

1 April 2021

The Hon Angus Taylor MP
Minister for Energy and Emissions Reduction
Department of Industry, Science Energy and Resources
10 Binara Street
Canberra, ACT, 2601

Submitted via online submission form.

Dear Minister,

Energy Networks Australia submission to Future Fuels Strategy: Discussion Paper

Energy Networks Australia (ENA) welcomes the opportunity to make a submission to the Future Fuels Strategy Discussion Paper. We support the Government taking proactive measures to foster the development of low emissions road transport technologies at scale.

ENA is the national industry body representing Australia's electricity transmission and distribution and gas distribution networks. Our members provide more than 16 million electricity and gas connections to almost every home and business across Australia.

Managing vehicle charging

Battery electric vehicles (BEVs) and the associated network impact of vehicle charging is one of the biggest opportunities and challenges likely to face networks over the coming decade. In its 2020 Electricity Statement of Opportunities, AEMO is forecasting around 16 TWh of consumption from EVs by 2030, increasing to around 63 TWh by 2040¹. When compared to total NEM electricity consumption in 2019-20 of 192.4 TWh², additional network investment is likely to be required to support the electricity demand growth of EVs. Indeed, a typical BEV's daily usage can equal or exceed that of a typical household potentially doubling the residential impact on the local distribution network.

Increasing the amount of EV charging that takes place outside peak demand periods will reduce the amount of additional network investment required to support EV charging and will reduce costs for electricity customers. As such, ENA strongly supports action 4.1, to *Research consumer charging behaviour and mechanisms to*

¹ AEMO, *2020 Electricity Statement of Opportunities* (August 2020), p. 38.

² <https://www.aer.gov.au/wholesale-markets/wholesale-statistics/annual-electricity-consumption-nem>

encourage charging outside of peak electricity demand periods. For example, some other mechanisms could include financial incentives or the use of smart infrastructure.

ENA supports action 4.2 to *collaborate with energy experts and the electric vehicle industry to plan for the integration of large numbers of battery electric vehicles.* ENA has had positive experiences engaging with the [Distributed Energy Integration Program Electric Vehicle Grid Integration Working Group](#) (DEIP EV WG) and supports its program of work.

Vehicle-to-Grid (V2G)

ENA also supports action 4.3 to *trial emerging charging technologies through the Future Fuels Fund.* Smart charging technologies provide flexibility to the timing of EV charging and could enable vehicle-to-grid functionality, both of which have the potential to deliver substantial benefits to individual customers and customers more broadly via market and network improvements.

The implementation of V2G and Vehicle-to-everything (V2X) applications will eventually account for a greater proportion of Distributed Energy Resources (DER) in the future. It has the potential to give customers more choice, participate to help shape load, provide system services and improve overall optimisation. Our members are at the forefront of these trials in partnership with ARENA and industry³.

Preliminary network insights suggest a need to provide guidance to the industry on safety, installation and device capability via the development of technical standards. An example of this is in the export capacity of some V2G inverters where some devices have found to be able to export in excess of 7kW. Issues on the local network may manifest itself through excessive voltages, phase imbalances and other related power quality issues that may require further network investment if left unmanaged.

High-capacity charging and tariffs

High-capacity public charging infrastructure is necessary to enable longer distance EV travel and will play an important role in reducing barriers to further uptake of EVs. However, incorporating this infrastructure into the network is not straightforward given the high network capacity required to integrate high-capacity chargers into the network. ENA understands that the DEIP EV WG is progressing work to develop connection guidelines for high-capacity chargers.

As identified in the Discussion Paper, public charging infrastructure can draw a large amount of electricity from the network in a short period of time. Yet, to maintain safe and reliable operation of the network, sufficient capacity for the use of charging infrastructure must be made available at all times, including during peak demand.

Peak demand is one of the factors influencing network investment decisions and high-capacity public charging infrastructure contributes materially to peak demand. It is therefore appropriate that public charging infrastructure's contribution to peak

³ <https://arena.gov.au/projects/realising-electric-vehicle-to-grid-services/>

demand is recognised and a cost-reflective network tariff should be applied, such as a demand tariff. Ensuring network tariffs are cost reflective reduces cross-subsidisation of network costs and promotes efficient investment in network infrastructure, reducing costs for all customers.

ENA understands that cost reflective network tariffs may be a barrier to commercial rates of return for charging operators because privately-owned public charging infrastructure may not be utilised very often, at least in the short term. However, to the extent that public charging infrastructure drives network costs, it is fair and equitable to other network customers that the network costs associated with public charging infrastructure are recovered from infrastructure providers via cost reflective tariffs.

If you would like to discuss any aspect of this submission, please contact Chris Gilbert at cgilbert@energynetworks.com.au or 0438 776 337.

Yours sincerely,



Andrew Dillon

Chief Executive Officer