Evoenergy acknowledges the regulatory process can be complex. Evoenergy has attempted to improve communication through a dedicated website,[34] the draft EN24 plan and workshops.

[34] Ibid

Activity	Topics discussed	Feedback received	Evoenergy's response
ACT Government One-on-one meetings Draft EN24 plan submission Utility Industry Regulators Forum	• Large-scale battery tariffs • Residential export tariffs • Proposed reforms to residential tariff structure and tariff assignment policy • Inclining block off peak structure of the proposed residential TOU tariff	• ACT Government was generally comfortable with the introduction of an export tariff. They indicated support for introducing export charges beyond the basic export level and within a defined time period and welcomed the introduction of an export rebate within a defined period. • The ACT Government was keen to understand the application and implication of the inclining block off peak structure in the proposed residential TOU tariff. • ACT Government provided a written submission to Evoenergy's draft EN24 proposal, with feedback and Evoenergy's responses covered in Table 8.	• Evoenergy presented the workings of the proposed export tariff and discussed the inclining block off peak structure in the proposed residential TOU tariff. This engagement emphasised the need for Evoenergy to communicate the workings of newly proposed tariffs clearly. It also prompted the detailed customer impact analysis of the new tariffs, as set out in sections 9 and 12.

Evoenergy established a website[35] dedicated to the 2024–29 regulatory proposal (including TSS). This website included information on the regulatory process, Evoenergy's consumer engagement program and engagement activities. The website also provided an opportunity to enter personal details so that consumers could be provided information about the consumer engagement program and receive updates. The 'Have Your Say' survey was conducted through this website.

Further, the ECRC assisted in the design of the consumer engagement program. That is, before the commencement of the program, they were presented with the proposed program and, through conversation, had the opportunity to direct the design of the program.

TSS updates were provided at most ECRC meetings ensuring ECRC members were informed about the proposed tariff reforms, including export pricing. In addition, they were provided with updates on key engagement activities and feedback, including the EV survey, community pricing panel, deliberative engagement pricing workshops, and the draft EN24 plan. ECRC members were also invited to attend some engagement activities (such as the community pricing panel) as observers. At ECRC meetings, members were asked to participate in a 'health check' of Evoenergy's regulatory proposal and TSS engagement. This was designed to provide Evoenergy with robust feedback on its engagement activities from an informed audience (given ECRC members were involved in the design of the program and invited to observe several engagement activities).

5.2 Engagement with retailers and aggregators

Retailers

Evoenergy's tariff reform engagement with retailers is an ongoing conversation. While Evoenergy was developing tariff trials for residential and large-scale batteries, Evoenergy engaged with a series of retailers, including large national retailers, smaller local retailers and bespoke retailers. This engagement commenced in 2020 with a series of one-on-one online and face-to-face meetings.

The network tariff trial engagement commenced with an overview of the concept and purpose of network tariffs and progressed to sharing the specific network tariff trial structures. For retailers interested in participating in the tariff trials, Evoenergy frequently met to discuss passing through the network tariff trial price signals to end customers.

This network tariff trial engagement developed working relationships with retailers that enabled a smooth transition for engagement more broadly about the proposed TSS for the 2024–29 regulatory

[35] https://engagewithenergy.com.au/

period. These one-on-one meetings provided active ACT retailers with a detailed explanation of the tariff reforms Evoenergy intended for inclusion in the proposed TSS. These reforms aligned with those set out in the Draft EN24 plan, providing retailers with a preview of the content.

The presentations included information about proposed changes to existing tariffs and the introduction of new tariffs, including export tariffs for residential consumers. Retailers expressed their preference for simple network tariffs, acknowledging this is challenging as the energy industry transitions to a renewable future. Retailers were interested in Evoenergy's transition to export tariffs and were keen to understand the mechanics of export charging. A copy of the Draft EN24 plan was sent to the active ACT retailers, with a written response from one retailer. A summary of feedback on the proposed TSS (as per the Draft EN24 plan) and Evoenergy's response is outlined in Table 10 below.

Table 10 Retailers – feedback

Key themes	Feedback	Evoenergy's response
Proposed residential TOU and demand tariffs	• Retailers preferred the simpler version of the proposed TOU tariff option. • Concern that while new charges (i.e., off-peak demand charge) are offset by changes in existing charges, customers can perceive the addition of a new tariff component as resulting in a higher bill.[36]	• In the draft EN24 plan, Evoenergy proposed to introduce a 'residential battery tariff' that was trailed during the 2019–24 regulatory period. Based on consumer and retailer feedback, the lessons learned from the tariff trial have been incorporated into newly proposed demand and TOU tariffs to reduce tariff structure complexity. • The proposed residential demand and TOU tariffs are now better aligned to reduce complexity/improve simplicity. • Communication about the proposed tariffs will need to be clearly articulated.
Proposed 'solar soak' charge	• One retailer stated that customers might perceive the term 'solar sponge' as a tariff for solar customers rather than for all residential customers (with a smart meter). • The solar soak charge needs to be low enough to provide an incentive for customers to shift load.	• Evoenergy has changed the term 'solar sponge' to 'solar soak'. • Customer impact modelling has informed the price level of the solar soak charge. Evoenergy intends to monitor the response to the solar soak charge, if possible.[37]
Proposed export tariff	• Broad support for the introduction of two-way pricing for residential customers. • Given that the proposed export charge and rebate are to be calculated in hourly intervals, there was a suggestion to consider half-hourly intervals to align with the peak demand charging metric.	• On balance, Evoenergy considers that hourly intervals will be sufficient to measure export levels that apply to the charge and rebate.

[36] This assumes the retailer passes the proposed demand tariff structure through to end customers.
[37] Monitoring response to the solar soak charge will depend on the way in which retailers pass through the solar soak charge to customers.

Key themes	Feedback	Evoenergy's response
Other	• Questioned whether controlled load tariffs had been considered to manage expected EV recharging.	• Residential ACT customers can opt-in to a controlled load tariff[38] to recharge EVs, and Evoenergy does not propose to change this in the 2024–29 regulatory period.

Aggregators

Evoenergy met with the two main aggregators operating in the ACT. The feedback was received via one-on-one, face-to-face and online meetings in which aggregators were provided with a detailed explanation of the proposed tariff trials and tariff reforms.

The aggregators were initially engaged during the commencement of Evoenergy's tariff trials (i.e., prior to phase one). This is because the tariffs being trialled included highly cost reflective price signals intended for response by a HEMS, as operated by an aggregator. Aggregators welcomed the opportunity to trial new tariffs designed for HEMS.

Aggregators were also engaged during phase two of the engagement program to provide an update on the proposed tariff reforms. The aggregators raised a series of informed questions about the operation of the proposed tariff reforms. They concluded that the proposed price signals were an effective way of communicating the network usage behaviour that increases or decreases Evoenergy's costs. Thus, they considered the rationale for the proposed tariff reforms was sound.

Specific feedback received from aggregators is outlined below.

- Export tariff:
  - The gradual transition to export tariffs via tariff assignment and price levels (customer impacts) is reasonable.
  - Most new solar PV systems can be controlled to avoid exporting beyond the basic export level.
- Proposed TOU tariff:
  - It is appropriate to maintain energy consumption-based tariff components rather than a demand-based charge in this tariff (referring to the proposed inclining block charge during off-peak periods).
  - The off-peak inclining block charge effectively mitigates the risk that retailers do not pass through key features of the proposed TOU tariff.
- Proposed demand tariff:
  - The off-peak demand charge effectively signals the need to monitor high-peaking overnight usage, such as EV fast chargers.

5.3 Key feedback themes and Evoenergy's response

Consumer engagement activities were designed to encourage the involvement of representatives from a cross section of customer segments. The key feedback themes and Evoenergy's response is summarised in Table 11.

[38] Off peak (1) Night tariff, code 060.

Table 11 Feedback themes

Key themes	Evoenergy's response	Section reference
Provide network tariffs that are fit for future users of the network Consumers generally support a transition towards more cost-reflective network electricity tariffs, provided the transition avoids disincentivising the uptake of renewable energy technologies in the ACT.	• Through its proposed TSS, Evoenergy's tariff reforms are designed to address expected changes in network usage profiles, particularly an increased uptake of EVs and batteries. An example of this is the proposed introduction of a 'solar soak' charge during the middle of the day, designed to encourage the use of electricity to soak up solar exported to the grid. • With the export of electricity (from a customer's premises to the network) increasing, Evoenergy proposes introducing an export tariff for residential customers.	Proposed tariff reforms (section 9)
The ACT community is generally open to introducing export pricing[39] Consumers want the export tariff to: • include both an export charge and export rebate; • be introduced in the 2024–29 regulatory period; and • opt-in for existing customers; default (no opt-out) for new export customers. There are mixed views about whether export pricing improves fairness/equity.	• Evoenergy proposes to introduce an export tariff that: ○ includes both an export charge and export rebate; ○ is introduced in the 2024–29 regulatory period; and ○ is opt-in for existing customers; default (no opt-out) for new export customers. • Given the mixed views on the fairness of export pricing, Evoenergy proposes introducing export tariffs 'softly' with relatively modest bill impacts. This approach aims to enable the ACT community to become accustomed to the concept of export pricing before it is potentially rolled out more broadly and with greater bill impacts (as per the Export Transition Strategy – refer to section 10). • Evoenergy intends to implement this change to introduce a 'user pays' element to improve the equity of network pricing.	Export Transition Strategy (section 11)
Preference for simpler tariffs	• Evoenergy initially intended to propose introducing a 'residential battery tariff' that has been trailed during the 2019–24 regulatory period. Rather than adding a new tariff (and potentially adding more complexity to the tariff structure), the lessons learned from the tariff trial have been incorporated into proposed demand and TOU tariff structures. This is in response to the feedback received during phases one and two. • The two proposed residential tariffs (demand and TOU) are well aligned. For example, the peak, solar soak, and off-peak periods are aligned between the two tariffs. This alignment is designed to enable switching between these two cost-reflective tariffs without the need to adjust customer focus on the time period of charging windows.	Proposed tariff reforms (section 9)

[39] Charge/reward applied to electricity sent from customers' premises to the network.

Key themes	Evoenergy's response	Section reference

Improving pricing fairness is important to the ACT community	• Proposed introduction of a solar soak charge to enable:
	  ○ Greater opportunity to shift load (into the middle of the day) to reduce the network component of the electricity bill.
	  ○ Non-solar customers have the opportunity to access the benefits of solar.
	• Proposed introduction of an export tariff that:
	  ○ includes an export charge to introduce a 'user pays' element to improve the equity of network pricing;
	  ○ includes an export rebate designed to improve fairness by allowing exporting customers the opportunity to benefit from the service they can provide to the network; and
	  ○ includes relatively low export prices initially because exporting customers are signaled the additional costs/benefit of imposed/accrued on the network.
		Proposed tariff reforms (section 9)
		Export Transition Strategy (section 11)

5.4 Measurement and evaluation

After key engagement activities, Evoenergy asked participants to evaluate the activity in terms of the content, presenters, and the opportunity to provide feedback. Evoenergy received generally positive feedback from participants, citing the opportunity to learn more about network tariffs and help shape the future of ACT network tariff structures. Participants also commented that there was a range of options to provide feedback, whether through chat functions and other online options, directly at workshops, or via written submissions. This subsection provides an overview of the formal evaluations undertaken for the community pricing panel and Draft EN24 plan.

Community pricing panel

After the fourth community pricing panel, participants were asked a series of questions, and their responses are recorded in Table 12. The evaluation shows that the community panel generally understood the content and felt there was sufficient information and opportunity to provide feedback.

Table 12 Community pricing panel evaluation

Questions	Participant response
Was the content presented in a way that could be understood?	• 67% understood everything that was presented • 17% understood most of the presentation • 17% felt the presentation was a bit complicated but understood enough.
Did the presenters equip you with sufficient knowledge to provide feedback on the proposed tariff reforms?	• Sufficient: 67% • Somewhat sufficient: 33%

Questions	Participant response
Would you have preferred more information on the topics presented?	• The level of detail was right for me: 67% • I would have preferred much more detail: 17% • I would have preferred less detail: 17%
Ability to participate, contribute to the discussion and provide feedback	• Very easy: 50% • Easy: 33% • Neither easy nor difficult: 17%
Confidence that the feedback will influence Evoenergy's planning	• Very confident: 29% • Somewhat confident: 71%

Draft EN24 plan

The ACT community was asked whether Evoenergy was 'engaging with the right people about the right issues as part of preparing our plans for the 2024–29 regulatory period'. Six out of seven respondents agreed that Evoenergy's engagement was well targeted.

The ACT Government suggested that Evoenergy engage with non-network parties such as large-scale battery proponents. Evoenergy has been engaging with large-scale battery proponents on tariff reform since 2020 (before introducing tariff trials for large-scale batteries).

ACTCOSS suggested that Evoenergy should identify vulnerable consumers and prepare engagement material that recognises the complexity of the energy industry. ACTCOSS also suggested the inclusion of bill impact modelling, which is addressed in section 12.

The community was also asked whether there were elements of the Draft EN24 plan that needed further engagement. In general, respondents suggested more information about underground power lines and the development of consumer archetypes to identify those who will benefit or require extra support during the 2024–29 regulatory period. Specific to pricing, they suggested Evoenergy identify instances of cross-subsidisation between consumer groups, which is covered in the pricing principles in section 7.

In summary, Evoenergy has engaged in detail with the ACT community about a range of tariff reform options that seek to improve the cost reflectiveness of the existing network tariff structure. Each of the reform options presented has been broadly supported, including the introduction of export tariffs in the upcoming regulatory period.

6. Approach to setting prices

This section describes Evoenergy's overarching, two step approach to setting the price levels for each tariff component of each tariff.

6.1 Two-step framework

Evoenergy determines the prices for each tariff using the following two-step methodology.

- Calculate the total level of revenue to be recovered from each tariff, which must be equal to the total efficient cost of serving those customers.
- Set the price of each tariff component so that, based on expected customer numbers and network use, Evoenergy expects to recover the amount calculated in step one from each tariff.

Step 1: Estimate total efficient cost

Evoenergy calculates the level of revenue it expects to recover from each tariff[40] equal to the total efficient cost of serving the customers that are assigned to that tariff. This is so that when summed with the revenue it expects to recover from all other tariffs, Evoenergy can expect to recover the level of revenue approved by the AER.

In practice, Evoenergy achieves this result by estimating the level of revenue it expects to recover from networks charges that are based on efficient, long run marginal cost (LRMC) estimates. It then allocates the remainder of its approved revenue (residual costs) across tariffs with reference to the previous year's allocation of residual costs and the current year's forecast consumption.

This allocation methodology for residual costs accounts for the effect on retail customers of tariff changes from the previous regulatory year.[41] The total efficient cost of serving customers on each tariff is then equal to the revenue expected to be recovered from an efficient, LRMC-based price signal and the residual costs allocated to that tariff.

To avoid cross-subsidies between customers in different tariff classes, Evoenergy checks that the revenue recovered from the customers in each tariff class is:[42]

- higher than the costs that could be avoided if it did not provide network services to those customers (the avoidable cost); and
- lower than the cost of providing network services to those customers only (the standalone cost).

Evoenergy explains the concepts of standalone and avoidable costs in more detail in section 7.

Step 2: Set prices that recover the total efficient cost

The second step is to set a price for each tariff component that recovers the level of revenue allocated to that tariff in step one, having regard to Evoenergy's forecast of customers numbers and consumption. Evoenergy's tariffs are based on the LRMC of providing network services to the customers assigned to those tariffs.[43] The LRMC is the future network cost that could be avoided by a change in a customer's use of the network, and its estimation is explained in section 7.

Evoenergy typically sets the peak demand and/or peak energy price in a tariff based on the LRMC of providing import network services. Given that additional exports can impose costs on the network in the middle of the day, Evoenergy bases export prices on the LRMC of providing export services.

[40] NER, clause 6.18.5(g)(i)-(ii)
[41] NER, clause 6.18.5(h).
[42] NER, clause 6.18.5(e).
[43] NER, clause 6.18.5(f).

Importantly, these LRMC-based prices apply only to exports above the basic export level described in section 11. Since these LRMC-based prices reflect only future costs and the majority of Evoenergy's costs are historical costs, Evoenergy then sets other fixed and variable charges in the tariff so that it expects to recover the total efficient cost of serving those customers, as determined in step one.

Throughout this process, Evoenergy analyses the effects on customer network bills and tailors its approach to avoid unacceptable bill impacts.[44] Evoenergy presents its assessment of customer bill impacts in section 12. In evaluating the effect on customers, Evoenergy also ensure that its prices comply with the side constraint specified in the NER, and in accordance with the AER's stage two annual pricing process review.

[44] NER, clause 6.18.5(h).

7. Pricing principles

Evoenergy sets network prices to signal to consumers the future cost of providing network services so that they can make informed choices about their consumption and investment decisions. If ACT consumers choose to respond by reducing their consumption/demand during peak periods, they can help to reduce future network costs and, therefore, lower network bills.

The NER includes an economic based pricing objective and several pricing principles. The network pricing objective is for network prices to reflect the efficient costs of providing services to consumers.

The pricing principles provide further guidance on how best to promote the pricing objective so that, in broad terms:[45]

- customers receive price signals that reflect future network costs;
- network businesses recover the total efficient costs of providing network services; and
- the customer impacts of cost-reflective tariffs are managed.

The pricing principles in the NER are outlined below.

- **Tariffs to be based on LRMC**: each tariff must be based on the LRMC of serving the customers on that tariff, to ensure network prices send efficient future cost signals to consumers. (Clause 6.18.5(f))
- **Tariffs to recover total efficient costs**: this principle has three parts; to enable the recovery of total efficient costs, the revenue from each tariff reflects the total efficient cost of providing services to those consumers, and the revenue is recovered in a way that minimises distortions to consumer usage decisions. (Clause 6.18.5(g))
- **No cross-subsidies between tariff classes**: the expected revenue from each tariff class must be between the stand-alone and avoidable costs of serving those consumers. This safeguards against cross-subsidies between tariff classes, such as between residential and commercial consumers. (Clause 6.18.5(e))
- **Consideration of consumer impacts**: the impact of network price changes on consumers must be considered in determining how to transition consumers to cost-reflective prices over time. (Clause 6.18.5(h))
- **Tariffs to be capable of being understood**: network prices must be set so that consumers can understand them. (Clause 6.18.5(i))
- **Tariffs comply with jurisdictional obligations**: this principle allows network businesses to consider any jurisdictional specific obligations that are relevant to the costs that must be recovered from customers. (Clause 6.18.5(j))

Evoenergy develops its tariffs in accordance with these pricing principles. Evoenergy outlines how its TSS complies with the pricing principles below. Evoenergy's approach to complying with the pricing principles ensures that its tariffs reflect the efficient cost of providing services to its customers, consistent with the network pricing objective.

7.1 Tariffs to be based on the LRMC

Evoenergy sets a price for each network tariff based on the LRMC of providing the relevant network service. This is typically for the peak energy or peak demand tariff component and for any export price.

The LRMC of providing a service reflects the future change in costs caused by a permanent, incremental increase or decrease in the use of that service.

Evoenergy considered the costs and benefits of various LRMC estimation methodologies and adopted the average incremental cost (AIC) method for the following reasons.

[45] AEMC 2014, *National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014*, Rule Determination, pp 10-11.

- It strikes a balance between the reliability of estimates and the administrative burden required to derive those estimates.
- In contrast to other methodologies that are based on hypothetical cost assessments (such as the perturbation approach),[46] it means that the LRMC reflects the same cost and network use inputs that underpin Evoenergy's proposal for the 2024–29 regulatory control period.
- It is widely accepted, and the most common methodology adopted by DNSPs.

Evoenergy also adopted a ten year estimation horizon, which will be updated in the revised TSS (closer to the commencement of the 2024–29 regulatory period).

AIC approach

The AIC approach involves estimating the LRMC of network services by reference to the average change in projected operating and capital expenditure attributable to future increases in network use.

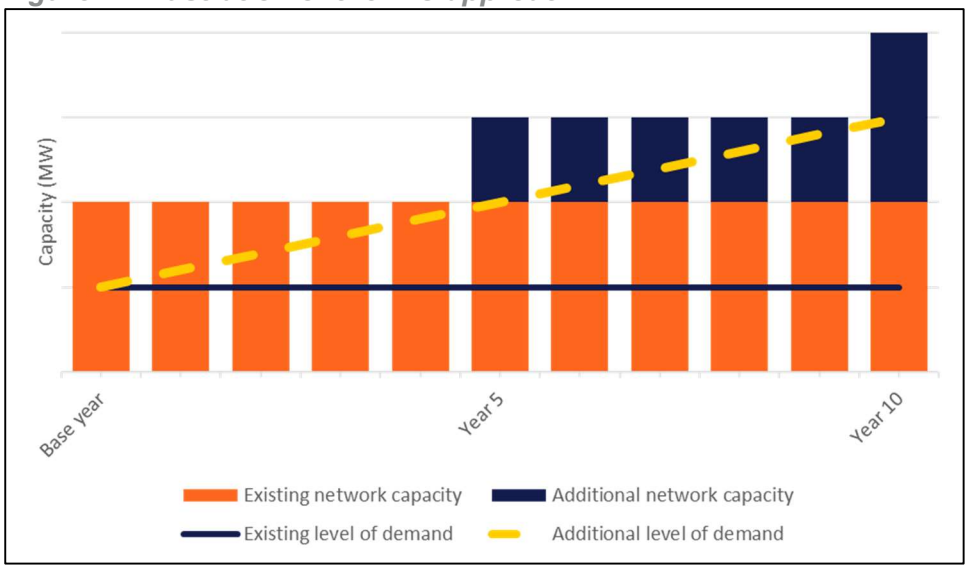
In practice, the AIC approach involves:

- projecting future growth in the use of the network;
- estimating the future capital and operating cost required to facilitate that expected increase in network use; and
- then calculating the LRMC as follows.

$$LRMC = \frac{\text{Present value of network costs caused by change in network use (\$)}}{\text{Present value of change in future network use (MW)}}$$

The conceptual circumstances that underpin the AIC approach is illustrated in Figure 12, where the orange bars reflect the capacity of the existing network, and the blue horizontal line reflects the current level of demand. The expected increase in demand is represented by the increasing yellow line. When it is expected to reach the capacity of the existing network in year five, the network is expanded to meet that demand, with that additional capacity indicated by the blue bars from year five onwards. The same circumstances occur again in year ten, leading to another expansion.

Figure 12 Illustration of the AIC approach



[46] The perturbation approach necessitates bespoke engineering assessments of how future network costs would change if demand was altered (or perturbed) by a fixed, permanent increment.

With reference to Figure 12, the AIC approach calculates LRMC equal to the present value of the dark blue bars (growth-related expenditure) divided by the growth in network use (in this case, demand), i.e., the difference between the yellow line and dark blue line. The resulting estimate of LRMC, therefore, reflects the average cost of serving demand growth over the ten year evaluation horizon.

The discussion below describes how Evoenergy estimated the LRMC of providing both import services and export services using the AIC approach.

LRMC of providing import services

Evoenergy estimated the LRMC of providing import services using the same approach as it did in the previous regulatory control period, with minor improvements. This approach involved:

- evaluating demand at the zone substation level;
- reviewing the drivers of all demand-driven capital expenditure projects; and
- separately estimating the proportion of demand-driven operating expenditure.

Since Evoenergy evaluated expenditure in constant, 2023/24 dollar terms, it calculated the present value of expenditure (and demand) by applying its proposed real weighted average cost of capital.

Demand

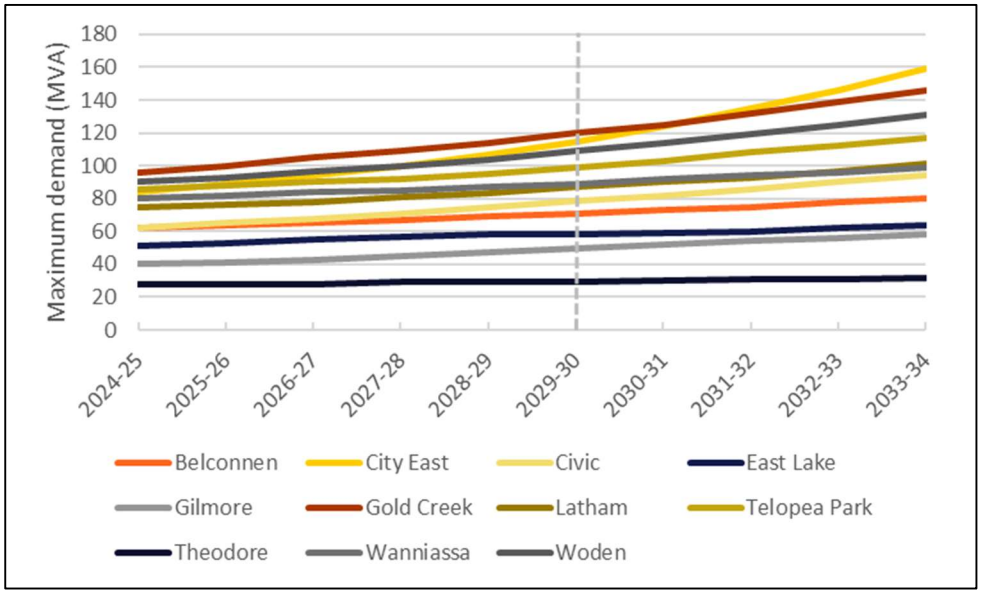
Evoenergy's forecast change in demand ensures consistency between the demand and expenditure inputs to LRMC. That is, there is consistency between growth related expenditure and the demand growth that is driving that expenditure.

Demand inputs that were based on the forecast change in *network* demand would distort Evoenergy's LRMC estimate, since network demand reflects the off-setting effect of falling demand at some zone substations, which is not driving Evoenergy's growth-related expenditure. Evoenergy therefore evaluates forecast demand at each zone substations and, when calculating incremental demand growth, removes the offsetting effect of demand at zone substations where demand is falling. This reflects that it is location-specific demand that drives demand-driven capital expenditure.

Evoenergy's assessment of demand concludes that there is steady forecast demand growth across all zone substations over the next ten years, except the Fyshwick zone substation, which being decommissioned. Figure 13 illustrates the expected demand at Evoenergy's substations, excluding the Fyshwick zone substation.

Further, each zone substation is expected to experience peak demand during the winter months, in contrast to the 2019–24 regulatory period, when some substations peaked in summer.

Figure 13 Forecast demand growth



Source: Evoenergy demand forecasts.

Notes: Grey vertical line represents the beginning of the next regulatory control period. Excludes Fyshwick, which is being decommissioned.

Demand forecasts based on probability of exceedance (POE) 50 estimates.

As shown in Figure 13, Evoenergy forecasts demand growth in each future year equal to the sum of the incremental increase in demand at each zone substation. If demand at a particular zone substation was flat or falling, it made no contribution to the forecast demand growth in that year.

Capital expenditure

After forecasting demand at each zone substation, Evoenergy undertook a detailed, line-by-line assessment of over 120 demand-driven future capital expenditure projects. This line-by-line assessment ensured that Evoenergy:

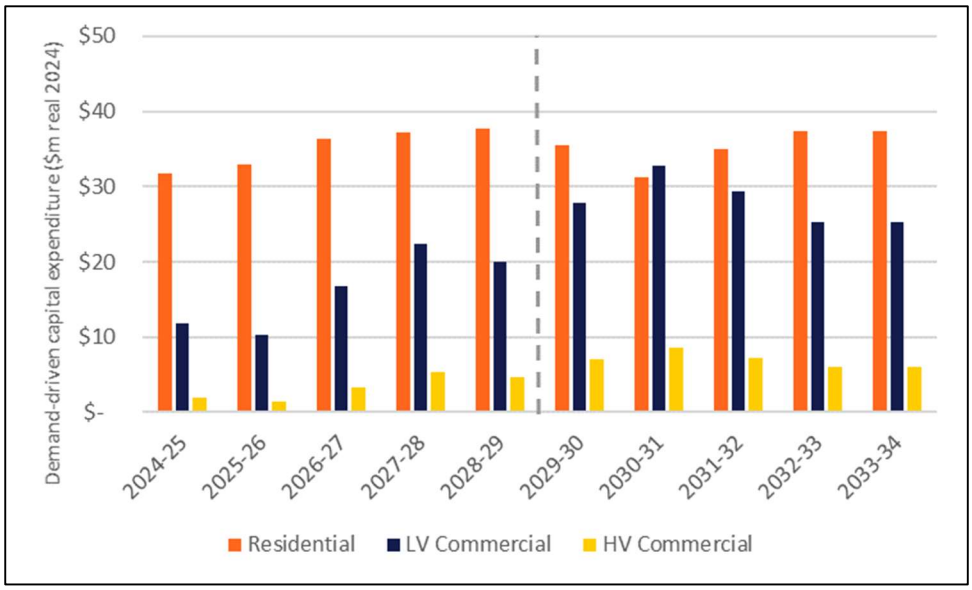
- excludes any forecast expenditure that is not sufficiently avoidable;
- excludes any forecast expenditure that is caused by growth in exports, rather that imports; and
- correctly attributes expenditure to the tariff class that is causing that expenditure, either wholly or partly.

In practice, this is achieved by applying a series of apportionments that either include/exclude expenditure or allocate included expenditure between tariff classes.

The forecast demand-driven capital expenditure caused by customers in the residential, LV commercial and HV commercial tariff class is presented in the reset Regulatory Information Notice (RIN) tables 7.7.1.1 (series A), 7.7.1.2 (Series B) and 7.7.1.3 (series C), respectively. These expenditure inputs exclude capital contributions.

Figure 14 illustrates the capital expenditure that is attributable to growth in demand by residential, LV commercial and HV commercial customers.

Figure 14 Forecast demand-driven capital expenditure



Source: Evoenergy demand-driven expenditure allocation for LRMC estimate.

Note: Grey vertical line represents the beginning of the next regulatory control period.

Capital expenditure inputs were then annualised (based on an assumed asset life of 45 years) to account for potential end-effects arising from a ten-year estimation horizon, which would otherwise bias the estimate of LRMC because Evoenergy's assets serve demand over a period much longer than ten years.

Operating expenditure

In previous TSSs, Evoenergy estimated the demand driven component of operating expenditure by assuming that it was equal to two per cent of capital expenditure. Evoenergy has improved its approach by undertaking a line-by-line assessment of over 40 historical operating expenditure items to estimate the relative proportion of each item that is demand-driven. The resulting estimate of demand-driven operating expenditure was then compared to the value of the regulatory asset base in each historical year.

This analysis indicated that it is appropriate to assume that demand driven operating expenditure is equal to 1.96 per cent of capital expenditure. This analysis therefore also indicated that Evoenergy's previous (two per cent) assumption was appropriate.

LRMC estimate

Evoenergy's estimates of the LRMC of providing import network services to customers in each of the three tariff classes is summarised in Table 13.

Table 13 LRMC of import services by tariff class (2024-25, $2024)

Tariff class	Long run marginal cost
Residential	$125 per kW per annum
LV commercial	$60 per kW per annum
HV commercial	$46 per kW per annum

These estimates are broadly in line with Evoenergy's estimates of the LRMC in the 2019–24 regulatory period, except for the HV commercial tariff class, for which the estimate of LRMC has increased. This increase in the LRMC for the HV commercial tariff class reflects an expected higher number of new HV customers in the 2024–29 regulatory period and the resultant higher level of expected demand growth on the HV network, which is in turn reflected in the line-by-line attribution of capital expenditure to the HV commercial tariff class.

LRMC of providing export services

The AIC approach can be applied in the same way as described above (for import services) to estimate the LRMC of providing export services. The only different relates to the nature of the inputs required, as follows.

- The change in network use (the denominator to the AIC calculation) is the forecast increase in export capacity.
- The change in network costs (the numerator to the AIC calculation) is the forecast increase in expenditure required to facilitate that additional export capacity.

Evoenergy estimated the annual change in export capacity over a ten year period, based on its medium solar PV export capacity forecast. This forecast indicates that installed export capacity will increase by over 60 per cent during the next ten years, from 318 MW in 2023/24 to 518 MW in 2033/34. This forecast of export capacity is presented in Figure 5 in section 3.3.

Evoenergy estimated the capital and operating expenditure required to facilitate this forecast increase in export capacity in its DER integration expenditure proposal. Specifically, Evoenergy undertook a cost-benefit analysis to determine the most appropriate network expenditure program to deliver increased export capacity across the network. Details of this analysis are presented in Appendix 2.5 of the 2024-29 regulatory proposal.

This analysis was performed using a model of Evoenergy's entire network to identify location specific export constraints and develop solutions that consider the relevant assets, network conditions and customer characteristics in that specific location.

The network expenditure required to facilitate additional export capacity on Evoenergy's network over the ten years from 2024/25 to 2033/34 is presented in Table 14.

Table 14 Network expenditure to support DER integration (2024–2034, $2024)

Enabling capability	Activity	Investments	Capex	Opex	Totex
Network Visibility	Data collection and storage	Data from network monitors	$0.22	$5.56	$5.78
		Procure LV smart meter data	$0.06	$3.52	$3.57
		Procure data from 3rd parties	$0.06	$1.19	$1.25
	Analytics	Modelling and forecasting uplift	$0.00	$6.06	$6.06
Network Operation	Dynamic Operating Envelopes (DOEs)	IT systems for DOE / Virtual Power Plant (VPP) integration	$2.36	$3.51	$5.87
Enabling Projects	Community battery		$2.51	$3.08	$5.59
	Voltage management – Static Synchronous Compensators (STATCOMs)		$0.27	$0.00	$0.27
	Increase in Business-as-usual (BAU) DER-related opex (complaints and tap changes)		$0.00	$0.00	$0.00
	Augmentation to increase hosting capacity		$0.00	$0.00	$0.00
Total			**$5.47**	**$22.92**	**$28.38**

Consistent with import LRMC, capital expenditure inputs are annualised to account for potential end-effects arising from a ten-year estimation horizon.

Since the DER Integration business case explicitly identifies operating expenditure that is required to meet forecast growth in export capacity, there is no need to make an assumption in this regard, i.e., in contrast to the assumption required for demand-driven operating expenditure when estimating import LRMC.

Since exports typically do not impose costs on the HV network, or in areas of the network with a high concentration of commercial customers, the resulting estimate of export LRMC relates residential customers. Evoenergy describes how this estimate will be applied to set prices for export tariffs in section 11.

Evoenergy's estimates of the LRMC of providing export network services to customers is summarised in Table 15.

Table 15 LRMC of export services by tariff class (2024-25, $2024)

Tariff class	Long run marginal cost
Residential	$23 per kW per annum
LV commercial	0
HV commercial	0

7.2 Tariffs recover total efficient costs

The revenue to be recovered from each network tariff must recover the network business' total efficient costs of providing network services in a way that minimises distortions to price signals that encourage efficient use of the network by consumers. This principle has three parts.

- To enable the recovery of total efficient costs.
- The revenue from each tariff reflects the total efficient cost of providing services to those consumers.
- Revenue is recovered in a way that minimises distortions to a consumer's usage decisions, consistent with clause 6.18.5(g).

Each year Evoenergy will adjust the price levels, consistent with the approach outlined in this TSS, such that the expected revenue from all tariffs is in accordance with the AER's distribution determination for the 2024–29 regulatory period.

7.3 No cross subsidies between tariff classes

Clause 6.18.5(e) of the NER includes a pricing principle designed to avoid cross subsidisation between different tariff classes. This principle requires the revenues recovered from each tariff class to be:

- less than the standalone cost of providing network services to that tariff class; and
- at least equal to the avoidable cost of providing network services to that tariff class.

For a tariff to be deemed efficient under the NER, it must deliver a stream of revenue from a class of consumers that is between this upper and lower bound. This is commonly known as the 'efficient pricing band'. Tariff prices are deemed efficient if revenue recovered is:

- less than the standalone cost; and
- greater than the avoidable cost.

There are two reasons why a price within this 'band' is deemed efficient.

1. **Less than the standalone cost**: breaching this upper bound may result in that tariff class being incentivised to inefficiently bypass Evoenergy's existing distribution network in order to avoid paying Evoenergy's network tariffs, even though the incremental cost to Evoenergy of providing these services to that consumer (or tariff class) may be less than the alternative (bypass) option.
2. **Greater than the avoidable cost**: if the revenue expected to be recovered from a tariff class does not exceed the cost that the business would avoid if they did not provide them with electricity services, that tariff class is; (a) being subsidised by other tariff classes; (b) would be overconsuming electricity services, relative to efficient levels (assuming that the tariff class demand curve is not perfectly inelastic).

The avoidable cost for each tariff class is estimated using Evoenergy's estimate of the LRMC, which is calculated using the methodology set out above. The standalone cost is then estimated as the avoidable cost for each tariff plus total common costs. Table 16 shows that the distribution-use-of-system (DUOS) revenue for each tariff class lies within the lower bound of the avoidable cost and the upper bound of the standalone cost for each tariff class.

Table 16 Avoidable and standalone costs, 2024/25 ($'000)

	Avoidable cost	DUOS charges	Standalone cost
Residential	$18,995	$80,341	$162,145
Low voltage commercial	$13,394	$82,486	$156,544
High voltage commercial	$2,611	$14,480	$145,761

7.4 Consideration of consumer impacts

Tariffs are to be developed in line with a consumer impact principle that requires network businesses to consider the impact on consumers of changes in network prices and to develop price structures that are able to be understood by consumers, as per clause 6.18.5(h) of the NER.

Evoenergy has considered the consumer impacts of changing network tariffs in determining how to allocate residual costs and transition consumers to cost-reflective prices over time (section 12). Evoenergy agrees with the AEMC that clear, understandable and stable network prices, in accordance with the principles in the network pricing section of the NER, will facilitate the ability of consumers to receive and respond to future price signals.[47]

Evoenergy presents its assessment of customer bill impacts in section 12.

7.5 Capable of being understood

Evoenergy has designed tariffs to ensure they are reasonably capable of being understood by consumers, in accordance with clause 6.18.5(i). Over time, as many network businesses across Australia move towards more cost-reflective tariff structures, consumer familiarity and, therefore understanding of cost-reflective tariffs will improve. This will include a greater understanding of the drivers of network costs and how network prices reflect those costs.

In setting the proposed tariff structure for the 2024–29 regulatory control period, Evoenergy has carefully assessed the ability of consumers to understand changes to the tariff structure. Through Evoenergy's continuing consumer engagement process, it will monitor understanding of tariffs by consumers and evaluate the trade-off between cost reflectivity and complexity to determine the most appropriate way in which the tariff structures could be altered in the future.

[47] AEMC 2014, *National Electricity Amendment (Distribution Network Pricing Arrangements) Rule 2014*, Rule Determination, p. 12.

7.6 Tariffs comply with jurisdictional obligations

As per clause 6.18.5(j), network tariffs must comply with any jurisdictional pricing obligations imposed by state or territory governments. If network businesses need to depart from the above principles to meet jurisdictional pricing obligations, they must do so transparently and only to the minimum extent necessary. In line with ACT Government requirements, Evoenergy recovers the following jurisdictional schemes in the ACT.

- Energy industry levy
- Utilities Network Facilities Tax
- Feed-in tariff (small and medium scale)
- Feed-in tariff (large scale)

These jurisdictional schemes are recovered in Evoenergy's network tariffs.

7.7 Approach to updating tariffs annually

The AER is required to make a final determination on Evoenergy's TSS in April 2024, which follows a draft decision in September 2023. The AER's TSS determination will apply for each of the five financial years between 1 July 2024 and 30 June 2029.[48]

Evoenergy's annual pricing proposal will apply the methodology detailed in sections 6 and 7, and will:

- incorporate the use of updated cost and volume information to derive updated tariff levels;
- explain material differences (if any) between the tariffs included in the TSS indicative pricing schedule and those in its annual pricing proposal; and
- demonstrate compliance with the AER's TSS final determination.

The NER does not permit Evoenergy to amend the approved TSS in its first year.[49] Should it be necessary to revise the tariff structure for subsequent years, Evoenergy will consult with stakeholders and seek the approval of the AER nine months before any changes are to come into effect, pursuant to Clause 6.18.1B(b) of the NER. Otherwise, as part of ongoing consumer engagement, Evoenergy proposes to discuss the annual changes with the ECRC, an independent ACT forum of representatives from the ACT community and provide information to other consumers through its pricing web pages.

[48] After this, Evoenergy will be required to submit another TSS proposal together with a regulatory proposal for the regulatory control period 1 July 2029 to 30 June 2034.
[49] Rule 6.18.1B(a) and 11.73.2. The financial year 2024/25 is the first year during which the TSS will be effective.

8. Tariff strategy

Advances in technology, a society wide focus on reducing emissions, and an increasing emphasis on energy independence are leading to transformational changes in the way ACT customers use Evoenergy's network. Therefore, Evoenergy is proposing to reform ACT network tariffs to provide cost-reflective price signals that enable:

- efficient investment decisions in renewable technology such as solar PV installations, batteries, EVs, HEMS, or efficient energy appliances;
- efficient use of the ACT electricity network; and
- a smooth transition from gas to electricity.

The uptake of new renewable technologies and the ACT transition to full electrification is likely to reach a critical state within the 2024–29 regulatory period or shortly after. For instance:

- Evoenergy expects the uptake of EVs to increase fourfold during the 2024–29 regulatory period, which has the potential to lead to new peaks in demand throughout the night and day.
- The uptake of solar PV is reaching a level that makes managing two-way flows a priority.
- The ACT government is targeting 250 MW of large-scale battery storage in the ACT and provides incentives for customers that buy behind the meter batteries under its Next Gen program.
- Conversion from gas to electricity has the potential to change the electricity network load profile with higher demand in the winter (given gas is generally used to heat buildings in the winter).

There is still considerable uncertainty in relation to how these new renewable technologies will be used (and interact with the electricity network), and how full electrification in the ACT will affect the network. In that context, Evoenergy expects the 2024–29 regulatory period to be characterised as a period of change that will fundamentally shape the energy landscape for decades to come.

8.1 Future-proofing

Considering the transformation described above, Evoenergy's strategic objective for tariff reform in the 2024–29 regulatory control period is to align the ACT network tariff structure with the expected changes to the energy landscape in the ACT. In practice, this means putting in place a network tariff structure that provides the flexibility to respond to opportunities and challenges effectively and efficiently as and when they arise over the 2024–29 regulatory period.

Responding to new challenges and opportunities requires new and innovative tariff structures. The proposed tariff reforms contained within the 2024–29 TSS are designed to enable a response to changes in the use of the network as renewable technology is more widely adopted and lessons about their impact on the network are learned. This is why Evoenergy's tariff strategy is founded on a flexible approach to enable response when circumstances on its network require it.

Evoenergy expects that its tariff strategy after the 2024–29 regulatory period will be significantly informed by the insights it gains from:

- customer responses to its proposed tariff reforms for the 2024–29 regulatory period; and
- tariff trials implemented during the 2024–29 regulatory period.

The 2029-34 regulatory period will likely be characterised by further reforms that better reflect networks cost and rewards as lessons from renewable energy technology uptake are considered.

At this stage, Evoenergy expects structural tariff reforms (potentially in the 2029–34 regulatory period) may include, among other things:

- new tariffs for dedicated public EV charging stations;
- refinements to residential tariffs to address household EV recharging loads;
- refinements to the proposed export tariff structure, including the basic export level;

- the potential introduction of seasonality in the proposed residential TOU tariff to align its structure with the proposed residential demand tariff; and
- refinements based on lessons learned from the transition from gas to electricity.

8.2 Simplicity

One of the key messages Evoenergy heard from stakeholders is the need to keep network tariffs simple while maintaining cost reflectivity. Hence, Evoenergy undertook a critical review of its existing structures, intending to simplify them without compromising cost reflectiveness. This review led to simplifying a range of residential tariff structures including:

- the simplification of the overall tariff structure in terms of the number of tariffs;
- a review of the necessity of tariff components; and
- attention to the alignment of charging windows across tariffs (within each tariff class).

Initially, Evoenergy intended to propose the introduction of a residential tariff that had been trialled during the 2019–24 regulatory period. Rather than introducing it as a new tariff, the learnings from the trial were incorporated into the proposed residential tariff structure for the 2024–29 regulatory period. These refinements make way for the introduction of new price signals that are better suited to address the challenges and leverage the opportunities Evoenergy expects to arise in the future.

The review also focussed on each tariff component to verify whether it was essential from a cost-reflective perspective. Tariff components that were not essential were replaced to simplify the tariff structure.

The review also led to simplifying a range of residential tariff structures to improve the alignment of charging windows between tariffs to simplify Evoenergy's residential tariff structure. For example, the proposed residential TOU and demand tariffs have peak, solar soak, and off-peak periods that align. The commercial tariffs also have consistent charging windows, enabling consumers to transition from one tariff to another with no change to the charging windows.

8.3 Fairness

Evoenergy is acutely aware that while many of its network's current and future changes are driven by the adoption of renewable technologies, not all customers are willing or able to invest in these new technologies or transition quickly to full electricity. Evoenergy is therefore focused on providing opportunities for non-adopters of renewable technologies to contribute to the energy-market transformation and take control of their network electricity bill.

Below are examples of proposed tariff reforms that aim to improve network pricing fairness in the ACT in the future.

- Introducing a relatively low solar soak network electricity charge enables all customers, solar and non-solar, to lower the network component of the electricity bill by shifting some of their electricity use into the middle of the day, helping to avoid network costs caused by two-way flows at that time of day.[50]
- Introducing an export rebate improves fairness by allowing adopters of electricity exporting technology (i.e. solar PV and home batteries) to realise the benefits they can provide to the network fully.
- Introducing export charges improves fairness because exporting customers are signalled the additional cost imposed on the network of two-way flows.

[50] This assumes retailers pass through the network tariff structure and price signals to end customers.

Evoenergy also carefully evaluated the effect of its proposed reforms on different types of customers to ensure that the distribution of benefits and costs associated with the proposed tariff reforms are fairly distributed across customers (section 12).

8.4 Continued implementation of tariff trials

The NER allows Evoenergy to implement subthreshold tariffs (i.e. trial tariffs) in all but the first year of a regulatory control period.[51] The NER requires that subthreshold tariffs satisfy both individual and cumulative revenue thresholds. In particular, the NER requires that:[52]

- forecast annual revenue for each subthreshold tariff is no greater than one per cent of the annual revenue requirement (the individual threshold); and
- forecast annual revenue from all tariff trials is no greater than five per cent of the annual revenue requirement (the cumulative threshold).

Tariff trials are essential for innovation, as they allow DNSPs to:

- explore the suitability of highly cost-reflective tariffs in a controlled manner;
- engage with customers, retailers, aggregators and other stakeholders to understand how DNSPs can improve tariff design;
- obtain trial data to inform tariff design; and
- ensure a smooth transition for customers if tariff trials are incorporated as new permanent tariffs.

Evoenergy put into place a range of tariff trials during the 2019–24 regulatory control period, as explained in section 4.4. Many of Evoenergy's proposed tariff reforms for the 2024–29 regulatory period introduce features from these trial tariffs. For example, the proposed residential TOU and demand tariffs are based on learnings from a residential tariff trial. The proposed introduction of new tariffs for large scale batteries is also based on a trial.

Tariff trials will continue to be a key limb of Evoenergy's tariff strategy from the second year of the 2024–29 regulatory period onwards when tariff trials are permitted under the NER.[53] A principal focus of the proposed EV charging stations tariff trial will be on promoting efficiency due to the potential for EV charging stations to impose significant costs on the network due to very high levels of demand. The structure of this trial tariff will be finalised closer to the proposed commencement of the trial on 1 July 2025, prior to which, Evoenergy will engage further with EV public charging proponents and other interested stakeholders including retailers.

Evoenergy may also explore the potential for subthreshold tariffs to be deployed as targeted, location specific responses to network challenges that arise in certain locations, given community perspectives on locational pricing. However, this would require significant coordination with retailers.

Evoenergy will consider introducing further tariff trials during the 2024–29 regulatory period as an opportunity to further progress its strategy of increasing tariff cost reflectivity and empowering consumers to better manage their network bills.

[51] NER, clause 6.18.1C
[52] NER, clause 11.148.8.
[53] NER, clause 6.18.1C.

9. Proposed tariff reforms

Evoenergy's proposed network tariff reforms are targeted at more effectively signalling the future cost of providing network services while enabling the management of the network bill impacts. This section describes Evoenergy's proposed tariff reforms for each tariff class. Each section begins with a network analysis to inform the proposed tariff reforms.

9.1 Residential tariff reforms

As described in section 3.3, Evoenergy expects increased uptake of solar, batteries, EVs, and HEMS during the 2024–29 regulatory period. The network load associated with these technologies will differ considerably from the current network load. The proposed tariff reforms, therefore, address the times and seasons at which the network is expected to peak in the future.

Evoenergy proposes to introduce a new residential TOU tariff and a new residential demand tariff from 1 July 2024 that reflect:

- key learnings from Evoenergy's residential trial tariff during the 2019–24 regulatory period;
- forecast use of the network in the 2024–29 regulatory period; and
- extensive consumer engagement on tariff design.

Evoenergy proposes to maintain the existing residential demand (codes 025 and 026) and TOU (codes 015 and 016) tariffs as some customers on these tariffs do not have smart meters and therefore cannot be assigned to more cost reflective tariffs. In addition, it avoids imposing tariff changes on customers already assigned to cost reflective tariffs.

The structure of the proposed residential tariffs has been informed by detailed network analysis, described below.

Definition of Evoenergy's residential zone substations

This subsection describes Evoenergy's approach to defining residential zone substations for the purposes of charging window analysis.

To evaluate the load on Evoenergy's network, a representative year for the charging window analysis was selected. During the 2019/20–2022/23 period, there have been several material influences on residential demand, including:

- the COVID-19 pandemic and associated lockdowns, which resulted in many consumers working from home and many businesses permanently and temporarily closing;
- the bushfires in the summer of 2019/20, which affected electricity supply and demand; and
- the net zero emission transition, which accelerated significantly in 2022.

Consequently, data within and across years may not represent the future load on Evoenergy's network. To evaluate charging windows, Evoenergy selected 2020/21 as a representative year for analysis purposes because it was least affected by the above factors.

To define zone substations as 'primarily residential', Evoenergy considers the proportion of consumption load at each zone substation that is residential and commercial. The results of this analysis for 2020/21 are presented in Table 17 below.

Table 17 Proportion of residential load, 2020/21

Zone substation	Residential consumption (GWh)	Commercial consumption (GWh)	Proportion residential
Belconnen	102	120	46%
City east	103	216	32%
Civic	52	207	20%
Eastlake	2	45	4%
Fyshwick	1	144	1%
Gilmore	48	119	29%
Gold creek	158	77	67%
Latham	162	67	71%
Telopea park	100	248	29%
Theodore	70	14	83%
Wanniassa	148	100	60%
Woden	147	161	48%

Note: Grey boxes are classified as primarily residential zone substations.

Evoenergy classes zone substations as follows.

- Substations with more than 60 per cent of residential load are classed as primarily residential zone substations.
- Substations with less than 60 per cent of residential load are classed as mixed or primarily commercial zone substations.

Evoenergy considers the following zone substations as residential for the purpose of the network load profile analysis which is used to define residential tariff charging windows.

- Theodore, with 83 per cent residential load
- Latham, with 71 per cent residential load
- Gold Creek, with 67 per cent residential load
- Wanniassa, with 60 per cent residential load

Network load profile analysis

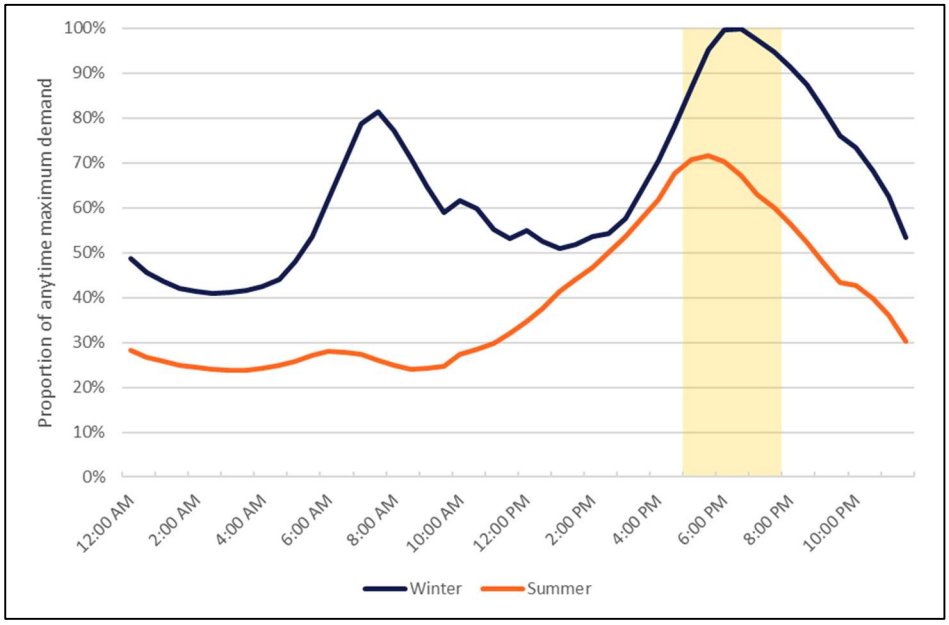
This subsection describes Evoenergy's analysis of the times at which peak demand and low load events are likely to occur. These are the periods when a change in a customer's use of the network can affect future network costs.

Seasonality

Historically, peak demand on Evoenergy's network was typically caused by heating or cooling load in response to particularly cold or hot weather. Annual peak demand in the ACT is generally higher and more stable in winter, reflecting the relatively more stable weather conditions in winter – see Figure 15. In contrast, the more variable weather conditions in summer have occasionally led to annual peak demand occurring in summer. For example, Evoenergy's highest recorded network demand in recent

years occurred in the summer of 2019/20 when the ACT faced extraordinarily high temperatures[54] and significant bushfires.

Figure 15 Top five peak demand days at primarily residential substations 2020/21



Source: Evoenergy *zone substation analysis*.

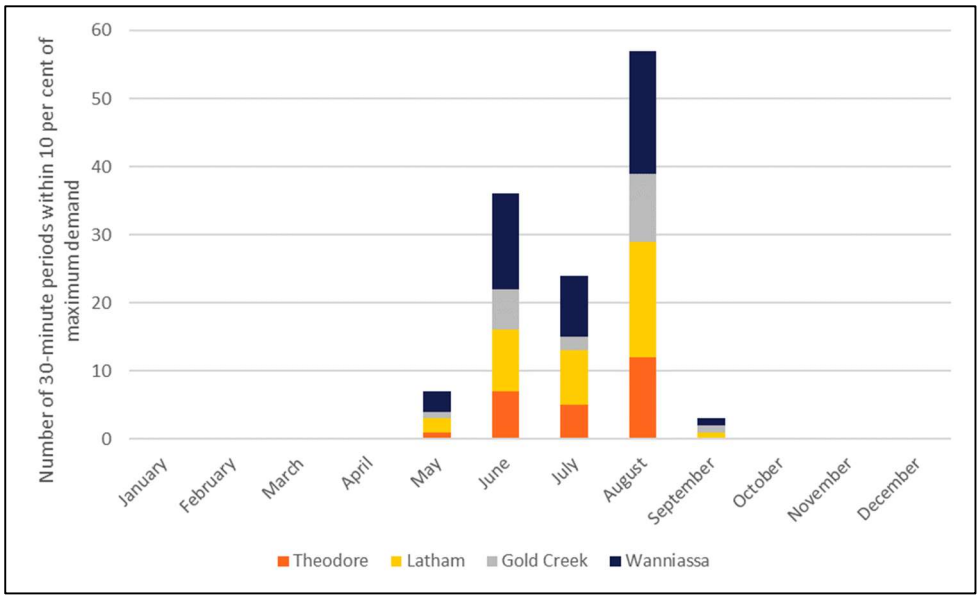
Notes: This figure shows the average of the top five maximum demand days during winter and summer at the four primarily residential zone substations (Theodore, Latham, Gold Creek, and Wanniassa). Yellow highlighted region represents the evening peak period (5pm-8pm AEST).

In more recent years, the mild summers and harsh winters brought on by La Niña meant that peaks in demand occurred in the winter months, and summer demand has been falling.

Figure 16 shows that, at primarily residential zone substations, demand was most frequently at peak or near-peak levels from June to August in 2020/21. This is consistent with observations in other years.

[54] The highest maximum daily temperature of 44 degrees Celsius was recorded at Canberra Airport on 4 January 2020.

Figure 16 Frequency of demand at primarily residential substations 2020/21



Source: Evoenergy zone substation data.

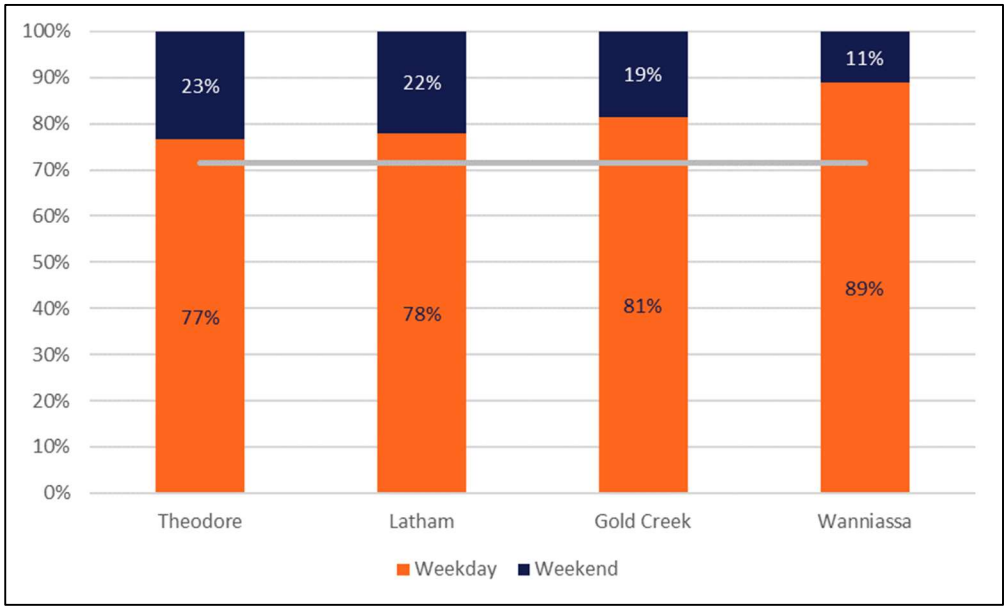
Looking forward, Evoenergy generally expects peak demand on its network and at all primarily residential zone substations to occur during winter months.

Days of the week

Evoenergy also evaluated the prevalence of peak demand on weekends and weekdays at primarily residential zone substations from 2018/19 to 2020/21. At the primarily residential zone substations, there were between 2.5 and 3 times as many peak or near peak events on weekdays compared to weekend days. Since there are 2.2 times more weekdays than weekend days, this suggests that peak demand occurs slightly less often on weekend days than on weekdays but that peak demand events occur on weekends, nonetheless. At mixed zone substations, there were less weekend peaks. This is likely due to the higher proportion of commercial load on these substations, which typically occurs on weekdays only.

Figure 17 shows the proportion of peak demand events within ten percent of the annual maximum demand that occurs on weekends (blue) and weekdays (orange). The grey line represents the expected proportion of weekdays within ten per cent of annual maximum demand if these events had equal likelihood of occurring on weekdays and weekend days (because there are five weekdays and only two weekend days each week).

Figure 17 Days within 10 per cent of annual peak demand, residential 2018/19–2020/21



Source: Evoenergy data.

Note: The grey line represents the expected proportion of weekdays within 10 per cent of annual maximum demand if these events had equal likelihood of occurring on weekdays and weekend days (because there are five weekdays and only two weekend days each week). This analysis is based primarily on residential zone substations, Theodore, Latham, Gold Creek and Wanniassa.

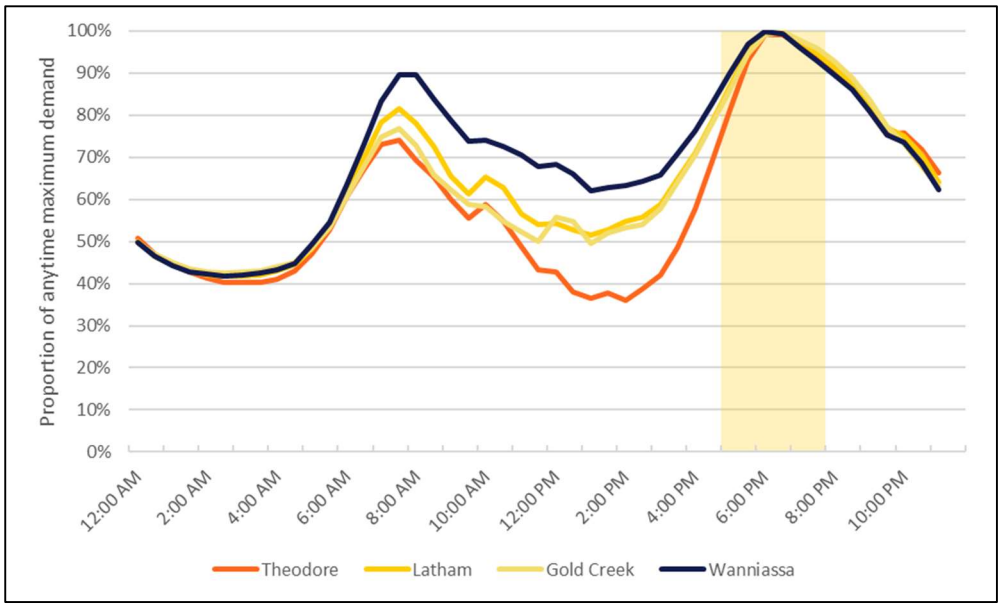
Times of the day

In contrast to some of the warmer states in the NEM, demand from residential customers is higher in winter mornings when customers typically wake up and heat their homes. However, the analysis shows that the spike in morning demand at primarily residential zone substations is substantially lower than the peak demand in the evenings, which consistently falls between 5pm and 8pm AEST.

Figure 18 shows that demand at primarily residential zone substations:

- is much higher in the evenings, in comparison to the morning; and
- peak demand consistently occurs between 5pm and 8pm AEST.

Figure 18 Average demand profile on five highest demand days, residential 2020/21



Source: Evoenergy data.

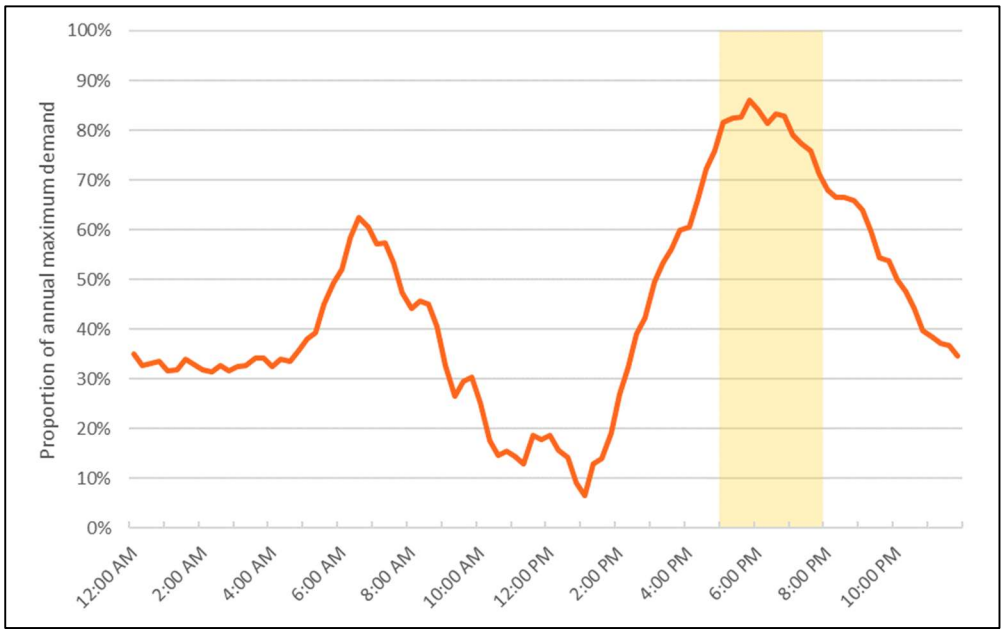
Note: This analysis is based primarily on residential zone substations Theodore, Latham, Gold Creek and Wanniassa. Yellow highlighted region represents the evening peak period (5pm-8pm AEST).

Figure 18 also suggests that a peak charge in the morning could discourage network use in the morning when there is excess capacity at primarily residential zone substations. Potentially weighing against not having a morning peak charge is the potential for the electrification of gas heating – which often peaks in the morning – to contribute to higher future electricity demand on winter mornings. To investigate this further, Evoenergy evaluated demand at substations serving small groups of residential customers with no gas connections.

Demand at the recently-developed suburb of Strathnairn is a relevant indicator of future demand in greenfield areas of Evoenergy's network since standalone homes have mandated no gas, solar PV, higher than average energy efficiency, and home-owners are encouraged to invest in battery and HEMS technology.[55] Figure 19 shows that demand is significantly lower in the morning compared to the evening peak at this feeder in Strathnairn.

[55] https://www.cmtedd.act.gov.au/open_government/inform/act_government_media_releases/yvette-berry-mla-media-releases/2018/ginninderry-pilots-acts-first-gas-free-housing-trial-for-350-homes

Figure 19 Average demand on top five days in a 'no gas, high solar' ACT area, 2021/22

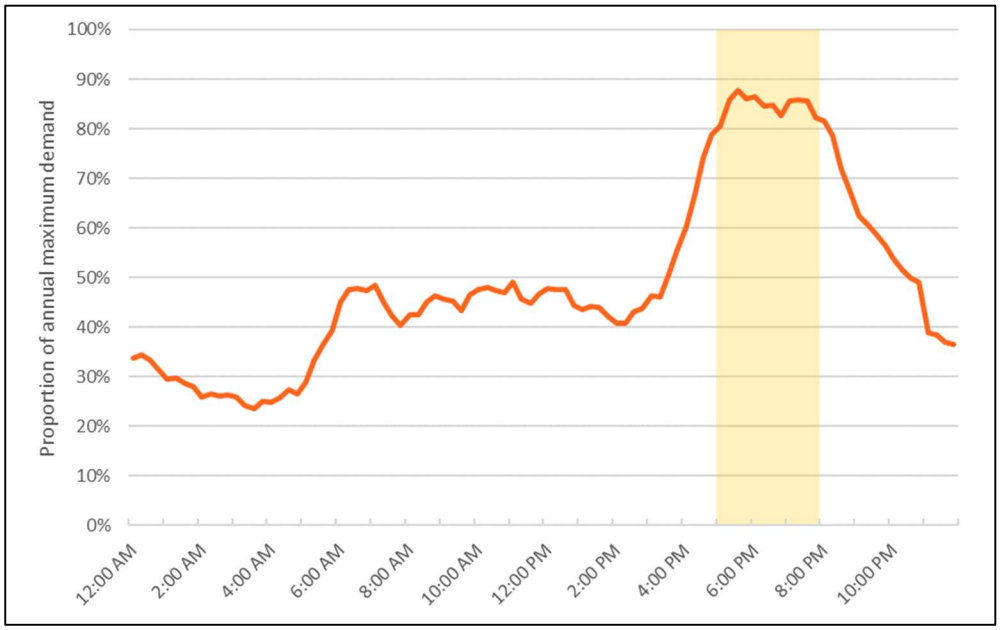


Source: Evoenergy data.

Note: Analysis based on a distribution substation serving 110 customers with no gas connections and mandated solar PV in the suburb of Strathnairn, ACT. Yellow highlight represents the peak period (5pm-8pm AEST).

Evoenergy also evaluated demand at distribution substations that serves primarily residential customers with no gas connection and a much lower proportion of solar penetration. This substation is likely to be more representative of suburbs with older homes converting from gas to electricity in the future. Figure 20 reflects demand at a distribution substation in ACT suburb of Woden and indicates that demand at this substation is still much lower in the morning than in the evening.

Figure 20 Average demand on top five days in a 'no gas, low solar' ACT area, 2021/22



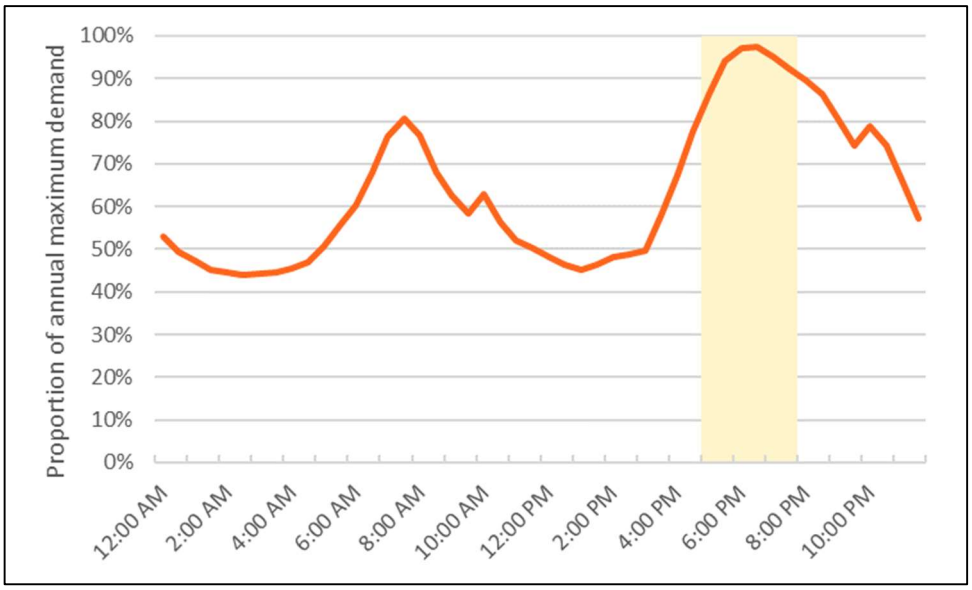
Source: Evoenergy data

Note: This analysis is based on a distribution substation serving 57 residential customers (and one commercial customer) with no gas connections and relatively low penetration of solar PV in the suburb of Woden, ACT.

Figure 19 and Figure 20 show that demand from residential customers with no gas connections *do not* typically peak in the mornings. However, there were some outliers at other distribution substations, which had morning demand reaching around 80 per cent of the evening peak demand level.

To further verify the evening peak period, Evoenergy conducted a bottom-up analysis of 3,001 randomly selected residential customers with smart meters. Figure 21 shows that the evening peak appears materially larger than the morning peak.

Figure 21 Peak demand for a sample of residential customers, 2020/21



Source: Evoenergy customer bill impacts model.

Notes: This Figure shows the load profile for a sample of 3,001 residential customers on their highest demand day of each month, averaged over the year.

In summary, Evoenergy concludes from the analysis above that demand from residential customers typically peaks between 5pm and 8pm (AEST) in the months from June to August across all days of the week.

Although the analysis finds peak demand is consistently higher in the evening, Evoenergy considers it would be prudent to retain a degree of flexibility to respond to any new morning peaks that develop over the 2024–29 regulatory control period, given the impacts of the gas to electricity transition is uncertain. Evoenergy's approach to addressing this is discussed in the proposed tariff reform subsection below.

Low load events

Imbalances between low demand and high localised supply (primarily from solar generation) in particular locations can cause fluctuations in voltage on the ACT electricity network, which is costly to manage. To identify when these circumstances typically occur, Evoenergy evaluated:

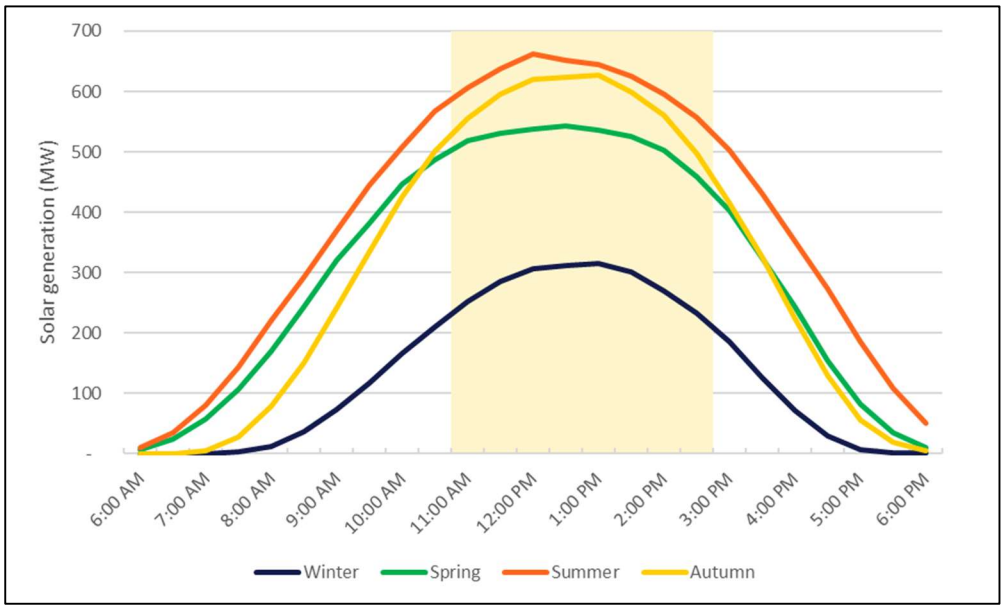
- when solar PV generation is at its highest level; and
- when substations experience low load, which reflects the combination of PV generation and load.

The installed rooftop solar PV capacity of ACT customers is expected to increase by approximately 33 per cent over the 2024–29 regulatory period, from around 317 MW to 422 MW.

Figure 22 shows that solar PV generation is significantly lower in winter (shown by the dark blue line), reflecting the lower levels of solar irradiance. In contrast, solar PV generation in spring, summer and

autumn is high relative to winter, with solar generation in summer being the greatest due to higher levels of solar irradiance.

Figure 22 Average solar PV generation by month, 2020/21

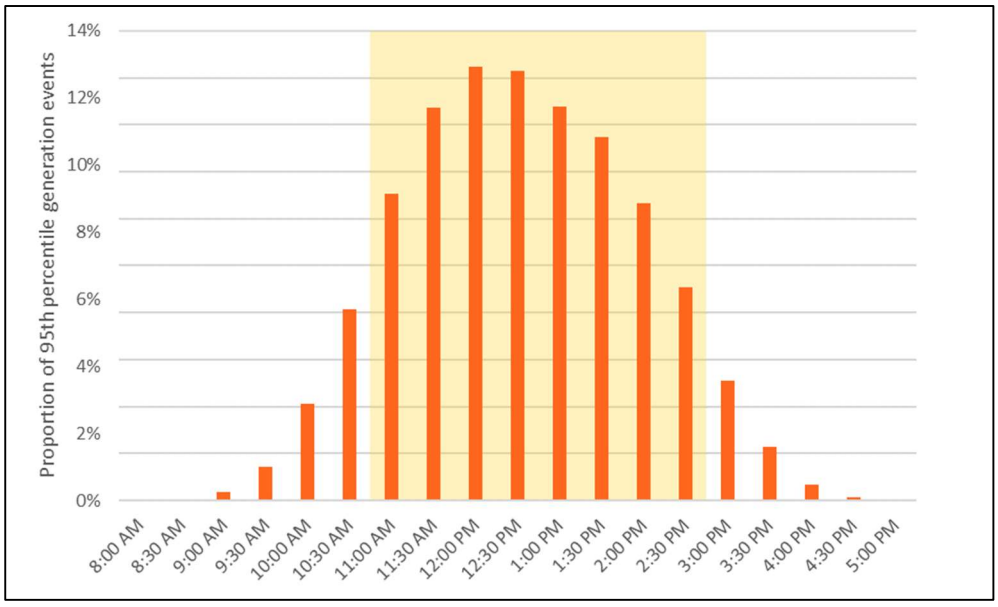


Source: Evoenergy data

Note: Yellow highlighted period represents the peak solar generation times.

The level of solar generation typically peaks around midday, when solar irradiance is highest, as illustrated in Figure 23.

Figure 23 Distribution of solar generation within 5 per cent of maximum generation, 2021/22



Source: Evoenergy solar trace data

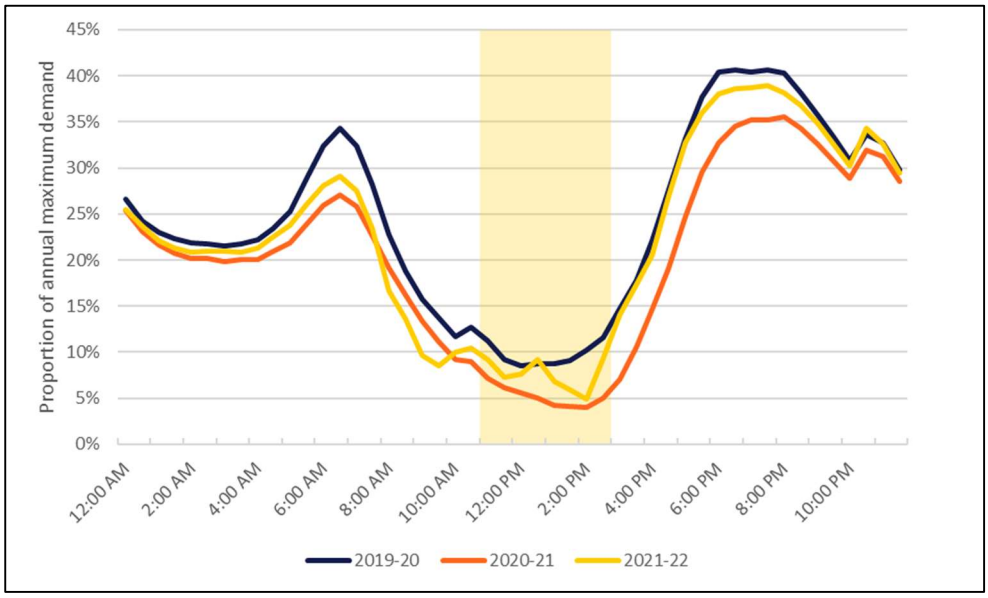
Note: Yellow highlighted period represents the peak solar generation times.

Figure 23 shows that 78 per cent of the times at which solar PV generation is at peak or near peak levels occur between 11am and 2.30pm (shaded area).

The voltage fluctuations that prompt additional network investment occurs because of the imbalance between load (demand) and solar generation (local supply), not solar generation alone. Evoenergy, therefore, evaluated when the imbalance between load and solar generation was lowest during the day at primarily residential zone substations.

Figure 24 shows the minimum demand on the five lowest demand days each year between 2018/19 and 2021/22 at the Theodore and Latham zone substations. Theodore and Latham zone substations were chosen for this analysis because they serve primarily residential customers and have high degrees of solar penetration, including the recently-developed suburb of Strathnairn (located in Latham), where solar PV is mandated for standalone homes.

Figure 24 Minimum demand on lowest five days at 'high solar' zone substations



Source: Evoenergy zone substation data

Notes: Analysis based on Theodore and Latham zone substations. One outlier day was removed from 2021/22 due to material fluctuations throughout the day.

In summary, Evoenergy finds the imbalance between solar generation and load is lowest between 11am and 3pm AEST.

In light of the above network analysis, combined with consumer feedback, Evoenergy proposes to introduce network tariff reforms in the form of a new residential demand and new residential TOU tariff. These newly proposed tariffs are presented below. Evoenergy does not propose any changes to the existing residential demand and TOU tariffs (tariff codes 025, 026, 015, 016).

Proposed new residential demand tariff

Evoenergy proposes to introduce a new residential demand tariff based on the findings of the analysis described above, the learnings from its residential battery tariff trial during the 2019–24 regulatory period, and extensive stakeholder engagement. The new residential demand tariff includes the following key features which are then described below.

- A relatively low solar soak energy charge between 11am and 3pm AEST.
- An off-peak demand charge between 8pm and 9am AEST.
- A seasonal peak demand charge which is set lower outside of winter months (June, July and August).

Solar Soak period

Evoenergy proposes to apply a solar soak period between 11am and 3pm (AEST) to provide a price signal that network costs are relatively low at this time of the day. That is, electricity is typically generated by household solar PV systems and exported into the electricity network creating a potential surplus of electricity in the network.

With the ongoing uptake of solar, Evoenergy must plan to manage increased levels of reverse power flows onto the ACT electricity network. Introducing a solar soak charge into key residential network tariffs aims to encourage the absorption of some of those reverse power flows, thereby constraining the need for additional capital and network maintenance expenditure.

The anticipated benefits of a solar soak charge are that it has the potential to:

- shift some network demand to meet the additional energy supplied by solar generation;
- help the network efficiently integrate technologies such as EVs and batteries as recharging these technologies may be shifted to the middle of the day when it is relatively cheap to use the electricity network;
- shift some consumption away from the peak evening period; and
- help prevent voltage issues associated with solar-driven reverse flows on the network.

Off-peak demand charge

Evoenergy is acutely aware of the potential for the uptake of renewable technologies with very peaky loads to create new import peaks outside the peak window (5pm to 8pm AEST). This could, for example, materialise from concentrated fast charging of EVs overnight. Hence, Evoenergy proposes to introduce an off-peak demand charge between 8pm and 9am AEST to signal that high demand levels could lead to the formation of new peak demands requiring network upgrades (to accommodate the new peak demand level). The off-peak demand charge is designed to signal the network cost associated with the potential new peak demand levels.

The proposed introduction of an off-peak demand charge will achieve the dual purpose of creating an incentive to smooth new peaky loads overnight while also providing a price signal during the former morning peak period. The persistence of this relatively weak price signal until 9am will help manage the low but relevant risks presented by the electrification of gas heating in the mornings, as discussed in the previous section.

In summary, the inclusion of an off-peak demand charge is designed to send a price signal about the network costs associated with the potential formation of new peak demands that may occur with the advent of new renewable technology (particularly EV fast charging). The charge also aims to encourage consumers to monitor network usage throughout the off peak period. The proposed reform will render the newt residential demand tariff more cost reflective than the existing residential demand tariff (025, 026), which sends no price signal outside the peak demand period.

Seasonal peak demand charge

Evoenergy's existing residential demand tariff has a seasonal structure, but Evoenergy has not actioned this seasonal structure by using differential prices. This has enabled ACT retailers and customers time to adjust to the concept of demand charging.

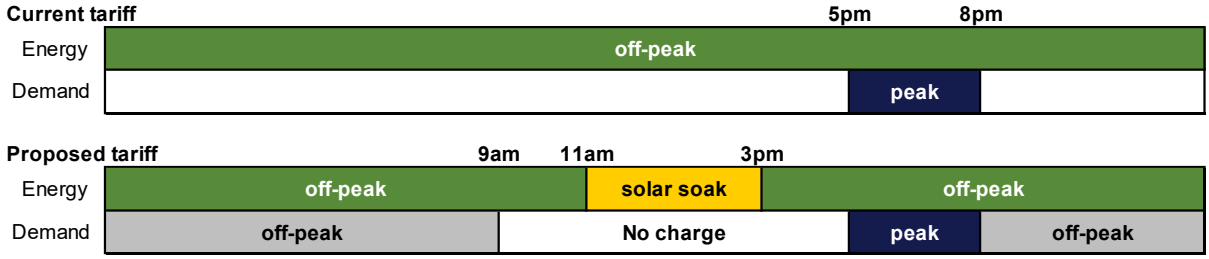
The charging window analysis (above) indicates that peak demand on the residential network continues to persist between 5pm and 8pm AEST daily. The analysis also indicates peak demand typically occurs in June, July and August. Evoenergy, therefore, proposes to apply a relatively lower peak demand price outside of winter months (June, July and August).

This will improve the efficiency of the peak demand price signal in winter months and, at the same time, benefit customers in the short term through a lower peak demand price in non-winter months.

Proposed charging windows

Figure 25 summarises the charging windows in Evoenergy's current and proposed residential demand tariffs.

Figure 25 Current and proposed residential demand tariff



The proposed charging windows are presented in Table 18 below.

Table 18 Charging windows for proposed residential demand tariff

Demand tariff	Charging windows (AEST)
Peak demand	5 pm to 8 pm every day (The peak demand price will be lower outside of June, July and August)
Off-peak demand	8pm to 9am every day
Off-peak consumption	3pm to 11am every day
Solar soak consumption	11am to 3pm every day

Proposed new residential TOU tariff

Evoenergy proposes to introduce a new residential TOU tariff based on the findings of the analysis described above, the learnings from its residential battery tariff trial during the 2019–24 regulatory period, and extensive consumer engagement.

In comparison to the existing residential TOU tariff (015, 016), the new residential TOU tariff (017, 018) includes the following key features.

- A solar soak period between 11am and 3pm AEST.
- No morning peak period between 7am and 9am AEST.
- No shoulder periods between 9am and 5pm, and between 8pm and 10pm AEST.
- Extension of the off-peak period to between 8pm and 11am, and between 3pm and 5pm AEST.
- An inclining block structure to the off-peak period between 8pm and 9am AEST.

Evoenergy's reasons for introducing a solar soak period are the same as the proposed residential demand tariff.

Peak period

In the proposed residential TOU tariff, Evoenergy proposes to maintain the evening peak period between 5pm and 8pm AEST daily. This is because the charging window analysis indicates that peak demand on the residential network continues to persist between 5pm and 8pm AEST daily. This is also consistent with the peak period applied in the existing and proposed residential demand tariffs.

Evoenergy is not proposing to introduce seasonality in the evening peak period for the 2024–29 regulatory period to retain the simplicity of this tariff and its role as an opt-out 'protection' mechanism for customers that prefer simpler tariffs. However, it is important to acknowledge that Evoenergy plans to introduce seasonality in the proposed residential TOU tariff in the 2029–34 regulatory period once retailers and customers have had time to prepare for this change in the 2024–29 regulatory period.

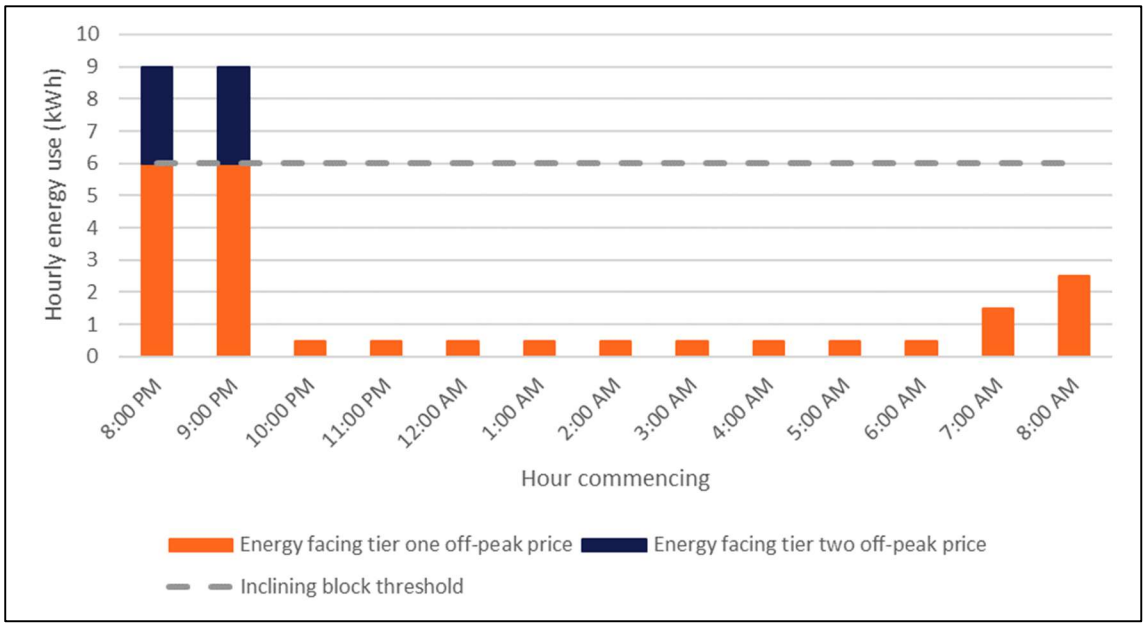
Inclining block (or tiered) off-peak period

For the same reasons that Evoenergy is proposing to introduce an off-peak demand period in its proposed residential demand tariff between 8pm and 9am AEST (as described above), it is proposing to apply an inclining block off-peak charge over the same period in the proposed residential TOU tariff. This will involve applying a low off-peak energy charge when hourly consumption is below 6 kWh between 8pm and 9am AEST and a higher off-peak charge when hourly consumption is above 6 kWh between 8pm and 9am AEST.

In practice, this means that during the first hour (8pm to 9pm AEST), a customer's total consumption of up to 6kWh will attract the low tier one charge. Any consumption beyond 6kWh in that hour will attract the tier two charge. The customers' consumption will be reset (on the hour) for the next hour (i.e. 9pm to 10pm AEST). In each hour within the 8pm to 9am AEST window, the consumption level will be reset on the hour,[56] to apply the inclining block tariff structure. Figure 26 shows how the inclining block charge would apply to a hypothetical customer with a very peaky load between 8pm and 10pm. In this case, the tier two charge would apply only to the 3kWh of energy consumption above the 6kWh (grey line), as indicated by the blue portions of the bars. It follows that this customer would face an incentive to smooth their overnight energy use so that it remains below 6kWh in each hour between 8pm and 9am.

[56] The first hour period commences at 20:00:01 and ends at 21:00:00 AEST, and subsequent one-hour periods follow the same approach.

Figure 26 Indicative operation of inclining block off-peak prices



Evoenergy proposes to set the second tier price similar to the first tier price in the first year of the 2024–29 regulatory period. This will reflect that overnight electricity use does not currently impose costs on the network as excess capacity is available. Over time, the price differential will increase (either by raising the second tier or lowering the first tier price) to signal the network cost associated with the potential for new peaks emerging overnight. This could materialise if EV fast charging occurs around the same time overnight.

Evoenergy proposes to set a conservative threshold equal to 6kWh (for each hour) initially.

Box 2 – Setting the off-peak threshold for the proposed residential TOU tariff

The second tier off-peak price is targeted primarily at flattening load that could lead to the formation of new peak demand levels. This could develop through the concentration of EV fast charging overnight when it is most likely that customers will recharge EVs. Hence, Evoenergy proposes to set the inclining block threshold based on:

- the potential magnitude of a customer's EV load and their potential to flatten that load; and
- the scope to facilitate EV fast charging load during the 8pm to 9am (AEST) period.

Customer considerations

Typical household recharging of EVs includes the use of:

- an existing power point (10-15 Amp, single phase) up to 3.6kW; or
- a dedicated fast charger on a single -phase connection – around 7 kW; or
- a dedicated fast charger on a three-phase connection – 11kW to 22kW.

Evoenergy's research indicates that most EV recharging can be undertaken at less than the maximum potential rate of charging, which indicates that they can be operated in a way that responds to price signals.[57]

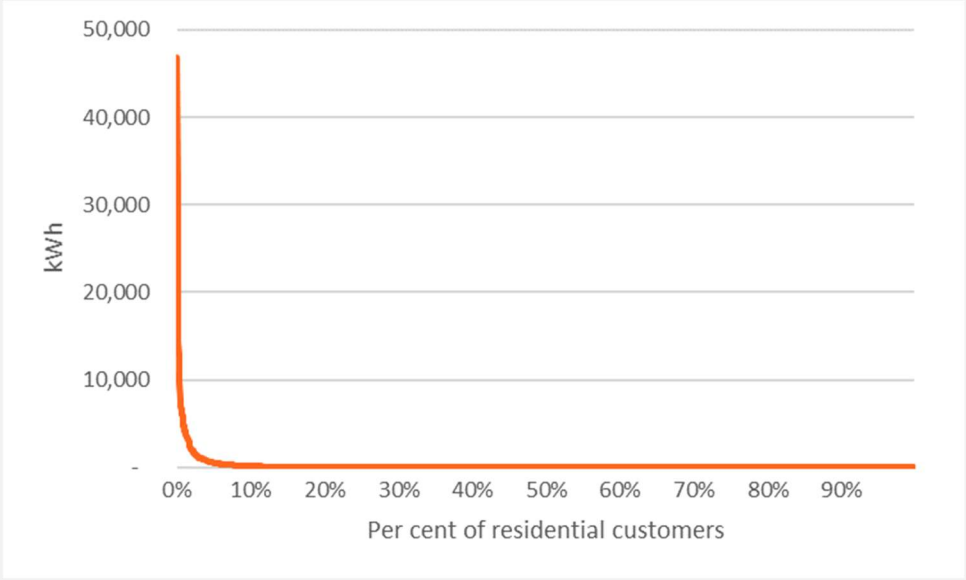
[57] For example, see: Tesla, *Model Y Owner's Manual*, available at https://www.tesla.com/ownersmanual/modely/en_au/GUID-BEE08D47-0CE0-4BDD-83F2-9854FB3D578F.html, accessed 26 October 2022; and Hyundai, *2022 Hyundai Kona EV 9 Owner's Manual*, pp 1–13 and 1–39, available at https://carmanuals2.com/d/119373, accessed 26 October 2022.

This suggests that a threshold for the second tier off-peak price equal to a 6kWh limit for each hourly window would:

- encourage customers with EV fast-chargers to smooth their charging; since it is less than the sum of the combined overnight load (assumed to be 1kW) and the minimum rate of charge for fast-chargers (7.2kW and higher); and
- will have little or no impact on the slow charging of EVs since the maximum rate of slow chargers (around 3.6 kW) plus the average overnight load (1kW) is only 4.6kW.

Evoenergy has conducted a customer impact analysis of the proposed inclining block structure. The analysis finds that, based on a sample of customers not exposed to the price signal, 42 per cent of residential customers are expected to incur a charge in the second tier. However, 90 per cent of customers' consumption (in the second tier) is less than 139 kWh per year. Thus, the second tier charge on most customer bills is expected to be relatively low. The distribution of residential customers expected to incur a second tier inclining block charge (assuming no response to the price signal) is shown in Figure 27.

Figure 27 Distribution of the proposed off-peak second tier charge



Network considerations

Evoenergy also considered the capacity for the network to facilitate EV charging at 6kW in the first hour after the peak period (8pm to 9pm AEST) and during the former morning peak period (7am to 9am AEST), when demand is relatively higher than the typical overnight load (1kW).

Evoenergy's assessment of representative residential substations serving between 77 and 130 customers indicated that:

- approximately 19 per cent of customers could simultaneously charge EVs at 6kW between 8pm and 9pm before a new localised peak in demand occurred; and
- approximately 22 per cent of customers could simultaneously charge EVs at 6kW between 7am and 9am before a new peak in demand occurred.

There is significant uncertainty in relation to the geographic spread of EV uptake. Given the potential for new peaks in demand to occur in specific but currently unknown areas of the network, Evoenergy proposes to include flexibility to adjust the off-peak threshold downwards during the regulatory period. Evoenergy describes the triggers for revisiting the inclining block threshold as part of its proposed reforms below.

Evoenergy's proposed introduction of an inclining block structure between 8pm and 9am is a direct response to the additional load expected to arise from the rapid uptake of EVs. If Evoenergy's assignment policy was amended so that all customers with an EV are assigned to the demand tariff (without an opt-out provision), the inclining block structure could be removed from this TOU tariff.

Removing the inclining block structure in this specific circumstance would better align the proposed residential TOU tariff with its role as a relatively simpler, opt-out tariff for customers that do not want to engage with a demand tariff, as explained in section 10. Evoenergy intends to monitor the response to the proposed demand and proposed TOU tariffs during the 2024–29 regulatory period to provide informed analysis on this matter into the proposed TSS for the 2029–34 regulatory period.

Removing shoulder period

A key theme of the feedback Evoenergy received from customers was their preference for simple network tariffs. Evoenergy, therefore, proposes to remove the two existing shoulder periods[58] in the proposed TOU tariff.

A higher price is no longer appropriate in the middle of the day because the residential load is often very low during that time, enabling capacity for additional load. Furthermore, generation from solar PV during the middle of the day adds to the capacity available on the network. Hence, removing shoulder periods aims to encourage (rather than discourage) usage during the middle of the day.

Evoenergy's proposed inclining block off-peak structure (as described above) will provide flexibility to address any peaky loads between 8pm and 9am AEST.

Removing the morning peak period

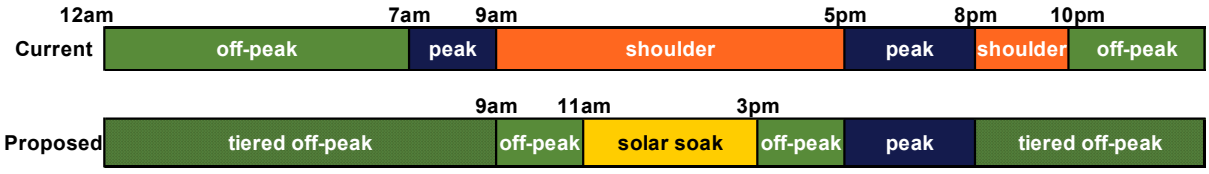
The proposed removal of the morning peak period reflects that, although residential demand is high in the mornings, it is significantly lower than the evening peak. A morning peak period, therefore, unnecessarily discourages customers from using the network when, in fact:

- there is excess capacity on the network; and
- exports from solar PV systems are commencing.

Proposed TOU tariff structure

Figure 28 below summarises the charging windows in Evoenergy's current residential TOU tariff, and the charging windows for the proposed TOU tariff, as described above.

Figure 28 Current and proposed residential TOU tariff



Importantly, the proposed residential TOU tariff charging windows are designed to align with the charging windows in the proposed demand tariff, as summarised in Table 19 below.

[58] Shoulder periods in the current TOU tariff are 9am to 5pm and 8pm to 10pm.

Table 19 Charging windows for proposed residential TOU tariff

	Charging windows (AEST)	Same as demand tariff
Peak period	5pm to 8pm every day	✓
First tier off-peak	8pm to 11am; 3pm to 5pm every day	
Second tier off-peak	8pm to 9am every day	✓
Solar soak consumption	11am to 3pm every day	✓

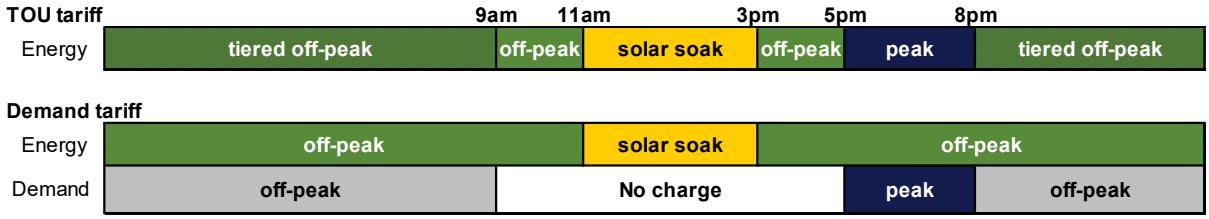
Alignment between proposed residential demand and TOU tariff structures

In response to consumer and retailer feedback about simplifying the network tariff structure, the proposed residential demand and TOU tariffs are aligned in their charging windows. That is, Evoenergy has deliberately set these key residential tariffs as follows.

- **Peak period**: both tariffs are set at 5pm-8pm AEST daily.
- **Solar soak period**: both tariffs are set at 11am-3pm AEST daily.
- **Tiered off-peak energy and off-peak demand**: both tariffs are set at 8pm–9am AEST daily.
- **Tariff components designed to encourage network use**: both tariffs contain price signals to encourage usage 9am-5pm AEST daily.

This alignment between the tariffs is shown in Figure 29 below.

Figure 29 Proposed residential TOU and demand tariffs



Eligible ACT residential customers will have the opportunity to receive consistent network price signals when/if they choose to switch between the proposed residential demand and proposed TOU network tariffs,[59] thereby improving the simplicity of the network tariff structure.

Proposed export tariff (Secondary tariff)

In addition to introducing new residential demand and TOU tariffs, Evoenergy is also proposing to introduce an export tariff for residential customers who export electricity to Evoenergy's network ('exporting customers'). Only customers with a smart meter will be eligible for the export tariff because smart meter technology will be required to measure export volumes across time. Given that residential customers with a smart meter are assigned to the demand or TOU tariff, these customers will be eligible for the export tariff.

[59] Residential customers are only eligible to switch to an alternative residential tariff once in a 12 month period.

Evoenergy's customers were generally supportive of introducing an export tariff, and their feedback shaped the design and conservative introduction of the proposed export tariff, which is described in detail in section 11.

Key benefits of Evoenergy's proposed export tariff arise from signalling to exporting customers the costs that could be avoided.

In the middle of the day, costs could be avoided by:

- shifting their load to increase their self-consumption and reduce exports; and/or
- storing their solar PV generation in a behind the meter battery.

In the evening peak period, costs could be avoided by:

- orientating their solar PV panels to face west; and/or
- storing and then exporting solar PV generation from earlier in the day.

Evoenergy's proposed (secondary) export tariff comprises the following tariff components.

- An export reward (cents per kWh) for exports during the evening peak period (5pm-8pm AEST).
- An export charge (cents per kWh) for exports during the solar soak period (11am-3pm AEST) above the basic export level (5 kW each hour).

This tariff is described in detail in section 11, which presents Evoenergy's transition strategy to two-way pricing. The customer bill impacts for residential customers are presented in section 12.1.

Proposed trigger mechanisms for changes residential tariffs

Evoenergy's tariff strategy is explicitly targeted at facilitating a range of difficult-to-forecast, customer driven responses to climate change, such as the uptake of EVs and the transition to full electrification. Evoenergy has, therefore, carefully balanced the trade-off between future-proofing its tariffs and introducing reforms that are unnecessarily complex or that have unnecessary customer bill impacts.

Although Evoenergy's tariff strategy is based on up-to-date and robust forecasts, it is still possible that the rate of change is higher than expected and may shift the appropriate balance of emphasis between the considerations noted above. Evoenergy, therefore, proposes establishing three objectively defined trigger events that would prompt a review of specific features of its tariff structure, as noted in the discussion below. When a trigger event occurs, Evoenergy would notify the AER and engage in relation to Evoenergy's proposed response. Any resultant changes would be included in an annual pricing proposal for approval by the AER.

The inclusion of these triggers has enabled Evoenergy to err on the side of conservatism in its tariff strategy. For example, Evoenergy has adopted a relatively high threshold for its inclining block off-peak charge in its proposed residential TOU tariff.

It is not possible to reliably estimate the effect on demand of strengthening these elements of Evoenergy's tariff structure. Since Evoenergy's proposed capital expenditure program is based on the same forecasts as its tariff strategy, these same triggers would necessitate revisiting key elements of its proposed capital expenditure, as described in Appendix 1.17.

The tariff changes driven by trigger events affect only the newly proposed residential demand and TOU tariffs. This is because Evoenergy expects the majority of residential customers to be assigned to these tariffs in the future.[60]

[60] For example, most customers on the current residential TOU tariff (code 015 and 016) will eventually have their meter replaced with a smart meter and therefore be assigned to the proposed residential demand (or TOU) tariff.

Trigger events

Evoenergy proposes that any of the below events would trigger a review of specific features of Evoenergy's network tariffs.

1. **Higher-than-forecast demand**: Recorded demand at one or more of Evoenergy's substations within 90 per cent of the peak demand (N-1)[61] capability of that/those substations for at least four consecutive half hour periods, or the peak demand forecast exceeds the emergency rating within the next five years (from the submission date).

    - The realisation of this trigger event would represent a material deviation from the forecast used in Evoenergy's 2024–29 regulatory proposal, indicating that demand is heading off the forecast demand levels to which the capital expenditure program is designed.

2. **Observed EV take-up rate**: Projections of future EV sales and observed garaging locations differ substantially from those assumed in the demand forecasts used in Evoenergy's 2024–29 regulatory proposal.

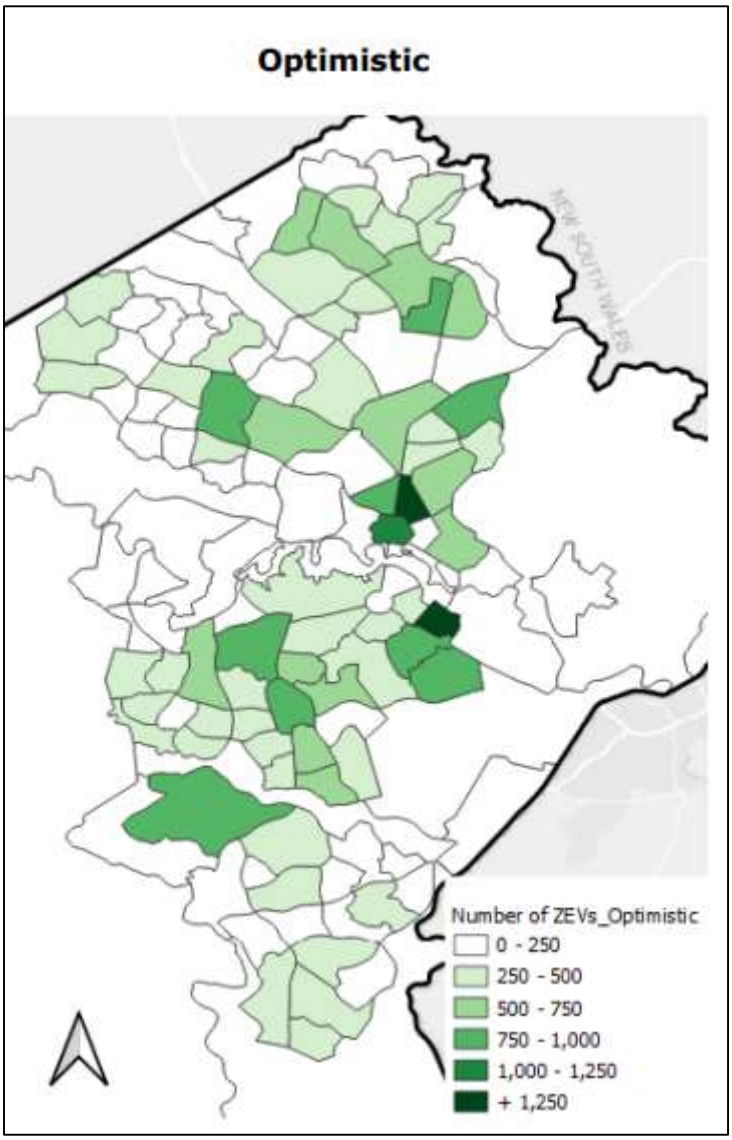
    - Evoenergy's tariff strategy for the 2024–29 regulatory period is based on the ACT Government's optimistic EV uptake scenario, which reflects a rapid rate of growth in the number of EVs (see Figure 4). However, the rate of EV uptake is uncertain and could be higher than the level that formed the basis of Evoenergy's tariff strategy. A materially higher than expected uptake of EVs would increase the emphasis on managing EV load, which would, in turn, require strengthening key elements of Evoenergy's tariff strategy.
    - Evoenergy has designed its capex program to address the expected EV uptake by location. Figure 30 provides a heat map showing that EV uptake is expected to be highest in central ACT, with the uptake in other ACT locations varying. Preparations to upgrade the network are based on this analysis. If the locational uptake of EV load varies from this forecast, it will trigger the need for a change to the tariff structure.

3. **Gas to electricity switching**: This occurs at a faster rate than forecast.

    - Evoenergy has forecast the rate at which ACT customers are expected to switch from gas to electricity as the ACT moves towards full electrification to meet its net zero emission target. If the rate of switching varies from the forecast, it will trigger a requirement to review the tariff structure.

[61] This is the continuous rating of the zone.

Figure 30 Expected EV uptake heat map



Source: Deloitte Access Economics, *Zero Emission Vehicle Charge Rollout report for ACT Government, October 2021*. Figure iv. Available here: https://www.environment.act.gov.au/__data/assets/pdf_file/0016/2031046/22_33787-Document.pdf

Tariff changes

If any one of the above events occurs, it will trigger a review of the following elements of Evoenergy's proposed network tariff structure.

1. **Proposed residential demand and TOU tariff**: Residential peak period extended from 5pm – 8pm to 5pm – 9pm AEST.

    - The residential peak period is currently set between 5pm–8pm AEST. The charging window analysis outlined earlier in section 9 shows this is reasonable, given that residential demand is consistently higher during this time period than at any other time of the day.
    - As more ACT customers purchase an EV, many will choose to recharge during the convenient and lower priced (off-peak) overnight period. This means there is the possibility that any one of the above triggers could see residential peak demand occurring between 8pm–9pm AEST. Hence, Evoenergy proposes extending the residential peak

charging window from 5pm–8pm to 5pm–9pm AEST (within the proposed demand and proposed TOU tariffs) if any of the above events are triggered.

2. **Proposed residential TOU tariff**: Inclining block off-peak threshold (between tier one and two) will be reduced.

    - The proposed residential TOU tariff includes an inclining block off-peak charge between 8pm–9am AEST. The threshold between the first and second tier of this charge is proposed to be set at 6kW per hour (as described in earlier in section 9). If any one of the above events were to occur, this would prompt a review of the proposed residential TOU inclining block threshold from 6kW per hour to a lower threshold.

3. **Tariff assignment for EV customers**: EV customers to default to the proposed new residential demand tariff on a mandatory basis (i.e., remove opt-out provision).

    - Under the proposed tariff assignment policy, all residential customers with a smart meter will be assigned (by default) to the proposed residential demand tariff with an opt-out provision to the proposed residential TOU tariff. Evoenergy considers this tariff assignment policy provides tariff choice while nudging ACT customers (with suitable metering technology) towards cost reflective tariffs.
    - ACT residential customers with an EV (and smart meter) will also have the choice to switch between the proposed demand and proposed TOU tariffs.[62] This is because both tariffs have been designed to address high-peaking loads (such as EV fast recharging) during the off-peak (overnight) time period. However, the off-peak demand charge (in the proposed demand tariff) is more cost-reflective than the inclining block off-peak charge (in the proposed TOU tariff). Hence, if any one of the above events occurs, it will trigger a change to the tariff assignment policy (for residential customers) such that those with an EV cannot opt-out to the proposed TOU tariff (nor any other residential network tariff).

9.2 Commercial tariff reforms

Evoenergy focussed on progressing the cost reflectivity of commercial tariffs with significant reforms introduced in the 2019–24 regulatory period. Since Evoenergy's LV and HV commercial tariffs are now highly cost-reflective, with most tariffs including TOU consumption charges, peak demand charges, and (in some cases) capacity charges, Evoenergy is proposing relatively minor amendments to the commercial tariff structure in the 2024–29 regulatory period. This aligns with the feedback received from commercial consumers, where Evoenergy heard they are not seeking changes to the existing tariff structure.

The commercial tariff reforms proposed for the 2024–29 regulatory period continue refining the cost reflectiveness of ACT network tariffs. The commercial tariffs that Evoenergy proposes to structurally change are the Streetlighting and Small unmetered tariffs. Minor amendments are also proposed for commercial tariffs containing a capacity charge. The reforms also aim to address emerging renewable technology trends, including the anticipated introduction of stand-alone, grid-scale batteries, including community batteries. Hence, Evoenergy is proposing the introduction of a new tariff targeted at large-scale batteries that connect to the ACT distribution LV or HV network. The proposed changes reflect:

- key learnings from Evoenergy's large-scale battery trial tariff during the 2019–24 regulatory period;
- forecast use of the network in the 2024–29 regulatory period; and
- consumer engagement on tariff design.

The structure of the proposed commercial tariffs is detailed below, following a detailed network analysis.

[62] Once in a 12-month period.

Timing of commercial peak demand

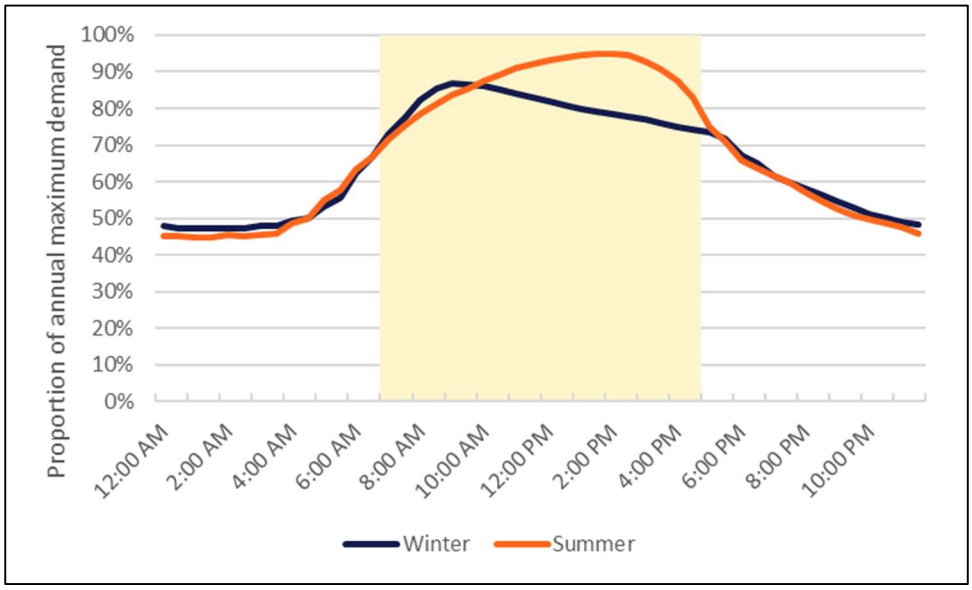
Evoenergy evaluated the timing of peak demand from commercial customers based on a sample of LV commercial and HV commercial customers, while also having regard to load data from network feeders that are dedicated to commercial customers.

Evoenergy concluded that zone substation data is less reliable for evaluating peak demand from commercial customers because the timing of peak demand from commercial customers, with relatively flat loads, is distorted by the much peakier demand from residential customers. This circumstance applies even at zone substations where the overwhelming majority of load is from commercial customers.

Seasonality

Commercial load on Evoenergy's network is relatively consistent across the year. As illustrated in Figure 31 to Figure 33, the average maximum demand from LV and HV commercial customers on the top five days in summer and winter was reasonably similar, reaching 85 per cent of the annual maximum load during the peak window.

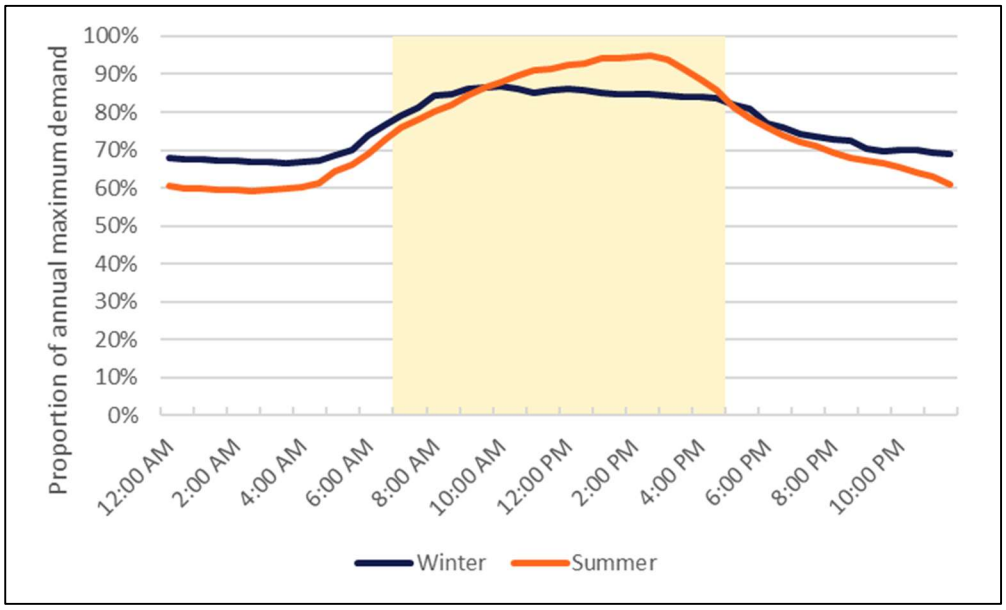
Figure 31 Top five summer and winter peak demand days – LV commercial customers, 2020/21



Source: Evoenergy data.

Note: Based on a sample of 3,001 LV commercial customers. Yellow highlighted period represents the commercial peak period (7am to 5pm AEST)

Figure 32 Top five summer and winter peak demand days – HV commercial customers, 2020/21

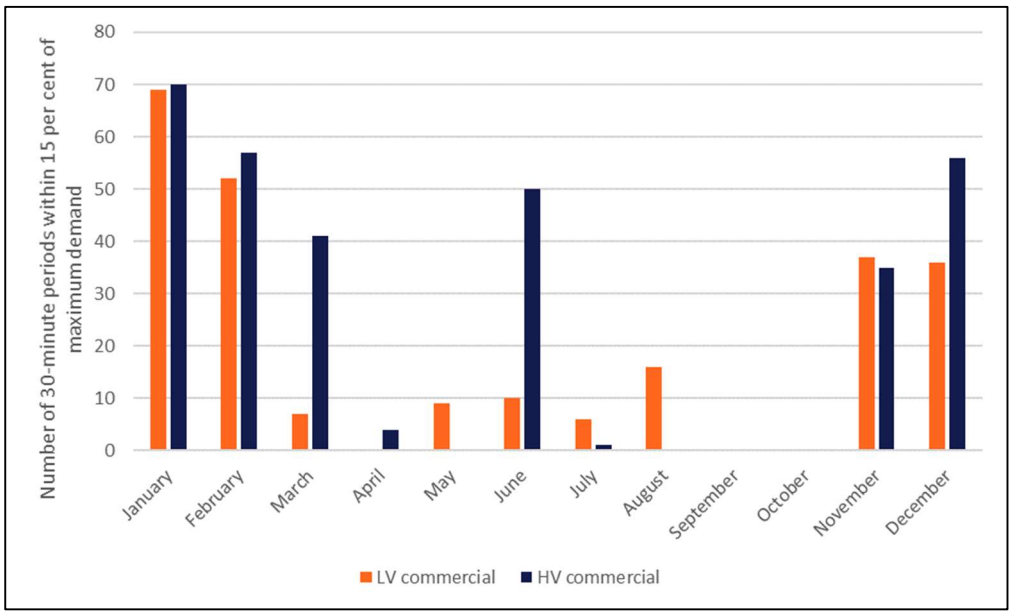


Source: Evoenergy data.

Note: Based on analysis of all HV commercial customers on Evoenergy's network. Yellow highlighted period represents the commercial peak period (7am to 5pm AEST)

In contrast to residential loads, although commercial customer demand gets close to maximum demand more frequently in summer, demand in other months often reaches 85 per cent of annual maximum demand, as illustrated in Figure 33.

Figure 33 Frequency of demand within 15 per cent of annual maximum demand, sample of LV and HV commercial customers, 2020/21



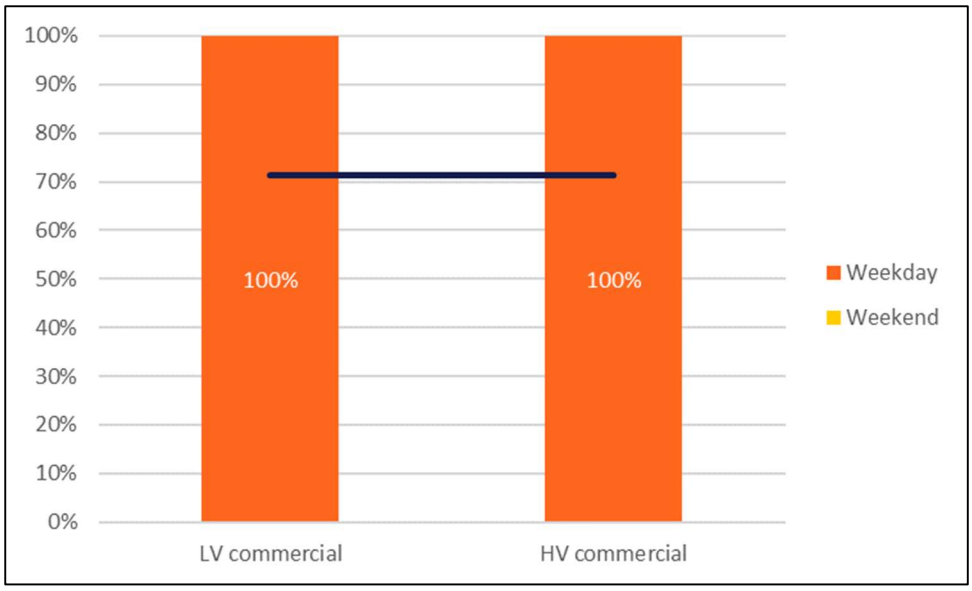
Source: Evoenergy data.

Note: This analysis is based on a sample of 3,001 LV commercial customers and all of Evoenergy's HV commercial customers.

Days of the week

Unlike residential demand, commercial load is concentrated on weekdays. Figure 34 shows that no weekend days had any 30-minute periods with demand within 15 per cent of annual peak demand in Evoenergy's sample of commercial customers. As a consequence, Evoenergy proposes to retain its current off-peak period at all times on weekends.

Figure 34 Days with one or more 30-minute periods within 15 per cent of annual peak demand, commercial, 2020/21



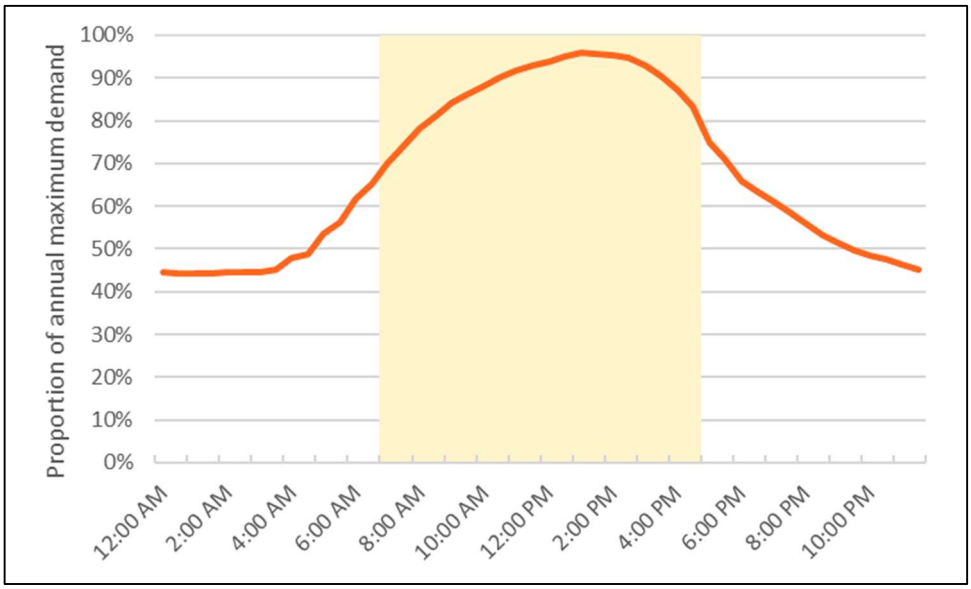
Source: Evoenergy data.

Notes: The blue line represents the expected proportion of weekdays within 15 per cent of annual maximum demand if these events had equal likelihood of occurring on weekdays and weekend days, considering there are five weekdays and two weekend days each week. This analysis is based on a sample of 3,001 LV commercial customers and all of Evoenergy's HV commercial customers.

Times of the day

Evoenergy has undertaken a bottom-up analysis of peak demand for a sample of LV commercial and HV commercial customers, which is presented in Figure 35 and Figure 36, respectively. The analysis demonstrates that commercial load is relatively flat throughout business hours and remains close to the annual maximum demand throughout the middle of the day.

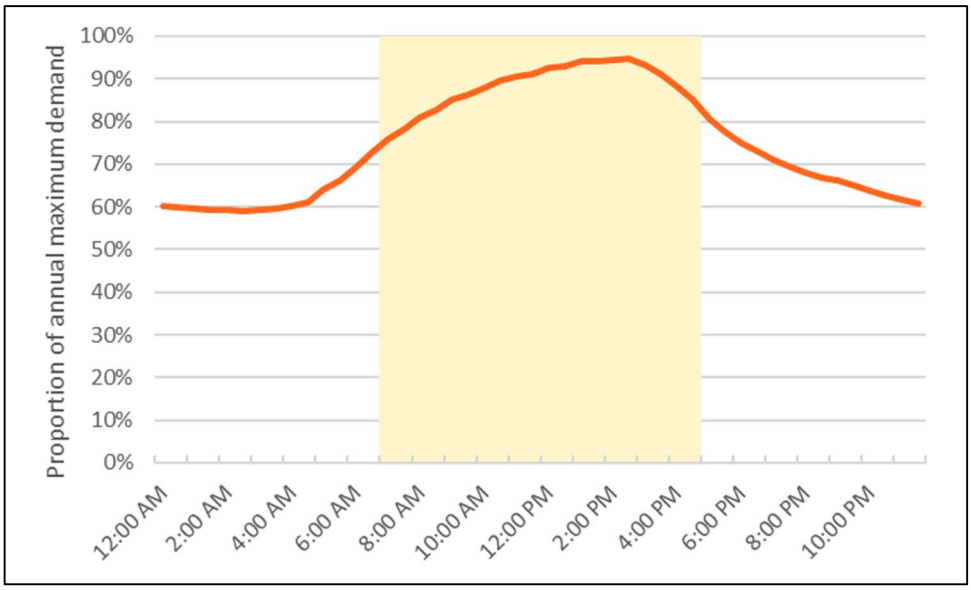
Figure 35 Average demand profile on five highest demand days, LV commercial 2020/21



Source: Evoenergy data.

Notes: Yellow highlighted period represents the commercial peak period (7am to 5pm AEST). This analysis is based on a sample of 3,001 LV commercial customers.

Figure 36 Average demand profile on five highest demand days, HV commercial 2020/21

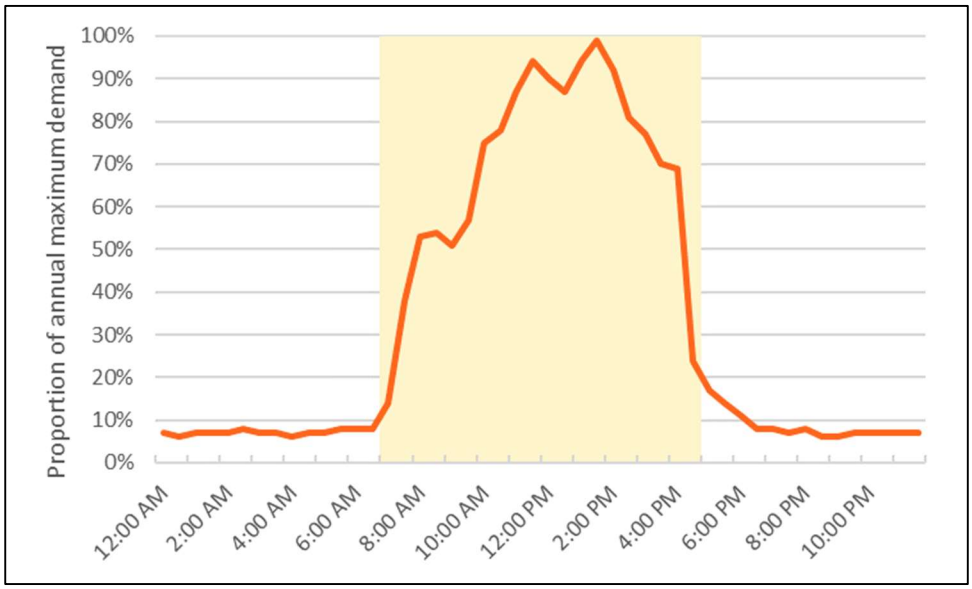


Source: Evoenergy data.

Notes: Yellow highlighted period represents the commercial peak period (7am to 5pm AEST, weekdays). This analysis is based on data from all HV commercial customers.

To verify the above analysis (based on customer data), Evoenergy analysed data from two dedicated commercial distribution substations. The average demand at these commercial substations is presented in Figure 37 and Figure 38 below.

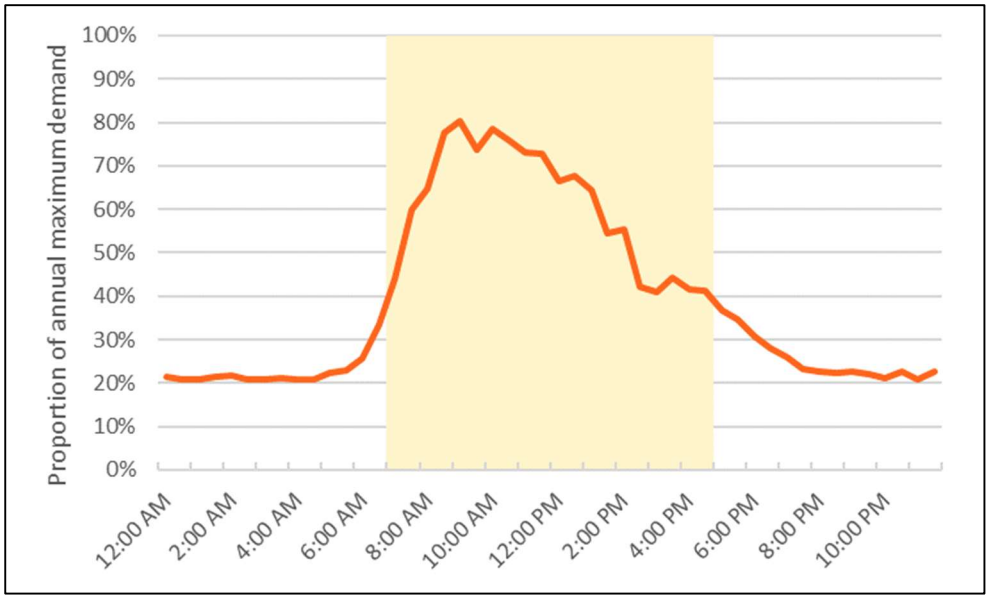
Figure 37 Average demand on top five days in a dedicated commercial ACT area in Fyshwick, 2020/21



Source: Evoenergy data.

Note: This analysis is based on a distribution substation serving commercial customers with smart meters in Fyshwick. Yellow highlighted period represents the commercial peak period (7am to 5pm AEST)

Figure 38 Average demand on top five days in a dedicated commercial ACT area in East Lake, 2020/21



Source: Evoenergy data.

Note: This analysis is based on a distribution substation serving commercial customers with smart meters in East Lake. Yellow highlighted period represents the commercial peak period (7am to 5pm AEST)

Based on the analysis above, Evoenergy concluded that commercial demand on the ACT electricity network typically occurs between 7am and 5pm (AEST) on weekdays, which aligns with typical business operating hours. Owing to the prevalence of load in the middle of the day, in contrast to areas with primarily residential load, low load events are not a significant issue in areas of the network with predominantly commercial customers.

Evoenergy therefore proposes to retain its existing charging windows for LV and HV commercial tariffs. The peak period for LV and HV commercial tariffs will remain from 7am to 5pm (AEST) on weekdays.

Evoenergy's proposed tariff reforms for commercial customers are explained in more detail below.

New tariffs targeted at large-scale batteries

A variety of large-scale batteries are expected to connect to the ACT electricity network in the coming years, especially in respect of the ACT Government committing to 250 MW of batteries.[63] Evoenergy, therefore, trialled a tariff designed for large-scale batteries during the 2019–24 regulatory period, which provided Evoenergy with the opportunity to test customer response to the highly cost reflective price signals and refine the tariff in a trial setting. The trial was particularly important given that large-scale batteries generally respond to a range of price signals (including wholesale prices and FCAS), not only network price signals. Evoenergy engaged significantly with large-scale battery operators and other stakeholders throughout the trial period to ensure the learnings from the trial were fully incorporated into the network tariff which is now proposed for introduction in the 2024–29 regulatory period.

Evoenergy proposes to introduce four large scale battery tariffs to refine the price signals according to customers' network connection (i.e. low or high voltage) and location (i.e. primarily residential or commercial). The tariff codes associated with these proposed tariffs are outlined in Table 20 below.

Table 20 Tariff codes for new tariffs targeted at large-scale storage

	Residential areas	Commercial area
LV connection	108	109
HV connection	123	124

The structure of these tariffs will be identical, except for the application of different charging windows depending on whether the connection is in a predominantly residential or commercial area (as determined by Evoenergy). Further, the price level of each tariff will differ depending on whether the battery is connected to the LV or HV network.

The structure of these new tariffs is summarised in Table 21, and then described in more detail in the remainder of this subsection. It is also relevant to note that customers assigned to this tariff may be eligible for a reimbursement of avoided TUOS costs and/or subject to a payment of incurred TUOS costs. The avoided/incurred TUOS will be settled, between Evoenergy and the battery operator, externally to the tariff structure.

[63] ABC (2020), *'ACT Labor promise Canberra-wide network of renewable energy batteries if* elected', https://www.abc.net.au/news/2020-09-30/biggest-renewable-battery-promised-act-labor-election/12715314?nw=0

Table 21 Proposed tariff structure targeted at large-scale batteries

Tariff component	Description
Seasonal peak demand charge	Based on a customer's maximum demand (kVA) in a 30 minute interval in the billing period (typically one calendar month) between: • 5pm and 8pm daily AEST for connections in primarily residential areas • 7am and 5pm weekdays AEST for connections in primarily commercial areas. This charge has the following seasonal element: • Lower charge applies during the 'low season' of winter and autumn months • Higher charge applies during the 'high season' of summer and spring months
Net consumption charge	Applied to total electricity imported less total electricity exported
Capacity charge	This is based on a customer's maximum half-hourly demand (kVA) over the previous 13 months, including the current billing month.
Critical export rebate	Applied to exports during a critical peak export rebate event. Evoenergy will notify customers of up to six critical peak rebate events in a financial year and at least 48 hours before one commences. The maximum duration of each critical peak event is three hours. Customers who export during the critical peak event will receive a rebate based on the level of electricity exported (measured in kVAh) within the critical peak rebate event.
Critical export charge (only in predominantly residential areas)	Only batteries that connect in predominantly residential areas are subject to a critical export charge. Applied to exports during a critical peak event. Evoenergy will notify customers of up to six peak charge events in a financial year, and at least 48 hours before one commences. The maximum duration of each critical peak event is three hours. Customers who export during the critical peak event will pay the critical peak export charge based on the level of electricity exported (measured in kVAh) within the critical peak period, with a Basic Export Level of zero.

Seasonal peak demand charge

The seasonal peak demand charge signals the cost of importing electricity during peak periods when additional imports can contribute to a need to expand the network. Given that network expansions increase network costs, the peak demand charge is designed to reflect the cost associated with future network upgrades. Specifically, the peak demand charge is based on the LRMC of providing import services at the level of the network to which the battery connects, i.e., LV or HV. The demand charges also recover a portion of residual costs, as batteries are utilising the network when they import during peak demand periods.

The demand charge is applied to the customers' maximum half-hourly demand (measured in kVA) during the peak period of each calendar month. The definition of the peak period depends on whether

the battery is connected in a primarily residential or commercial area of Evoenergy's network as follows.

- If the customer is located in a primarily residential area, the peak period is 5pm to 8pm AEST daily all year-round.
- If the customer is located in a primarily commercial area, the peak period is 7am to 5pm AEST on weekdays all year-round.

The demand charge varies with the season, reflecting the different costs imposed on the network at different times of year.

This ensures that Evoenergy signals its costs to large-scale batteries at a time that coincides with the periods when additional demand is expected to cause additional costs in the relevant area of the network.

Net consumption charge

Due to energy losses, large-scale batteries operate with a round-trip efficiency of less than 100 per cent. A battery will export (to the grid) less electricity than it imports (from the grid). From the perspective of the distribution network, the energy losses represent 'net consumption' of electricity by the battery (electricity imported minus electricity exported). This net consumption incurs a jurisdictional scheme charge, and there is no distribution or transmission charge because these network costs are reflected in the other tariff components.

Under ACT legislation, Evoenergy is obligated to make various jurisdictional scheme payments, which it recovers from customers through network tariffs.[64] Jurisdictional charges are ultimately recovered from charges applied to the electricity consumed by customers. Since energy is lost during the process of a battery importing and then exporting electricity, it is appropriate for a battery to pay for the jurisdictional scheme charges that would otherwise have been recovered from the consumption of the lost electricity.

Failing to recover these costs from large-scale batteries would create a cross-subsidy between large-scale batteries and other customers. Therefore, the large-scale battery tariff includes a net consumption charge to recover jurisdictional scheme charges.

Export critical peak rebate/charge

The export critical peak rebate and charge are designed to send a price signals to the operator about the costs and benefits of exporting during nominated critical peak events. This charge/rebate recognises the ability of the large-scale battery to assist the distribution network by either reducing its export loads on the network at times of high solar output or increasing its exports when the network is experiencing high demand. The battery can also assist the network during times when there are generation shortages, however, such events are rare.

Under this arrangement, a large-scale battery operator will be notified of the timing of a 'critical peak' (CP) event up to 48 hours in advance. Depending on the type of critical peak event, the large-scale battery may receive a notification for either of the following.

- A **critical peak export charge (only in predominantly residential areas)** – designed to discourage exports during critical peak events. This can help address rising voltage issues due to increased solar exports in residential areas and is expected to apply primarily during the middle of the day in spring and summer. During the critical peak charge event window, the battery will pay a charge for any exports (measured in kVAh). If the battery does not export during this period, then the export charge will be zero and therefore avoided.
- A **critical peak rebate** – designed to encourage exports during critical peak events. This can help address periods of high network demand and is expected to apply primarily during the

[64] The jurisdictional schemes currently include an Energy Industry Levy, Utilities Network Facilities Tax, and Feed-in Tariffs for small, medium, and large scale generators.

morning and evening periods in summer. During the nominated period, the battery will receive a rebate from Evoenergy for any exports (measured in kVAh). If the battery does not export during this period, it will not receive any rebate.

The number of critical peak events will be limited to a maximum of six export charge events and six rebate events per financial year. The duration of any event will be limited to a maximum of three hours. This helps provide greater operational certainty to battery operators and more fairly share critical peak risk between the battery and Evoenergy.

Capacity charge

The capacity charge is designed to recover a portion of the residual network costs attributable to a battery's operation, irrespective of when the battery imports or exports. A capacity charge is more equitable than a fixed charge because it is scaled to the battery's size/capacity rather than applied uniformly (via a fixed charge).

The capacity charge for the large-scale battery tariff is calculated based on the battery's highest demand (measured in kVA), at any time of day, during the previous 13 months. The capacity charge incentivises large-scale batteries to monitor their network load throughout the year.

Avoided/incurred TUOS charge

Evoenergy is required to pay TUOS fees to transmission network operators.

Under the NER, Evoenergy is required to make avoided TUOS payments to certain embedded generators over 5MW. This tariff extends avoided TUOS payments to all eligible large-scale batteries, even below the 5MW threshold. Evoenergy is proposing a symmetric arrangement where large-scale batteries also pay for incurred TUOS costs. This is because, unlike traditional embedded generators (such as solar and wind farms), large-scale batteries typically import and export electricity and can therefore increase or decrease Evoenergy's TUOS costs.

Under Evoenergy's existing suite of network tariffs, TUOS charges are recovered by spreading the costs across the customer base rather than charging each customer based on their actual incurred TUOS. This is because Evoenergy's customer base is relatively diversified, meaning it is difficult to identify when or if a particular customer contributes to Evoenergy's highest transmission demand. This also allows for a simpler charging structure that is easier for customers to understand and provides greater predictability of network bills.

Large-scale batteries have a significantly different relationship with the distribution network. They respond to market price signals to optimise energy imports and exports and actively participate in the wholesale electricity market. This allows large-scale batteries to be highly responsive to price signals and contribute to improving network efficiency. Their relatively large size and active participation in energy markets mean that large-scale batteries can increase or decrease maximum transmission demand directly impacting Evoenergy's TUOS bill. Therefore, large-scale batteries will be charged based on their actual incurred or avoided TUOS costs as follows.

- If the battery reduces maximum transmission demand, Evoenergy passes the TUOS saving to the battery via an avoided TUOS payment.
- If the battery increases maximum transmission demand, the battery is charged based on the incremental increase in TUOS payments made by Evoenergy.

If the battery does not contribute to peak transmission demand in a given month, it will not pay the incurred TUOS charge. Similarly, if the battery does not reduce transmission demand, it will not receive an avoided TUOS payment. The accumulated monthly avoided/incurred TUOS payments will be reconciled and paid/received annually.

To account for uncertainty as to the effects of the battery's operation on Evoenergy's TUOS bill, the avoided/incurred TUOS charges will be calculated retrospectively at the end of each calendar month. This is because it is not possible to determine, at any point in time, whether the battery is contributing to an increase or decrease in the monthly maximum transmission demand. This also helps to ensure an equitable outcome for battery operators, who will be billed based on actual TUOS incurred or

avoided. This approach is the most cost-reflective way to account for TUOS charges and rebates and avoids potential cross subsidies between batteries and other customers.

Capacity charge review mechanism

Evoenergy's commercial tariffs for HV connections and the TOU kVA Capacity tariff (code 103) for LV commercial customers include a capacity charge used to recover residual network costs. The capacity charge is specified in cents per kVA per day and is applied to a customer's maximum demand over the previous 13 months (inclusive of the current month). The capacity charge promotes the equitable recovery of Evoenergy's residual costs by scaling a customer's contribution to the recovery of those costs (up or down) based on its maximum use of the network. That is, relatively more residual costs are recovered from customers with relatively higher maximum demand.

There are select instances in which a customer has a rare, one-off, spike in demand. For example, an unusual spike in demand may be due to the testing of new equipment that is not representative of their typical network use. The affected customer has historically paid a higher capacity charge within their network bill, potentially for the next 13 months. While the capacity charge reflects the customers' actual use of the network, it does not reflect their typical use of the network.

Evoenergy, therefore, proposes to introduce a capacity charge review mechanism that customers can use in extenuating circumstances to mitigate the effect of the capacity charge on their network bill. Evoenergy has carefully designed this review mechanism to ensure its application is limited to extenuating circumstances rather than being routinely used by a customer to reduce their network bill.

A 'capacity charge review event' will only be triggered if Evoenergy approves the customers' written application. The application must be provided at least six weeks before the commencement of the capacity review window, allowing Evoenergy four weeks to review the application and notify the customer. This will allow two weeks between the final decision and commencement of the capacity review period. The application criteria and eligibility criteria are set out in Table 22 below.

Table 22 Application and eligibility criteria for capacity charge review

Application criteria	Eligibility criteria
The length of the nominated capacity review event period.	The nominated capacity charge review event period must be no longer than two weeks.
Description of the extenuating circumstance that has led to the application.	Must be deemed by Evoenergy to be a reasonable motivation for the application.
The nominated maximum demand during the capacity review period.	Nominated maximum demand during the review period must be less than their maximum allowable capacity included in the customer's connection agreement.
Inclusion of previous applications for capacity charge review.	Customer must not have been the subject of a capacity review event in the previous 24 months.
Application must be submitted to Evoenergy at least 6 weeks before commencement of the capacity charge review period.	Customer has submitted completed application at least 6 weeks before the commencement of capacity charge review event.

Notwithstanding these four criteria, Evoenergy retains absolute discretion to accept or reject a capacity charge review. However, provided a customer meets the above criteria, Evoenergy will endeavour to approve the capacity charge review event.

Further, Evoenergy will endeavour to confirm whether a customer has met the criteria for a 'capacity charge review' in advance of the event to provide certainty to the customer and, if necessary, to work together to arrange a different capacity review window.

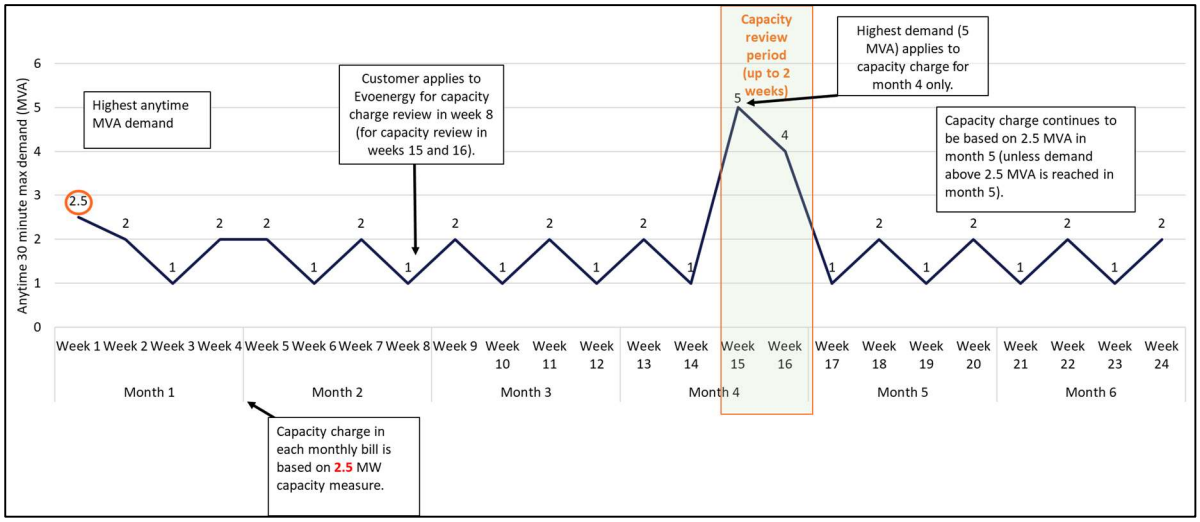
Charging arrangements

If Evoenergy approves the application for a capacity charge review, the capacity charge that applies to the customer during the review period will be based on the customer's highest half-hourly demand recorded (by the customer) during the review period. In the month following the capacity review period, the customers' capacity charge will revert to their maximum demand in the previous 13 month period, *including* the month following the review period and *excluding* the review period. In this way, the maximum demand level that is reached during the review period only applies to the capacity charge during the month of the review period. It does not continue to apply for the following 13 months (as per the current arrangements).

In Figure 39, a hypothetical customer reaches a maximum demand of 2.5 MVA in week one, so their capacity charge is based on this level of demand in months one, two, and three. This customer intends to test new equipment in month 4, which will cause a spike in their demand; hence, they apply to Evoenergy for a capacity charge review. Evoenergy reviews the customer's its application against the eligibility criteria (see Table 22) and approves the application.

In the approved capacity review period (shaded in weeks 15 and 16), the hypothetical customer's maximum demand reaches 5 MVA. In month four, the customers' capacity charge is based on 5 MVA. After the review period (from month five), this customer's capacity charge reverts to being based on 2.5 MVA until a higher peak demand occurs.

Figure 39 Capacity charge review example



It is possible the two-week review period occurs across two calendar months. In this case, the date on which the highest demand occurs (within the review period) will determine which month the capacity charge review is based on. In the example above, if the capacity review period occurred during weeks 16 and 17 (rather than weeks 15 and 16), the capacity charge in month four would be based on 5 MVA, and the capacity charge in month five would be based on 2.5 MVA.

Removing network access charge for streetlighting and small unmetered loads

The Streetlighting tariff (code 080) and Small unmetered loads tariff (code 135) both currently include a network access charge and anytime energy consumption charge. For both tariffs, Evoenergy proposes to remove the network access charge from 1 July 2024.

The network access charges are applied per National Metering Identifier (NMI). Each streetlighting and small unmetered load NMI may have multiple (possibly thousands) connection points. The

number of connection points varies significantly for each NMI. Hence, applying a network access charge does not capture the true connection costs. For example, one unmetered load NMI may have 10 connection points, while another may have 10,000 connection points. Yet, they currently pay the same network access charge, resulting in an inequitable tariff outcome. Assigning all revenue recovery to the energy consumption charge will resolve this.

Evoenergy has reviewed the network revenue recovered from these tariffs (Table 23) and finds the network access charge is less than one percent of the total revenue recovered from these tariffs. In light of this revenue analysis, Evoenergy expects the customer impact associated with the removal of the network access charge to be trivial. Furthermore, Evoenergy has discussed this proposal with retailers and consulted via the draft EN24 plan and has not received any negative feedback about this proposal.

Table 23 Revenue forecast analysis, 2022/23

Tariff	Forecast revenue from fixed charge	Forecast revenue from consumption charge	Fixed charge as a percentage of total tariff revenue
Streetlighting tariff (080)	$2,737	$2,413,309	0.1%
Small unmetered loads tariff (135)	$4,187	$767,364	0.5%

Source: Evoenergy 2022/23 annual pricing proposal.

10. Proposed tariff assignment

This section outlines the proposed tariff assignment policy for Evoenergy's network tariffs in the 2024–29 regulatory period. The proposed policy for residential customers is followed by the proposed policy for LV and HV commercial connections.

10.1 Residential

Primary tariff assignment

In the current (2019–24) regulatory control period, residential ACT consumers with a smart meter are assigned by default to the residential demand tariff and can opt-out to the residential TOU tariff.

In the upcoming 2024–29 regulatory period, Evoenergy proposes to continue the theme of this assignment policy with the proposed residential demand and proposed TOU tariffs, as described in section 9. Specifically, residential consumers with smart meters will be assigned by default to the proposed residential demand tariff (023, 024), with the choice to opt-out to the proposed residential TOU tariff (017, 018).

From 1 December 2017, the Residential Basic, Residential 5000, and Residential with Heat Pump tariffs have been closed to new Evoenergy customers because these tariffs are not sufficiently cost reflective. Customers assigned to these tariffs can remain on them until they have a smart meter installed.[65]

From 1 July 2024, the existing residential demand tariff (025, 026) and TOU tariff (015, 016) will also be closed to new Evoenergy customers. Customers assigned to these tariffs can remain on them, or can opt-in to the newly proposed residential demand (023, 024) or TOU tariff (017, 018). Given the AEMC's proposed roll out of smart meters, all Evoenergy residential customers will eventually be assigned to a residential demand tariff or TOU tariff.

Secondary tariff assignment

In the 2024–29 regulatory period, residential customers can continue to opt into one of the two controlled load ('off-peak') network tariffs. The Off-peak tariffs (codes 060 and 070) apply to controlled loads to encourage electricity usage at off-peak times.

In the 2024–29 regulatory period, an export tariff will also be offered as a secondary tariff (110). The export tariff is provided for residential customers who can export electricity into the distribution network (e.g., via solar PV, batteries, or vehicle-to-grid EVs).

While existing residential customers who can export electricity into the network will be eligible to opt-in to the proposed export tariff, residential customers who install new export capacity from 1 July 2025 will default to the export tariff without an opt-out provision. This means customers installing any of the following from 1 July 2025 will be mandatorily assigned to the proposed residential export tariff (110).

- New solar PV system
- New home battery
- Changes to existing solar PV or home battery systems (e.g., expansions)
- EVs that are capable of exporting to the distribution network
- Any other technology capable of export electricity to Evoenergy's electricity network

[65] Customers who install a smart (Type 4) meter can wait up to 12 months before being assigned to the proposed residential demand tariff. This initiative was introduced through the AER's final determination for Evoenergy in the 2019–24 regulatory period.

Summary for residential tariffs

Table 24 outlines Evoenergy's proposed residential tariff assignment policy for the 2024–29 regulatory period.

Table 24 Residential tariff assignment policy

	Default	Opt-out options	Opt-in options
Residential – primary tariff			
New connection Customer initiated meter replacement Replacement meter customers (e.g., due to meter failure)*	Proposed residential demand tariff (codes 023, 024)	Proposed residential TOU tariff (codes 017, 018)	
Residential – secondary tariff			
Existing export consumers (from 1 July 2024)			Export tariff (code 110)
New export consumers (from 1 July 2025)**	Export tariff (code 110)	None – mandatory default	
All residential customers			Off-peak 1 and 3 (codes 060, 070)

Notes: Customers are ineligible to switch to one of these tariffs if they have been on the tariff in the previous 12 months.

When requested by retailers, under specific scenarios, Evoenergy offers to backdate a proposed demand tariff to a proposed TOU tariff once per connection in a 12-month period. Evoenergy reverses and reissues the network bill for no more than 120 calendar days for residential sites. This process applies to the proposed residential demand tariff only.

*Customers who install a smart (Type 4) meter can wait up to 12 months before being assigned to the proposed residential demand tariff. This initiative was introduced through the AER's final determination for Evoenergy in the 2019–24 regulatory period.

**A new exporting consumer is defined as one who, after 1 July 2025, installs either a new solar PV system, a new home battery, changes their existing solar PV or home battery systems, has an EV capable of exporting or any other technology capable of export electricity to Evoenergy's electricity network.

Consistent with the AER's draft decision for Evoenergy in the 2019–24 regulatory period,[66] customers who receive a smart meter as a replacement for a Type 5 or 6 meter can remain on their existing tariff for 12 months before moving to a more cost-reflective network tariff.[67]

Under this arrangement, customers with new connections or customer-initiated meter replacements will be assigned to the proposed residential demand tariff when their smart meter is installed (with the

[66] AER, *Draft Decision – Evoenergy Distribution Determination 2019 to 2024*, Attachment 18, September 2018, pp 18-17 to 18-18.
[67] That is, defaulting to the proposed demand tariff with the option to opt-out to the proposed TOU tariff.

option to opt-out to the proposed residential TOU tariff). However, when a smart meter is installed for any other reason, the shift to a more cost reflective tariff (i.e., the proposed residential demand tariff) will be delayed by 12 months. These customers are able to opt-in to the proposed demand or proposed TOU residential tariffs within the first 12 months of their smart meter installation.

10.2 LV Commercial

Refinements to the LV commercial tariff assignment policy were implemented from 1 July 2019. Specifically, customers with CT meters[68] are assigned by default to the LV kVA TOU demand tariff, while customers without a CT meter (i.e., with a whole current meter) are assigned by default to the LV kW demand tariff. Both customer types (those with and without CT meters) have cost-reflective opt-out options, as shown in Table 25.

The LV kW demand tariff is designed for smaller commercial customers (i.e., customers who generally do not have CT meters) who share common assets. These customers tend to have peakier loads than large commercial customers, but because of the diversity of their peaks, these customers are expected to have a lower demand charge. The LV kW demand tariff is better suited to small-medium commercial customers.

LV commercial customers without smart meters can remain on their existing tariff until their meter is replaced with a smart meter. The General Network tariff closed to new connections from 1 December 2017 and will eventually become obsolete as customers receive smart meters and are placed onto more cost-reflective tariffs.

The exception to the above assignment policy is for small unmetered loads (code 135) and streetlighting (code 080). These tariffs do not vary with usage or load profile, and therefore there is no need to transition these loads onto a more cost-reflective tariff as consumers on these tariffs are unlikely to respond.

For the 2024–29 regulatory period, Evoenergy proposes removing the provision for LV commercial customers with a CT meter to opt-out to the General TOU tariff. This is because it is not designed for large LV commercial customers. The provision to opt-out to the General TOU tariff was a transitionary measure in the 2019–24 period because all LV commercial customers were assigned by default to the General TOU tariff before the commencement of that regulatory period. Hence, the option to return to the General TOU tariff was still available during the 2019–24 regulatory period. Evoenergy now proposes to close the General TOU tariff to new LV commercial customers with a CT meter in the 2024–29 regulatory period.

Large-scale, stand-alone batteries connected to Evoenergy's distribution LV network will be assigned to tariff code 108 or 109 based on where they are located as follows.

- Large-scale batteries located in predominantly residential areas will be assigned to tariff code 108.
- Large-scale batteries located in predominantly commercial areas will be assigned to tariff code 109.

Evoenergy will determine whether the battery's location is defined as residential or commercial on a case-by-case basis. This will ensure that the price signals faced by the large-scale battery reflect the circumstances that apply in the particular area of the network to which it connects. For example, an area covered by a zone substation that serves primarily residential customers may include pockets of the network with commercial customers and commercial load characteristics.

To be eligible for an LV large-scale battery tariff (codes 108, 109), a customer must fulfil all of the following criteria.

[68] CT meters are used to measure a proportion of the current passing through a connection. A multiplier is then applied to the measure to estimate the total kWh. Connections to Evoenergy's network that are rated at 100Amps or greater have CT's and the appropriate compliant metering installed.

- be an LV commercial customer;[69]
- have a stand-alone grid-connected battery; and
- have a minimum battery size of 200kVA.

Customers on the large-scale battery tariff can opt-out to an LV commercial tariff at any time in accordance with Evoenergy's tariff assignment policy.

For completeness, Table 25 shows Evoenergy's proposed LV commercial tariff assignment policy for the 2024–29 regulatory period.

Table 25 LV commercial tariff assignment policy

	Default	Opt-out
LV commercial without a CT meter	LV kW Demand (106, 107)	LV kVA TOU Demand (101, 104) LV kVA TOU Capacity (103, 105) General TOU (090, 091)
LV commercial with a CT meter	LV kVA TOU Demand (101, 104)	LV TOU kVA Capacity (103, 105)
LV commercial operating a large-scale battery in a residential area*	Large-scale battery – residential area (108)	None – mandatory default
LV commercial operating a large-scale battery in a commercial area*	Large-scale battery – commercial area (109)	None – mandatory default

Notes: Customers are ineligible to switch to one of these tariffs if they have been on the tariff in the previous 12 months.

LV commercial customers with a replacement smart meter can remain on their existing network tariff until 12 months after their smart meter is installed; however, they can opt-out to a cost-reflective LV commercial tariff according to the assignment policy shown in Table 25 above.

*Residential and commercial areas are determined by Evoenergy.

Consistent with the approach for residential customers, customers who have their Type 5 or 6 meter replaced by a smart (Type 4) meter may remain on their existing tariff for 12 months before moving to a more cost-reflective network tariff.[70]

Under this arrangement, customers with new connections or customer-initiated meter replacements continue to be assigned to their existing tariff. When a smart meter is installed for any other reason, the customer is assigned to the default tariff, as per Table 25. These customers are able to opt-in to more cost reflective LV commercial tariffs within the first 12 months of their Type 4 meter being installed.

[69] As defined under Evoenergy's Statement of Tariff Classes and Tariffs.
[70] AER, *Draft Decision – Evoenergy Distribution Determination 2019 to 2024*, Attachment 18, September 2018, pp 18-17 to 18-18.

10.3 HV commercial

Evoenergy proposes to continue to assign all new HV commercial connections, by default, to the HV TOU demand network – Customer HV and LV tariff (code 122), see Table 26. On this tariff, the customer owns and is responsible for the LV and HV assets at their premises, which are on the customer side of the connection point to the network.

From 1 July 2019, tariff 111 and tariff 121 were closed to new connections. Existing customers assigned to those tariffs can remain on them or switch to tariff 122 following consultation with Evoenergy.

Large-scale, stand-alone batteries connected to Evoenergy's distribution HV network will be assigned to tariff code 123 or 124 based on where they are located.

- Consumers located in predominantly residential areas will be assigned to tariff code 123.
- Consumers located in predominantly commercial areas will be assigned to tariff code 124.

Evoenergy will determine whether the battery is located in a residential or commercial area.

To be eligible for an HV large-scale battery tariff (codes 123, 124), a customer must fulfil all of the following criteria.

- be an HV commercial customer;[71]
- have a stand-alone grid-connected battery; and
- have a minimum battery size of 200kVA.

Customers on the large-scale battery tariff can opt-out to the HV tariff code 122 at any time in accordance with Evoenergy's tariff assignment policy.

Table 26 HV commercial tariff assignment policy

	Default	Opt-out
HV commercial	HV TOU demand network – Customer HV and LV (122)	None – mandatory default
HV commercial operating a large-scale battery in a residential area*	Large-scale battery – residential area (123)	None – mandatory default
HV commercial operating a large-scale battery in a commercial area*	Large-scale battery – commercial area (124)	None – mandatory default

*Residential and commercial areas are determined by Evoenergy.

[71] As defined under Evoenergy's Statement of Tariff Classes and Tariffs.

11. Export tariff transition strategy

In recent years, the imbalance between the supply and demand of electricity has been widening. This typically arises in residential areas in the middle of the day when electricity demand is relatively low, and exports from rooftop solar PV are typically high. As the imbalance continues to widen (primarily due to increased uptake of solar), additional network investment will be required to manage voltage fluctuations on the network.

In response to these new challenges for networks, the AEMC made changes to the NER that aim to integrate DER more efficiently into the network.[72] Among other things, this NER change:

- clarified that networks can use negative prices to reward customers for decisions that reduce network costs;
- removed the former prohibition on charging customers for exporting energy onto the network; and
- provided that export charges can be levied only on exports above a basic export level (BEL) set by the network.

Evoenergy proposes introducing export tariffs for some residential customers and large-scale batteries, as summarised in Box 3 below.

Box 3 – Summary of residential and large battery tariffs containing export prices

Evoenergy proposes introducing a **residential export tariff** as a secondary tariff that applies alongside eligible residential customers' existing (primary) tariff. Using a secondary tariff allows residential customers to remain on their existing (import) tariff, which promotes simplicity. Simplicity is further enhanced by using a single export tariff structure, with a single basic export level and consistent price levels for all residential customers.

The (secondary) export tariff for residential customers will comprise two prices.

1. An export reward (negative price) that applies to all exports during the evening peak period (5pm–8pm AEST).
2. An export charge that applies only to exports above 5 kW per hour (the BEL) during the solar soak period (11am–3pm AEST).

The export reward will be based on import LRMC, and the export charge will be based on export LRMC.

Evoenergy's proposed new **tariffs for large-scale batteries** will also include export rewards and an export charge for batteries in predominantly residential areas. However, each of these tariff components will be "critical event" charges, i.e., they each only apply for up to three hours, up to six times a year, and when notified by Evoenergy. All critical price signals are based on the applicable LRMC.

These critical charges are described in more detail in section 9.

The remainder of this section describes Evoenergy's strategy for introducing export charges and rewards and the considerations that underpin that strategy. In particular, it:

- explains the network requirements that underpin the need for export tariffs;
- highlights stakeholder's response to proposed export tariffs;
- describes the export tariff for residential customers; and
- explains the export tariff components of the proposed large-scale battery tariffs.

[72] AEMC, *Access, pricing and incentive arrangements for distributed energy resources*, Rule determination, 12 August 2021.

11.1 Network requirement for export tariffs

Evoenergy's customers are engaging in new and innovative uses of the network that give rise to new flows on the network. The driving force behind these new flows is unprecedented growth in the uptake of solar PV generation and the resulting flows of electricity to *and* from customers (two-way flows).

Evoenergy now experiences peaks in exports in residential areas in the middle of the day when:

- demand from residential customers is typically low; but
- supply from rooftop PV generation is typically high due to the high level of solar irradiance.

This analysis was demonstrated in section 9.1. The resulting imbalance between supply and demand creates new challenges and opportunities for Evoenergy. The solar soak period with a relatively low network charge, as described in section 9.1, is one such opportunity that Evoenergy is proposing to help manage this imbalance.

However, Evoenergy expects that during the 2024–29 regulatory control period, the shifting of load into the solar soak period may be insufficient to entirely offset the rising imbalance between residential demand and supply during the middle of the day. Evoenergy, therefore, developed a DER integration expenditure program for the 2024–29 regulatory control period to facilitate exports on its network, as summarised in Table 27. More than 77 per cent of Evoenergy's community panel supported an uplift in costs to enable DER integration.

Table 27 DER integration expenditure (2024–29)

Expenditure	Type	Cost over 2024–29 period
Quality of Supply (QoS) Augmentation Expenditure	Capex	$2 million
Secondary Systems (Network Monitoring and Voltage Regulation Upgrades)	Capex	$4.28 million
Advanced DER Management System	Capex	$3.04 million
Information Communication Technology (ICT) Uplift	Capex	$2.81 million
Community Battery Trial	Capex	$2.36 million
	Total capex	**$14.5 million**
DER Integration Program (Opex step change)	Opex	$11.61 million
Quality of Supply Expenditure	Opex	$12.09 million
	Total opex	**$23.7 million**

The 'step change' increase in operating expenditure ('opex') will improve the network's capability to efficiently provide export services and ensure DER assets operate within the bounds of the network's capacity. The increase in operating expenditure is more significant than the increase in capital expenditure, accounting for 37 per cent of the total step-change increase in operating expenditure

over the upcoming (2024–29) regulatory control period and over 3 per cent of total operating expenditure each year.

Evoenergy anticipates that DER integration expenditure will increase markedly in subsequent regulatory periods as DER integration continues to increase in line with the ACT target of net zero emissions by 2045.

Export tariffs are therefore required to signal the future costs associated with DER integration, thereby providing an opportunity to avoid or defer future DER integration costs if there is a significant response to the export tariff price signals.

Specifically, signalling these future DER integration costs through network charges will empower exporting customers[73] to decide whether there is a cheaper, non-network solution, which may arise from:

- increasing their self-consumption of solar PV generation and decreasing exports;
- investing in a behind-the-meter battery; or
- participating in community battery initiatives.

At the same time, introducing export rewards will help exporting customers fully realise the value of rooftop solar PV and/or batteries.[74] Rewarding customers for exporting electricity during the evening peak import period (from 5pm to 8pm AEST), based on the future costs that can be avoided at that time, presents a new source of return on investment for exporting customers.

Export rewards also promote efficient investments in solar PV systems and other DER by encouraging:

- the installation of west-facing solar PV panels, which increase exports in the early evening (and has the added benefit of lowering exports in the middle of the day when there is already a high concentration of solar-generated exports); and/or
- the storage of solar generation in behind-the-meter batteries for export during the evening.

Why now?

Customers are increasingly making investments in export-capable DER (such as solar PV systems) that give effect to step-changes in their network use. The most significant example to date is the unprecedented uptake of solar PV (see section 3) and the corresponding decrease in customer imports in the middle of the day, thereby avoiding network charges in the middle of the day.

The breadth of investments that help customers take control of their energy use, and the rate of uptake, are expected to increase markedly with advancements in technology and the societal focus on transitioning to clean energy sources.

These lumpy investments include rooftop solar PV systems, behind-the-meter batteries, HEMS and smart appliances that enable load scheduling. A key theme across these investments is their ability to manage a customer's energy use while having no effect on the amenity customers receive from energy appliances.

Evoenergy expects responses to two-way pricing will principally occur through customer investment decisions. When an ACT customer invests in a solar PV system after 1 July 2025, they will automatically default to the proposed network export tariff, as described below in section 11.3.

[73] This assumes retailers pass through the network price signals to end customers.
[74] Ibid

Their response to the export tariff may result through:

- *The nature of their investment* – such as whether the solar PV system:
  - has the capability to be limited to the basic export level (to avoid the export charge); and
  - is west-facing, which reduces exports in the middle of the day and increase exports in the evening, when exports are rewarded.
- *Their behaviour* – such as whether the customer can shift load to the middle of the day by:
  - scheduling smart appliances; or
  - investing in a HEMS to monitor import and export of electricity with the aim of avoiding the export charge and optimising the export reward.

It follows that Evoenergy's customers are increasingly making lumpy and costly investment decisions that will have long-lasting effects on the way they use the network and, in turn, on Evoenergy's DER integration costs.

ACT customers will therefore make investment decisions over the 2024–29 regulatory control period that face network prices beyond 2029 reflecting very different circumstances, i.e., higher levels of DER integration expenditure. In Evoenergy's view, it is important to provide investment certainty to these customers by introducing export tariffs sooner rather than later so that their investment decisions better reflect the price signals that are likely to apply over the life of their investments. In other words, export tariffs allow ACT customers to make investment decisions based on information (network prices) that more accurately reflects the circumstances expected to apply over the life of those long-term investments.

Similarly, the longer Evoenergy waits to implement export tariff reforms, the more challenging it will be to introduce meaningful two-way tariff reforms while managing the effects on customers (who may have already made irreversible decisions based on different expectations).

Evoenergy discussed these issues with customers and received general support for the conservative introduction of export tariffs in the 2024–2029 regulatory period.

11.2 Customers generally supportive of export tariffs

Evoenergy's process for engaging with customers, the feedback it received from customers, and how that feedback shaped its proposal are described in detail in section 5. In relation to export tariffs, the key themes that arose from stakeholder feedback are outlined below.

- Support for the introduction of export tariffs in the 2024–29 regulatory period.
- A preference for an export tariff with both a charge and a reward.
- Customers value simplicity.
- Support for the mandatory assignment of new exporting customers to the export tariff, and opt-in arrangements for existing export customers.
- Mixed views on whether export pricing improves fairness/equity.

This feedback has significantly shaped Evoenergy's proposed export tariff for residential customers.

Given the context described above and mixed views from customers on whether export pricing improved fairness, Evoenergy has taken a conservative approach to introduce an export tariff for residential customers. This conservative approach is reflected in a generous basic export level, a low export charge (above the basic export level), and an export reward.

Section 11.3 explains the basis for the residential export tariff, which draws on the feedback received from customers, as described in section 5. The customer bill impacts associated with export tariffs are then presented in section 12, to demonstrate that these features of Evoenergy's approach combine to produce relatively minor impacts for exporting customers.

Evoenergy also found, through the development and operation of its tariff trials, that large-scale battery customers were also receptive to export charges and rewards. Section 11.4 outlines the relevant features of the export charge and reward of the tariff designed for large-scale batteries.

11.3 Residential export tariff

This section describes the key features of Evoenergy's proposed residential export tariff. It is separated into subsections that describe the following.

- Overview of the residential export tariff.
- The BEL for residential customers.
- The low export charge that applies to residential customers' exports above the BEL.
- How customers benefit from an export reward.
- How using a secondary tariff with only two price signals promotes simplicity.
- The staged assignment of residential customers to this export tariff.

Residential export tariff

Evoenergy proposes introducing the residential export tariff as a secondary tariff, which applies alongside their existing (primary) tariff.

Using a secondary tariff allows residential customers to remain on their existing import tariff, which promotes simplicity. Simplicity is further enhanced by using a single export tariff structure, with a single basic export level and consistent price levels for all residential customers.

As described below, the (secondary) export tariff for residential customers will comprise two prices.

- An export reward (negative price) that applies to all exports during the evening peak period (5pm – 8pm AEST).
- An export charge that applies to exports above 5 kW in each hour (the BEL) during the middle of the day (11am – 3pm AEST).

The export reward will be based on import LRMC, and the export charge will be based on export LRMC.

Basic export level

The residential export tariff includes a BEL, which is the threshold below which customers will not be charged for exports.[75] In other words, a customer will only be charged for exports above their BEL. The key quantitative inputs to Evoenergy's BEL are:

- the network's 'intrinsic hosting capacity', which is the capacity of the network – as it stands today – to facilitate exports with no further network investment;[76] and
- expected demand for export services.

Evoenergy engaged an external consultant to estimate the total intrinsic hosting capacity at each distribution substations, of which it has more than 4,000, as of the start of the 2024–29 regulatory control period.

Evoenergy then considered how to translate these estimates of total intrinsic hosting capacity into a BEL for each customer on a reference tariff while striking an appropriate balance between:

- Efficiency – noting that a customer's exports can cause additional network costs, irrespective of whether their exports are above or below a broadly specified BEL at a particular time.
- Complexity – noting that customer feedback reflected a strong preference for simple price signals.

[75] AER, *Export Tariff Guideline – Explanatory Statement*, May 2022, p 3.
[76] The intrinsic hosting capacity of the network reflects that the network can accommodate some exports without incurring any additional investment. Put another way, the intrinsic hosting capacity reflects a baseline from which an expansion of export capacity is developed. See: AER, *Export tariff guidelines*, May 2022, p 12.

- Fairness and equity – noting that Evoenergy received mixed views on whether it was fair to charge customers for exports.

Evoenergy found there is significant diversity in the 'intrinsic hosting capacity per customer' across the distribution substations in Evoenergy's network. However, Evoenergy considered that, at this early stage, the benefits of implementing location-specific BELs are far outweighed by the negative implications of complexity and customer perceptions of what is fair. Evoenergy, therefore, proposes to apply a single BEL to all residential customers.

Evoenergy sets the BEL equal to the 10th percentile in the range of values across its network so that 90 per cent of residential customers can export up to the BEL without any risk of an export constraint. Since the BEL is specified on a 'per customer' basis, Evoenergy needed to convert its estimate of total intrinsic hosting capacity at each distribution substation into a per customer value. One option would be to calculate the BEL based on the assumption that all customers have rooftop solar PV, i.e., to divide total intrinsic hosting capacity by the total number of customers (including customers that don't currently have export capacity). This approach would produce a BEL equal to approximately 2.4 kW.

A 2.4 kW BEL at this very early stage in the export tariff transition strategy may mean that customers are charged for exports when there is still a significant level of export capacity available on the network because not all customers have the capability to export. On the other hand, setting a BEL that instead distributes total intrinsic hosting capacity across the current number of customers with solar PV would mean that the BEL has to increase each year, as total hosting capacity is shared across an increasing base of exporting customers. Evoenergy's view is that regular decreases in the BEL would be detrimental to investment certainty for customers contemplating material investments in long-lived export capacity.

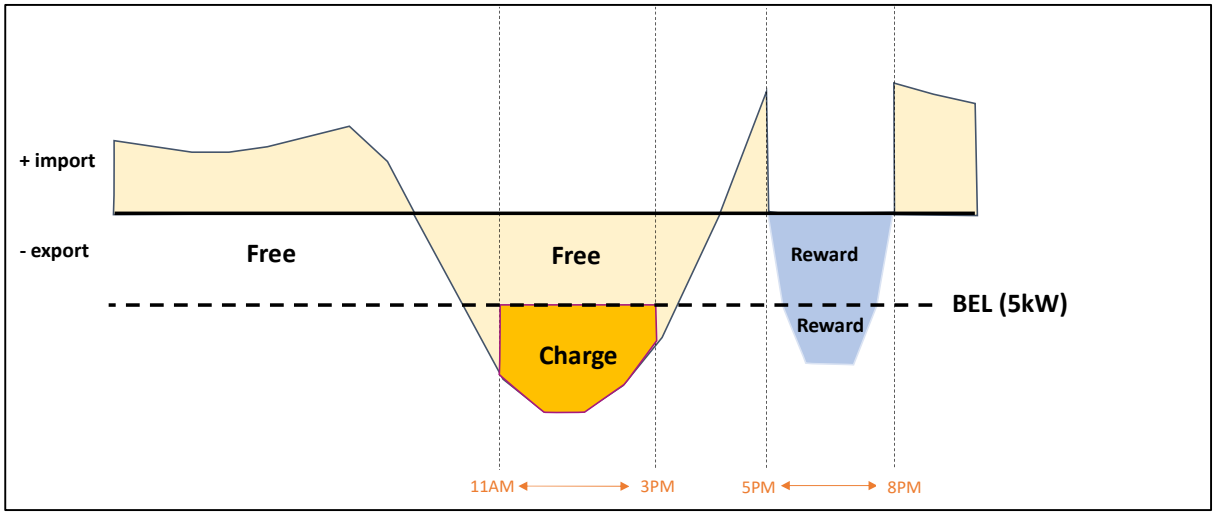
In light of these competing considerations, Evoenergy proposes to set the BEL by reference to the expected number of exporting customers when the BEL is no longer required in 2034. Evoenergy, therefore, proposes to adopt an initial BEL equal to 5 kW per hour, per customer for all residential customers. However, this relatively generous approach is contingent on a review of the BEL in the second and fourth year of the regulatory control period for potential adjustment in its annual pricing proposal for the third and fifth years (i.e., 2026/27 and 2028/29) of the regulatory period.

It is important to highlight that there is a range of different, reasonable approaches to deriving a BEL. Evoenergy has selected this methodology in light of the particular circumstances that apply at this stage of the export tariff transition strategy.

A BEL equal to 5 kW per residential customer will limit the effects of export tariffs on customers in the early stages of export pricing. This approach aligns with the views conveyed to Evoenergy through consumer engagement. A BEL of 5kW is also consistent with Evoenergy's current export limit for single phase connections (5kW). All exports above 5kW in a single hour will therefore be subject to an export charge.

Figure 40 below illustrates how the BEL will operate so that only exports above 5kW, measured hourly between 11am and 3pm AEST (as per the analysis in section 9.1), will be subject to an export charge. It also shows that the BEL has no effect on the rewards that will be received for exports during the peak import period.

Figure 40 Illustration of export reward and charge (with 5kW BEL)



A low export charge

In addition to a relatively high BEL, Evoenergy proposes to apply a low export charge (in cents per kWh). The export charge will apply to exports above the BEL within the solar soak window (11am to 3pm AEST). Since it is an energy-based charge, the export charge will apply to exported energy above 5kWh in each hour between 11am and 3pm AEST.

Evoenergy will set a cost-reflective export charge based on the LRMC of providing export services, the estimation of which is described in section 7.1. The LRMC of providing export services is significantly lower than the LRMC of providing import services, reflecting the efficiency of Evoenergy's proposed DER integration expenditure, and the contribution of customer load to managing export growth in exports.

Evoenergy describes the limited customer bill impacts of its export tariff for residential customers in section 12 of the TSES. Evoenergy's assessment of a sample of 822 exporting residential customers indicated that:

- 92 per cent of customers with maximum exports less than 7.5 kW will be better off on the export tariff;
- 98 per cent of customers will experience a network bill impact of less than $20 per annum; and
- those few customers with a network bill impact of more than $20 per annum have very high levels of export capacity (typically above 10kW).

These bill impacts include the benefit that arises from the export reward discussed below.

An export reward

Evoenergy proposes introducing export rewards alongside export charges in the 2024–29 regulatory control period for residential customers assigned to the secondary export tariff.

Additional exports from residential customers during the peak demand window frees up additional capacity on higher levels of the network and therefore mitigates the need to invest in additional capacity or potentially defers investment to future years. The costs that can be avoided or deferred are reflected in Evoenergy's estimate of import LRMC, as discussed in section 7.1.

Signalling to residential customers the network costs that can be avoided or deferred by exporting energy during the evening peak period will promote economic efficiency by providing efficient incentives:

- to install west-facing solar PV panels, which increase exports in the early evening (and has the added benefit of lowering exports in the middle of the day); and/or
- to store solar PV generation in behind-the-meter batteries for export during the evening.

Export rewards also opens a new revenue stream for exporting customers and, in so doing, allows them to fully realise the value of their DER investment to the network. It also smooths the introduction of export charges due to the offsetting effect on network bills.

In practice, Evoenergy will provide export rewards in the form of a negative price applied to the amount of energy exported during the evening peak period (5pm – 8pm AEST). This negative price will be based on Evoenergy's estimate of import LRMC.

Evoenergy includes a summary of the basis on which it proposes to set export charges and rewards for residential and commercial customers in section 9.

Staged assignment

Evoenergy's proposed assignment of residential customers to export tariffs is directed at managing the effects on customers that have already invested in DER (i.e., solar PV) while not delaying the introduction of export tariffs for customers that invest in new export-capable technology during the 2024–29 regulatory period. Consistent with the NER, Evoenergy proposes to assign residential customers with export capability as follows.

- Residential customers with exporting capacity **before** 1 July 2025:
  - can opt-in to the export tariff during the 2024–29 regulatory period; and
  - will be mandatorily assigned to the export tariff from 1 July 2029.
- Residential customers with exporting capacity **from** 1 July 2025:
  - will be mandatorily assigned to the export tariff from 1 July 2025.

Evoenergy's proposed assignment of residential customers to the secondary export tariff is summarised in Table 28. The table includes the proposed tariff assignment for both the 2024–29 and 2029-34 regulatory periods to provide a long-term outlook of Evoenergy's anticipated export tariff assignment policy.

Table 28 Assignment of residential customers to export tariff (secondary tariff)

	1 July 2024 to 30 June 2029	1 July 2029 onwards
Residential customers exporting before 1 July 2025	Opt-in	Mandatory
Residential customers that begin exporting after 1 July 2025	Mandatory	Mandatory

Note: The NER states that export-capable customers cannot be mandatorily assigned to an export tariff before 1 July 2025.[77]

[77] Clause 11.141.11(a).

11.4 Large-scale battery tariff

This subsection explains that Evoenergy's newly proposed LV and HV large-scale battery tariffs include the following.

- In predominantly residential areas:
  - a critical export charge, that applies for a maximum of three hours, up to six times a year; and
  - a critical export reward, that applies for a maximum of three hours, up to six times a year; and
- In predominantly commercial areas:
  - a critical export reward, that applies for a maximum of three hours, up to six times a year; and
  - no export charge.

This subsection also highlights that the export reward component of these tariffs depends on whether they are connected in predominantly residential or commercial areas of the network, as determined by Evoenergy. Either way, all charges, and rewards will be based on the applicable LRMC estimates.

Export charges do not apply in predominantly commercial areas due to the lower levels of rooftop solar PV and higher levels of commercial load during the middle of the day when solar irradiance is typically highest. This means that exports to the network during the middle of the day are generally consumed by (commercial) connections in these areas.

The critical nature of export charges for large-scale batteries necessitates a different approach to the BEL compared to residential customers. During the critical charge periods described in section 9.2, the BEL is set equal to zero, whereas, at all other times, the BEL is set equal to the customer's export capacity, such that they do not face export charges.

11.5 Summary of the basis for export prices

Table 29 contains a summary of the basis on which each export charge and reward is to be determined in Evoenergy's residential and commercial export tariffs.

Table 29 Basis of export charges and rewards

Tariff	Export charge	Export reward	Comments
Residential export tariff Tariff code 110	Export LRMC	Import LRMC (LV residential)	
LV large-scale battery (Residential area) Tariff code 108	Export LRMC	Import LRMC (LV residential)	Same as residential export tariff
LV large-scale battery (Commercial area) Tariff code 109	None	LV import (LV commercial)	No export charge due to no low-load events in commercial areas
HV large-scale battery (Residential area) Tariff code 123	Export LRMC	Import LRMC (HV)	Export LRMC used because managing exports may involve HV investments in the future
HV large-scale battery (Commercial area) Tariff code 124	None	Import LRMC (HV)	No export charge due to no low-load events in commercial areas

12. Indicative network bill impacts

This section presents indicative network bill impacts based on prices presented in the Indicative Pricing Schedule.[78] All indicative network bill impacts in this section are based on a network bill that includes distribution use of system (DUOS) charges, transmission use of system (TUOS) charges and costs related to jurisdictional scheme (JS) charges. The combined result of these network bill components is often referred to as the network use of system (NUOS) bill.

NUOS costs make up around half of ACT customers' retail bills, as shown in Figure 7 in section 3.3. The ultimate effect on customers depends significantly on the extent to which retailers pass on the structure and prices in network tariffs.

12.1 Residential indicative bill impacts

The effect of tariff reform on customers' network bills varies depending on the timing and level of their network use. Evoenergy therefore presents residential bill impacts for customers with different levels of network use.

Another important consideration for the 2024–29 regulatory period is the expected replacement of basic accumulation meters with smart meters. This will increase the number of ACT consumers that can be transitioned to cost-reflective tariffs using the approach described in section 10.

The discussion below presents indicative network bill impacts for customers moving to more cost reflective tariffs in a particular year, before providing additional context to the likely customer bill impacts over the course of the 2024–29 regulatory period.

Network bill impacts from moving to more cost reflective tariffs

Evoenergy has set network prices so that most customers will benefit from moving to more cost-reflective tariff options, in recognition of the long-term benefits associated with cost-reflective pricing. In practice, this involved Evoenergy setting prices so that residential customers are typically:

- better off on the proposed residential demand tariff – being the default tariff for new customers; and
- better off on either of the proposed residential demand or TOU tariffs, compared to the residential basic tariff or the existing TOU or demand tariffs.

Evoenergy's analysis indicates that a typical residential customer with no solar PV, a typical residential customer with solar PV and a typical working family would all be better off on Evoenergy's proposed demand tariff, as summarised in Table 30.

[78] Appendix 7.2

Table 30 Indicative bill impacts for different residential customer profiles (2024/25)

			Annual network bill		
	Energy consumption (kWh)	Maximum demand (kW)	Residential Basic tariff	Proposed TOU tariff	Proposed demand tariff
Typical customer with no solar	7,139	4.49	$526	$495	$402
Typical customer with solar installation (net metered)	6,663	4.48	$500	$493	$405
Working family	7,606	4.08	$552	$487	$383

Figure 41 illustrates a similar outcome for a typical ACT customer on a range of different network tariffs and for different levels of energy use. It shows that a representative residential customer would pay a slightly lower average NUOS price by moving from the basic tariff (yellow line) to the proposed TOU tariff (orange line), irrespective of their annual consumption. Further, it shows that, if they were an 'average peaking' customer, they would be even better-off if they moved to Evoethenergy's proposed demand tariff (blue line).

Figure 41 also shows that high peaking customers can expect to incur a higher average NUOS price than average or low peaking customers on the proposed demand tariff. This is because the proposed demand tariff is designed to reflect network costs imposed by customers. Given that high peaking customers typically impose higher network costs than low peaking customers, the demand tariff bill reflects the network cost differential.

Figure 41 Average NUOS price for basic, current and proposed TOU and demand tariffs (2024/25)

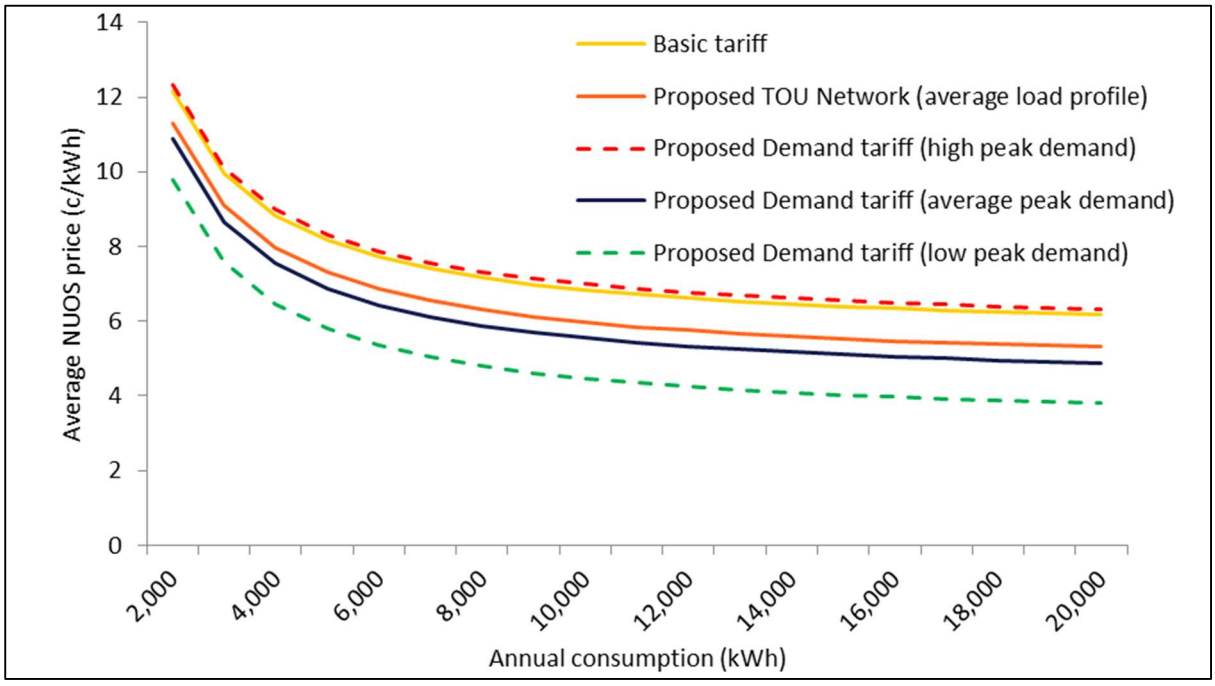


Figure 42 below shows a similar outcome, but by reference to Evoenergy's existing and proposed TOU and demand tariffs. It indicates that a representative (average peaking) residential customer would be:

- better off[79] on a demand tariff than a TOU tariff; and
- better off on either of the two proposed TOU or demand tariffs, compared to the existing TOU and demand tariffs.

Figure 42 Average NUOS price for current and proposed TOU and demand tariffs (2024/25)

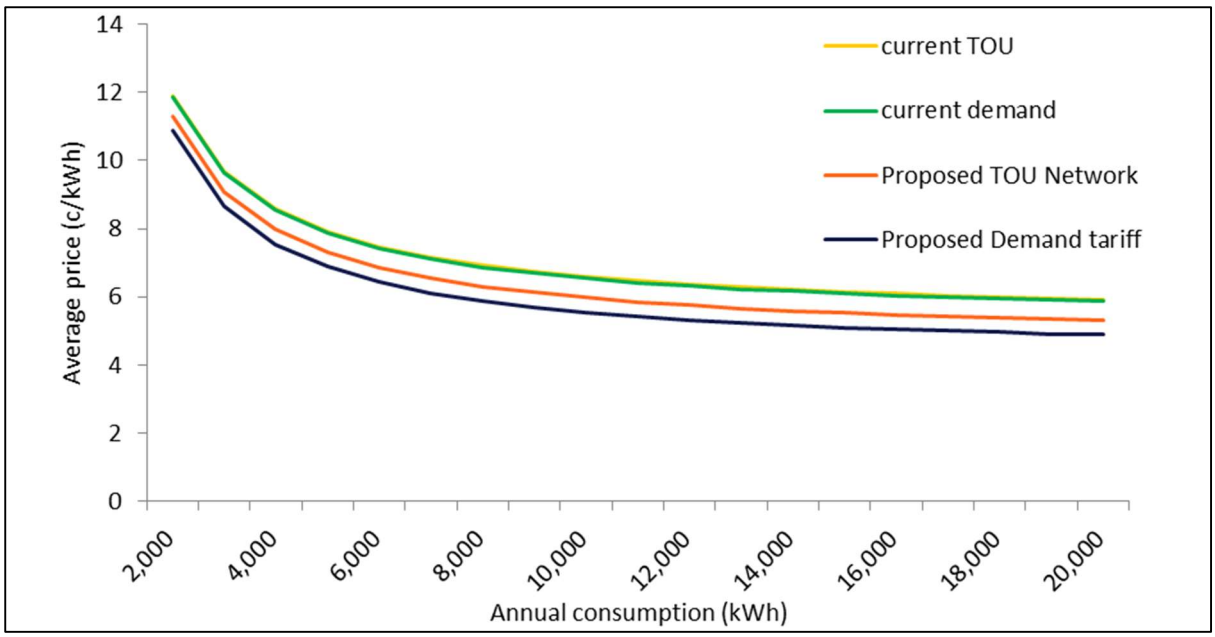


Table 31 below illustrates the indicative network bill in 2024/25 for representative ACT residential customers with different levels of consumption and peak demand on the residential basic, proposed TOU and proposed demand tariffs. On the right hand side, it shows the absolute change in their network bill after moving from the residential basic tariff.

Table 31 indicates that an average residential customer consuming 7,000kWh per annum with average peak demand would be better-off by $90 in 2024/25 if they switched from the basic tariff to the proposed demand tariff.

Table 31 also shows that moving to the proposed residential demand tariff is likely to:

- benefit customers with average or low levels of demand, regardless of whether they have low, average, or high levels of consumption; and
- slightly increase the network bill for customers with unusually high levels of demand.

The increase in network bills for customers with unusually high levels of demand that move from the residential basic tariff to the proposed residential demand tariff reflects:

- the higher level of costs these customers impose on the network; and
- a higher incentive for these customers to manage their peak demand.

[79] 'Better off' in this context refers to a lower average NUOS price.

Table 31 Estimated change in network bills (indicative 2024/25)

	Total annual network bill ($ pa)			Difference from Basic tariff ($ pa)		
Annual consumption (kWh)	**4,000 (low)**	**7,000 (avg)**	**10,000 (high)**	**4,000 (low)**	**7,000 (avg)**	**10,000 (high)**
Residential Basic tariff	$353	$518	$684	N/A	N/A	N/A
Proposed Residential TOU tariff (average profile)	$319	$458	$597	-$34	-$60	-$86
Proposed Residential kW Demand tariff (low demand)	$259	$353	$447	-$95	-$166	-$237
Proposed Residential kW Demand tariff (average demand)	**$302**	**$428**	**$555**	**-$51**	**-$90**	**-$129**
Proposed Residential kW Demand tariff (high demand)	$360	$529	$699	$6	$11	$16

Network bill impact of the secondary export tariff

As described in section 11, Evoenergy has designed its new residential export tariff to limit the network bill impacts on customers. It achieved this by combining a relatively high BEL of 5kW (per hour) with a relatively low export charge, and including a reward for exports during the evening peak period.

One consequence of a 5kW BEL is that customers with a solar PV system of 5kW or less will be no worse off – since the export charge applies only to exports above 5kW (each hour). Rather, these customers will be better off to the extent they export during the evening peak period (5pm to 8pm AEST) and therefore receive an export reward.

Evoenergy assessed the incremental effect of applying its secondary export tariff to a sample of 822 exporting residential customers. Evoenergy's analysis indicates that in 2024/25:

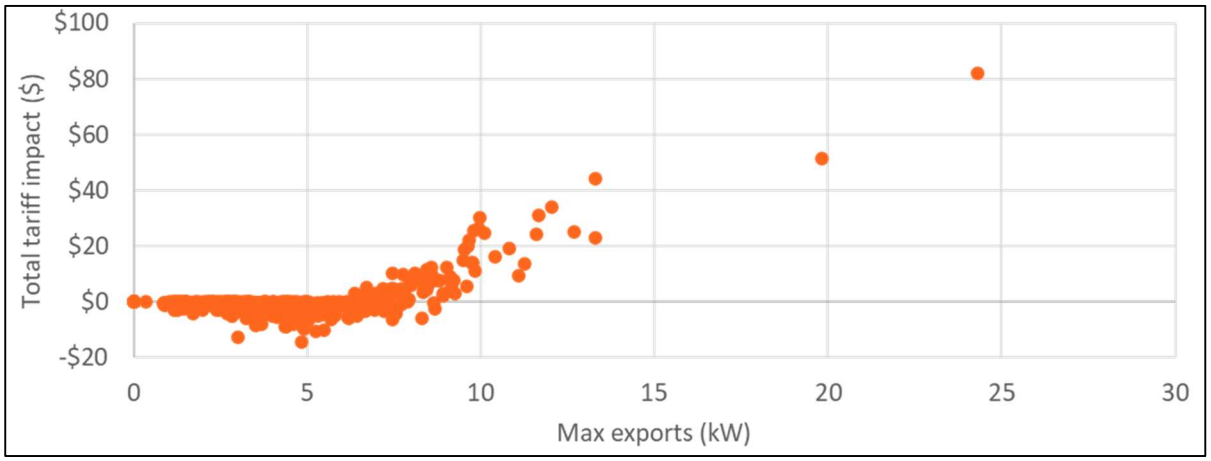
- the median residential exporting customer has maximum exports of 4.6kW and would be better off by $3.26 per annum on the export tariff;
- a residential customer with maximum exports around 3kW would be better off by $1.94 on the export tariff; and
- a residential customer with maximum exports around 7.5kW would be worse off by $5.36 per annum on the export tariff.

Figure 43 illustrates the indicative bill impact for this sample of residential customers by reference to their maximum annual exports, as a proxy for the capacity of their solar PV system. These network bill impacts reflect the combined benefit of a 5kW BEL, below which customers aren't charged, the relatively low export price above 5kW and the offsetting benefit of rewards for exporting during the evening peak period.

Figure 43 indicates that, of Evoenergy's sample of 822 exporting residential customers:

- 92 per cent of customers with maximum exports less than 7.5 kW will be better off on the export tariff;
- 98 per cent of customers will experience a network bill impact of less than $20 per annum; and
- those few customers with a network bill impact of more than $20 per annum have very high levels of export capacity (typically above 10kW).

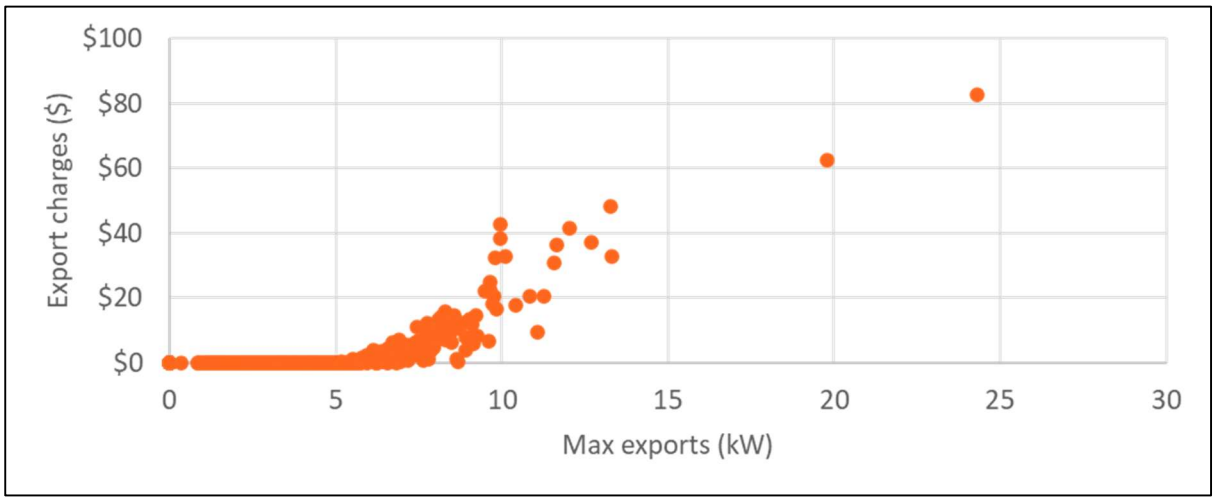
Figure 43 Network bill impact from export tariff (2024/25)



Source: Evoenergy sample of 822 exporting residential customers.

Figure 44 presents the incremental effect of only the export charge on customer's network bills.[80] Customers with maximum exports less than 5kW pay no export charges because the BEL is set at 5kW per hour.

Figure 44 Effect of export charge only (2024/25)

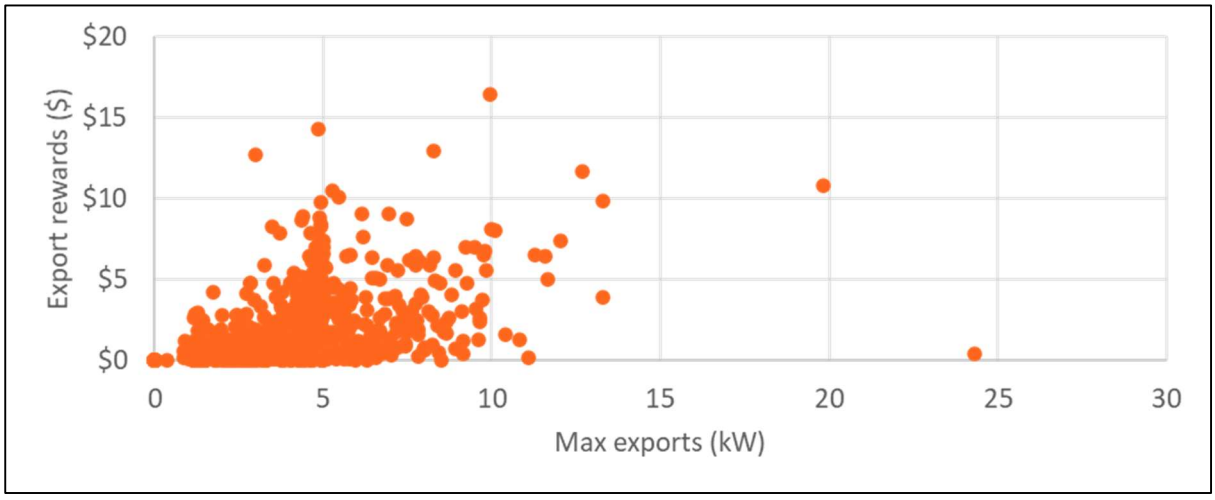


Source: Evoenergy sample of 822 exporting residential customers.

[80] The benefit of export rewards is excluded from this analysis.

Figure 45 presents the incremental effect of only the export reward on customer's network bills. That is, the export charge is removed from this analysis.

Figure 45 Effect of export reward only (2024/25)



Source: Evoenergy sample of 822 exporting residential customers.

Network bill impacts over time

Evoenergy expects that customers will experience unusual levels of volatility in the network component of their electricity bill over the 2024/29 regulatory period. A key reason for this volatility is the significant change in the cost of jurisdictional schemes that Evoenergy is required to recover from ACT customers.

Since this volatility in network bills is not caused by Evoenergy's proposed tariff reforms, the year-on-year network bill impacts for residential tariffs are assessed over the period:

- starting in 2022/23, being the penultimate year of the 2019/24 regulatory period; and
- ending in 2028/29, being the final year of the 2024/29 regulatory period.

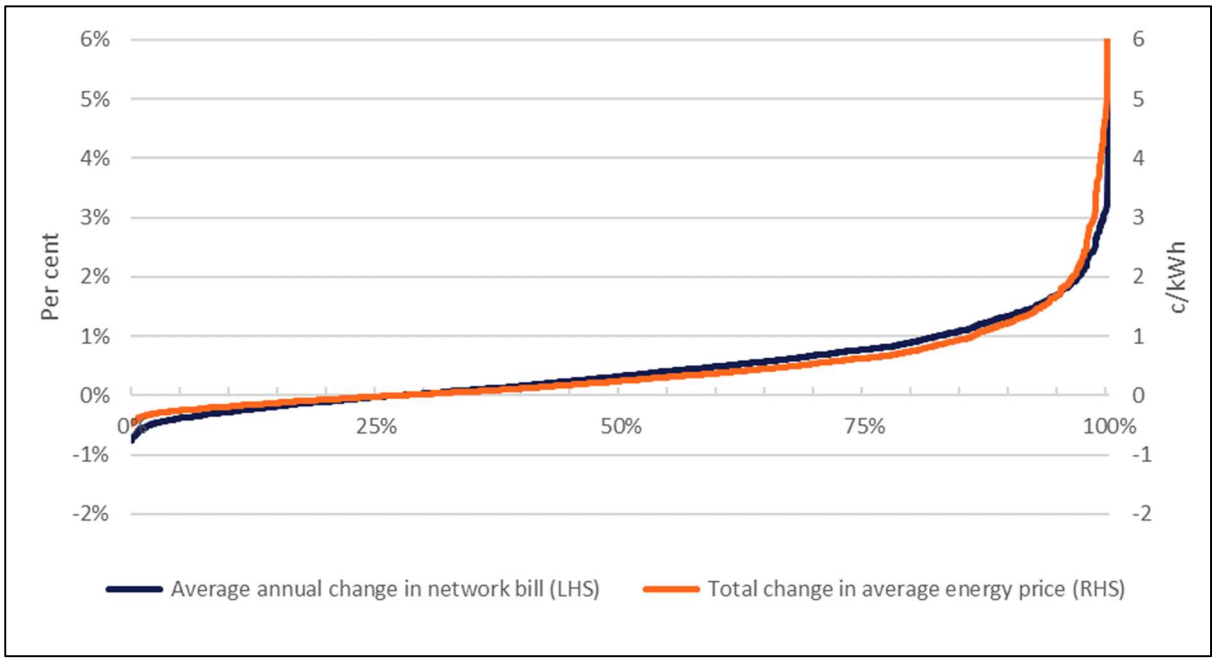
Figure 46 to Figure 48 below present the distribution of network bill impacts over this period by reference to:

- the average annual change in indicative network bills over that period, as measured on the vertical axis on the left-hand side; and
- the total change in the indicative average price over that period, as measured by the vertical axis on the right-hand side.

The analysis in Figure 46 and Figure 48 is based on a sample of 1,989 residential customers. Further, the markings on the horizontal axis indicate the lower quartile, median and upper quartile bill impacts.

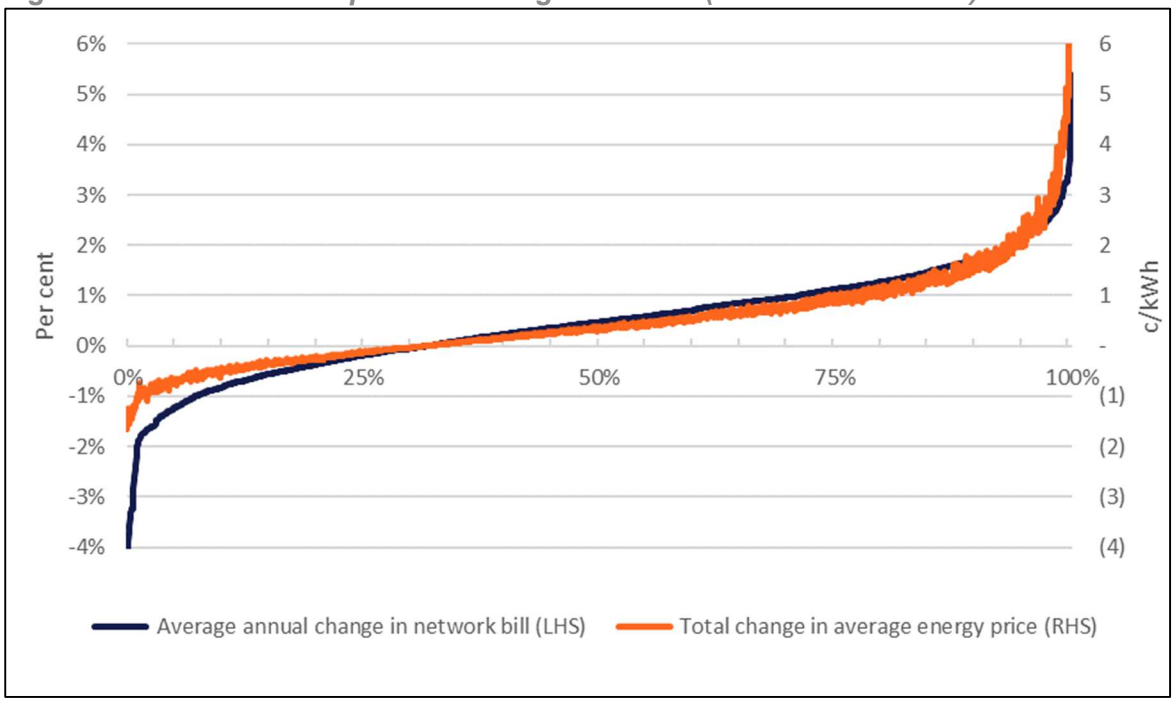
Figure 46 to Figure 48 indicates that over the period from 2022/23 to 2028/29, the median annual bill impact for residential customers is less than 0.5 per cent per annum for customers on the residential export tariff, the existing TOU tariff and the existing demand tariff. This reflects that, despite the unusual level of volatility in NUOS prices that is expected between 2022/23 to 2028/29, Evoenergy expects that network bills in 2028/29 will not be materially different to network bills in 2022/23 for a typical residential customer.

Figure 46 Network bill impact – Basic tariff (2022/23 to 2028/29)



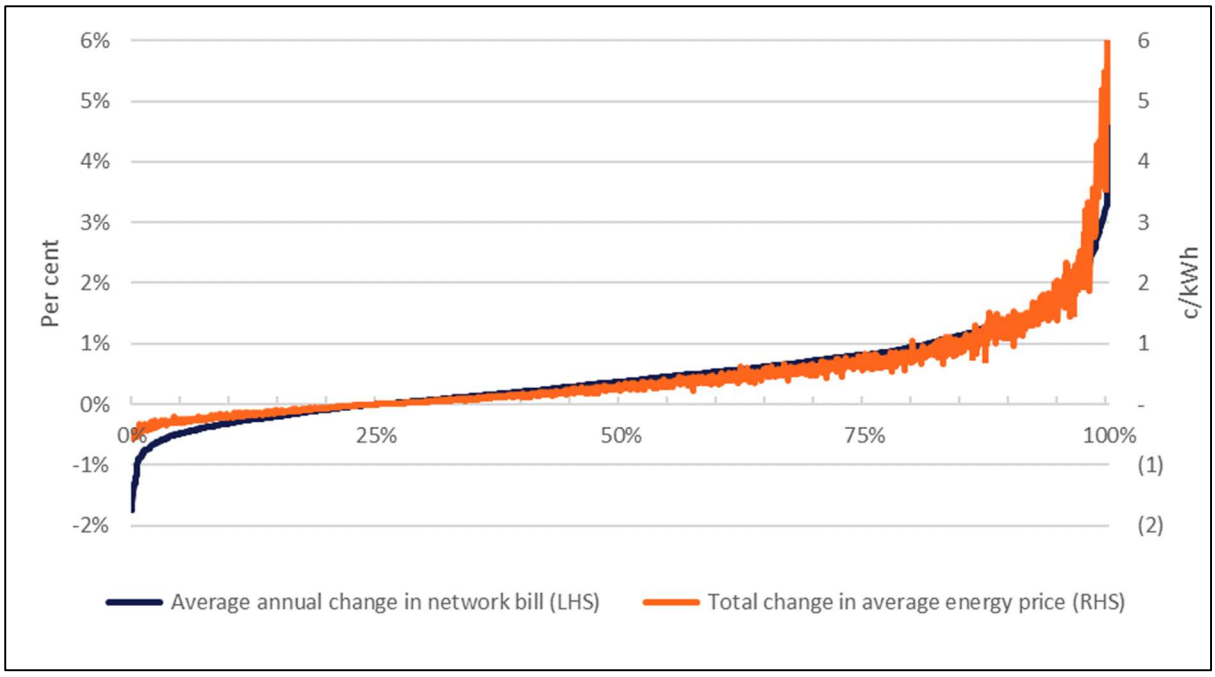
Source: Evoenergy sample of 1,989 residential customers.

Figure 47 Network bill impact – existing TOU tariff (2022/23 to 2028/29)



Source: Evoenergy sample of 1,989 residential customers.

Figure 48 Network bill impact – existing demand tariff (2022/23 to 2028/29)



Source: Evoenergy sample of 1,989 residential customers.

It is not possible to apply this analysis to the proposed demand or proposed TOU tariffs, since these tariffs do not apply in the 2019-24 regulatory period, which is the starting point for the above analysis. However, Evoenergy expects that the network bill impacts from year-to-year for the proposed demand and TOU tariffs will closely mirror the existing demand and TOU tariffs (as illustrated above) given Evoenergy's approach to pricing retains the relativities between these proposed and existing tariffs, as shown in Figure 41 and Figure 42 at the start of this section.

12.2 Low voltage commercial indicative bill impacts

Consistent with its approach in previous years, Evoenergy has designed its LV commercial tariffs so that customers are typically:

- better-off on the General TOU tariff (090) or LV kW Demand tariff (106), compared to the General network tariff (040);
- even better-off (or indifferent) on the LV TOU kVA Demand (101) or LV TOU Capacity (103) tariffs; and
- large scale batteries face efficient price signals, while being supported through their initial uptake with a lower contribution to the recovery of Evoenergy's residual costs.

Figure 49 shows that LV commercial customers on the General network tariff would be better-off on either the LV kW demand tariff or General TOU tariff, which provides incentives to opt-in to relatively more efficient tariffs. It also shows that LV commercial customers with high maximum demand are likely to receive a higher network bill on the LV kW demand tariff, in comparison to the General network tariff, which reflects the additional costs they impose on the network.

Figure 49 Average NUOS prices for general, general TOU and LV kW demand tariffs (2024/25)

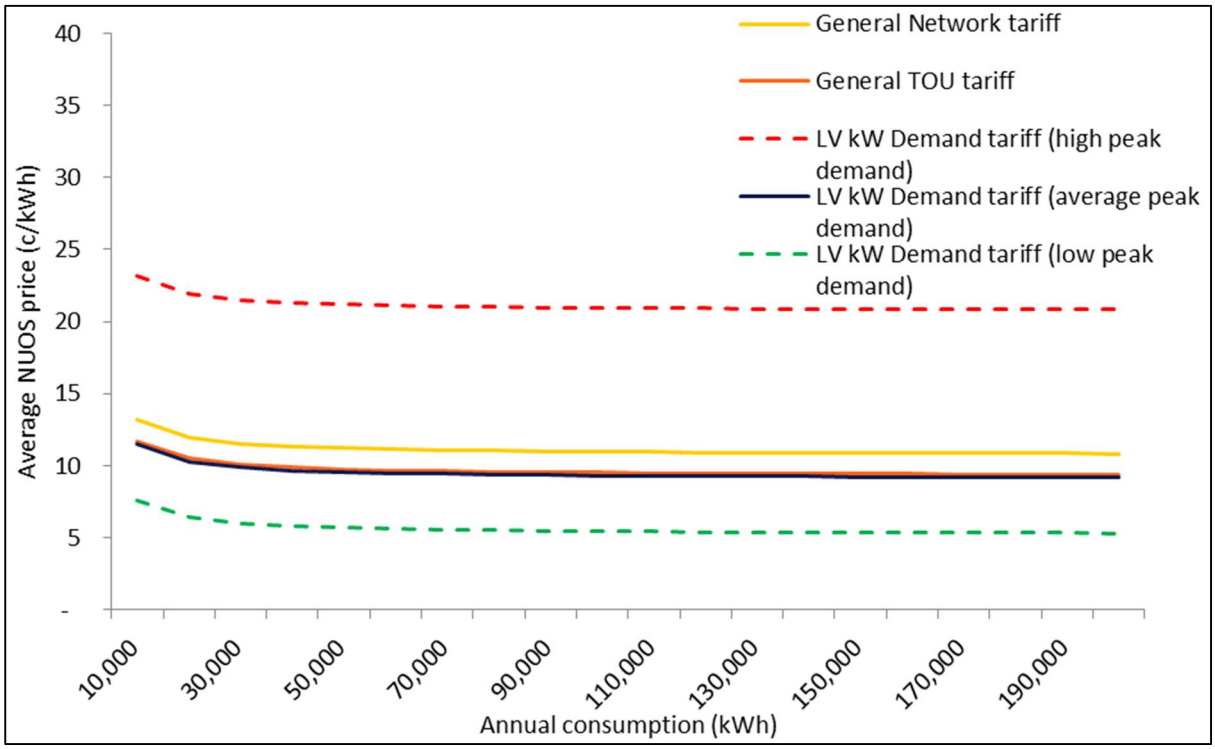


Figure 50 presents a comparison of the average NUOS price for customers with different levels of energy use and demand profiles on the LV TOU kVA demand tariff (solid lines) and the LV TOU capacity tariff (dotted lines).

It shows that regardless of how much energy a customer uses and their demand profile, customers will generally be slightly better-off on the LV TOU capacity tariff, in comparison to the LV TOU kVA demand tariff. It also shows that under either tariff, customers network bill increases with the peakiness of their demand, in reflection of the costs they impose on the network.

The average NUOS prices faced by customers on the LV TOU capacity tariff and LV TOU kVA demand tariff in Figure 50 below are also lower than the average NUOS price paid by similar customers on the LV kW demand tariff, which are illustrated in Figure 49 above. This provides an incentive for customers to opt-in to the more cost reflective LV TOU capacity tariff and LV TOU kVA demand tariffs.

Figure 50 Average NUOS prices for LV TOU kVA and LV TOU capacity tariffs (2024/25)

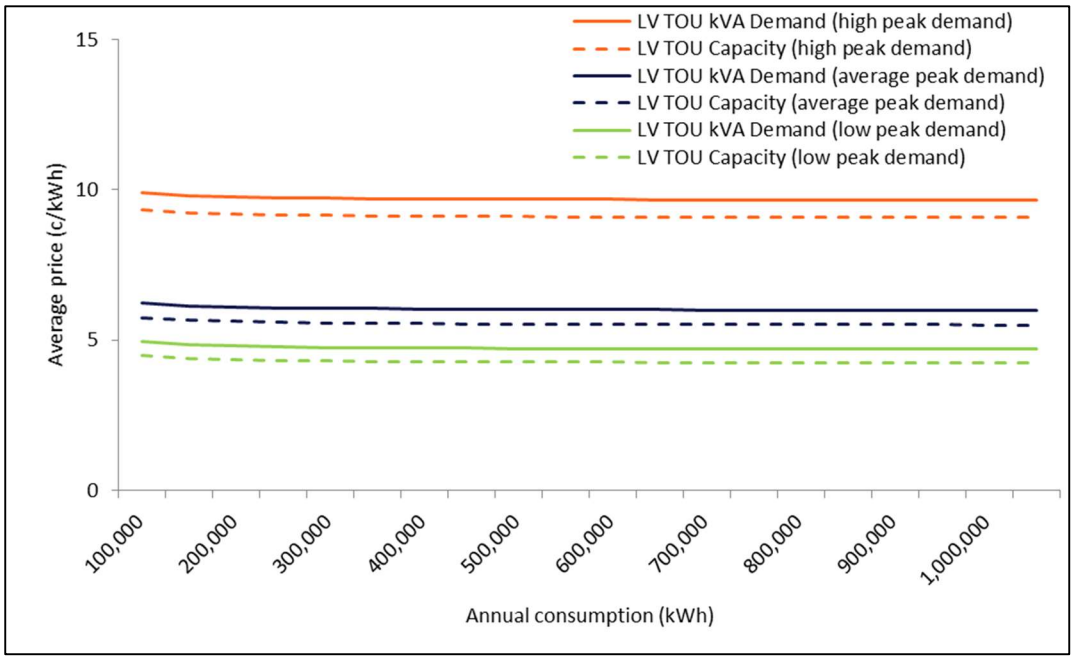
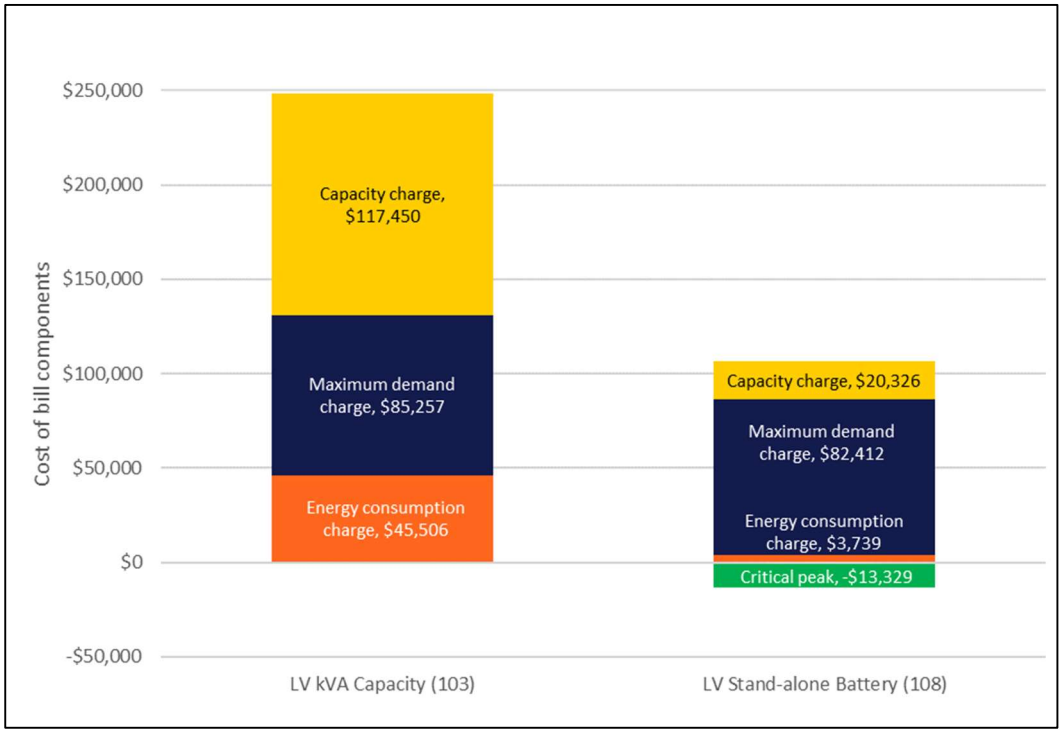


Figure 51 compares the average NUOS bill for a large scale battery operator in a residential area of the network on the new LV large scale battery tariff, compared to their NUOS bill on the LV kVA capacity tariff.

It shows that Evoenergy's proposed LV large scale battery tariff retains the efficiency features of the LV kVA capacity tariff, with similar costs signalled through the maximum demand charge, while supporting the uptake of large scale batteries through a lower contribution to the recovery of residual costs.

Figure 51 LV large scale battery tariff annual bill comparison, 2024/25



12.2 High voltage commercial tariffs

Figure 52 to Figure 54 present the average NUOS prices for customers on each of Evoenergy's three HV commercial tariffs.

- HV TOU Demand Network tariff (111)
- HV TOU Demand Network tariff – customer LV (121)
- HV TOU Demand Network tariff – Customer HV and LV (122)

Figure 52 to Figure 54 show that on each of the three HV commercial tariffs, customers with higher demand face a higher average NUOS price. A comparison of the three Figures shows that customers on tariff code 122 typically face a lower average network price than on the 121 and 111 tariffs. This is because customers on the tariff code 122 own and are responsible for their own HV assets (including transformers and switching gear).

Figure 52 Average NUOS price for HV tariff code 111, 2024/25

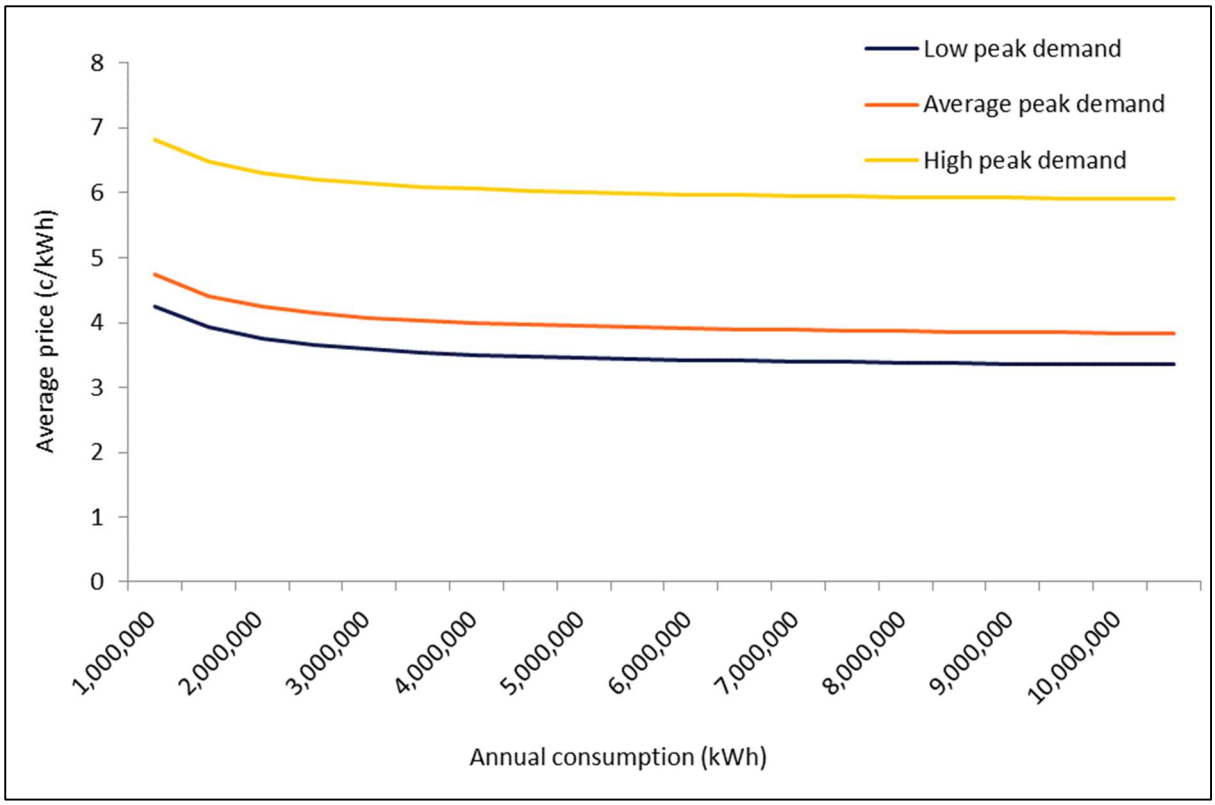


Figure 53 Average NUOS price for HV tariff code 121, 2024/25

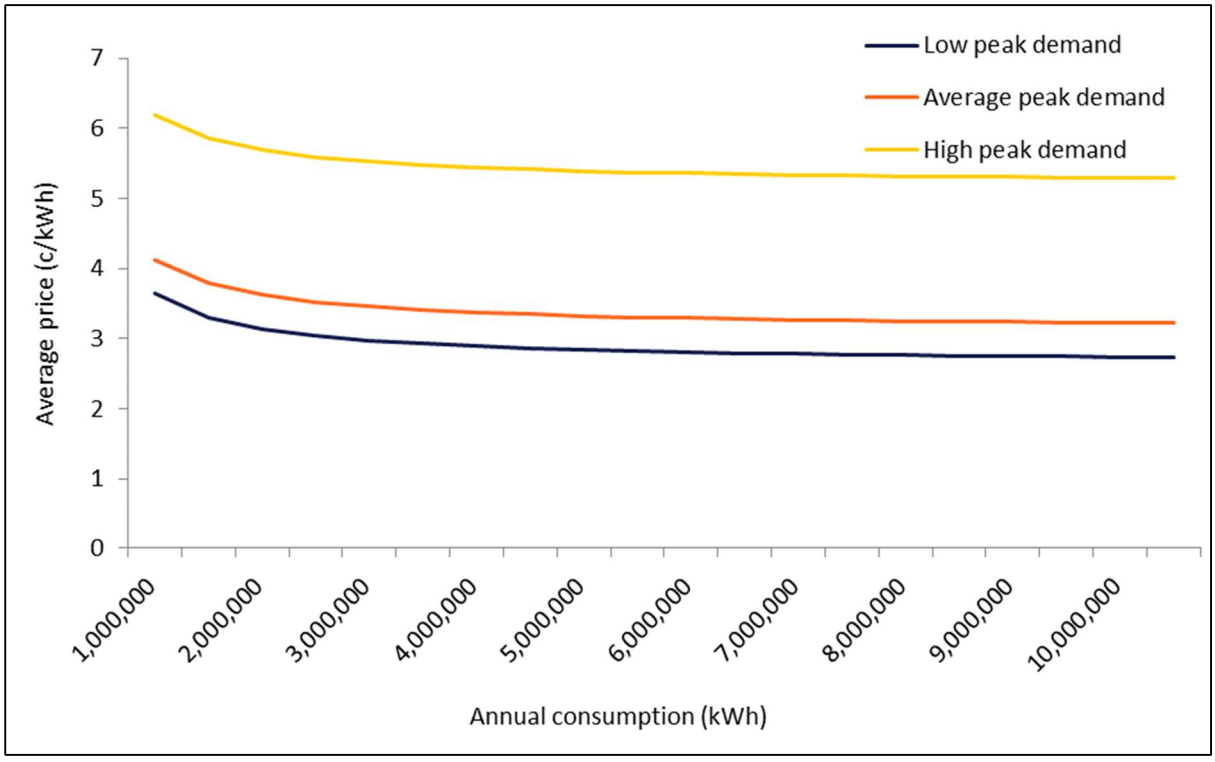


Figure 54 Average NUOS price for HV tariff code 122, 2024/25

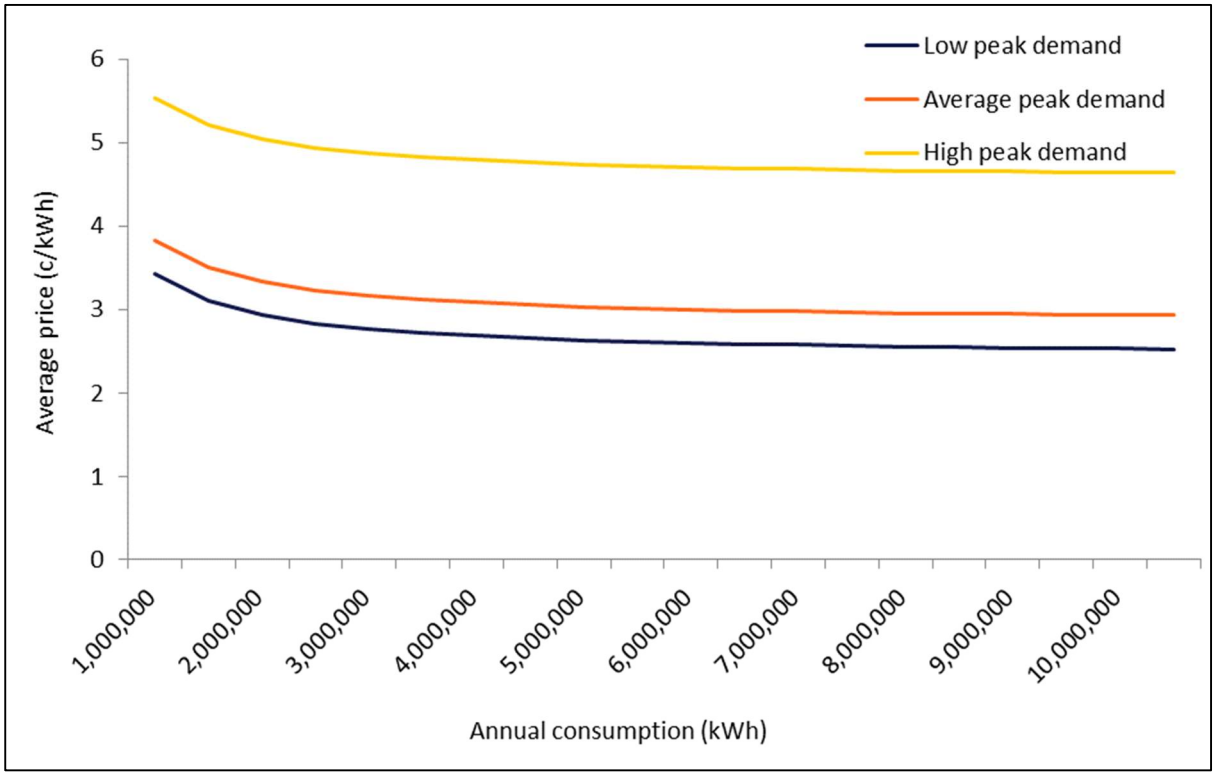
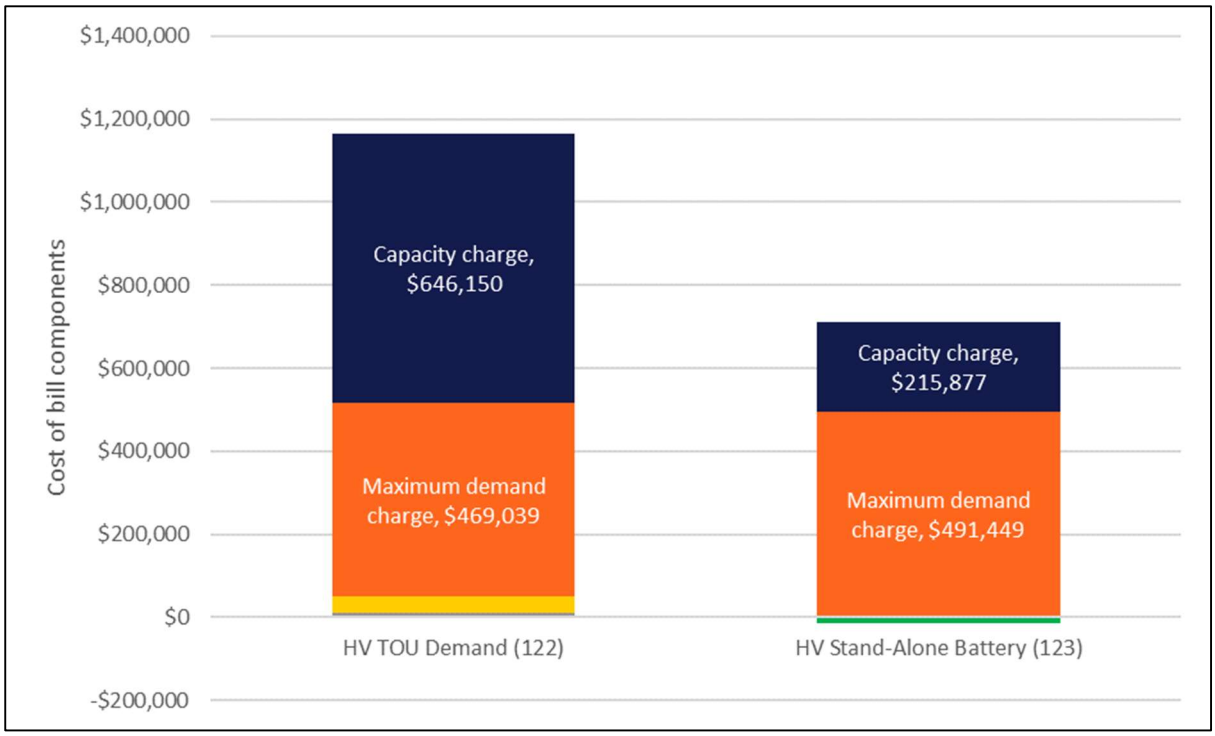


Figure 55 presents a comparison of the average NUOS bill for a large scale battery operator on the proposed HV large scale battery tariff for batteries located in residential areas, compared to their NUOS bill on the HV TOU demand tariff, code 122.

It shows that the proposed HV large scale battery tariff retains the efficiency features of the HV TOU demand tariff structure, with similar costs signalled through the maximum demand charge, while supporting the uptake of large scale batteries through a lower contribution to the recovery of residual costs.

Figure 55 HV large scale battery annual bill comparison, 2024/25



13. Alternative control services

The AER has classified Evoenergy's Network Ancillary Services, Type 5 and Type 6 metering services, Public Lighting Service[81], Enhanced connection service, and Connection and application management services as Alternative Control Services (ACS) for the 2024–29 regulatory period.[82]

The form of control mechanism applied to ACS under the NER must have a basis stated in the distribution determination and may (but need not) use elements of Part C of clause 6.26 of the NER (with or without modification).

Evoenergy's ACS proposal will benefit consumers through cost-reflective prices, set transparently and subject to a defined price path over the regulatory period. Customers will only bear the costs of these services if and when they are required. ACS are often customer specific or requested and are billed on a per service basis to individual customers.

Evoenergy accepts the AER's determination in its framework and approach paper that the form of control mechanism for ACS will be price caps on individual services. Clause 6.2.6(b) of the NER provides that the control mechanism must have a basis stated in the distribution determination.

Evoenergy proposes the following basis for the control mechanisms to be the most appropriate when assessed against the criteria set out in clause 6.2.5(d) of the NER (discussed further below). These are:

- for metering services, a limited building block approach, consistent with the approach in the 2019–24 regulatory period; and
- for network ancillary services, a cost build-up approach, consistent with the approach in the 2019–24 regulatory period.

A full description of alternative control services is documented in Attachment 6.

13.1 Metering services (Types 5 and 6)

For the 2024–29 regulatory period, the AER has retained the ACS classification and the individual price cap form of control. Evoenergy accepts the AER's classification of the following metering services as ACS.

- Types 5 and 6 metering data services, which includes collection, processing, storage, and delivery
- scheduled meter reads
- maintaining and repairing meters and load-control equipment
- meter testing during business hours (refunded to customer if meter proves faulty); and
- special meter reading or check (refunded to customer if original reading was incorrect).

Evoenergy proposes to apply a building block approach to determine the price caps for all metering services. Evoenergy's proposed approach to metering is effectively a continuation of the approach used in the 2019–24 control period, with the same post-tax revenue model (PTRM), roll-forward model (RFM), and tax asset base in place, with changes that reflect the AER's inflation review final position published on 17 December 2020 and the AER's regulatory tax approach review findings published on 17 December 2018.

Under clause 6.8.2(c)(3)) of the NER, Evoenergy is required to include in its regulatory proposal 'for direct control services classified under the proposal as alternative control services – a demonstration of the application of the control mechanism, as set out in the framework and approach paper, and the

[81] Note Evoenergy doesn't provide a public lighting service.
[82] AER, Framework and Approach for Evoenergy, July 2022, p. 6

necessary supporting information.' The formula for metering services, as set out in the Framework and Approach paper, is set out in Box 4.

Box 4 - Formula for metering services

$\bar{p}_t^i \geq p_t^i$ i=1,...,n and t=1, 2, … ,5

$\bar{p}_t^i = \bar{p}_{t-1}^i \times (1 + \Delta CPI_t) \times (1 - X_t^i) + A_t^i$

where:

$\bar{p}_t^i$ is the cap on the price of service i in year t.

p_t^i is the price of service i in year t. The initial value is to be decided in the distribution determination.

$\bar{p}_{t-1}^i$ is the cap on the price of service i in year t–1.

t is the regulatory year with t = 1 being the 2024/25 financial year.

ΔCPI_t is the annual percentage change in the Australian Bureau of Statistics (ABS) Consumer Price Index (CPI) All Groups, Weighted Average of Eight Capital Cities from the December in year t–2 to the December in year t–1. For example, for the 2024/25 year, t-2 is December 2022 and t-1 is December 2023. If the ABS do not or ceases to publish the index, then CPI will mean an index which the AER considers is the best available alternative index.

X_t^i is the X-factor for service i in year t. The X-factors are to be decided in the distribution determination.

A_t^i is the sum of any adjustments for service i in year t and is to be decided in the distribution determination.

Source: AER, Final framework and approach for Evoenergy, July 2022, Figure 3.2, page 34.

Evoenergy will demonstrate compliance with the control mechanism by multiplying the price for each service in the previous year by CPI–X (rounded to the same number of decimal places as currently applied) and comparing that to the proposed price. Prices equal to or less than equal to the calculated price are compliant. Evoenergy will demonstrate this compliance in the annual network pricing proposal to be submitted to the AER.

13.2 Ancillary services

In the Framework and Approach paper, the AER classified Evoenergy's ancillary services as ACS for the 2024–29 regulatory period. It determined that the control mechanism would be price caps on individual services. Evoenergy accepts this classification and proposes to adopt a cost build-up approach to determining the price caps for individual ancillary services.

The cost of ancillary services is largely comprised of labour, with limited use of materials or equipment and vehicles in most cases. Evoenergy proposes increasing the labour rates per the escalation rates sourced from BIS Oxford Economics.

Evoenergy proposes to set the prices for quoted services using the formula in Box 5.

Box 5 – Formula for quoted services

Price = Labour + Contractor services + Materials + Margin + Tax

Where:

- **Labour** (including on-costs and overheads) – consists of all labour costs directly incurred in the provision of the service which may include but is not limited to labour on-costs, fleet on-costs and overheads, and other associated delivery costs including overheads. The labour cost for each service is dependent on the skill level and experience of the employees involved, time of day the service is undertaken, travel time, number of site visits, and crew size required to complete the service.
- **Contractor services** – reflect all costs associated with the use of external labour including overheads and any direct costs incurred. The contracted service charge applies the rates under existing contractual arrangements. Direct costs are passed on to the customer.
- **Materials** (including overheads) – reflects the cost of materials directly incurred in the provision of the service, material storage and logistics on-costs and overheads.
- **Margin** – reflects a return commensurate with the regulatory and commercial risks involved in the provision of a service.
- **Tax** – reflects taxation costs arising from the provision of services that are capitalised for accounting purposes.

Source: AER, Final framework and approach for Evoenergy, July 2022, Figure 3.3, page 35.

Price caps apply to the labour rates used in this formula. Evoenergy will demonstrate compliance with the formula by providing its annual calculation of labour rates to the AER in its annual pricing proposal. The AER will review the rates as part of the annual network pricing approval process.

Price caps only apply to labour costs, rather than all cost inputs, which helps reduce administrative costs, as Evoenergy will not be required to identify for AER approval, every input cost that may be required to perform a quoted service. This approach will also result in cost-reflective charges.

Inclusion of a margin component in the quoted services price cap formula

Evoenergy proposes to include a margin component in the quoted services price cap formula for the 2024–29 regulatory period. The inclusion of a margin is consistent with the principle of competitive neutrality, with margins included in prices that would be observed for similar services in a competitive market.

The AER's final Framework and Approach paper included a margin component for quoted services, which has been accepted in other jurisdictions in recent regulatory determinations.[83]

Including a margin is consistent with the revenue and pricing principles in the NEL, where 'a price or change for the provision of a direct control network service should allow for a return commensurate with the regulatory and commercial risks involved in providing the direct control network services to which that price or change relates'.[84]

[83] AER, *Framework and approach for Evoenergy*, July 2022, p. 36.
[84] NEL section 7A (5)

Inclusion of a tax component in the quoted services price cap formula

Evoenergy proposes to include a tax component in the quoted services price cap formula for the 2024–29 regulatory period. Including a tax component will allow quoted services to be more cost-reflective and is consistent with the approach outlined by the AER in its Framework and Approach paper.[85]

When providing quoted services, Evoenergy often incurs tax obligations arising from the capital-intensive nature of the work undertaken for customers. Costs to cover these tax obligations have not been recovered from customers because they have not been included in the quoted services pricing formula approved by the AER. Evoenergy proposes to estimate the tax component in the same way it is estimated for standard control services. That is, the tax component reflects an estimate of the tax payable based on revenue less expenses and applying the company tax rate. Currently, the company tax rate applied to Evoenergy is 30 per cent.

Itemised quotes for customers

Evoenergy supports greater transparency of quoted services. As is current practice, Evoenergy will continue to provide customers with itemised quotes showing each cost component to demonstrate compliance with the control mechanism formula.

This approach will allow customers to compare price offerings across providers over time and provide transparency in the pricing of quoted services.

[85] AER, *Framework and approach for Evoenergy*, July 2022, p. 37.

Glossary

Term	Meaning
ABS	Australian Bureau of Statistics
ACS	Alternative Control Services
ACT	Australian Capital Territory
ACTCOSS	Australian Capital Territory Council of Social Services
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
AEST	Australian Eastern Standard Time
AIC	Average Incremental Cost
BEL	Basic Export Level
c	Cents
Capex	Capital Expenditure
CP	Critical Peak
CPI	Consumer Price Inflation
CT	Current Transformer
DER	Distributed Energy Resources
DNSP	Distribution Network Service Provider
DSO	Distribution System Operator

Term	Meaning
DUOS	Distribution Use of System Charges
ECRC	Energy Consumer Reference Council
EN24	Electricity Distribution Network Determination 2024-29
EV(s)	Electric Vehicle(s)
FCAS	Frequency Control Ancillary Services
GW	Giga Watt
GWh	Giga Watt hour
HEMS	Home Energy Management Systems
HV	High Voltage
IAP2	International Association for Public Participation
ICRC	Independent Competition and Regulatory Commission
ICT	Information Communication Technology
JS	Jurisdictional Scheme Charges
kVA	Kilo Volt Ampere
kVAh	Kilo Volt Ampere hour
kW	Kilo Watt
kWh	Kilo Watt Hour
LRMC	Long Run Marginal Cost

Term	Meaning
LV	Low Voltage
MVA	Mega Volt Ampere
MW	Mega Watt
MWh	Mega Watt Hour
NEL	National Electricity Law
NEM	National Electricity Market
NER	National Electricity Rules
NMI	National Metering Identifier
NSW	New South Wales
NUOS	Network Use of System charges
NZ45	Net Zero 2045
Opex	Operating Expenditure
PV	Photovoltaic
QoS	Quality of Supply
TOU	Time of Use
TSES	Tariff Structure Explanatory Statement
TSS	Tariff Structure Statement
TUOS	Transmission Use of System