

19 March 2020

Australian Energy Market Commission
Mr Samuel Martin
Via email: samuel.martin@aemc.gov.au

Dear Mr. Martin,

Re: ISSUES PAPER - 2020 RETAIL ENERGY COMPETITION REVIEW: ELECTRIC VEHICLES

Evie Networks welcomes the opportunity to provide a submission to the Australian Energy Market Commission (AEMC) issues paper- 2020 Retail Energy Competition Review- Electric Vehicle impacts (Issues Paper).

Evie Networks (Evie) is an Australian company building a national highway-based ultra-fast electric vehicle charging network. We are privately backed by the St Baker Energy Innovation Fund with up to \$100M of funding to build a national public fast charging infrastructure. Our first phase highway rollout consists of 42 sites located along the east coast stretching from Cairns to Adelaide, plus sites in Tasmania and Perth. Our first site is operational with a further five sites scheduled to be operational by Q2 2020. In addition, we are also deploying metropolitan-based EV fast-charging networks in the major capital cities. We are working with world class partners to design, build and operate this network, including Tritium, a world-leading manufacturer and exporter of EV charging equipment based in Brisbane.

It is our understanding that the Issues paper seeks to (1) assess the state of competition in retail markets by assessing whether retailers are innovating in relation to technology based products, in this case electric vehicles; and (2) to analyse if there are any retail regulatory barriers to such innovation occurring. While we recognise the focus on the Energy Retailer as the traditional primary interface with the consumer, we note the mobile nature of electric vehicles introduces multiple new interfaces with consumers/drivers, mainly through Charge Point Operators (CPO) and other energy service providers.

As a result, our submission focuses on the broader context based on our role as a CPO and we address the relevant questions raised in the Issues Paper. We provide a deeper dive into the interface and benefits of public charging infrastructure to the electricity sector and specifically the electricity grid. Electricity Networks play a critical role in enabling the deployment of the charging infrastructure network as they are the gatekeeper of the electricity grid. The lack of guidance to power this expanding infrastructure, coupled with the dated tariff and application approach is currently creating significant barriers to the deployment of innovative products.

For any further information or clarification on any content of this submission, please contact Stephanie Bashir, Head of Policy at stephanie.bashir@goevie.com.au or mobile 0402060120.

Yours Sincerely,

A handwritten signature in black ink that reads "Chris Mills". The signature is written in a cursive style and is positioned above a large, empty oval shape that appears to be a placeholder for a stamp or seal.

Chris Mills
CEO
Evie Networks

Encl.

Question1: Are there any other contextual development the AEMC should consider in relation to EV uptake and use in Australia?

Worldwide, decarbonisation is a strategic imperative for the global economy and for Australia to meet its long-term commitment to global temperature stabilisation (under the Paris Agreement), all sectors of the Australian economy must be decarbonised. The transportation sector is the second largest and fastest growing emitter of greenhouse gases (GHG) accounting for approx. 19% of GHG emissions in Australia.

The Recharging the Economy report (EV Council, March 2018) found that electrification of Australia's transport sector could have major positive impacts on public health and the national economy. Electrification of passenger vehicles alone would add \$2.9 billion to real GDP, create more than 13,000 jobs and reduce emissions by 18 million tonnes by 2030 –the equivalent to taking 8 million petrol vehicles off the road. ¹ Furthermore, a recent study by the EV Council and Asthma Australia², suggests that air pollution from Internal combustion Engine (ICE) motor vehicles kills over 1,700 Australians per year. In NSW alone, vehicle emissions are annually causing contributing around 21,000 serious health impacts and 650 deaths occurring annually.

We believe the transition to electric transport can stimulate new use of electricity, increasing energy consumption to the Australian energy market and the grid. We are also seeing strong investment signals which will promote productivity growth to the Australian energy sector and provide ongoing domestic opportunities for generation and storage projects. This in turn will place Australia at the forefront of innovation and exportable knowledge as the global energy market goes through a fundamental transformation in how electricity is generated, delivered and used.

The provision of publicly accessible EV fast-charging stations remains the greatest hurdle to EV uptake by consumers, ride-share and taxi industries, and fleet owners (including car hire, government, councils and private companies). Investing in the rollout of Australia's largest network of fast and ultra-fast charging stations is essential for the transition of the transportation sector. Therefore, we encourage the AEMC to consider the challenges and barriers detailed further in our submission, which prevent or disincentivise the EV uptake and the expansion of fast-charging infrastructure investment.

Question 2: Role of retailer

What challenges and opportunities, given the current role of retailers in the NEM, are EVs likely to provide retailers?

We recognise that currently the traditional interface with the consumer is the Energy Retailer, however the mobile nature of Electric Vehicles means that drivers will have more than a single point of interaction with the competitive energy markets, specifically they interact through Charge Point Operators (CPO) and other energy service providers.

AEMC should therefore also consider the role of the CPO in introducing innovative products based on technology, and the barriers to their introduction of those products.

The key challenges to the rollout of EV public charging networks are mainly around the electricity grid. Electricity Networks play a critical role in enabling the deployment of the charging infrastructure network as they are the gatekeeper for all connections to the electricity grid. The overly cautious approach being adopted by the electricity networks to power this expanding infrastructure, is currently creating significant barriers which we explore further in our submission.

As a CPO buying energy from the market (to sell a charging service), we are also viewed as a retail

¹ <https://electricvehiclecouncil.com.au/wp-content/uploads/2018/11/Recharging-the-economy.pdf>

² https://electricvehiclecouncil.com.au/wp-content/uploads/2019/06/EVC-Cleaner-and-Safer-Roads-for-NSW_V3-Single.pdf

customer like any other. There are two specific challenges/opportunities for retailers in their role of selling energy to CPOs:

1. Retailers are responsible for managing tariff assignment on behalf of their customers. But Evie Networks has encountered challenges in getting retailers and DNSPs to agree and align on the eligibility and cost-reflectivity of the tariff assignments for our accounts (See Question 5 below). In several cases Evie Networks has had to intervene in the discussion between our retailer(s) and DNSP(s) to ensure the process delivers the correct, eligible, cost-effective outcomes.
2. Retailers will ultimately benefit from the tremendous forecast growth in the EV market (as it means substantially more revenue for them). However, the traditional "pass-through" methodology for DNSP tariffs in retail offers may disincentivize early market growth if these charges are unfavourable. Retailers should be encouraged to take a long view – by taking some minimal commercial risk in the near term (while EV market volumes are low) to encourage growth rates and leading to more revenue (with less risk) in the longer term.

Question 3: Regulatory environment

- a. Do you consider that regulatory changes, like multiple trading relationships, that improve a consumer's ability to engage with multiple FRMPs at a household would enable innovative services and products to develop for EV consumers?
- b. Do you have any views on an appropriate method (e.g. through a change to the SGA framework or an alternative metering configuration), and relevant costs, to facilitate this?

As mentioned earlier in our submission, we believe that the consumer interface with energy goes beyond the Energy Retailer with regards to EVs. The energy sector in this regard is lagging - customer preferences and expectations and certainly technology advancement will need to enable consumers/ drivers to engage with multiple service providers to meet their specific needs. Therefore, we are of the view that competitive neutrality and an open playing field that enables new business models and service innovation will be critical moving forward to support customers' evolving needs at an affordable price.

As a CPO however, there are specific challenges and reforms required to support the rollout of public infrastructure networks. We outline these regulatory barriers and challenges further in our submission.

Question 4: Residential charging

Are there other offers in the retail market, or are you developing any others, aimed at EV consumers?

As mentioned, our focus as a CPO is on Non- Residential charging detailed in the next question.

Question 5: Non-residential charging

- a. Are you providing or developing any non-residential charging products or services?

Importance of public infrastructure charging

The provision of publicly accessible EV fast-charging stations remains the greatest hurdle to EV uptake by private consumers, ride-share and taxi industries, and fleet owners (including car hire, government, councils and private companies). Investing in the rollout of Australia's largest network of fast and ultra-fast charging stations is essential for the transition of the transportation sector.

Based on global and domestic research to date, Evie Networks believes that a network of highway-based fast-charging stations will reduce consumer range anxiety resulting in the acceleration of Electric Vehicles uptake in Australia.

In a survey of 1,086 residents of Victoria, New South Wales and the Australian Capital Territory conducted by Climate Works³, 89% of motorists identified cost of electric vehicles, and provision of public charging infrastructure as the main barriers for purchase.

The International Council on Clean Transportation (ICCT)⁴ also examined 350 cities around the world and found a positive correlation between the availability of charging infrastructure and the uptake of electric vehicles. The ICCT concluded that while most electric vehicle drivers charge their cars at work or at home, public charging infrastructure forms an important part of the electric vehicle ecosystem.

Benefits of Electrification of transport to the Electricity Sector

In contrast to the Electric Vehicle market, Australia leads the way in the uptake of Solar PV and Batteries, what is known as Distributed Energy Resources (DER). This rapid growth in DER brings real challenges for the Electricity Networks as it creates a large decline in demand of domestic energy consumption during the day when Solar PV is generating. The role of EVs in the future power grid is recognised as having potential to positively impact the energy system by creating 10-30% growth in new electricity consumption allowing greater utilisation of the existing overbuilt and under-utilised electricity distribution networks. We recognize this will require the right incentives that encourage certain charging behaviors. Evie Networks believes this will ensure customers receive more value out of the infrastructure that already exists and reduce the scale of asset write downs or rebates as recommended in recent ACCC Report 5. Ultimately this will reduce the average cost of electricity to consumers.

The transition to electric transport can stimulate new use of electricity, increasing energy consumption to the Australian energy market and the grid. We also see strong investment signals which will promote productivity growth to the Australian energy sector and provide ongoing domestic opportunities for generation and storage projects. This in turn will place Australia at the forefront of innovation and exportable knowledge as the global energy market goes through a fundamental transformation in how electricity is generated, delivered and used.

b. Are there retail market barriers in developing non-residential EV charging products and services?

Currently across Australia, there are less than 110 fast charging stations⁶. In order to increase the EV public charging sites across Australia, there are several issues which need to be addressed that require policy and regulatory changes. A coordinated approach that ensures infrastructure companies can make the investments in installing and running charging sites; electricity networks can better manage local grid capacity and benefit from EVs; and ultimately, recharging for electric vehicle users is affordable.

Given the importance of fast charging to EV adoption by passenger and light commercial vehicles and the critical role that electricity networks play, we have explored the following two major barriers. These key barriers if not addressed as a priority, could risk stunting this emerging market and add unnecessary cost to drivers and energy customers overall.

1- Energy supply costs are not cost reflective

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https://www.climateworksaustralia.org/sites/default/files/documents/publications/climateworks_australia_state_of_electric_vehicles2_june_2018.pdf

⁴ https://theicct.org/sites/default/files/publications/US_charging_Gap_20190124.pdf

⁵ Australian Competition and Consumer Commission, 2018

⁶ <https://electricvehiclecouncil.com.au/wp-content/uploads/2019/09/State-of-EVs-in-Australia-2019.pdf>

NEM energy consumption forecasts shows EV consumption is the only genuine residential (consumption) growth opportunity in the next decade. The EV industry is in the early stages of development with all the frailty that goes with being an emerging industry. Existing tariffs are based on historical load profiles which bear no resemblance to the volatile load shape and low load factor of an EV charging site. Therefore, the current application by the Distribution Network Service Provider (DNSP) of existing tariffs to electric vehicle charging, particularly to essential public convenience fast charging and ultra-fast charging, is resulting in energy costs which are unsustainable. First-hand experience from deploying our network has us receiving cost proposals for the supply of energy ranging from 65¢kWh to 400¢/kWh. This is equivalent to a petrol price range between \$1.10/litre and \$7.00/litre for energy supply only.

These excessive energy supply costs being charged to Evie Networks by DNSPs is driven by demand charges and fixed network charges which are applied under existing tariffs. These fixed charges have greatly expanded over the past two decades due initially to 'gold-plating' of networks in some States, and more recently to compensate DNSPs for falling energy flows and utilization on the Network. Currently, DNSPs obtain a regulated revenue based on asset values, and are urged to minimise outages, they have historically built out the infrastructure to meet service peak events which has resulted in hyper-inflated tariffs.

Electric vehicle fast chargers are high-powered and have low load factors, resulting in low volumes of energy consumed relative to the peak demand and committed capacity for the site connection. Existing tariffs assume peak customer demands coincident with system peak demands, which drive the peak network capability that must be provided to reliably meet all consumer demands at times of peak demand. This is far from the case for electric vehicle public charging, which is usually supplied with off-peak power in residences and is highly off morning and evening peaks for ride-share and ride-hailing, which is the largest consumer of metropolitan fast charging. DNSP standard tariffs take no consideration of the overall network benefits that electric vehicle uptake can offer to networks following commitments to the expanding roll-out of public fast charging services.

Further, electric vehicles are a mobile load. Electricity networks have designed their tariffs on the assumption that all electrical loads are stationary. However, the mobile nature of electric vehicles means that the same vehicle will contribute to maximum demand at different points on the network, on different days over the course of a month (for example, a driver charging at home, at work, at the shopping center or at a highway fast charger). This means that electric vehicle users will effectively be charged for their demand on the network multiple times for the same vehicle. As a vehicle is physically incapable of simultaneously contributing to demand at multiple locations, it is inappropriate to levy demand charges on both public and private charge points.

Evie networks believes that tailored network pricing approach (cost-reflective) for EV public charging is fundamental to balance the needs of both EV consumers, manage investment costs as well as reflect the costs placed on the network. Tailored Network pricing coupled with adoption of demand management services will drive efficient network utilisation.

2- Network connections are inefficient and costly

The role of electric vehicles in the future power grid, is recognised as having potential to positively impact the energy system, including contributing to network support services to address the management of frequency, energy, and voltage. If progressively integrated into the existing electricity grid, electric vehicle chargers can also have significant benefits in minimising network constraints and the need for costly network upgrades.

However, unfortunately from our experience to date, the power connectivity process can take more than 6 -8 months to receive a response from initial inquiry. These delays not only adversely impact the rollout of the chargers but are very costly. Each application cost can vary between \$3,000 to

\$30,000 depending on the number of times we are required to resubmit due to inquiries and with up to \$500,000 upfront CAPEX spend on augmentation of a site once we receive the design standards and requirements from the DNSP. Specific challenges experience so far include:

- **Protracted grid connection timeframes** – Currently there are minimum obligations under the National Electricity Rules (Chapter 5) requiring NSP's to respond in a timely manner. It is our experience that ultrafast charger connections are taking upwards of 6-12 months to complete which adversely impact our ability to deliver a fast roll out.
- **No standard connection conditions** - The recently released Energy Networks Australia, Connection Guidelines seeks to nationally standardise the grid connection condition however it is our experience that the ad-hoc interpretation of National Electricity Rules by various NSPs is a major barrier to the establishment of charging infrastructure.
- **Lack of network hosting capacity transparency** – Typically for each connection there are various planning reports, concept designs and technical studies required to be completed before an offer to connect can be received. Many of these studies are costly; add to the time scales to connect; and are difficult to assess prior to interfacing with the NSP because of the lack of accessible network hosting capacity information. This means it is extremely challenging to undertake detailed business case assessment of various charging infrastructure locations. The economics of ultrafast charging infrastructure economics are dependent on both the network tariffs as well as the connection costs, and there are large locational variations.
- **Absence of interconnectivity frameworks** – Despite being commonly agreed as an essential future requirement, there currently does not exist an established electric vehicle or storage to electricity system interconnectivity framework. This framework is required to enable the interoperability of electric vehicles and stationary energy storage with the existing infrastructure. This electrification of the transport sector, if orchestrated, will enable electricity network operators to better manage peak demand, in turn reducing the occurrence of peak events and the need for further network 'gold plating'.

While these issues can be attributed to the lack of obligations in the NER, there remains scope for DSNPs to better align connection requirements and provide more consistency and transparency in approval responses and timeframes.

Question 6: EV Value Streams

Are you currently developing products and services to harness EV value streams?

Are there retail regulatory barriers for retailers or new energy service providers accessing these value streams?

We note that as the EV market is still at its early development stage in Australia, we encourage the AEMC to focus on whole of system electricity market issues to address immediate barriers to the EV industry and ensure the EV industry can continue to grow.

Conclusion

In conclusion, Evie Networks is actively engaging across all levels of Electricity Networks, Government and key Stakeholders to build awareness that transport electrification represents a major growth opportunity for domestic electricity consumption and as such, a rapid transition to electric vehicles is in the long term interest of the market and end consumers.

As we mention in our submission, Electricity Networks play a critical role in enabling the deployment of the charging infrastructure network as they are the gatekeeper of the electricity grid. Given the importance of fast charging to EV adoption by passenger and light commercial vehicles, we ask the AEMC to consider the electricity network barriers raised.

We believe that the AEMC has a major role to play, as the COAG Energy Council policy advisor and rule maker, to explore further the tariff and connections issues presented and currently stifling the expansion of the public charging network.