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### **RPR 0012 – Issues Paper, Electric vehicles in the retail energy market**

The Australian Energy Council welcomes the opportunity to make a submission to the AEMC Issues Paper, Electric vehicles in the retail energy market, as part of the 2020 Retail Energy Competition Review.

The Australian Energy Council (AEC) is the industry body representing 23 electricity and downstream natural gas businesses operating in the competitive wholesale and retail energy markets. These businesses collectively generate the overwhelming majority of electricity in Australia and sell gas and electricity to over 10 million homes and businesses.

#### ***Question 1: Context. Are there any other contextual developments the Commission should consider in relation to EV uptake and use in Australia?***

Governments have a role to play in supporting the uptake of zero emissions vehicles<sup>1</sup> (ZEV) through incentives such as stamp duty and registration concessions, and various Government fleet targets. Whilst stationary energy emissions are best addressed nationally, there are likely to be significant benefits in any state-based action in the land transport sector. This is because:

- Land transport infrastructure and regulation is almost entirely the responsibility of sub-national jurisdictions;
- Unlike stationary energy, transport emissions are on a consistently strong growth path and show no sign of peaking in a business-as-usual future;
- The transport sector is likely to be more responsive to direct state and local government actions, through its existing regulatory role, such as vehicle registration and parking controls. These roles are likely to be more effective in encouraging improved consumer choices than the Commonwealth's more indirect role in fuel excise and vehicle standards. Furthermore, local actions are unlikely to have the distortionary effects in the transport sector that a state-based action might have on the National Electricity Market;

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<sup>1</sup> Zero emissions vehicles (ZEV) includes all such technologies, such as hydrogen, not just electric vehicles.

Government actions in the land transport sector to reduce liquid fuel consumption are frequently shown to have negative costs to users, by overcoming informational and other barriers<sup>2</sup>.

Financial incentives will remain a crucial driver to reduce cost differentials in most zero emissions vehicle (ZEV) markets.<sup>3</sup> The ACT continues to outperform other jurisdictions in EV purchasing correlated to the largest stamp duty and registration discount nationally, though presumably this discount is ultimately funded by ACT taxpayers.<sup>4</sup> Revenue impacts from concessions requires consideration, though cost between electric vehicles (EVs) and internal combustion engine vehicles (ICEVs) is expected to reach parity by as early as 2024.<sup>5</sup> Government fleets can stimulate ZEV uptake by new fleet purchases of ZEVs. This both normalizes ZEVs and creates a second-hand market for depreciated EVs that would provide an additional avenue for private ownership. The question of targets has been the subject of parliamentary review in 2018. Another important role for Government could be to provide more information about the cost comparison of ICEVs versus ZEVs.

International experience demonstrates a strong correlation between public charging infrastructure and the uptake of EVs.<sup>6</sup> The availability of fast charging has the most influence on EV adoption. Fast charging has a greater impact on both electricity supply and distribution. Policies that encourage EV owners to charge vehicles outside peak demand periods, and to encourage EV charging providers to optimize grid utilization, would be supported by the AEC. The Australian Renewable Energy Agency (ARENA) through its Distributed Energy Implementation Program (DEIP) has the EV Grid Integration Working Group that is examining these issues. The EV Grid Integration Working Group has six work streams that includes two examining residential tariffs and incentives and also high capacity tariffs and incentives. We encourage the AEMC not to establish structures through its rule making program that will duplicate or dilute the industry resources available to the DEIP.

We believe that during the early stages of the EV market in Australia, fast charging infrastructure is likely to present a challenging business model for private sector investment, as EV ownership is low. Grant programs can ensure both sufficient and efficient investment in fast charging infrastructure and the Victorian Governments agreement with Chargefox is a good example of what can be achieved<sup>7</sup>. However studies have shown that public charging stations at less than 60km interval<sup>8</sup> are required to for drivers to both complete journeys beyond the range of their vehicle, and importantly for them to feel secure travelling longer distances and further from their usual charging location.

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<sup>2</sup>*Pathways to a Low Carbon Economy, Version 2 of the Greenhouse Gas Abatement Curve*, [https://www.mckinsey.com/~/media/mckinsey/dotcom/client\\_service/sustainability/cost%20curve%20pdfs/pathways\\_lowcarbon\\_economy\\_version2.ashx](https://www.mckinsey.com/~/media/mckinsey/dotcom/client_service/sustainability/cost%20curve%20pdfs/pathways_lowcarbon_economy_version2.ashx) Exhibit 8.6.4

<sup>3</sup> *Funding the transition to zero emissions vehicles*, International Council on Clean Transportation (ICCT), <https://theicct.org/publications/funding-ZEV-transition>

<sup>4</sup> *The state of electric vehicles in Australia*, Electric Vehicle Council and ClimateWorks, June 2018

<sup>5</sup> *Electric car price tag shrinks along with the battery cost*, Bloomberg, April 2019

<sup>6</sup> *Roll-out of public EV charging infrastructure in the EU*, Transport and Environment, September 2018

<sup>7</sup> *Victoria charging ahead with electric vehicles*, Department of the Premier, press release, 25 October 2018 <https://www.premier.vic.gov.au/victoria-charging-ahead-with-electric-vehicles/>

<sup>8</sup> The Transport and Environment study identified that there are around 2,550 rapid charging sites installed on European main roads with a total of about 5,000 chargers. This is equivalent, in average, to one site with two chargers placed every 60 km in average on EU motorways for every direction on the highway. [https://www.euractiv.com/wp-content/uploads/sites/2/2018/09/Charging-Infrastructure-Report\\_September-2018\\_FINAL.pdf](https://www.euractiv.com/wp-content/uploads/sites/2/2018/09/Charging-Infrastructure-Report_September-2018_FINAL.pdf)

With respect to vehicle electrification, fears that it will shift liquid fuel emissions into electricity emissions<sup>9</sup>, is not well founded. This is because:

- Electric vehicles are considerably more energy-efficient in an urban setting than conventional vehicles and therefore less emissive even if supplied with fossil-fuelled electricity;<sup>10</sup>
- National electricity generation emissions intensity has already fallen considerably from its historical level, and this improvement will continue under any scenario;<sup>11</sup>
- New demand from electric vehicles will be met by marginal electricity generation over time. Coal plants are presently being retired at their ends of life and not being replaced. It can therefore be reasonably assumed that all additional marginal demand will be met by new renewable and low-emissions gas-fired generation.

There is a role for policy to require networks to provide and publish better information on the state of their network infrastructure, incorporating information around the strength of its network and the costs of different connection options with respect to charging infrastructure. This information, combined with better knowledge of consumer behaviour, would allow for a more integrated plan of installing the appropriate charging infrastructure in the most optimal locations and therefore best utilise the existing network.

Whilst work has been done on what EV's can do in terms of network support services in a theoretical context, consumer behaviour or how consumers will actually interact with EV's is not well understood. For example, on street parking is common in inner to middle suburbs, making it unclear how EV's will be connected to the grid. In outer suburbs the two car garage is common, but is often not used at all for car parking and instead is a recreational or storage space, again leaving cars parked out in the street. Surveying residential customers as to what they actually do, not what they could do, will assist with understanding implications for energy demand and planning both in the near (2025-30) and medium-far (2030-50) future periods. Examining how people will live in the future is important context to wrap around the AEMC's review and is the subject of the Monash University Digital Energy Futures Project being undertaken in conjunction with the Australian Research Council, Ausgrid, Ausnet Services and Energy Consumers Australia<sup>12</sup>.

**Question 2: Role of retailer. What challenges and opportunities, given the current role of retailers in the NEM, are EVs likely to provide retailers?**

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<sup>9</sup> *Electric vehicles have higher carbon emissions*, The Australian, [https://www.theaustralian.com.au/subscribe/news/1/?sourceCode=TAWEB\\_WRE170\\_a&dest=https%3A%2F%2Fwww.theaustralian.com.au%2Fnation%2Fpolitics%2Felectric-vehicles-have-higher-carbon-emissions%2Fnews-story%2F1d64815feb92b2d5a81324971fa96547&memtype=anonymous&mode=premium](https://www.theaustralian.com.au/subscribe/news/1/?sourceCode=TAWEB_WRE170_a&dest=https%3A%2F%2Fwww.theaustralian.com.au%2Fnation%2Fpolitics%2Felectric-vehicles-have-higher-carbon-emissions%2Fnews-story%2F1d64815feb92b2d5a81324971fa96547&memtype=anonymous&mode=premium)

<sup>10</sup> *Clean Green Machines, the truth about electric vehicle emissions*, The Conversation, <https://theconversation.com/clean-green-machines-the-truth-about-electric-vehicle-emissions-122619>

<sup>11</sup> Ibid

<sup>12</sup> See Monash University Digital Energy Futures Project, <https://www.monash.edu/digital-energy-futures>

It is commonly believed that the uptake of EVs will both encourage and be dependent upon tariff reform, smart grid development, and innovation in the form of more dynamic billing and charging arrangements to ensure EVs help improve and optimise use of the energy network. It was once even considered feasible, though probably over optimistic, that the value of Vehicle to Grid for electricity networks and retailers could eventually offset the up-front cost of EVs<sup>13</sup>.

The Retailers role is to provide the consumer with a financial product, which is the retail contract. The AEMC notes<sup>14</sup> that this packages wholesale, network, metering, customer service and other costs; the range of retail offers available in the market are essentially a range of financial products related to facilitating the supply of energy.

Broadly speaking, the challenges that EV's represent are mostly an amplification of the retail packages existing challenges and does not present serious new challenges to retailers in the current DER paradigm; the exception being the DER (Vehicle to Grid) potential. Forecasting suggests that by 2050, almost half of households and businesses in Australia will have solar PV installed, many accompanied by a storage device, an electric vehicle charger and other smart appliances of the future.<sup>15</sup> Retailers are already marketing retail packages for this. However there is scepticism as to the further development and uptake of retailer innovation.<sup>16</sup> Retailer innovation, or any lack thereof, links back to the problem that the market institutions and regulatory arrangements governing the NEM are overly complex and create duplication. The sheer number of market institutions and regulators, and the associated consultation processes they create<sup>17</sup>, is increasing the costs for both industry to initiate and for consumer groups to engage in market reforms.

Consumers and industry are also being slowly corralled by institutions into the likely form of DER management, with consultations on the likes of Distribution Systems Operations (DSO) seeking to entrench vested interest of existing institutions in DER management. Whilst the ability to take advantage of these technologies is critical and we agree that models for a DSO should be being consulted upon, the early opportunities for unlocking the value of DER should be considered in light of existing tariffs and demand management initiatives; we should be cautiously building out the infrastructure as we need it. Early market mechanisms should be seen as an adjunct to, and not a replacement of, existing market infrastructure. This is especially true as the costs of major changes to market operations will initially be borne by all to the benefit of the few, at a time when the market is not yet mature enough to identify an optimal design in any case. By the time we reach 2050 the market mechanism envisaged today may not be fit for purpose. Peer to peer (P2P) technologies may more readily enable customers to trade or share excess electricity they generate.

**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**

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<sup>13</sup> *Sparkling an Electric Vehicle Debate in Australia*, Discussion Paper, Energy Supply Association of Australia, November 2013

<sup>14</sup> *Electric vehicles in the retail energy market*, Issues Paper, AEMC, February 2020

<sup>15</sup> *Required Capabilities and Recommended Actions: Interim Report*, AEMO and Energy Networks Australia, 2019

<sup>16</sup> *Maximising consumer outcomes from retail electricity markets*, Energy Consumers Australia and Ash Salardini, March 2020, p.12

<sup>17</sup> In 2018, the various regulators and market institutions likely created 56 consultation processes for suppliers and consumer representatives to engage in, to effectively shape the direction of the electricity market. *Maximising consumer outcomes from retail electricity markets*, Energy Consumers Australia and Ash Salardini, March 2020, p. 27

***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?***

In February 2016 the AEMC and industry generally found that at that time there was little evidence that the benefits of Multiple Trading Relationships outweighed the costs, nor that MTR was necessary to facilitate the kinds of services outlined in the AEMC's consultation paper of that time. The door was left open to consider whether at some point in the future, adopting MTR could provide net benefits to the market.

Current evidence suggests that we need to allow for the market to evolve in response to consumer demand. The second supply point, with its own NMI, would be a possible adjunct to existing infrastructure that could fulfil the "practical effect" requirements of a DSO, or two way relationship, such as EV charging services or other controllable loads. This would be without the same "front loaded" expense of the proposed DSO models. According to the Jacobs report of 2015, the MTR would facilitate the uptake of new technologies or sophisticated appliances, including those that are remotely or automatically controlled, as well as creating additional settlements points. A second supply point in the short term would have the same practical effect. In order not to discourage uptake of a second supply point, consideration could be given to spreading that cost across all users in some way. This would be a lower cost and "no regrets" option as we wait for the market to mature enough for better considered future design options.

The AEC would support a consultation on MTR alternatives in light of 2020 forecasts of battery and EV penetration. We note that MTRs or alternatives should not proceed without a clear framework for how alternative service providers are to be regulated that ensures that the MTR framework does not result in an imbalance where one party has regulatory obligations and the other party can avoid them, for what is essentially the same service. This includes policy obligations such as passing on of premium feed-in tariffs or renewable and white certificate liabilities.

***Question 4: Residential charging a. Are there other offers in the retail market, or are you developing any others, aimed at EV consumers? b. Are there retail market barriers in developing residential products and services for EV consumers?***

This is best answered by individual retailer businesses.

***Question 5: Non-residential charging a. Are you providing or developing any non-residential charging products or services? b. Are there retail market barriers in developing non-residential EV charging products and services?***

This is best answered by individual retailer businesses.

***Question 6: EV value streams a. Are you currently developing products and services to harness EV value streams?***

This is best answered by individual retailer businesses.

***Question 6: b. Are there retail regulatory barriers for retailers or new energy service providers accessing these value streams?***

The AEC has previously sought the review of incentive schemes such as the Demand Management Incentive Scheme (DMIS) and the Efficiency Benefits Sharing Scheme (EBSS) to ensure they cannot be gamed by NSPs to share benefits with an affiliate and thus gain advantage over other providers.<sup>18</sup> All unregulated revenue streams should be undertaken as a competitive activity, preventing the capture an unregulated revenue stream by the NSP via the DMIS, the EBSS or the shared asset guidelines.

Network tariff reform, network connection standards, Australian Standards technical standards, and energy efficiency standards could also impact the way that revenue streams can be accessed and prices determined; these being the first steps in value creation. The Oakley Greenwood report to ARENA on the pricing and integration of DER examines in detail the relevant scenarios and structures required to capture the economic value of DER services.<sup>19</sup>

Any questions about our submission should be addressed to David Markham by email to [david.markham@energycouncil.com.au](mailto:david.markham@energycouncil.com.au) or by telephone on (03) 9205 3107.

Yours sincerely,

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<sup>18</sup> *Amendments to Chapters 5, 6, 6A and 7 of the National Electricity Rules in the implementation of Demand Response and Network Support Services*, Australian Energy Council, October 2016.

<sup>19</sup> *Pricing and integration of distributed energy resources*, Oakley Greenwood, <https://arena.gov.au/projects/pricing-and-integration-of-distributed-energy-resources-study/>