



**CONSUMERS'  
FEDERATION  
OF AUSTRALIA**

Developing and promoting  
the consumer interest

PO Box 16193  
Collins Street West  
VIC 8007

19 August 2022

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

Anna Collyer  
Chair  
Energy Security Board

Dear Ms Collyer

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

The Consumers' Federation of Australia (**CFA**) welcomes the opportunity to provide a submission on the Energy Security Board's (**ESB**) Electric Vehicle Smart Charging Issues Paper (the **Issues Paper**).

CFA is the peak body for consumer organisations in Australia, advocating in the interests of Australian consumers. It promotes and supports its members' campaigns and events, nominates and supports consumer representatives to industry and government processes, develops policy on important consumer issues.

CFA also plays an important role in ensuring consumer interests are represented in the development of standards. In recognition of the importance of promoting consumer involvement in standardisation, CFA recruits, facilitates, and supports the participation of expert consumer representatives on technical committees that are responsible for the development of Australian Standards. This work is supported through an annual grant from Standards Australia.

CFA has two representatives involved with the Standards Committee, EM-001 Electric Vehicle Operation. This submission has been developed with the support of these expert consumer representatives and focuses on the questions in the Issues Paper related to domestic vehicle smart charging.

## Minimum Smart Charging Equipment Standards

*1. ESB welcome stakeholder views and input on smart charging equipment standards settings including any input to inform the likely costs.*

In November 2019, Australian Energy Ministers decided various domestic appliances sold in the country must support demand response, and this decision includes electric vehicle supply equipment (EVSE)<sup>1</sup>. The Ministers' decision requires appliances to be compliant with a unique interface detailed in the AS4755 series of Australian Standards. The timeline for compliance for EVSE has been stated as 1 July 2026. While changes to the *Greenhouse and Energy Minimum Standards Act 2012* (Commonwealth) required to enable this regulatory change has not been enacted, the South Australian Government has announced it intends to proceed independently.<sup>2</sup> For example all air-conditioners sold in South Australia from July 2023 must include an AS4755 interface.

The CFA strongly supports standards enabling consumers to manage their energy costs. This includes the ability to turn appliances on and off maximising self-consumption of onsite generation (both solar and storage). Unfortunately, the chosen demand response standard, AS4755 only offers consumers optional control, for example once an air-conditioner has been turned down by a utility, consumers are unable to restore full operation, risking significant health issues. The concern is that mandating "AS4755-like" control for EVSE could significantly impact consumer convenience. International EVSE control standards all give consumers the option of overriding utility control. Any EVSE standard must support consumer override. Choosing an international EVSE standard over the unique, expensive, and unsupported Australian standard is the preferred option.

The Australian Energy Ministers decision also requires all Level 2 chargers support vehicle-to-grid (V2G) functionality. The decision to mandate V2G functionality at this time risks unnecessarily increasing the cost of EVSE. Adding V2G functionality to an EVSE will increase the cost by well over \$1000 despite very few EVs supporting V2G functionality. For example, TESLA currently dominates the EV market and none of its EVs support V2G.

*2. ESB welcome stakeholder views on the introduction of minimum EVSE equipment standards without remote management, and whether this will provide future optionality for managing peak demand.*

The Australian inverter standard (AS4777) requires all inverters provide grid stability "out of the box" (no user configuration or remote communications required). This is possible because they autonomously respond to changes in network voltage and frequency. EVSE supporting V2G are (currently) required to comply with AS4777, but this only applies to V2G functionality and not when the EV is charging. Some programs have shown the network benefits of adjusting the rate of charge in response to changes in network voltage and frequency. The CFA is unaware of work to standardise this desirable functionality.

---

<sup>1</sup> <https://www.energyrating.gov.au/document/regulation-impact-statement-decision-smart-demand-response-capabilities-selected-appliances>

*3. ESB understands that most EVSEs on the market today come with smart charging as a minimum functionality – is this the case or do stakeholder see this as still an emerging functionality?*

Most EVSEs, but not all, come with smart charging as minimum functionality. Moreover, there is also a range of different protocols in use, including proprietary (closed) protocols. The lack of common standards complicates the ability to coordinate control of EVSE charging and discharging.

#### **Candidate Communication Protocols**

*4. What are stakeholder views regarding the adoption of these standards in the Australian context? Do stakeholders consider the OCCP1.6(J) the most appropriate international standard to adopt? Are there any additional standards or options that should be considered in the short term?*

CFA notes that the updated version OCCP2.0 supports V2G functionality so is a better fit to the Energy Ministers decision to mandate a demand response standard.

*5. Is there a need for EV to EVSE communications (such as ISO 15118) to be minimum functionality, alongside the communications protocol from the Charge Point Operator to the EVSE (such as OCPP)? The ESB welcomes stakeholder views on why this might be necessary.*

Yes, CFA considers all Charge Point Operators should support a common market protocol. In South Australia, when authorities used their power to switch off domestic solar systems in order to stabilise the electricity grid,<sup>3</sup> they faced implementation challenges. The lack of a common market protocol meant utilities could not cost effectively access the shutdown command. The chosen solution was to adopt the American demand management standard IEEE 2030.5 along with the Common Smart Inverter Protocol to ensure a common standard market protocol was made available.

#### **Default tariff considerations**

*6. The ESB welcome stakeholder views on requiring default tariffs at the point of installation of a charging system. Do stakeholders have views on the merits of using network specific windows of time, or are state-wide defaults more appropriate?*

It may be appropriate to incentivise recharging at the appropriate time of day with time-of-day cost rates (e.g., cheaper off-peak electricity at night). This will, however, likely shift peaks to specific times. It would be preferable to support flexible demand management over purely relying on tariffs.

CFA is concerned about any requirement to separately meter an EVSE to support more flexibility for tariffs. This would result in consumers having to pay for two approved meters. It would be better to promote standards incorporating metering support. This has the potential to reduce metering costs. Addressing accuracy concerns: an approved utility meter will always be available to act as a check meter.

---

<sup>3</sup> <https://www.abc.net.au/news/2021-03-17/solar-panels-switched-off-in-sa-to-stabilise-grid/13256572>

## **Timelines and compliance**

*7. The ESB welcomes stakeholder views on the appropriate timing considerations to enable a roll out of minimum technical standards for domestic EV charging systems. Do stakeholders see other considerations that need to be taken into account to facilitate jurisdictional policy settings?*

As noted earlier, modification of the GEMS Act required to mandate the unique Australian demand response standard is yet to occur. This has not prevented the South Australian Government announcing the introduction of the same requirements applying from the middle of 2023. It would therefore appear that if the appetite exists, nothing is preventing the introduction of additional requirements.

## **EV Smart Charging: Consumer Participation**

*8. What are stakeholder views regarding the potential costs and benefits of requiring consumers to participate in remote coordination capabilities for smart EV charging?*

It should not be mandatory for consumers to join the smart charger scheme when installing home recharging equipment (EVSE). If a consumer joins the smart charging scheme, they should be able to override the system, should they wish to do so.

Rather, incentives are required to encourage users to join up (i.e., why would a consumer sign up if there was no benefit to them). Moreover, system designers should understand that it is very easy to by-pass EVSEs for recharging by using a normal 10 or 15Amp home power point with a mobile recharge cable (often provided when the buyer purchases the car). In Norway, very high proportions of EV owners have never bothered installing an EVSE in their garage, and there is no ill effect to the car.

## **Charge Point Operator Function: Roles and Responsibilities**

*9. What are stakeholder views in regard to the use of CPOs for residential charging? What are stakeholder views on which parties (Traders (retailers, aggregators), DNSPs, OEMs, other parties) should be able to take on the function of CPO? Should the requirement for a CPO be mandatory?*

We are wary about the benefit of an additional actor in the system to be responsible for residential charging. Previous experience regarding market development indicates that this can serve to create complexity and confusion. We encourage simplicity in system design.

*10. What are stakeholder views in respect of the relevant and appropriate responsibilities that should be taken on by CPO: e.g., ensuring rate limits, customer support, etc?*

In the early years, EV uptake is not going to be uniformly distributed. As such, uncontrolled charging may lead to isolated local network issues. This requires local network visibility something which has not been discussed when considering the CPO role – e.g., why throttle the charging of EVs across all areas when only one area is experiencing network constraints? The introduction of additional expensive metering should also be avoided instead choosing EV protocols which support energy measurements made by the EVSE.

## **CPO Communication Protocol Standards**

*11. What functions would CPOs be required to perform on behalf of customers? E.g. off peak charging.*

The rapid transition to renewable sources of energy mean we should avoid the term “off peak charging”. Specifically, “off peak charging” is far too likely to be interpreted as “overnight”, however the South Australian experience shows minimum system load is increasingly a problem in the middle of the day. This could be solved by choosing to charge EVs in the middle of the day (rather than continue to apply the current SA Government solution of turning off domestic solar systems).

All CPOs should be offering demand management services. For example, to reduce the possibility of network stability issues they will avoid commencing the charging of their fleet of EVs simultaneously, especially if the EVs are located in a similar geographic area. When CPOs are notified (using a common market protocol) of network constraints, they will gradually reduce the number of EVs being charged and/or reduce the rate of charge. The CPOs are likely to be paid for these demand management services, which they may choose to pass on to consumers.

Finally, the Energy Ministers mandate of V2G capabilities adds another possible demand management opportunity. Turning on the V2G during the evening peak to help meet network demand. The concept is well proven by via multiple Virtual Power Plant (VPP) trials which to-date have focussed on control of domestic battery storage systems. That said, the higher cost of V2G capability may not be affordable for consumers in the short or even long term if there is no monetary reward for participating in the system. This highlights the need to incentivise participation in the scheme.

*12. What obligations would be required by CPOs to ensure there are adequate protections for end consumers?*

As noted, if a consumer joins the smart charging scheme, they should be able to override the system should they wish to do so. To take just one example, a consumer might have to make sure their car is recharged quickly for an impending trip. Consumer override must ensure the ability to enable charging, and also prevent discharging.

## **System Operations Requirements**

*13. Should there be a minimum requirement to capture installation of EVSE, to assist with effective planning and operational management, similar to that already in place for solar?*

The Distributed Energy Resources Register has not delivered claimed benefits. It has not allowed the Australian Energy Market Operator (AEMO) to forecast network demand instead they have insisted on actual measurements. Since AEMO is currently proposing individual measurement of EV charging that information should be sufficient rather than a static register.<sup>4</sup>

---

<sup>4</sup> [Energy Security Board Final Advice to Energy Ministers: Flexible trading arrangements p.39](#)

*14. Are there any minimum technical requirements that should be considered for EVSE interoperability?*

A technical requirement does not necessarily support interoperability. When South Australia introduced the technical requirement to “turn off solar systems” they failed to provide interoperability. The issue was they should have documented a market protocol rather than a technical requirement.

Similarly, standards do not necessarily support interoperability. For example, the Energy Ministers decision to mandate AS4755 fails to provide interoperability as shown by the ARENA/AGL air-conditioner trial which was abandoned when instead of turning down consumer air-conditioners the a/c was turned off.

International demand management standards typically offer third party certification of interoperability. Choosing a standard protocol along with the requirement manufacturers must supply this third-party test certificate provides the greatest chance of delivering interoperability.

The efficient management of EVs presents consumers with the ability to significantly reduce their energy costs. The ability to charge their EV using abundant (cheap) solar energy in the middle of the day and to reduce energy use in the evening (especially those with V2G functionality) is genuinely exciting. The key point is consumers should be allowed to integrate their EV into their smart home. Choosing interoperable standards at the household level would simplify this exciting future.

*15. Do stakeholders have any views on aspects of cybersecurity for EV charging that are specific to Australia, or that would require a departure from European and/or US standards?*

CFA sees to no reason to depart from the European and US standards.

### **New business models**

*16. The ESB welcomes stakeholder views on barriers in existing regulatory and legislative frameworks that may be acting to limit the introduction of more advanced EV services such as Vehicle-to-Home (V2H), Vehicle-to-Grid (V2G), and Vehicle-to-Anything (V2X)?*

V2G services are already on the radar having been mandated by the 2019 Energy Ministers decision. V2G functionality is currently covered under Australia’s Inverter Standard (AS4777) and the requirements to meet AS4777 are effectively legislated in local utility connection agreements.

Nevertheless, widespread adoption of behind the meter V2G functionality introduces similar issues to high penetrations of domestic solar. Experience suggests there will be a need to ensure visibility of energy flows behind the meter. As discussed, any standards defined demand management protocol should support appliance level energy measurements. For example, IEEE 2030.5 supports these energy measurements.

## Related issues

17. The ESB welcomes stakeholder views on the issues raised in respect of residential charging, including whether there are further issues that should be considered?

In summary:

- communications with CPOs should use a common market protocol;
- specifying standards-defined protocols offering independent third-party certification of interoperability should be high on the agenda;
- EVSE equipment must allow consumers to override, allowing consumers to commence charging (and prevent V2G discharging);
- EVSE standards which can be readily integrated into the smart home should be adopted; and
- recognising the need for additional behind the meter energy measurement, this should be achieved without introducing additional (expensive) utility metering

## Public Charging – payments

CFA would support debit and credit card payments for public charging of EVs, and not requiring use of a particular mobile app, which can serve as a barrier to access.

We note that in California public rechargers are paid for with credit cards at time of use (since 2013), which avoids interoperability issues. Furthermore, a recent trial of preloaded debit cards to pay for such charging has been made available to low-income groups.<sup>5</sup>

Should you have any questions about this submission, please contact [info@consumersfederation.org.au](mailto:info@consumersfederation.org.au).

Yours sincerely

**CONSUMERS' FEDERATION OF AUSTRALIA**



Gerard Brody  
Chair

---

<sup>5</sup> <https://ww2.arb.ca.gov/news/valley-can-state-california-issue-preloaded-reloadable-contactless-debit-cards-low-income-ev>