EVC submission to the ESB Electric Vehicle Supply Equipment Standing Data Consultation Paper

February 2023

With reference to:

https://www.datocms-assets.com/32572/1670367035-esb-electric-vehicle-supply-equipment-standing-data-consultation-paper-december-2022.pdf

Prepared by:

Ross De Rango

Preamble:

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 Energy Security Board (ESB) is responsible for the implementation of the recommendations from the Independent Review into the Future Security of the National Energy Market (the Finkel Review). It also provides whole-of-system oversight for energy security and reliability.

This consultation relates to the collection of information (known as EVSE standing data) relating to EVSE installations (aka, EV charger installations). From the consultation paper:

“EV standing data has been defined as data concerning the location and characteristics of EVSE to inform network modelling and forecasting necessary to guide planning processes of the energy sector and the planning of EV infrastructure. This excludes data associated with ongoing EV operation”

The EVC welcomes ongoing discussion on these matters, and can be reached via office@evc.org.au

Executive summary of EVC position:

To satisfy the requirement "*to inform network modelling and forecasting"*, a very limited number of data points are actually required:

- Location (which might be best captured as upstream NMI)
- Number of phases supplying the EVSE (1 or 3)
- Size of current limiting device upstream of EVSE (amps)
- Whether or not the EVSE is designed to enable V2G (checkbox)

These data points could reasonably be captured for every EVSE installation of Mode 3 or 4 (Level 2 or 3). All the other data requirements listed in the paper are of little relevance to the primary goal but will add reporting burden and cost to the people doing the reporting, and the businesses importing and selling the hardware. The proposed national EVSE database is not a necessary element to the achievement of the core objective.

The attempt to collect far more data than needed will likely:

- result in pushback from the parties required to do the work,
- degrade the quality of data collected, and
- add cost to consumers.

There are three mechanisms considered for the collection of this data. Of the three, the mechanism most likely to work in the view of the EVC is the usage of the existing state-based mechanisms that cover mandatory reporting associated with electrical installations. Very minor modifications to these certificate documents (CCEW, COES, and equivalent processes) would be straightforward to execute, and would enable easy collection at a state level of the core information needed for network modelling and forecasting.

Work would be needed to ensure the existence and smooth functioning of an appropriate reporting structure between the entities that collect and collate the data collected via the certificate documents, and the market bodies that want the information. Specifically, a requirement will need to be created to ensure that the relevant collected EVSE data is shared by the regulator with AEMO and the relevant DNSP. This will be a far easier task than creating a new, parallel reporting structure and achieving high compliance rates of accurate data entry from every electrical installer in the country.

The mechanisms the paper appears to favour involve the creation of complex new reporting requirements, which have significant uncertainty with respect to the likelihood that they'll work. Adequate consideration does not appear to be given in the paper towards securing data sharing arrangements between AEMO and the motor vehicle registration bodies. These existing data sets include the usual garaged address of most vehicles in the Australian market.

Data sets such as vehicle registration data would likely contribute significantly to the core objectives of this paper, without requiring any new information to be collected from anyone. They would also be instrumental in identifying locations where EV charging is happening without the installation of EVSE, which currently constitutes a majority of domestic EV charging activity. To achieve this outcome, work will be needed at state government level around the legislation and regulations governing the sharing of vehicle registration data.

Commentary on the introduction in the paper.

We have some commentary to specific elements of the introduction.

EVSE standing data and use cases – p5:

"EV loads can vary substantially in real time. In the future, this may include a coincident response to wholesale market price changes, changes in retail price bands (e.g. shoulder to off-peak prices) or unpredictable events such as a cyber-attack or a loss of communication between a remote charge point operator and its fleet of EVSE. AEMO and network businesses typically have no direct visibility of this behaviour"

And,

N5. Tariff and incentive design – p17

"Understanding what EVSE assets customers have, allows for more targeted experimentation with tariffs and incentives aimed at improving the efficiency of EV charging while ensuring customers are not adversely impacted. For example, a network could directly target customers with a specified EVSE type, having some confidence that those customers have the technical capacity to respond. Without this information, incentives may be less targeted increasing costs (and diluting benefits) for networks and consumers"

All EVSE can be assumed to be controllable by the consumer, with respect to load profile, because the consumer chooses when their vehicle will charge based on a variety of methods, and in response to a variety of inputs. This work presents some of the methods currently in use, with over 80% of consumers surveyed actively using one of five distinct methods to self-manage their charging.

https://qhes.com.au/survey-results-2022/electric-vehicles-2022/

Capturing load profile will be important but is not within scope of the standing data register and will require other approaches as described in the paper. Any tariff product that a DNSP might reasonably produce for a retailer to build a small consumer retail product on, is one that an EV owner might reasonably utilise.

DNSPs do not necessarily need to know anything about the EVSE, other than capacity, and whether it can export. DNSPs need to do more work to understand EV owner's preferences, so that the retailers can build attractive propositions for the EV owners based on the network tariff. DNSPs also need to engage more effectively with retailers.

National EV database, p6:

"Database listing is not intended to represent any certification or warranty of product quality, capability or performance"

Yes, but a database like this will inevitably be put to that use. We have already seen a database of EVSE created by the EVC for the NSW destination charging grants program re-purposed by the NT government for a different grant program, and SAPN for their smart apply EVSE registration program. Very shortly after a list like this is created, it will become a reporting burden for any organisation bringing product to market, that will ultimately be passed through as a cost to consumers.

Potential 'triggers' for reporting EVSE standing data, p7:

"Such triggers could be similar to the current requirement in South Australia where electricians are required to report EVSE standing data when installing EVSE on a circuit with a rating of 20 Amps or above. The analysis undertaken for this paper suggests such an approach could be relatively communicable to installers and achieve >95% coverage of future EV charging loads"

Assuming that the requirement being created translates to 95% coverage is extremely optimistic, given that failure on the part of the electrician to observe SAPNs stated requirement to report the installation has no consequence.

Using the specific example provided, we can compare the number of EVs sold in SA, with the number of EVSE installations being reported via the smart apply process.

In the period July to November 2022, we understand that SAPN received 25 applications through their smart apply portal for EVSE installations. In the same time frame, 713 BEVs and 165 PHEVs were sold in South Australia. If we assume that 50% of these drivers are installing an EVSE (with the remainder using standard powerpoints), then we can conclude that the smart apply program is capturing something like 5% of domestic EVSE installations.

Without seeking to criticise the SAPN program overall, the appropriate assumption to make here is that where reporting regimes are unrewarded and unenforced, participation can be expected to be limited. This is not specific to the electrical industry, it's a human factors consideration – it's not realistic to expect specific unenforced and unrewarded activity on the part of people to occur, just because an entity says it should.

Collection via the National DER Register as the preferred approach – page 8:

"Under this approach, the obligation to comply with the Guidelines would continue to rest with the customer, and the obligation to supply correct information will be completed, as usual, by the licensed electrician, who is required to undertake electrical work by electrical safety laws in each state and territory."

Given the reporting burden is on the installing electrician, it would be prudent to limit the data to that which is actually needed, and likely to be correctly supplied. NMI will be collected already on the relevant certificate (COES, CCEW, etc). A line item for 'supply capacity to EV charger', with number of phases and Amps, and a checkbox for 'V2G capable' would be straightforward, easily understood, and much more likely to be correctly used than a long list of requirements.

Consultation with customer service NSW, who already include 'EV connection' as a checkbox item on the CCEW, would be worth the effort:

https://www.fairtrading.nsw.gov.au/__data/assets/pdf_file/0020/371342/CCEW_template.pdf

Table 1: Summary of key related workstreams underway by the market bodies – p11

And

Several related reform initiatives are also underway – p12

Missing from these lists are:

- Planned reviews of technical standards AS/NZS3000:2018, AS4777.1 and AS4777.2 over 2023/2024. These will have significant bearing on EVSE installations, and will hopefully be helpful.
- Changes to state based electrical compliance requirements around EVSE installations, such as:
    - Energy Queensland's recent decision to change their interpretation of the QECM, such that the installation of all commonly supplied EVSE in the Australian market on the general power circuit in homes is, at time of writing, unlawful.
    - The OTR in South Australia creating globally unique technical compliance requirements for EVSE, to take effect 2024
- SAPN in South Australia extending the 'smart apply' system to cover EVSE
- Building code changes in the NCC, mandating EV readiness in the majority of new construction excluding class 1 and class 7 buildings
- Fire services around the country pushing for EVSE installations to be considered 'special hazards'.
- ACCC review of lithium battery safety

The Australian EV industry is working to try to lift Australia from running last in the OECD on EV uptake, so that we might achieve the goals of some of our state governments for 50% of new vehicles sold being EV in 2030, and our longer term national net zero goals.

We are working through a period of massive change. We are facing increasing levels of regulatory opposition, hurdles, and headwinds to EV uptake from a wide variety of sources.

Additional layers of regulation, which aren't demonstrably helpful to EV uptake, and aren't clearly necessary, should be avoided or minimised where possible.

Detailed response to questions:

Section 2. EVSE standing data needs and use-cases

QUESTIONS FOR CONSULTATION

Consultation Question 1: Are the key use cases for EVSE standing data adequately captured and described?

The key important use case for the collection of EVSE standing data is network modelling and forecasting. This use case is reasonable, justifiable and warrants the collection of key data. We expect EVs to enter the Australian on-road fleet at scale over the coming years. Modelling their impact on the network with reasonable granularity is going to be important to mitigate the dual risks of:

- under-investment in local network infrastructure, leading to unreliable supply, and
- over-investment in local network infrastructure, leading to higher energy costs for all consumers.

Many other use cases can be conceived, leading to a viewpoint that an extensive data gathering exercise is necessary, but the paper has not demonstrated that the costs and effort involved in solving for those use cases is worthwhile.

The achievement of the core use case can be satisfied with a very limited data set:

- Location (which might be best captured as upstream NMI)
- Number of phases supplying the EVSE (1 or 3)
- Size of current limiting device upstream of EVSE (amps)
- Whether or not the EVSE is designed to enable V2G (checkbox)

The EVC strongly recommends that the initial work in this area be limited to satisfying the core use case, rather than creating a 'wish list' of all the data points that might be commercially useful to a variety of potentially interested parties who may wish to undertake a variety of different things at some unspecified future time.

We have some commentary to specific points raised in the lead-in to this question.

What is EVSE standing data and why is it important – page 14:

"Figure 2 (page 18) shows EV peak load (under the ISP Step Change Scenario) growing to nearly 4 GW by 2035, around 9% or total NEM summer peak demand"

And,

Impacts of EV charging on overall resource adequacy in the NEM – p17:

"AEMO has indicated that more up to date modelling shows a smoother profile, incorporating more flexible charging."

The paper presents in a couple of places the AEMO ISP step change scenario, which indicates EV charging load at 9% of peak demand in 2035. This was based on an assumption that ~70% of EV drivers will be 'convenience charging', contributing significant EV load at peak time. This is a flawed assumption, out of step with real world data of thousands of Australian EV drivers, which indicates that the majority of home EV charging is already concentrating in the middle of the day, and the middle of the night, under BAU conditions.

The paper notes later that *"AEMO has indicated that more up to date modelling shows a smoother profile, incorporating more flexible charging"* – but does not go on to unpack the degree to which the 9% figure is overstated. Work undertaken by the EVC indicates that overall contribution to peak demand in Australia by EVs out to 2030 is probably not more than 1%. Based on this, we should not be proceeding on an assumption that the sky is falling with regard to contribution to peak demand by EVs. It is important that we plan adequately for a future involving electricity as the main transport energy type, but that we don't, out of an over-abundance of caution, introduce excessive new regulatory burden and cost that will inhibit the transition.

Further information regarding this point is available here:

https://electricvehiclecouncil.com.au/wp-content/uploads/2022/08/Home-EV-charging-2030.pdf

Impacts of EV charging on distribution networks – p15

"In Norway, studies have positively correlated local prevalence of EVs to increased network operator costs though noted that increased costs does not imply investment inefficiency (2021). 15 In California, researchers have assessed charging profiles at one-second intervals to known distribution feeder capacities and limits, identifying that the impact of EV charging (without intervention) may require approximately one-fifth of PG&E's feeders to be upgraded within the next few years, significantly exceeding actual network investment schedules."

From Norway, representatives from Statnett have stated that the transition to EVs has not significantly impacted peak demand over the period 2011-202. Over the ten year period from 2011 to 2020, 25% of the light vehicle fleet was electrified, overall electrical energy use rose 10%, population rose 10%, and electrical peak demand rose about 2%. This data is referenced in the Home EV charging report linked above, and is available directly from the source here:

https://www.statnett.no/globalassets/for-aktorer-i-kraftsystemet/planer-og-analyser/nup-2021/analyse-av-transportkanaler-2021-2040.pdf

This is actual real world data. Researchers making estimates on what might happen in California at a future time, based on assumed behaviour, is far less relevant than actual measured outcomes. Both markets are many years ahead of Australia in EV uptake.

Impacts EV charging on system security – p18:

"If a significant proportion EV load were to drop (or increase) unexpectedly, this could constitute a major contingency event. AEMO would have to manage this by procuring appropriate levels of system services, especially FCAS, and this could be a material cost to consumers. The likelihood and impact on such changes in load depends on a range of factors including the overall uptake of smart charging, institutional controls around cyber security, and market concentration of EVSE and vehicle OEMS, as well as charge point operations."

The cybersecurity aspects are important, but not linked to the standing data register. It should be assumed that all EVSE installed in future, and all EVs, will be communications capable, and connected via the internet if the consumer perceives a benefit in that connection.

Suitable cybersecurity standards will absolutely be needed, especially with respect to the architectures associated with wide scale centralised control of EV charging to the extent that this emerges, whether this is by way of the EVSE or the EV. A standing data register is not necessarily the right tool to deal with this prospective challenge.

A better approach will be to observe the mechanisms that effectively deliver the necessary level of cybersecurity over the remote control of distributed PV in Australia, and then apply those to the EV space as the EV space scales to a level of significance in the energy system. We will need to align with global best practice on this issue, and should ***not*** simply conclude that our existing cybersecurity approaches in the domain of rooftop solar are adequate, then proceed to apply them.

It should be noted that we have ample time to get this right with respect to EV. The majority of consumers today are not inclined to accept external orchestration of EV charging, and the numbers of EVs will take a significant amount of time to rise to a level where they may constitute a system-level threat, assuming large scale centralised orchestration, with the concomitant creation of a cybersecurity threat surface, occurs.

Distributed solar PV is orders of magnitude larger than EV in terms of capacity to impact the energy system through synchronised entry or exit, and therefore needs to be comprehensively solved first.

Stability analysis and emergency planning- p20:

"Understanding the performance characteristics of EVSE is also a critical input into emergency response planning, such as in the event of a 'system black'."

Stability considerations are typically not a function of the EVSE in the context of home charging, as the power electronics that convert AC to DC for vehicle charging reside in the vehicle. V2G will likely be an exception to this, but the V2G market is at this point principally limited to trials, and the technical standards governing the products and their installation are not yet fit for purpose.

Before we consider the creation of a standing data solution or EVSE database for V2G, we need to determine what the technical standards for the equipment and installation will be. It would be appropriate to re-visit this question for V2G in 2025-26, once the currently proposed reviews of AS4777 (parts 1 and 2) are complete.

The EVC has commented to this issue here, with a united position shared by AI Group and the FCAI:

https://electricvehiclecouncil.com.au/submissions/em-001-comment-to-proposal-p-000142-to-amend-as-nzs4777-22020/

Regarding the performance of the combination of EVSE and connected EV in response to interruption of supply, the usual behaviour is that load will resume when supply is resumed, after a short delay (typically < 1 minute) while communication between EVSE and EV is re-established. If there is external management of the EVSE or EV, resumption of load may be delayed. This is not much different to any other piece of electrical equipment in the consumer's home, where load may come back on promptly after interruption, or may not, depending on the appliance.

Government and researcher use-cases – p21:

"*Other parties, such as governments and researchers and emergency services agencies, also have an interest in EVSE standing data. Policymakers and researchers, for example, have an interest in understanding EV uptake over time and in different locations"*

And

Emergency services use-cases -p21:

"Emergency services organisations, particularly fire services, can benefit from understanding the location of EVs to help manage battery fire and electrical safety risks"

EVSE standing data is a very poor proxy for vehicle registration data in this respect. Vehicle registration data is already being provided at a postcode level for public consumption in NSW by way of the National Map program, and EV registration data is being considered for inclusion in the digital atlas work being undertaken by the Australian Bureau of Statistics.

Further, if we are considering fire services, the presence or absence of EVSE isn't important. It's the presence of absence of the car that matters.

To the extent that parties other than the energy market bodies are seeking data of this type, it would be appropriate for them to make a clear case as to the need for the data and create a clear cost-benefit analysis as to why their proposed solution is the right way to go about it. It is not necessarily the role of the ESB to solve for these stakeholders' potential wishes around data availability.

Section 3. Draft EVSE standing data specification

QUESTIONS FOR CONSULTATION

Consultation Question 2: Are the listed considerations for data collection appropriate?

Consultation Question 3: What data fields should or should not be collected, and why? What is the minimum set of data required to facilitate the above use cases?

Consultation Question 4: How can timely and accurate reporting of EVSE installation data best be supported?

Consultation Question 5: What else could a National EVSE Database be used for, in addition to supporting EVSE standing data collection processes?

Consultation Question 6: What governance arrangements are needed to ensure the appropriate operation of a National EVSE Database?

The data fields listed go significantly beyond what is needed to meet the core use case.

To enable network planning, the core consideration that an EVSE standing data register will be able to deliver is knowledge of where the chargers are with respect to other network assets, and what maximum load or supply into the network might be presented at those locations.

To this end, only four data points are needed:

- Location (which might be best captured as upstream NMI)
- Number of phases supplying the EVSE (1 or 3)
- Size of current limiting device upstream of EVSE (amps)
- Whether or not the EVSE is designed to enable V2G (checkbox)

Specific information relating to the particular EVSE installed is not actually needed for network planning, nor are many of the installation specific fields.

Timely and accurate reporting of EVSE installation data is probably best covered as being linked to reporting triggers, which is covered in the next set of questions. The view of the EVC is that the right reporting trigger to use is the completion of a COES/CCEW or equivalent instrument, which creates an electronic record of the installation details with the relevant state-based regulator. Each state based regulator would then have a reporting function to the relevant energy market body. As noted in the executive summary, it will be important to ensure that the state level regulator is required to share this data with AEMO and the relevant DNSP.

The open ended question "*What else could a National EVSE Database be used for, in addition to supporting EVSE standing data collection processes?"* is on the face of it concerning, given the absence of the question, *"What are the expected costs associated with standing up a National EVSE Database?".* The EVC notes that the creation of a National EVSE Database is not necessary for the achievement of the primary use case being considered by this paper. This design element should therefore be removed from the scope - under the principles laid out in table 2 of the paper, the removal of this element would align with all 6 of the tests laid out. A desire to create a National EVSE database, on the part of some parties, should not be conflated with a need to create a National EVSE database to deliver on the objectives this paper is consulting on.

We have some commentary to specific points raised in the lead-in to these questions:

Considerations for data collection – p 24:

"The decision to impose new data collection requirements should be subject to the considerations set out in Table 2. This is to ensure that data is not collected 'for its own sake' and rather, remains limited to clear and valuable use cases with due consideration of the costs and risks of data collection for different stakeholders"

Table 2: General tests and considerations for data collection

"Data minimisation:

EVSE standing data collection adds cost and complexity to installation processes and contributes to data management and processing costs and risks. Data collection should therefore be kept to the minimum level necessary to achieve the stated purpose. Cyber risk means that private or commercially sensitive data collection should be avoided where suitable alternatives are present."

This is absolutely spot on. Industry agrees. The minimum necessary data, to enable the core use case, is the right data to collect.

Further, the collection mechanism should be as simple as possible.

Draft data specification – p25:
"DEIP identified 54 data fields of interest while the draft EVSE data specification identifies 24 fields"
Per above, for the purpose of "*inform[ing] network modelling and forecasting necessary to guide planning processes of the energy sector and the planning of EV infrastructure",* the actual necessary and useful data fields are:

- Location (which might be best captured as upstream NMI)
- Number of phases supplying the EVSE (1 or 3)
- Size of current limiting device upstream of EVSE (amps)
- Whether or not the EVSE is designed to enable V2G (checkbox)

This is a much reduced sub-set from the list of 24 fields. The 24 fields have incorporated some elements from a DEIP 'wish list' of 54 and identified other desirable fields in addition.

Some of the other items will be captured by way of the data gathering process, which will likely be the COES, CCEW, or other equivalent instrument, such as date of installation and the electrical licence holder's identifying information – though these aren't needed for the primary purpose. Capture of that information does not need to be duplicated.

The line, *"This list has been iterated via stakeholder interviews undertaken as an input into the paper but is considered far from final"* causes industry to believe that there are stakeholders who will consider 24 fields to be insufficient, and who will push for more to be added over time.

"It is important to note that fields stored in a national EVSE database would only need to be collected once, nationally. This means there is zero marginal cost associated with having this information for each EVSE installation. This contrasts with installation-specific data where there may be material costs associated with each additional item that must be gathered and reported by an installer."

This is not correct. The data associated with the EVSE database will change regularly, as products enter and leave the market. The fields themselves can be expected to expand over time, as market bodies decide that they'd like to have 'this extra piece of data' or 'that extra piece of data' – prompting a request to all suppliers to update their information for all listed products.

The suggestion that this collection is a 'one off' is at best optimistic, and at worst, a misrepresentation. Installation specific data is the more important data to collect, will by necessity be collected at every single installation, and will take time to collect at every installation. It should be kept minimised, as is laid out as a principle – not least because if the electrician is tasked with collecting a large number of data items, many of which he or she reasonably considers irrelevant, the quality of the data collected will degrade. The NMI, the number of phases, and the size of supply, and a 'V2G checkbox', is a low burden, and is the right place to start.

A national EVSE database – p27.

"An organisation would need to be made responsible for the listing or delisting of products, and for the rectification of any technical issues. This function could be added to the information hosting services provided by the CEC for inverter product listing. In some cases, these lists will be cross referenced such as where an EVSE includes a native inverter that supports V2G and therefore requires AS/NZ 4777.2:2020 certification. Common data structures across both lists (e.g. common data field definitions) could enhance consistency and streamline industry data provision"

This process exists for inverters supplying energy to the grid, but it does not currently apply to appliances which present as loads, whether they are smart or otherwise. There is merit in considering the inclusion of V2G inverters in a scheme of this type; it is not necessary to treat typical mode 2 or 3 EVSE in this regard. Consideration for exactly what needs to be included in a DER register associated with V2G should be deferred until the currently proposed reviews of AS4777.1 and AS4777.2 are completed. V2G is a nascent technology, facing substantial regulatory hurdles already in Australia – it does not need additional hurdles at this time. Further information on this here:

https://electricvehiclecouncil.com.au/submissions/em-001-comment-to-proposal-p-000142-to-amend-as-nzs4777-22020

Data collection and validation processes – p27

"It could be a requirement, when submitting data to the DER Register, that the installer validates the existing records at that site"

This would imply the electrician attending a home to install an EV charger, have a mechanism to access historically submitted data relating to the premises. In installations like oil and gas plants, this data *might* exist in a format like a hazardous area dossier. For a standalone home, this concept of 'existing records at site' covering the electrical installation generally will not exist, and even if it exists, the installer may not have access to it – multiple electrical licence holders will work on a premises over the course of the life of the building, they can't necessarily get copies of each other's certificates from the electrical safety regulator.

Section 4. Determining EVSE charger installations that should be captured

QUESTIONS FOR CONSULTATION

Consultation Question 7: Are there any other reporting triggers that have not been considered?

Consultation Question 8: What other advantages and disadvantages should be considered when comparing available reporting triggers?

Consultation Question 9: Is it agreed that networks could impose a requirement for EVSE standing data reporting, through an amendment to the service and installation rules?

Our general view is that all fixed-wired EVSE installations (Level 2 & 3, Mode 3 & 4), in public and private locations, should be captured. Of the two categories, private locations will be the more important to capture this way, because public locations are much fewer in number, and have readily available alternatives for location and power level discovery. As an example, the EVC maintains a monthly updated list of public EV charging installations, with power level, address, and latitude, longitude and address data. It is the chargers in private locations that are invisible to the DNSPs and AEMO.

Getting the reporting triggers right will be crucial. To the extent possible, the creation of new parallel reporting requirements should be avoided.

The mechanism that is most likely to work effectively is inclusion of the necessary fields in the existing certificates filled out by electricians when undertaking electrical work (CCEW, COES, etc) – noted as option 2 in table 6. In the case of CCEW in NSW, 'EV connection' is already included as a field – some of the core data is already being collected.

The limitations to this approach are stated in table 6, and we have some comments to these:

"May result in inconsistent national coverage":
regardless of what approach is taken, data quality will be inconsistent nationally. This is already the case with the existing DER register.

"Will not pick up all EVSE installations installed by electricians, only those requiring safety certification":

The installation of an EVSE will involve safety testing. This means that all EVSE installations should involve a certificate being submitted to the relevant state based regulator. It would very much be worth clarifying this point by way of the Electrical Safety Regulators in each jurisdiction.

"The national objectives of this data collection requirement do not align with the statutory objectives of state safety regulators":
this does not matter if it is possible for the data to be shared with the necessary parties under existing legislative frameworks. We note that the certificates such as CCEW and COES are routinely shared with the DNSPs, who are the key parties that will actually need to make use of the information for the purposes of network planning. If legislative change is needed to support data sharing of this nature between the safety regulators and the market bodies, that should be explored.

The EVC believes that the limitations associated with this approach 2 are overstated, and the probable failure modes of methods 4-6 are significantly understated. While there may not be a regulatory barrier preventing a DNSP from creating a reporting requirement, there is a vast chasm between the creation of a reporting requirement and securing the outcome of quality data reporting.

We have some commentary to specific points raised in the lead-in to these questions:

Materiality of different charger types – p28

"*Table 5: Breakdown of EVSE installation types identifying potential electrician and DNSP visibility"*

"Given uncertainties, this analysis should be treated as indicative only."

We note that energy delivered via private level 1 charger is indicated as ~11%. We believe this to be a significant under-estimation. Anecdotally, we understand that the majority of Australian consumers buying EVs today are not installing EVSEs in their homes. As EVs become increasingly traded in the second hand market to more cost-conscious buyers, and get acquired by people renting homes, the proportion of consumers installing EVSE is likely to fall further. It would be safer to assume ~40% at least of energy being delivered via level 1/mode 2 EVSE, in the absence of data more robust than the estimates in the AEMO ISP.

"Future coverage could be achieved by including Level 1 charging that involves an electrician (e.g. putting the EVSE on a 15 Amp circuit)."

An electrician installing a 10A or 15A outlet, into which the consumer might plug a mode 2 EVSE, is not something that would trigger this type of EVSE standing data mechanism. It's just a powerpoint from the point of view of the electrician, and the EVSE in that circumstance is a portable appliance that the electrician undertaking the installation will likely never see.

Potential reporting triggers (EVSE coverage) – p30

1. On revision of a customer connection agreement due to an EVSE installation.

Substantial work is being undertaken regarding the development of training material for electricians, with the specific goal of avoiding the need for connection upgrades at the time of EVSE installation.

It's our expectation that in the majority of cases in domestic installations, no change to the connection agreement will be required. This will be enabled through the usage of method (d), limitation, in the maximum demand determination (clause 2.2.2) in AS/NZS3000:2018.

This reporting trigger is therefore unlikely to detect EVSE installations, because EVSE installations will typically not cause the event considered here as the trigger.

2. To achieve a certificate of electrical safety required by state safety regulators.

This method is viable, subject to the data being requested being reduced to the elements needed. It is in fact already in place to a degree – the CCEW in NSW, for example, already includes the capture of location data and a check-box for 'EV connection':
https://www.fairtrading.nsw.gov.au/__data/assets/pdf_file/0020/371342/CCEW_template.pdf
All that would need to be added is fields to capture number of phases, circuit capacity feeding the EVSE, and a V2G checkbox.

3. Upon installation of a smart meter.

Anywhere the smart meter is already installed (such as Victoria, or anywhere that solar is installed prior to EVSE installation), this won't work as a trigger. It also relies on the Electrician auditing the home when installing the smart meter, which he/she probably doesn't want to do, and which the resident may not want them to do. This measure is unlikely to be effective.

4. Upon installation of specified EVSE type/mode(s).

5. Upon installation of EVSE installed with a specified circuit rating (e.g. => 20Amps).

6. Upon installation of any EVSE by an electrician.

While there may not be barriers inhibiting DNSPs from creating data reporting requirements, there is a huge gap between creating the requirement, and achieving compliance with the requirement. Refer to our analysis above of the degree to which the SAPN smart apply process is actually used by electrical installers.

It should not be assumed that this measure will be effective, unless there are incentives and penalties in place associated reporting, and an appropriate and effective inspection and enforcement regime.

A similar example exists in Queensland. There is substantial non-compliance to the QECM (the SIRs in QLD) with respect to single phase switched load requirements, because there is no enforcement. At time of writing, it is unlawful to install the vast majority of EVSE equipment available in the market on general power circuits in Queensland homes – and installations are simply happening anyway, because of a combination of lack of awareness of the rules, and the absence of enforcement/inspection.

Section 5. Achieving a nationally consistent approach to EVSE data collection.

QUESTIONS FOR CONSULTATION

Consultation Question 10: Is it accepted that an expanded DER Register should be the database system for collection and sharing of EVSE standing data?

Consultation Question 11: What preferences or issues do stakeholders have regarding the described regulatory options? If a rule change is needed to achieve EVSE standing data collection, do you consider the rule change would be likely to have a significant effect on the national electricity market?46

Consultation Question 12: Is the proposed regulatory assessment framework fit for purpose?

The existing DER register was originally designed to perform a specific purpose. It would be worth a close review being undertaken of the degree to which the DER register has delivered on that purpose, and what the causes were in areas where it has underdelivered, before considering the expansion of the DER register to include EVSE.

The preferred option from industry would be the state-based implementation done consistently across states because it is the most likely to work, and (if implemented on the basis of the minimum data actually required) will create the least additional workload for the installers and the equipment suppliers, thereby reducing cost impacts on consumers.

The suggestion that the state-based implementation requires substantial policy decision/change significantly overstates the case. NSW is already collecting 'EV connection' as a field on the CCEW, and information collected by way of regulatory reporting requirements of this nature is routinely shared with DNSPs and AEMO. It's a relatively small step to add the size of the EVSE and a V2G checkbox to the CCEW, and for the reporting on the EVSE element to go to the market bodies.

We have some commentary to specific points raised in the lead-in to these questions:

Is a nationally consistent approach needed? – p33

"*Industry participants are seeking a consistent national approach to lower costs and to ensure that the benefits of a centralised source of EVSE standing data are fully realised."*

Some clarity from industry appears to be warranted here. Industry generally approves of nationally consistent approaches, aligned with international standards. This is especially important regarding regulatory requirements around equipment supply to market, and types of equipment that can be installed.

In the EVSE area, we've recently seen Energy Queensland change their interpretation of the QECM in a manner that makes the installation of EVSE in domestic homes on the general power circuit unlawful. We've also seen the OTR in South Australia quietly publish regulatory requirements to take effect in July 2024 setting out globally unique technical standards to which EVSE will need to comply, in order to be legally installed. These sorts of actions are decidedly unhelpful to the commercial parties seeking to support consumers in their decision to switch to EVs, and to the extent that they continue, will act as headwinds to EV uptake.

Regarding data gathering exercises such at the EVSE standing data proposal, industry will benefit from the requirements being minimally burdensome. The paper leans towards the creation of a complex new national data reporting regime, underpinned by changes in legislation, regulation, and the practices of the businesses importing the equipment and the installers putting it in. The actual data that is needed, however, is largely already available through existing state-level processes, subject to minor modification to existing electronic forms such as the CCEW and the COES.

This paper also substantively ignores the possibility of user other viable data sources held by government for the purpose of network planning – for example, vehicle registration data. It is already the case that NSW government publicly reports EV registrations by postcode to National Map, and in Queensland TMR reports EV registration data to Energy Queensland at a postcode level as well. Before heading down the pathway of creating new and complex data aggregation and reporting systems, effective usage should be made of relevant data that is already being collected.

These data sharing agreements will, in some cases, require effort and potentially legislative change to bring about – but that is not an excuse for calling it 'too hard' in those regions where it's not already happening, given the necessary data sharing is already happening at a granular level in two states.

When we are considering alternative data sources, we should also consider smart meter data. The purpose of collecting EVSE installation location data is to enable estimation of potential network impacts, based on estimates and assumptions around consumer charging profiles. Where smart meters have been universally deployed, the actual measured energy usage data (as distinct from modelled potential use) is available.

Industry is concerned that the usual desire from industry for national consistency is being conflated here with support for a new national-scale data gathering exercise, which has no global precedent, and which is not demonstrably needed. Industry would prefer that the existing regulatory instruments that are designed to capture data at every electrical installation are used for this purpose. The creation of a pool of EVSE standing data at national scale could be enabled through this collected data being reported by the handful of state based electrical regulators to the market bodies, rather than standing up a new, parallel data collection mechanism that duplicates work for every electrician and EVSE equipment importer in the country.

Why is a simple solution important? – p34

"*Table 8: Summary of alternative regulatory frameworks to enable EVSE standing data reporting to the DER Register."*

B. State-based implementation	State Safety Legislation	Electrician	Extension to existing electrical licencing and inspection regimes	Fragments regulatory landscape. Substantial policy decision/change

To collect installation-level data, the installing electrician is the one that needs to be obligated. Obligating the DNSP just creates a requirement for the DNSP to then obligate the installing electrician.

The installing electrician is already reporting on the data very similar to that required to support the purpose of the EVSE standing data through the CCEW/COES or other equivalent state-level instrument. A substantial change is not required here – this is the reporting framework that already exists.

The approach we would recommend here is for the state-based regulators to take the submitted data from the COES/CCEW or equivalent that the electricians fill out for every job, compile it, and report the relevant elements to the relevant parties (principally, AEMO and the relevant DNSP).

The change required is a new reporting requirement for the state-based regulators, rather than a new reporting requirement for every installer and every equipment supplier. It may or may not require legislative change, but it will deliver a far simpler result for the installers, and the equipment suppliers, and will likely result in better data for the organisations that need it.

Extend DER Register Information Guidelines under the NER - p36

"This approach would involve extending the DER Register to require DNSPs to collect EVSE standing data as required by the AEMO DER Register Information Guidelines (the Guidelines)"

Before extending the DER register to capture a new class of installed equipment, it would be appropriate to review the function of the DER register with respect to the degree to which it is effective at capturing data relating to solar installations.

Solar installations require connection modifications every single time and also involve financial incentives that are not accessible without the completion of reporting. It is our understanding that the accuracy of data in the DER register is highly variable across jurisdictions, because even with these advantages in the form of mechanisms to secure reporting compliance, reporting compliance remains weak.

It would be reasonable to assume, all else being equal, that the level of reporting, and accuracy of reporting, of EVSE standing data will be less than the level of reporting, and accuracy of reporting, of solar installations, because in most cases there will be no financial incentive associated with the EVSE installation, and no new connection requirement as previously addressed.

State-based implementation - p38

"The scope of this policy change may include the acceptance by the jurisdictions of DER technical standards governance as a state and territory responsibility"

We disagree with this. The core requirement of this work is 'where are the EVSEs installed and how powerful are they', not 'DER technical standards governance'. The states already have the tools for capturing this data – the potential policy change would be the state based regulators reporting this data to the market bodies.

"A national training and communication strategy will be required, to communicate the new requirements to all electricians."

Regardless of the approach being taken to the collection of EVSE standing data, training and communication to the installers will be needed. This will be far simpler in the cases of a state-based implementation than in the other cases – because from the point of view of the installer, it would be a very minor change to the existing instrument that they're already using, and which they are mandated to use by existing enforced regulations.

Conclusion:

The consultation paper lays out an ambitious and far reaching data gathering objective, but seems to start from the position that the right solution is to create complex new parallel data collection processes, without paying sufficient attention to the complexities associated with actually capturing accurate data at point of installation, or giving due and fair consideration to the possibility that the data already being collected in the form of vehicle registration and electrical safety compliance certificates might be sufficient to meet the core objective.

The industry viewpoint is that the right place to start here would be:

- Inclusion on each state based electrical safety certificate:
    - A checkbox field for 'EVSE installation', similar to what exists in the NSW CCEW.
        - Where this box is checked,
            - A field for number of phases supplying the EVSE (this will be 1 or 3)
            - A field for size of current limiting device upstream of EVSE (Amps)
            - A checkbox to indicate V2G capability of the EVSE.
- Engagement between the electrical safety regulators and AEMO to establish sharing of this data, noting that electrical safety regulators are already treated as organisations with whom AEMO can share data – so it should not be difficult from a legislative or regulatory standpoint.
- Determination of how this data will be housed at AEMO. Noting that we're specifically talking here about two integer data numbers and a couple of checkboxes, each associated with a specific NMI. This is not 'big data', a million records of EVSE installations could be contained in a 12MB excel file.

Finally, we would call out for attention this quote from the report:

International frameworks for data collection – p59

"Research undertaken for this paper has been unable to identify any other regions undertaking comprehensive national collection of EVSE standing data."

This should be reason enough for us to pause and consider how ambitious a project scope is actually warranted. We are laggards in the OECD in EV adoption, and this paper proposes a more robust data gathering and compliance approach than exists anywhere in the world.

Data gathering of this kind does not come without effort and cost. Prudence would dictate starting simple, with the most clearly necessary data only, in a manner likely to result in good data outcomes – and then iterating, as we learn what else we need.