EVC Submission to:

Enhancing the integrated system plan to support the energy transition

Improving consideration of demand-side factors in the ISP

ERC0396

With reference to:

https://www.aemc.gov.au/rule-changes/improving-consideration-demand-side-factors-isp

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Premable:

The Electric Vehicle Council (EVC) is the national body representing the electric vehicle industry in Australia. As the market is emerging in Australia, our work is particularly aimed at increasing certainty for investment through policy, knowledge sharing and education. The accelerated uptake of electric vehicles enables a more sustainable and prosperous future.

This submission focusses specifically on ERC0396, Improving consideration of demand-side factors in the ISP.

The EVC is broadly supportive of the other rule change requests made that are bundled with this one, but is not commenting specifically to them at this time.

Executive summary:

The EVC supports the intent of the rule change request from Minister Bowen:

https://www.aemc.gov.au/sites/default/files/2024-06/erc0396_0.pdf

In particular the EVC strongly agrees with this statement:

"That assumptions about electrification, and the uptake and orchestration of CER and distributed resources should be improved"

It is the view of the EVC that AEMO definitely needs to improve the accuracy of assumptions relating to EV forecasting, both with respect to EV numbers, and with respect to consumer behaviour relating to EV charging and discharging (V2G). The EVC has provided detailed feedback of this nature multiple times:

https://electricvehiclecouncil.com.au/?s=aemo

The proposed solution from the AEMC is well intentioned and in keeping with the intent of Minister Bowen's request, but, in the EVC's view, not likely to deliver the desired result, primarily because the proposed solution assumes that the DNSPs have the best data available to aid AEMO in doing a better job of forecasting the impact of EVs, when in fact they do not.

To improve EV forecasting, AEMO will need to seek out data sources from stakeholders other than DNSPs, and then use that data well. In the EVC's view, the clearest short term pathway to improvement will be the retention of independent consultants with transport sector (and specifically EV sector) expertise. Longer term, to support the convergence of the transport sector and the electricity sector, AEMO should probably hire personnel into their forecasting team from the transport sector.

Additionally, consideration is given to the availability of more granular data relating to network capacity. The EVC is of the view that whether or not AEMO needs this data to improve forecasting, the EV industry definitely needs it to support the efficient deployment of public charging infrastructure, on which the transition to EVs (and hence achievement of the NEO) depend. So, the proposed solution should lead towards this data being publicly available, rather than just available to AEMO.

Detailed responses to questions:

Question 6: Should AEMO be required to expand consideration of CER and distributed resources in the ISP?

(a) Should the ISP's analysis include greater consideration of the assumptions and contingent factors underpinning the expected development of CER and distributed resources? Why or why not?

(b) Do you agree that AEMO is currently constrained in its ability to access relevant information about distribution network hosting capacity and relevant CER forecasts from DNSPs?

6(a): Yes. See discussion below relating to point 3.1.1

6(b): Yes. See discussion below relating to point 3.1.2.

With respect to this question, the issue is that many DNSPs are not publishing data at a sufficiently granular level to support the transition, because they are not required to.

This has been covered many times in a variety of forums, most recently here:

https://www.aer.gov.au/industry/registers/resources/reviews/network-visibility

https://electricvehiclecouncil.com.au/submissions/evc-response-to-esb-aer-benefits-of-increased-visibility-of-networks-consultation-paper/

If DNSPs made sufficiently granular estimates of network capacity publicly available (per the excellent example provided by Essential Energy), AEMO could use that data, as could all of the businesses seeking to accelerate and lower the cost of deployment of public EV charging infrastructure.

3.1.1 The proponent suggests that AEMO should expand its consideration of demand-side factors in the ISP

The proponent considers there is an opportunity to improve the robustness of the ISP forecasts and analysis by explicitly requiring the ISP to improve assumptions about electrification and the uptake and orchestration of CER and distributed resources.

The proponent also proposes that the ISP be required to include a statement on how CER and distributed resources uptake and orchestration are anticipated to develop, linking to assumed policies and market structures.[49] The proponent considers this would help inform market participants, regulators and policy makers and aid decision-making on the contingent factors underpinning the uptake and orchestration of CER and distributed resources.[50]

AEMO forecasts EV uptake and behaviour in significant detail, due to the forward outlook of how significant EV-related energy use will be over the forward period of the ISP.

The forecasting of EV uptake by AEMO has been badly misaligned with government policy at state and federal level for several years. It remains badly misaligned with government policy, and also with the objective reality of the vehicle market, in the most recent forecasting assumptions update in 2024.

For example, the current assumptions workbook expects that approximately 50% of new light vehicle sales in the NEM will be BEV in 2026, and 85% BEV in 2030. Government targets and policies are aimed at 50% of new light vehicle sales being a combination of BEV and PHEV in 2030.

While over-forecasting BEVs, AEMO significantly under-forecasts PHEVs. AEMO's forecast for the period 2024-2030 assumes approximately 8000 PHEVs sold in total in the NEM over that period. Australians have actually purchased about 8000 PHEVs in the first half of 2024, and PHEV sales are growing.

Assumptions around EV charging behaviour are similarly out of step with real world consumer behaviour, with a bias towards assuming a majority of consumers will charge their cars at peak time, and that V2G will be immeasurably small until after 2030.

The recent 2024 WEM ESOO is aligned with previous work by AEMO in terms of EV forecasting– which is to say, it's incorrect to a significant degree.

The EVC's guidance to members and government stakeholders is that AEMO's forecasting on EV uptake rates and consumer behaviour cannot reasonably be used for planning or decision making. We have provided feedback of this nature on multiple occasions.

There is substantial room for AEMO to do better on this front. In the EVC's view, this would start with AEMO retaining the services of consultants with a proven track record of getting forecasting of EV uptake in Australia correct, and then using that input in the various forecasting efforts that result in the ISP and ESOO.

A more accurate AEMO forecast relating to EV uptake and consumer behaviour would provide a valuable planning input for many stakeholders and reduce the risk of gold-plating energy networks with consequent impacts on consumer energy bills.

3.1.2 The proponent suggests there are barriers in the rules preventing AEMO from obtaining information to analyse the impact of distribution-level constraints on demand-side factors

To inform its analysis of the impact of distribution network constraints on CER and distributed resource uptake and orchestration, AEMO would require technical information from DNSPs on factors such as current hosting capacity and how hosting capacity might evolve over time. AEMO's ability under the NER to gather information on distribution networks (including constraint information) is currently not clearly defined because information gathering powers are typically linked to a function, and AEMO currently has no identified role in distribution planning or regulation.

The proponent considers that the information DNSPs are currently required to publish in their Distribution Annual Planning Reports (DAPR),[52] is not sufficiently granular for AEMO to effectively assess network constraints that may limit the availability of orchestrated CER or distributed resources to support the energy system.[53]

The EVC considers that with respect to EV uptake and consumer EV charging behaviour, AEMO likely does not require further data from the DNSPs.

The DNSPs are not experts in the automotive industry, or government policy with respect to the transport sector. For projected EV uptake information, AEMO needs to engage with the transport sector, and competent experts in the EV domain.

With respect to consumer behaviour surrounding the charging of EVs, a wide variety of data sources are available. Some of these are public, and have been collated by the EVC in the form of public reports. Some are not public, but have historically been made available to AEMO – for example, charging data collected by vehicle OEMs via telematics has been confidentially provided to AEMO in the past to support increased accuracy of modelling.

Further, AEMO could give consideration to the emergence of retail products designed explicitly to benefit EV drivers who are able to vary their charging times, and consider the rate of transition to these retailers. Ovo Energy and Amber are excellent examples of retailers with a focus of this nature, and their >100% year on year growth in customer numbers is a matter of public record in the AER's retailer reporting:

https://www.aer.gov.au/documents/schedule-2-quarter-3-2023-24-retail-performance-data

There is not a significant gap in availability of data to AEMO - rather there appears to be a failure to seek out and make reasonable use of the available data to produce a robust forecast.

The above said, the EVC has for some years pushed for increased granularity of DNSP data, particularly with respect to network capacity to be made publicly visible. Essential Energy are the gold standard in this respect, making capacity information on their network publicly available via a mapping interface down to the pole and pad mount transformer level, at no cost. Some other DNSPs are following suit.

To the extent that DNSPs make this data available, the rollout of high power public charging equipment (and the DNSPs internal processing of new connection requests) will be made more efficient. This data, publicly available, could also be used by AEMO for system planning, should they have a use for it.

With this in mind, the AEMC should consider requiring DNSPs to make estimated network capacity at a more granular level public, via an easy-to-use interface, to address the point made by Minister Bowen, and also to improve the efficiency of deployment of public charging equipment.

Question 7: Will the proposed solution address the issues raised by the proponent and improve the robustness of the ODP?

(a) Would the proposed rules enable more in-depth analysis of CER and distributed energy and its impact on operational demand forecasts in the ISP? Why or why not?

(b) What type of demand-side information should be provided by DNSPs that would be useful for the ISP analysis?

7(a): The proposed rule might help, but alone will not be sufficient to improve AEMO's work with respect to EVs. DNSP forecasts on EV uptake, and EV charging behaviours, often overstate the probable rate of EV uptake and the probable system impact at peak demand times, and then lead into a preference that consumers hand over management of their EV charging to a third party to manage, in the interests of the energy system - much as AEMO's plans do.

The degree to which consumer consent is considered in these arrangements is variable. For example, the 2024 AEMO ISP includes the word 'orchestration' nine times, and the word 'control' six times…. And the word 'consent' zero times.

The proposed solution from the AEMC assumes that with increased data from the DNSPs, AEMO will be able to make a better forecast: but in the case of EV uptake and EV charging behaviour, it's not the DNSPs that actually have the best information.

For a better forecast relating to EVs, AEMO will need to better understand the transport sector, the electrical equipment market, and consumer behaviour. AEMO will need to seek out the organisations that have the data, ask for it, and then use it well – either directly, or by way of consultants.

AEMO's track record in this area is not good – multiple organisations have made credible information and data readily available to AEMO over the last several years with respect to EV uptake and consumer charging behaviour; the credibility of the AEMO forecast remains low.

A rule change that might improve the accuracy of EV forecasting would likely start with a requirement for AEMO to retain multiple independent consultants with a proven track record in the EV domain, working independently of each other, to create estimates of future EV uptake and charging behaviour. These independent estimates could then be published as supporting materials to AEMO's ISP, with AEMO publishing the independent estimates and citing them in its scenarios.

7(b) The Essential Energy capacity map is the standard that we would like to see DNSPs rise to. This would be highly useful for the EV industry, and would potentially be useful to AEMO as well to the extent that AEMO is interested in planning at the distribution level:

https://www.essentialenergy.com.au/-/media/Project/EssentialEnergy/Website/Our-Network/Essential-Energy-Electric-Vehicles-Connections-Fact-Sheet.pdf?la=en&hash=C275583E980F0A3017145AA8E14DFF949B74F84A

Question 8: What are your views on the costs and benefits of the proposed solution?

(a) What do you consider will be the benefits of the proposed solution? Is there anything that might erode the benefits or reduce the likelihood of achieving the benefits? Are there any additional amendments that could be made to improve the benefits?

(b) What are the costs DNSPs might incur in complying with requirements to provide further information? Do the benefits outweigh the costs? Should DNSPs be required to provide further information in their DAPRs or elsewhere?

(c) Would the proposed solution impose costs on any other stakeholders? If so, how might these costs be minimised?

Improving the accuracy of forecasting of EV uptake, and EV charging behaviour, is important.

The status quo is that low accuracy forecasting of EV uptake (leaning towards over-estimates) and assumptions around a substantial co-incidence of EV charging at peak time, are key inputs into proposals by DNSPs to over-invest in the distribution-level regulated asset base in their regulatory resets. The chain of causation has historically been:

- CSIRO estimates a significant degree of EV charging at peak time.
- AEMO builds this assumed behaviour from CSIRO into forecasting spreadsheets, then multiplies the 'grid-unfriendly' charging profile by an over-estimated number of EVs to feed the ISP and the ESOO, and then
- DNSPs use the ISP and ESOO models to inform network planning.

The EVC reported on an instance of this nature in response to the 2023 AEMO draft IASR – where we noted that Western Power was proposing a $650m increase in the distribution level RAB, purely on the basis of expected EV uptake to 2030 in and around Perth:

https://electricvehiclecouncil.com.au/wp-content/uploads/2023/02/EVC-submission-to-AEMO-draft-2023-IASR.pdf

Requiring AEMO to improve the accuracy of EV forecasting would, in practice, mean the retention of some competent transport sector consultants with proven EV domain expertise, which will likely cost a few hundred thousand dollars. The benefit of improved forecasting will likely be the avoidance of hundreds of millions of dollars worth of excess distribution network investment.

Similarly, requiring the DNSPs to publish granular network capacity data, as Essential Energy has already done, will cost a few hundred thousand, or at most low single digit millions, of dollars – it's important to note that this data doesn't need to be perfect, and doesn't require widescale deployment of hardware in the field; it's a data and mapping exercise.

The benefit of this element will be a more rapid transition to EVs, supported by a significantly more efficient rollout of public charging infrastructure, which will lead to lower cost and reduced queuing for EV drivers when charging their cars. The transition to EVs directly supports the NEO objective around reducing greenhouse gas emissions in line with our national targets.

Question 10: Are there alternative solutions to those proposed in the Demand-side factors rule change request?

(a) Do you consider alternative, more preferable solutions exist to address the identified issue?

(b) Should guidance on information required to be provided by DNSPs be set out in an AER or AEMO guideline, or in the NER?

10(a): Yes. See above.

As a starting place, the EVC is happy to:

- Engage with the market bodies to point them in the direction of consultants with proven track record in forecasting in the EV domain.
- Unpack the value of granular network capacity data for the organisations deploying public EV charging equipment.

10(b): Requirements around visibility of granular network data could potentially be created through the AEMC rule change process. There is already a DAPR requirement relating to publication of data at the zone substation level, this could potentially be extended to meet the additional granularity requirement.