Submission: Inquiry into Electricity Supply for Electric Vehicles

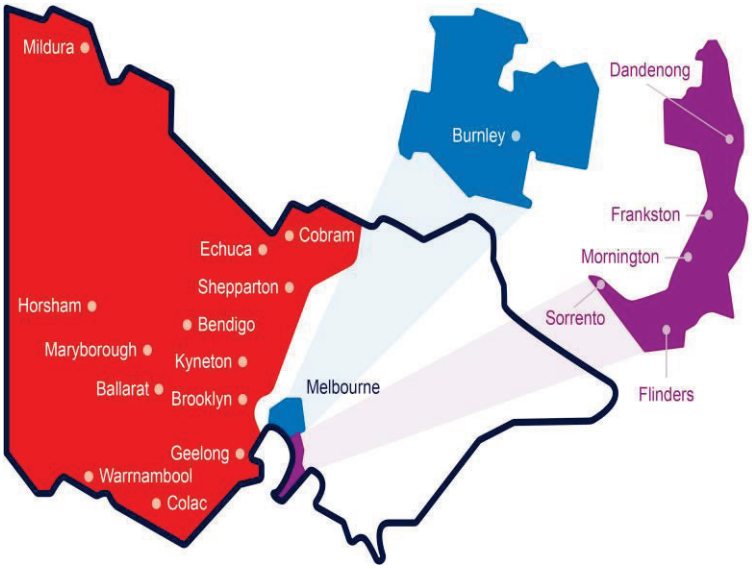
CitiPower, Powercor and United Energy

November 2025

1. Introduction

CitiPower Pty Ltd, Powercor Australia Limited, and United Energy Distribution Pty Limited (the networks) deliver electricity to more than two million homes and businesses that span urban centres and rural communities, including some of the most remote parts of Victoria. We provide the enclosed insights in response to the Economy and Infrastructure Committee's *Inquiry into Electricity Supply for Electric Vehicles.* We welcome an opportunity to present to the Committee and answer questions arising from this submission.

FIGURE 1: OUR NETWORK AREAS



Source: CitiPower, Powercor, United Energy

The key points we would like the Committee to consider in its deliberations are:

- Networks are well-positioned to support the electrification of transport, with opportunities to harmonise electric vehicle (EV) charging with electricity supply and demand to put downward pressure on costs for all energy users.
- Public electric vehicle charging infrastructure (EVCI) is not being installed quickly enough to support the wider adoption of EVs. Distributors can play a major role in facilitating a rapid roll out of EVCI but are restricted from doing so by regulatory barriers and outdated rules and frameworks.
- Bidirectional charging is a valuable tool to balance an electricity network with large numbers of rooftop solar installations and increasing electrification. Our networks are making bidirectional chargers simple to install and welcome new initiatives to accelerate uptake of this technology.
- Networks are deploying a variety of tools to manage the impact of EVCI on network performance. These include encouraging EV users not to charge their cars during peak periods through lower network charges in the middle of the day, which can help to defer network investment.
- Electrification of transport is not the sole driver of increasing reliance and pressure on the network. The broader adoption of all customer energy resources (CER), population growth and gas substitution are all placing pressure on network capacity.

We explore these themes below. If you would like to discuss any aspect of the submission, please contact Lauren Fetherston, Head of Regulatory Policy and Compliance at Lauren.Fetherson@ue.com.au or 0499 202 204.

2. Our changing energy system

The way Victorians use electricity is changing as more homes and business switch to electricity and embrace new technologies. This transformation is also changing the role of network operators.

As we evolve from a 'poles and wires' business to a Distribution System Operator (DSO), we are responsible for an increasingly complex system where a growing share of energy is generated in our customers' homes.

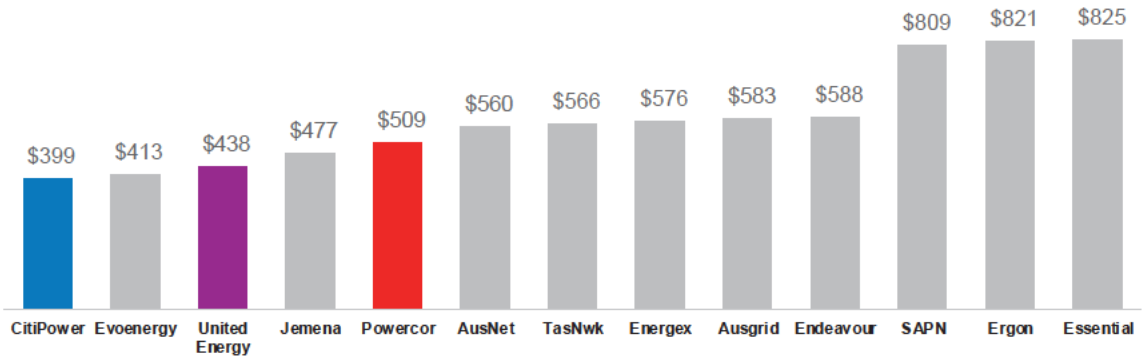
The growth of electric vehicles (EVs) presents both opportunities and challenges. While charging the growing fleet of EVs will create more demand for power from our networks, these technologies (when coordinated) can also help to balance the increasingly dynamic system and deliver benefits for all energy users – whether they have an EV or not.

We explore opportunities and challenges within this submission.

2.1 Electrification is transforming our networks

Our customers receive some of the highest performance standards in the National Electricity Market (NEM). This has been achieved while residential network charges have reduced in real-terms over the 30-years since privatisation. We are the lowest cost rural distributor and operate two of the three least cost networks.

FIGURE 2: TYPICAL RESIDENTIAL NETWORK CHARGES



Source: Essential Services Commission, Victorian Default Offer 2024-25 Decision Model

Our track record on service and price position us well to deliver for customers as change across the industry accelerates over the next decade.

By 2031, between 23 and 28 per cent of our customers (depending on the network) will drive EVs, compared to three per cent today. These figures are from Commonwealth Scientific and Industrial Research Organisation (**CSIRO**) research, are used by the Australian Energy Market Operator (**AEMO**) in their forecasts and are supported by Victorian Government policy, which targets 50 per cent of all new light vehicle sales to be zero emission by 2030.

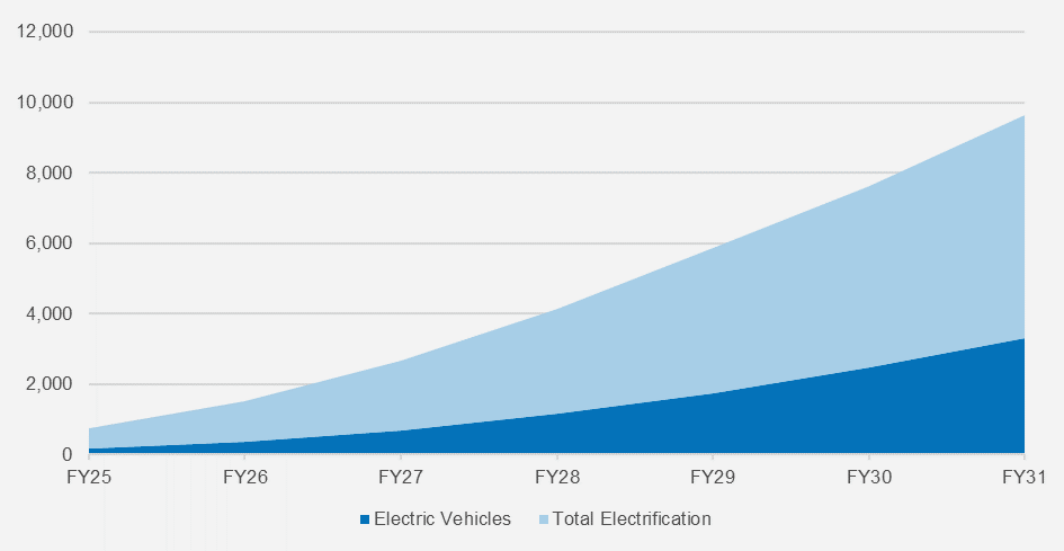
This increase in EV adoption will transform the electricity grid. Electricity consumption will increase through the wide-spread adoption of EVs, which will effectively lower energy charges for all customers. Collectively, electrification of transport will increase Victoria's electricity usage by five per cent by 2031. The increase is exponential and forecast to reach ten percent by 2036 and 20 percent by 2041.

The impact of EV charging on networks is dependent on a combination of customer charging behaviour, geographic factors and the capacity of the existing network. For the CitiPower network, we will need to support significantly more EV charging than the number of EV-owners. This is due to the

increasing need for 'destination' EV charging at workplaces or major hubs (such as the CBD), shopping or transport precincts. This will also apply to areas of Powercor and United Energy, including the key tourist destinations of the Great Ocean Road and Mornington Peninsula.

Electric vehicles are not the only driver of changing energy usage of our networks. The Victorian Government's Gas Substitution Roadmap presents a pathway away from gas, while our state's population grows quickly. Renewable energy generation is also ramping up, with 1,825MW of rooftop solar capacity alone installed across our networks today. While this rooftop solar capacity has doubled in the past five years, it is forecast to triple again by the end of 2031.

FIGURE 3: ADDITIONAL VICTORIAN CONSUMPTION FROM ELECTRIFICATION (GWh)



Source: Australian Energy Market Operator

We are already managing challenges associated with meeting the growing demand for electricity. The graph below shows the change in household consumption for different temperature ranges across our three networks (normalised for weather differences between these years and excluding the impacts of new connections and new solar installations). The change in consumption is most evident in colder temperatures, reflecting the likely impacts of the electrification of gas and other heating loads.

FIGURE 4: CHANGE IN HOUSEHOLD CONSUMPTION (2023-25)

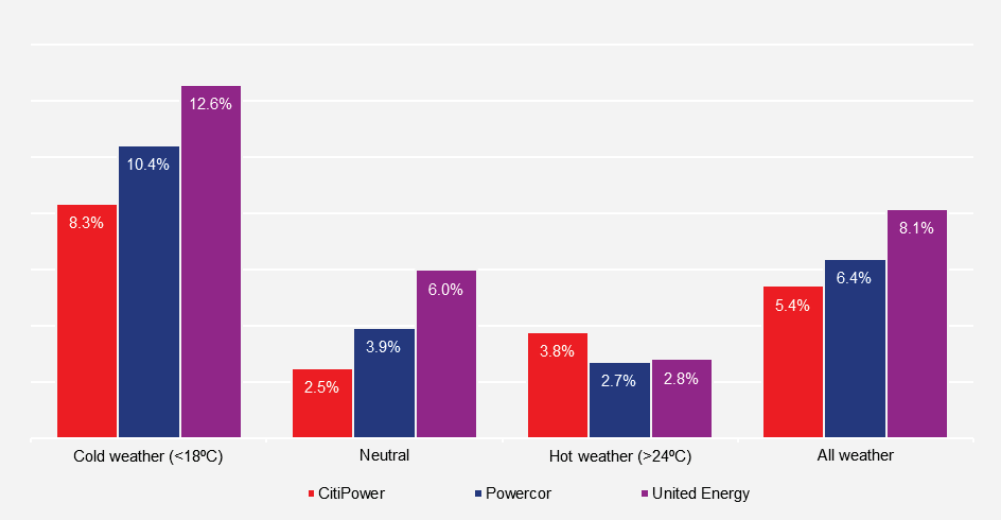
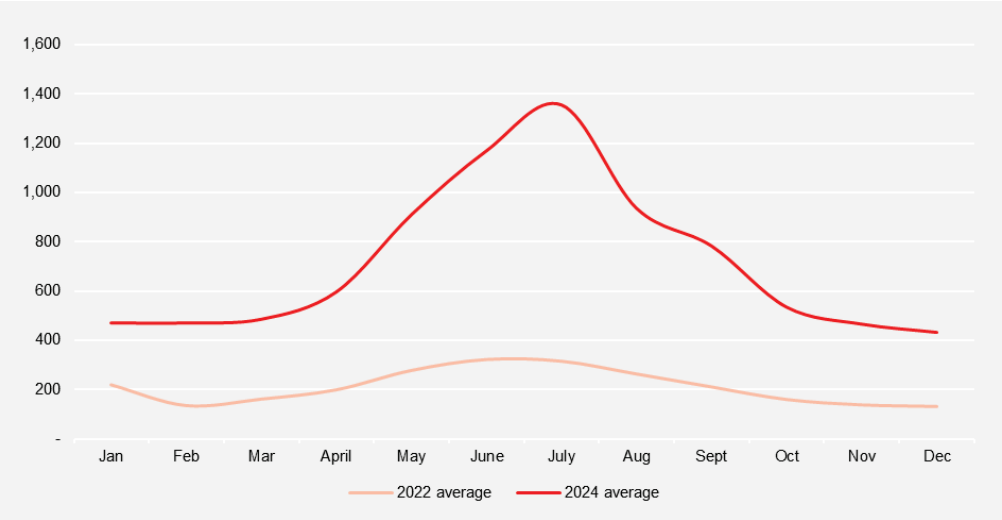


FIGURE 5: AVERAGE MONTHLY CONSUMPTION PRE AND POST ELECTRIFICATION (KW)



These changes, combined with emerging retail offers like Ovo Energy's 'Free 3' (where electricity is free between 11am and 2pm) are adding to the challenge. The growth in electricity consumption during these periods is creating new pressures on network voltage through the middle of the day, rather than just during peak demand periods.

2.2 The growth in EVs is creating challenges

We operate some of Australia's most advanced electricity networks, with over two million smart meters, Distributed Energy Resource Management Systems (DERMS), and dynamic voltage management systems. These technologies enable us to maximise the value of existing infrastructure and maintain affordable costs for customers.

Our focus on efficiency means many of our assets are already optimised to operate near capacity limits. This efficient use of infrastructure has delivered value for customers but means there is limited headroom to absorb the substantial growth in electricity demand expected over the coming years without strategic investment in key network areas.

The pace and scale of electrification, including EV adoption, presents both an opportunity and a challenge for our networks. Electricity consumption is forecast to grow significantly (26 per cent in CitiPower, 35 per cent in Powercor, and 25 per cent in United Energy by 2031), while peak demand periods are expected to exceed current asset capacity in certain areas. Without proactive investment, this growth could increase the risk of service disruptions and impact the quality of supply for all customers.

We have developed a comprehensive plan to upgrade the network in a targeted manner, ensuring that growing demand, including from at-home EV charging, can be accommodated while maintaining reliable service for all customers. This plan has been informed by extensive customer consultation and is detailed in our Electricity Distribution Price Review Submission.

The proposed investments are designed to support Victoria's electrification objectives while maintaining network reliability and affordability. We believe these upgrades are essential to enable customers to confidently adopt EVs and other electric technologies without experiencing negative impacts on their power networks.

We are submitting this plan to the Australian Energy Regulator in December 2025 for approval. Approving this plan will allow us to implement solutions that support customer choice, maintain service quality, and underpin the successful integration of EVs into our energy system.

3. What are we doing to support EV drivers?

We are undertaking a wide range of actions across our three networks to accommodate the growth of electric vehicles.

This includes enhancing our forecasting capabilities to allow us to better understand the impacts of changing consumer behaviour over the short, medium and long term.

The forecasting work is undertaken across our high and low voltage networks and is helping to prepare for increasing EV uptake. For example, our low voltage forecasting has observed that even a few EVs in one street with the same charging behaviour could create network constraints that impact all premises on the street.

These forecasts inform the actions and projects being implemented to support the uptake of EVs and growing customer electrification. We already employ a wide variety of low-cost interventions to take advantage of the network capacity available before we resort to a 'poles and wires' upgrade. These include:

- Seasonal programs to review and optimise customer voltage by adjusting network settings.
- Ongoing monitoring and enforcement of solar invertor settings compliance to ensure new systems operate in line with local and national standards.
- Automated solar pre-approvals to quickly assess hosting capacity for new connections to ensure no adverse customer impacts.
- Network wide dynamic voltage control to maximise customer outcomes and ensure our compliance with the Essential Services Commission (**ESC)** voltage obligations.
- Building on our long-term hot water load control experience through expanding operation to manage solar exports.

We are continuing to build on this 'toolkit' to exhaust all low-cost solutions ahead of any network upgrades.

Cost reflective tariffs

We have proposed a suite of simple, efficient and adaptable network tariffs for 2026–2031 to the regulator. These tariffs provide better price signals for customers for when they should use and export electricity.

The network tariff targets retailers and aggregators who can use flexible import and export devices, such as home batteries and EVs with vehicle-to-grid (**V2G**) capability, to provide network support.

Flexible exports

Utilisation of our networks is continuing to grow as solar exports increase. For example, our networks had capacity for 98 per cent of new solar units connected 2024 to be approved to export their unused generation.

From 2027, we will offer a flexible export product that varies customers' export limit throughout the day based on the network's capacity. This will make better use of the existing network to enable a further 800GWh of export capacity for customers over 2026–2031.

Flexible load management

Electrification of transport has been identified as a key driver of future load on our networks. As EV drivers are likely to have some flexibility around the times when they charge, we believe this load will be able to be directed to times when network capacity exists.

We are currently developing our systems to offer more ways for customers to consume energy with greater flexibility, which will help them save money and increase the use of renewable energy.

This work is underway, with time allocated to engagement to design flexible load products and ensure customers have confidence in these products.

4. Provision of kerbside EVCI

We believe there is an urgent need to expand the availability of kerbside EVCI across Victoria. Electricity distributors are ideally placed to support this expansion and can play an important role by:

- Utilising their scale to create efficiencies in the delivery of EVCI services to lower the cost for drivers.
- Deploying their existing experienced staff to install and maintain EVCI.
- Accelerating deployment of EVCI geographically across their networks supply area to support EV uptake and help Victoria meet its net zero target.

The *Distribution Ringfencing Guideline* prohibits network involvement in kerbside EVCI charging, which we consider detrimental to both electricity customers and EV drivers.

We recently secured approval to undertake a trial that will deploy and maintain 100 new kerbside EVCI across our networks. The selected locations will consider the availability of off-street parking and be subject to extensive local government and community consultation.

The operation of this charging infrastructure) will be outsourced to third parties – e-mobility service providers. The EVCI is being designed with a capacity tailored to meet local demand, and will feature single and dual port setups, as well as a small number of V2G chargers.

Outside of improving access to EVCI through the trial, we are also exploring four demand management related objectives to optimise the integration of EVCI. This work will help us to understand how best to deploy EVCI, regardless of the owner of the charger. These objectives include:

- Defer pole and wire upgrades: The ability of EVCI to potentially defer upgrades to network capacity on the HV or LV networks.
- Dynamic pricing: Testing customer responsiveness to faster charging speeds or lower charging prices in periods of low demand as a tool for managing minimum demand.
- Charging behaviour: Exploring whether customers are willing to travel to alternate nearby locations that have greater capacity or lower cost to manage network capacity.
- V2G charger application: Testing whether EVCI's and bidirectional charging can help to manage constraints on either network capacity or network voltage.

The trial aims to demonstrate the viability of the technology and role distributors can play in the roll out of EVCI, while recognising that regulatory barriers prevent us from doing this work at scale. A regulatory change would be needed for network operators to deliver these chargers beyond the limited scope of the trial.

5. Enabling successful EV uptake

Networks play a vital role enabling the uptake of EVs, which will continue to grow as more of Victoria's vehicle fleet transitions to electric and demand for electricity increases.

While we have developed analytics to detect the location of high capacity EV chargers, and can also access limited public domain data on EV registrations, this does not provide perfect accuracy to plan

our networks to prevent issues for all customers Finding ways to give networks more awareness of customer electrification (such as the installation of high capacity EV chargers) where they would not normally engage with networks will be critical to ensuring a smooth transition to electrified transport for all.

We recently issued an installation guide to industry partners explaining our bidirectional charger installation process. While the range of bidirectional chargers and vehicle-to-grid (V2G) ready vehicles is still limited, we are pleased to make the connection of these devices as easy as a typical rooftop solar installation. These processes allow us to treat V2G like a household battery and collect data when bidirectional chargers are installed.

Electric vehicle charging and V2G form a key plank in our transition to a Distribution System Operator (DSO), where more power is generated behind-the-meter and we manage two-direction energy flows. As this transition progresses, there will be more orchestration of EV charging and discharging to maintain a safe and reliable network with high rates of electrification and renewable generation.

6. Conclusion

CitiPower, Powercor and United Energy appreciate the opportunity to share our insights with the Economy and Infrastructure Committee.

We believe there are opportunities to boost the rollout of EVs, while avoiding negative impacts on customers and ensuring the electrification of Victoria's vehicle fleet benefits all energy users.

As the Economy and Infrastructure Committee completes the *Inquiry into Electricity Supply for Electric Vehicles,* we provide the following recommendations:

- Distribution networks are playing a critical role supporting customer electrification. The transition to high EV uptake, alongside electrification of heating, will further increase electricity consumption and customer reliance on our networks. Any new EV charging initiatives should be optimised to work with the distribution network to avoid detrimental impact for customers on their electrification journey and ensure a safe and reliable supply into the future.
- As the Victorian Government actively supports customers to electrify, we welcome support for CitiPower, Powercor and United Energy's Electricity Distribution Price Review proposal. We have highlighted the challenges for our customers on their electrification journey and our plans have been carefully developed following our largest ever engagement process. If the AER accepts our proposal, we will support customers electrify their homes and transport needs while maintaining network reliability.
- We support the Victorian Government finding ways to give networks more visibility into customer electrification, such as the installation of residential high-capacity EV chargers. The provision of timely information will help networks to undertake proactive planning to smooth the transition to an electrified future and avoid unnecessary customer impacts.
- Bidirectional charging and orchestration of EV charging are valuable tools to soak up unused solar generation and reduce demand on the grid during the times of peak demand. Like existing schemes that support households to install rooftop solar, batteries and efficient appliances, we welcome initiatives to accelerate the rollout of bidirectional chargers, home energy management systems and orchestration of EVCI to benefit all energy users.
- The rollout of public EV chargers needs to move faster to remove barriers to EV adoption. CitiPower, Powercor and United Energy are delivering an EV charger trial and looking for opportunities to partner with government and industry to meet this growing need. Currently, there are regulatory barriers in place that restrict networks from providing this service without approval from the AER.