

19 August 2022

Energy Security Board

By Email: [info@esb.org.au](mailto:info@esb.org.au)

Dear Sir/Madam,

### **Response to Electric Vehicle Smart Charging – Issues Paper**

SA Power Networks is South Australia's sole electricity distributor, providing electricity to approximately 900,000 of our State's homes and businesses.

As part of our future network planning, we have forecast over 800 GWh of additional energy flowing through our network annually by 2030 - an increase of almost 10% - due to Electric Vehicles (EVs). By 2050, EVs will have increased energy throughput on our network by 50% and our network will be the primary distribution system for transport fuel for the State. The transition to electrified transport presents a great opportunity, but also a significant risk, if not managed well.

South Australia is at the forefront of a consumer led energy transition, particularly in terms of rooftop solar uptake, with around 35% of SA homes generating renewable electricity. This is delivering a variety of positive social, environmental and economic outcomes, but is not without its challenges for the electricity network. Aside from a broad decarbonisation benefit, the electrification of transport will be a key tool for utilising the abundant renewable energy generated in South Australian homes during the day.

EVs are likely to be the largest load in a customer's home and, if not integrated well, will result in significant additional network investment and therefore costs for customers. Smart charging is an important step towards encouraging the right charging behaviour and transitioning towards 'smart homes' which optimise energy management for the consumer and the network.

If EV charging occurs frequently during peak times, the transition to EVs has the potential to drive significant new growth in summer peak demand, requiring significant upgrades to the distribution network. On the other hand, because our network has significant underutilised capacity outside of peak times, if EV charging is well managed to occur mostly outside of the summer air-conditioning

peak, our modelling suggests that South Australia has the potential to decarbonise the transport sector largely within our existing network capacity.

Increased utilisation of existing network capacity will deliver significant cost benefits to the *entire* community, as well as continue to support our decarbonisation agenda. The key to achieving this outcome is ensuring customers have appropriate price signals to incentivise charging outside peak times and charging equipment that makes it easy and convenient to respond to these.

As an active member of both Energy Networks Australia (ENA) and the Electric Vehicle Council (EVC), we have noted their submissions to this paper and SA Power Networks is generally aligned with their broad positions. That being the case, this submission addresses issues that are more unique to South Australia and/or where we deviate from the broad industry view.

**SA Power Networks supports open and smart-capable domestic EV charger requirements.** However, an appropriate balance should be struck between basic, charging-only capabilities, and more sophisticated functions. Requirements should provide for easy management of charging times in response to price signals, and practical and affordable future integration with other smart systems, without mandating features that are not currently necessary.

For example, the Open Charge Alliance OCPP 1.6J standard is an obvious candidate as a mandatory capability, given that it is widely supported by existing EV chargers and can be made open to integration. In future, it would allow the EV charger to integrate with onsite solar generation, through a Home Energy Management System (HEMS), and/or coordinate within a Dynamic Operating Envelope (DOE).

SA Power Networks is a strong advocate for the enablement of DOEs because they increase network utilisation, which in turn lowers the unit cost of electricity. Mandating smart capabilities for EV chargers will provide customers the opportunity to opt into DOEs more readily in the future. Although we have been developing the capability to communicate DOEs to solar inverters through a series of ARENA-funded trials, we believe it is currently too early to mandate these capabilities for EV chargers, as trials will be required to establish a consistent national approach. In 2022/23 SA Power Networks will be undertaking a trial of DOEs for EV chargers through an AER-approved tariff trial, called Diversify.

We strongly support customers installing a permanently wired smart charger instead of using unmanaged power-point/destination-style charging at home. SA Power Networks does not have a strong view that upfront financial incentives are necessary to encourage customers who are installing hard-wired chargers to choose smart-capable chargers, given that the cost difference between basic and smart-capable chargers is approximately \$200 - \$300 and they provide significant additional customer benefits and opportunities for ongoing savings. Therefore, we believe any upfront subsidies should incentivise customers to choose smart-capable, fixed-wired chargers instead of power-point style chargers.



With the above in mind, policy consideration needs to be given to EV users who might not have access to fixed-wiring installations, for example houses with no off-street parking, renters and/or apartments. In South Australia, we are seeing strong community sentiment regarding the inability of renters to access rooftop solar PV and therefore participate in the associated cost reduction and decarbonisation benefits. We see the potential for a similar problem to emerge as transport decarbonises.

SA Power Networks supports **net-metering as an optional requirement**. Net-metering provides the capability for an EV charger to manage its output based on peak site load (or onsite solar generation). This is very important because it helps to integrate EV charging with other loads at the premises without expensive upgrades to the switchboard or electrical connection and reduces network peak demand. Having this capability integrated in the EV charger could, however, be superseded by other devices which a consumer may install at a later stage to perform this function for multiple smart devices at the premises, such as a HEMS.

As such, SA Power Networks believes that its current approach is appropriate – at the network application stage, we will remind EV charging retailers and installers of their obligations to inform customers of their options with regard to the charger’s capability in the scenario of the site being overloaded. For example, by applying for a larger network connection, increasing circuit size and protection, limiting maximum charger rate, or installing net-metering to balance site load. In summary, while net metering capabilities in the charging unit can be very beneficial, there are alternatives that many customers may prefer which have lower up-front cost and avoid potential duplicate metering. Therefore, we favour retaining customer choice.

We believe that it is essential to develop a **nationally consistent approach to testing, certifying and listing compliant EV chargers**. In the absence of a national approach, SA Power Networks currently curates its own list of EV chargers. As progress is made towards this initiative, it is essential that individual jurisdictions retain the ability to specify additional requirements. National consistency is an important mid to long-term objective, but in the interim, we cannot stifle innovation or the capability to address specific jurisdictional system issues. As an example, the South Australian Government implemented the Smarter Homes Relevant Agent Scheme to address an emergent system security risk, which was not an immediate problem for other parts of the NEM, prior to national standards being developed.

SA Power Networks **does not support technology-specific tariffs** as they are inconsistent with the *National Electricity Rules Network Pricing Objective*. We do believe that there is merit in supporting fledgling EV industry participants, particularly as private parties roll out regional and remote charging networks. However, there are more appropriate means for doing this, such as Government rebates and/or incentives. An unintended consequence of subsidising charge-point operators (CPOs) through these types of tariffs would be that electricity consumers end up cross-subsidising CPO businesses. We consider it important that subsidies are provided in a way that do not distort cost reflective pricing principles.

**We support flexibility in charge-point pricing.** It is essential for people charging their EV at a public charge point to have variable and cost-reflective pricing. This type of pricing will be integral to our State's ability to decarbonise transport with existing electricity network capacity. Just as it is in homes, encouraging the right charging behaviour at public charge points will allow South Australia to continue to capitalise on affordable, abundant and clean renewables. It is important to note that vehicle owners are already well-versed in variable pricing and navigating the 'fuel cycle' and its fluctuating prices is a standard practice and expectation for motorists.

In 2021, SA Power Networks supported a trial proposal of fast-charging technology, which included a price display screen to test the customer response to variable pricing. We are strongly supportive of trials of this nature. We consider that establishing pricing models for public charging that encourage efficient use of network capacity and the State's variable renewable energy resources, will be highly beneficial in the long-term as the EV market grows.

Thank you again for the opportunity to make a submission to this paper and participate in the development of policy that is critical to South Australia's energy consumers and the electricity network. If you wish to discuss this submission, please contact Bryn Williams, Manager Network Strategy, on 0416 152 553 or [bryn.williams@sapowernetworks.com.au](mailto:bryn.williams@sapowernetworks.com.au).

Yours Sincerely,



Mark Vincent, Executive General Manager Strategy & Transformation  
SA Power Networks