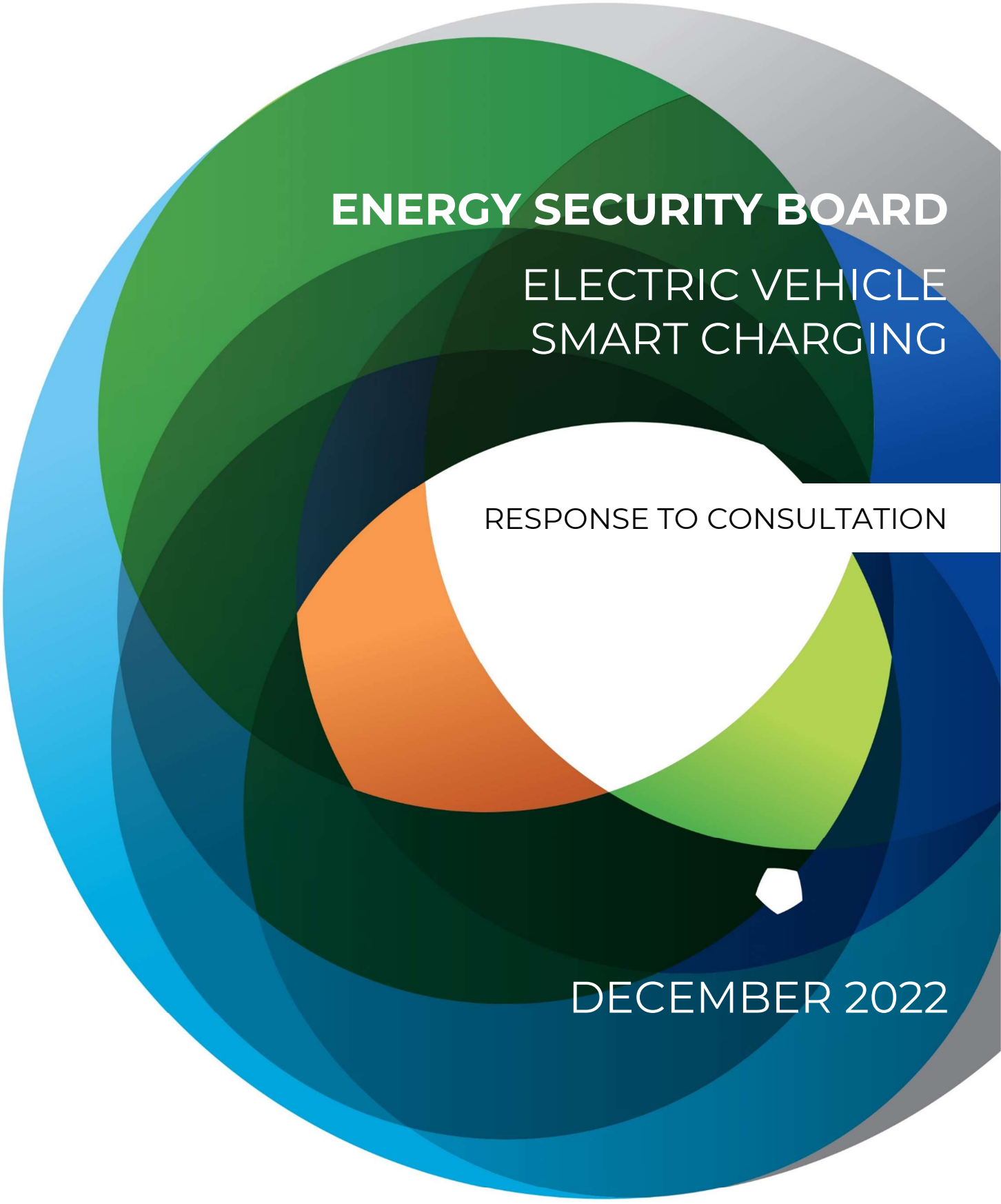

ENERGY SECURITY BOARD

ELECTRIC VEHICLE SMART CHARGING

RESPONSE TO CONSULTATION

DECEMBER 2022

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Executive Summary

In October 2021, Ministers endorsed the Energy Security Board (ESB) Post-2025 Market Design recommendations and tasked the ESB with delivery of a CER [DER] Implementation Plan over the next three years to support the effective integration of consumer energy resources.

As part of the CER Implementation Plan, the ESB outlined the immediate need to move towards more sophisticated standards for consumer energy resources. Standards to support the effective integration of electric vehicle supply equipment (EVSE) for the smart charging of electric vehicles (EVs) was identified as a priority activity as part of delivering this plan.

The Energy Security Board (ESB) is now developing policy advice regarding the technical foundations that are necessary to support the effective integration of smart charging for EVs in Australia and the National Electricity Market (NEM).

Consultation paper

The ESB's *Electric Vehicle Smart Charging Issues Paper*[1] released in July 2022 sought stakeholder views on issues relating to effective arrangements for EV smart charging in both domestic and public settings. The paper canvassed issues including residential equipment standards and policy settings that allow for the growth of private investment in public charging. Goals included supporting residential interoperability and remotely managed smart charging capabilities, and the consideration of international experience and alignment across jurisdictions where relevant and appropriate. The ESB also facilitated a public webinar in August to support engagement on matters raised in the consultation paper.

Stakeholder submissions

This paper summarises key themes emerged from these submissions with respect to customer experience and the topics of tariffs, standards and protocols for smart charging.

Standards and protocols

In summary, stakeholders expressed a strong desire to pursue alignment with international standards, and a general opposition to states and territories setting their own standards. Stakeholders expressed the view that any chosen standards should not preclude or complicate the adoption of standards that may emerge in future. Stakeholders expressed strong support for the Open Charge Point Protocol (OCPP) as a minimum equipment standard, specifically OCPP 1.6J or higher, due to its use locally and internationally. With respect to Vehicle-to-Home (V2H) / Vehicle-to-Grid (V2G) equipment and functionality, stakeholders communicated a range of issues with related standards that need to be resolved.

[1] esb-post2025-market-design.aemc.gov.au/[...]esb-electric-vehicle-smart-charging-issues-paper

Customer experience

Stakeholders were generally of the view that remotely managed residential charging should be voluntary, and that the policy focus should be on building consumer choice and confidence required for NEM market participation. The ESB heard that Charge Point Operators (CPOs) should not be mandated in a residential context at this time, that any consideration of a mandate should be deferred to allow flexibility for a competitive market for operators to develop. Stakeholders considered that it is too early to consider roaming[2] more comprehensively in the Australian context, though basic provisions to ensure visibility and traceability of charge sessions should be considered.

Tariffs

Stakeholders provided mixed responses with regard to EV specific tariffs for charge point operators. CPOs supported tailored tariffs for public charging, the remainder of submissions were strongly against any technology-specific tariffs or any cross-subsidisation due to the increased complexity for customers, higher administration costs, as well as customer equity issues.

Stakeholders expressed general opposition to mandating default tariffs for smart charging equipment (e.g. off-peak) and that intra-day pricing to allow solar soaking should be pursued via market-led incentives (e.g. retail tariffs).

Policy actions

The ESB will continue to develop policy advice regarding the technical foundations to support the effective integration of smart charging for EVs in Australia via its Interoperability, Data Strategy the Customer Insights Collaboration workstreams.

Customer insights

Deepening our insight into consumer experiences, behaviours and preferences is crucial to the next stage of EV smart charging policy development as outcomes relate to improving customer experience as much as energy security. The key question in the ESB's July 2021 advice to Ministers was 'how do customers want to use smart charging?'[3] This includes EV smart home charging and public/workplace charging.

Under the ESB's CER Implementation Plan, Horizon Two activities included work on Electric Vehicle (EV) smart charging standards and policies, including co-design with consumer and industry groups through the Customer Insights Collaboration (CIC) process[4]. This work will be progressed through 2023, building on customer insights gathered in CIC Releases One and Two about barriers and enablers for EV smart charging. This will also leverage international experience, particularly in the UK and Europe where there is high uptake of electric vehicles.

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[2] Roaming functionality enables a consumer to utilise electric vehicle supply equipment belonging to various charge point operators interchangeably, similar to cellular mobile phone networks.

[3] energy.gov.au/government-priorities/[...]/post-2025-market-design

[4] esb-post2025-market-design.aemc.gov.au/[...]delivering-the-customer-insights-collaboration

Standards and protocols

Standards and protocols for smart charging can be considered alongside standards for behind-the-meter, and device-market interoperability through the ESB's Interoperability workstream. Consultation has recently closed on the ESB's *Interoperability Directions Paper*[5] and the next ESB paper is proposed for Q2 2023. Charging standards and protocols form part of a broader eco-system for CER interoperability that needs to be considered holistically, including in relation to the interaction with other emerging market design elements such as dynamic operating envelopes and connection point unbundling.

The principal aim of this policy development process is to enable customer choice and control through device interconnection capabilities, and the ability to switch service providers without unreasonable barriers. This will also include consideration of how best to align cyber security (including Public Key Infrastructure) frameworks to support smart EVSE and other active consumer energy resources.

Data sharing

Static and operational data sharing arrangements are important considerations for the adoption and effective integration of EV smart charging.

Static data requirements will continue to be addressed through the *EVSE Standing Data* project under the ESB *Data Strategy*. The ESB's *Network Visibility for Market Planning* will consider how network constraint information (planning and operational data) can be better provided to developers and operators of EV charging infrastructure. EV data sets may also have other use cases that can be considered in related programs.

The need for a clearing house for the roaming use-case is proposed to be considered under the ESB's *Interoperability* workstream, as it is closely related to the implementation of standards and protocols rather than being designed to facilitate data sharing for other purposes.

[5] esb-post2025-market-design.aemc.gov.au/[...]development-of-interoperability-policy

Summary of consultation

The ESB received 36 stakeholder submissions in response to its Electric Vehicle Smart Charging Issues Paper, including 6 informal or confidential submissions from a range of stakeholders, including:

- network operators (5)
- retailers and gentailers (6)
- industry groups (4)
- manufacturers (4)
- charge point operators (3)
- consumer groups (3)
- governments and government organisations (4).

A list of public submissions is included in the Appendix of this document and available online.[6] All responses have been reviewed and will be considered in the next stage of policy development, though not all feedback received is included here in this summary.

Question 1: Smart charging equipment standards – costs of mandating

Consultation	ESB welcome stakeholder views and input on smart charging equipment standards settings including any input to inform the likely costs.
Topic(s)	*standards and protocols, residential charging*

Stakeholder views

The ESB received strong stakeholder support for setting of minimum equipment standards for chargers at a national level, and a strong preference for use of international standards. Some stakeholders expressed a desire for the adoption of minimum standards as soon as possible. Others considered that the cost barrier of smart chargers over non-smart chargers is significant to consumers, and the ability to use smart chargers can be limited to those who have a smart-meter installed, both impeding uptake.

ESB view

The ESB will continue to work with the Commonwealth and jurisdictions to investigate the nationally consistent adoption of the Open Charge Point Protocol (OCPP) framework as a standard for Electric Vehicle Supply Equipment (EVSE).

[6] esb-post2025-market-design.aemc.gov.au/[...]electric-vehicle-smart-charging--stakeholder-submissions

Question 2: Smart charging equipment standards – remote management

Consultation	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.
Topic(s)	*standards and protocols, residential charging*

Stakeholder views

Stakeholders emphasised that residential smart charging should be voluntary and focus on consumer choice, with consumer over-ride capabilities and functionality aligned with solar PV and batteries to support consumers self-sufficiency. Some stakeholders suggested minimum functionality requirements should include built-in scheduling and remote management to provide for managing peak demand in the future, suggesting that over the long term, the emergence of Virtual Power Plants will assist with network and power system management.

ESB view

The ESB will continue to work with the Commonwealth and jurisdictions to investigate the nationally consistent adoption of the Open Charge Point Protocol (OCPP) framework as a standard for Electric Vehicle Supply Equipment (EVSE).

Question 3: Smart charging equipment standards – current capability

Consultation	ESB understands that most EVSEs on the market today come with smart charging as a minimum functionality - is this the case or do stakeholders see this as still an emerging functionality?
Topic(s)	*standards and protocols, residential charging*

Stakeholder views

There were mixed responses regarding the prevalence of smart charging as a minimum functionality. Stakeholders communicated that not all EVSE's come with smart charging as a minimum functionality, though EVSE from major brands often support remote communications. Stakeholders were of the view that a large amount of EVSEs does not have support for remote control by a third party and considered scheduling an emerging functionality. Stakeholders also noted that internet connectivity can be a barrier to smart charging capabilities.

ESB view

The ESB will continue to work with the Commonwealth and jurisdictions to investigate the nationally consistent adoption of the Open Charge Point Protocol (OCPP) framework as a standard for Electric Vehicle Supply Equipment (EVSE).

Question 4: Future proofing interoperability standards

Consultation	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?
Topic(s)	*standards and protocols, residential charging*

Stakeholder views

Stakeholders expressed strong support for OCPP 1.6J, particularly due to its support nationally and internationally. Some stakeholders expressed concern about newer standards, which are not backwards compatible, and were generally of the view that any mandates should not exclude or complicate the use of more sophisticated standards in the future. Some stakeholders suggested further investigation into OCPP 2.x and other standards should be explored as they are developed/adopted, including ISO 15118 as well as IEEE 2030.5 and CSIP-Aus.

ESB view

The ESB will continue to work with the Commonwealth and jurisdictions to investigate the nationally consistent adoption of the Open Charge Point Protocol (OCPP) framework as a standard for Electric Vehicle Supply Equipment (EVSE).

Question 5: EV to EVSE interoperability standards

Consultation	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.
Topic(s)	*standards and protocols, residential charging*

Stakeholder views

Stakeholders were generally of the view that ISO 15118 is not a required functionality for a residential smart charging system. Stakeholders suggested that EV to EVSE communications in a domestic context typically relies on IEC61851-1 which is simple, universal, and has large uptake by global manufacturers with a presence in the Australian market. There is a view that is too early to consider mandates and requirements for EV to EVSE communications as technology is still evolving, though some stakeholders did support a combination of OCPP 2.0 and ISO 15118 once this combination is mature to enable features relevant to cyber security.

ESB view

The ESB will consider advanced EVSE communications and interoperability functionality in the context of system security, energy market development and delivering good customer experience. This will be progressed in conjunction with its Interoperability work program.

Question 6: Tariffs for EV charging

Consultation	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?
Topic(s)	*mandates and incentives, pricing and tariffs, residential charging*

Stakeholder views

Stakeholders generally expressed opposition to mandating tariffs based on the technology owned by consumers, often characterising EV charging as simply another household electrical load.

Some stakeholders were of the view that state-wide tariffs ignore localised nature of network constraints, and that flexible demand management should be used over relying on tariffs to ensure grid system security. There was also a view that time-of-use tariffs may create 'secondary peak periods' if not used in combination with a smart charger, by simply shift EV charging *en masse* to another time of day. Some stakeholder expressed concerns a blunt, default tariff approach could incentivise 'work-arounds' with consumers.

Other stakeholders expressed the view that tariffs will be critical in managing the pressure of EV uptake on the grid, and EV specific tariffs could contribute to fairer distribution of costs, reducing cross-subsidies and encouraging efficient charging behaviour.

ESB view

The ESB recognises the central role that customer tariffs play in incentivising smart charger uptake and efficient charging behaviour. The market bodies will continue to engage with networks and jurisdictions under current tariff reform program arrangements, led by the Australian Energy Regulator.

Question 7: Timeframes for the implementation of new standards

Consultation	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?
Topic(s)	*standards and protocols, residential charging*

Stakeholder views

Stakeholders were generally of the view that minimum technical standards should be prioritised and accelerated as this will support more equitable mid-term outcomes for EV owners with EVSE. Stakeholders suggested a co-ordinated national approach to regulation and implementation would deliver the best outcome for consumers. One stakeholder suggested consideration of a requirement from mid-2024. Another stakeholder expressed a view that it is more urgent and important to resolve electrical safety standards than communications for EVSE.

ESB view

The ESB will continue to work with the Commonwealth and jurisdictions to investigate the nationally consistent adoption of the Open Charge Point Protocol (OCPP) framework as a standard for Electric Vehicle Supply Equipment (EVSE).

Question 8: Requiring remote charge point management

Consultation	What are stakeholder views regarding the potential costs and benefits of requiring consumers to participate in remote coordination capabilities for smart EV charging?
Topic(s)	*mandates and incentives, residential charging*

Stakeholder views

Stakeholders expressed the view that consumers should retain choice and operate on an opt-in basis rather than mandates. There was a view that without trust that industry is serving consumer interests, consumers may resort to using general purpose outlets for charging which could have detrimental impacts on the grid. Stakeholders considered that the onus is on industry to create compelling offers based on benefits that encourage consumers to cede some control. Overall, stakeholders communicated a preference for participation in remote charging to be driven by incentives rather than mandates.

ESB view

While the ESB's Customer Insights Collaboration will explore these issues, jurisdictions, networks and market participants are also considering how to promote consumer behaviour change and smart charger adoption. The ESB will further consider what role, if any, it can play to support these initiatives.

Question 9: The role of CPOs, aggregators and traders

Consultation	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?
Topic(s)	*roles and responsibilities, charge point operators, residential charging*

Stakeholder views

Stakeholders were generally of the view that CPO's should not be mandated in a residential context at this time, that this should be deferred to allow a competitive market to develop which promotes consumer choice.

Some stakeholders expressed the view that third-party software providers should be able to act as a CPO without a formal regulated process, others considered that energy retailers and aggregators are in the best position to deliver CPO functions. There was a strong view that DNSPs should not be allowed to operate as CPOs.

ESB view

Consumer protections issues related to EV smart charging are being explored via the CIC, and the AER's *Review of consumer protections for future energy services* and other workstreams. Consideration of these issues will also be made under the Flexible Trading Arrangements rule change process. The AER considers the functional separation of regulated network businesses in publishing the *Ring-fencing Guideline (Electricity Distribution)*.

Question 10: Responsibilities of CPOs

Consultation	What are stakeholder views in respect of the relevant and appropriate responsibilities that should be taken on by a CPO: e.g. ensuring rate limits, customer support?
Topic(s)	*roles and responsibilities, charge point operators, residential charging*

Stakeholder views

Stakeholders raised issues related to customer protections, to ensure that CPOs carry the risk of service delivery that is responsive to reasonable consumer concerns, and that customers can seek redress. The need for appropriate, accurate and transparent billing and payments was highlighted. Stakeholders considered that specific responsibilities include ensuring functionality is available when required, with outage notification and technical support provided.

ESB view

Consumer protections issues related to EV smart charging are being explored via the CIC, and the AER's *Review of consumer protections for future energy services* and other workstreams. Consideration of these issues will also be made under the Flexible Trading Arrangements rule change process.

Question 11: The role of CPOs in demand management

Consultation	What functions would CPOs be required to perform on behalf of customers? e.g. off peak charging.
Topic(s)	*roles and responsibilities, charge point operators, residential charging*

Stakeholder views

Stakeholder were generally of the view that the CPO role will vary in the context of providing opt-in value added services at this point in time. Stakeholders suggested functions of the CPO may include managing rate and timing or state of charge in line with customer preferences, as well as demand management services aligned with existing CER mechanisms. One stakeholder communicated a preference to wait for the outcome of the Flexible Trading Arrangements rule change process.

ESB view

Jurisdictions, networks and market participants are considering how to deliver efficient EV smart charging. The ESB will further consider what role, if any, it can play to support these initiatives. Consumer expectations related to EV smart charging are also being explored via the CIC, and consumer protection through the AER's *Review of consumer protections for future energy services*. Consideration will also be given with the Flexible Trading Arrangements rule change process.

Question 12: Regulation of CPOs

Consultation	What obligations would be required by CPOs to ensure there are adequate protections for end consumers?
Topic(s)	*roles and responsibilities, charge point operators, residential charging*

Stakeholder views

Stakeholder were generally of the view that regulation should be limited in the emerging market, and that consumer protections above those already in law my introduce complexity for consumer. Some stakeholders were of the view, however, that there may be value in regulators providing guidance to CPOs and customers to promote clarity and understanding. One stakeholder suggested consideration could be given to mandating CPOs to register as a market participant.

ESB view

Consumer protections issues related to EV smart charging are being explored via the CIC, and the AER's *Review of consumer protections for future energy services* and other workstreams. Consideration of these issues will also be made under the Flexible Trading Arrangements rule change process.

Question 13: Capturing EVSE standing data

Consultation	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?
Topic(s)	*data sharing, standing data, residential charging*

Stakeholder views

Stakeholders expressed general agreement that a central database of installed EV chargers is useful for long-term planning. Multiple stakeholders recommended that standing data be captured under the Distributed Energy Resource Register so that all forms of DER are captured within one data source. One stakeholder communicated a concern that, because EVSE only needs to be installed by a qualified electrician, reporting of installations will have challenges if there are no incentives in place to do so.

ESB view

Requirements regarding the capture of EVSE installation data is being progressed via the EVSE *Standing Data* project led by AEMO and the ESB under the ESB *Data Strategy*.

Question 14: Other minimum technical requirements

Consultation	Are there any other minimum technical requirements that should be considered for EVSE interoperability?
Topic(s)	*standards and protocols, device interoperability, residential charging*

Stakeholder views

Generally, stakeholders were of the view interoperability requirements were covered by standards, that there were no other minimum technical requirements that should be considered for EVSE interoperability. One stakeholder considered that any minimum technical standard should mandate that smart EVSE support interoperability via local, physical interfaces, and industry standard open communications protocols. One stakeholder considered that smart chargers including a randomised delay functionality may mitigate risk associated with integration if used alongside EV-specific tariffs to ensure grid stability.

ESB view

The ESB will continue to work with the Commonwealth and jurisdictions to investigate the nationally consistent adoption of the Open Charge Point Protocol (OCPP) framework as a standard for Electric Vehicle Supply Equipment (EVSE). The ESB will explore other opportunities to promote efficient EV charging, including default EVSE charging behaviour standards, via the *Customer Insights Collaboration* and other work programs and further consultation with DNSPs and between the market bodies.

Question 15: Cyber security

Consultation	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?
Topic(s)	*standards and protocols, cyber security, residential charging*

Stakeholder views

Stakeholders acknowledged the importance of cyber security in the context of smart charging and expressed strong support for the introduction of cyber standards. Stakeholders reiterated that Australia should refrain from creating unique standards and instead align with international best practice. Some stakeholders suggest that IEC 62443[7] provides a relevant structured approach to cyber and is becoming the industry standard leader. One stakeholder communicated the necessity of certificate-based communications (e.g. Plug&Charge), and the relevance to broader behind-the-meter interoperability considerations with respect to cyber security (e.g. CSIP-Aus and IEEE 2030.5 technology models).

[7] IEC 62443 is an international series of standards that address cybersecurity for operational technology (as distinct from information technology), including automation systems essential for energy supply and distribution. It divides cyber security topics by role, and follows a risk-based approach to security risks in relevant activities.

ESB view

The ESB will consider cyber security in EVSE communications functionality in the context of power system security, energy market development and delivering good customer experience. This will be progressed in conjunction with its Interoperability work program.

Question 16: Barriers to V2G, V2H and V2X

Consultation	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)?
Topic(s)	*regulatory frameworks, advanced capabilities, residential charging*

Stakeholder views

Generally, stakeholders considered that, while Vehicle-to-Home (V2H) and Vehicle-to-Grid (V2G) technology is still some years away from mainstream adoption in Australia, clarification of the appropriate standards for EVSE with this capability is required. Stakeholders did not, however, identify a role ESB in this space.

ESB view

Collaboration between industry groups, standards bodies and equipment manufacturers is required to ensure the future suitability of AS 4777 and other relevant standards along with product certification requirements. ESB currently considers it is appropriate for industry to maintain carriage of these issues and resolve them as a high priority.

Question 17: Issues in residential charging

Consultation	The ESB welcomes stakeholder views on the issues raised in respect of residential charging, including whether there are further issues that should be considered?
Topic(s)	*residential charging*

Stakeholder views

Stakeholders shared a common view is that Australia differs from rest of world in the emphasis on charging from solar and the need for measures to support that outcome, including consideration of charging away from rooftop solar at a consumers' primary premises. Costs associated with smart charging, including software, was considered by one stakeholder to outweigh consumer benefits and multiple stakeholders communicated the need for incentives for the uptake of smart charging technology.

ESB view

While the ESB's Customer Insights Collaboration will explore these issues, jurisdictions, networks and market participants are also considering how to promote consumer behaviour change and smart charger adoption. The ESB will further consider what role, if any, it can play to support these initiatives.

Question 18: Specific tariffs for CPOs

Consultation	What are stakeholder views on the use of technology specific tariffs, approved by the regulator, but operating under different metrics? What might be any unintended consequences of introducing EV CPO specific tariffs?
Topic(s)	*pricing and tariffs, public charging*

Stakeholder views

Stakeholders provided mixed responses with regard to EV specific tariffs for charge point operators. CPOs supported tailored tariffs for public charging, the remainder of submissions were strongly against any technology-specific tariffs or any cross-subsidisation by other customers.

ESB view

The ESB recognises the central role that commercial tariffs play in incentivising investment in public chargers and efficient consumer charging behaviour. The market bodies will continue to engage with networks and jurisdictions under current tariff reform program arrangements, led by the Australian Energy Regulator.

Question 19: Connection processes for public charging

Consultation	What measures might be helpful to consider to streamline the connections process for public charging infrastructure?
Topic(s)	*network connections, public charging*

Stakeholder views

Stakeholders generally considered visibility of capacity and demand to be an important factor. Efforts by DNSPs to improve network visibility are supported with the objective of securing and presenting better data to serve the dual goals of improved network management and more rapid connection processes.

ESB view

The ESB's Network Visibility for Market Planning work program will consider how network constraint information (planning and operational data) can be better provided to developers and operators of EV charging infrastructure.

Question 20: Alternative metering approaches

Consultation	Aside from the grandfathering issues noted for existing equipment, are there any other metrology issues concerning public EV charging that should be considered?
Topic(s)	*metering, billing and payments, standards and protocols, public charging*

Stakeholder views

Strong stakeholder support was received for the relaxation of the metering requirements for EVSE, such that metrology is required to achieve a similar accuracy of market meters but is not subject to onerous to current NEM metrology standards, and any new requirements should not be retrospectively specified.

ESB view

Industry continues to engage with the National Metering Institute who is considering international approaches to metering, which could support domestic market development.

Question 21: Promoting efficient use of public charging

Consultation	What mix of arrangements might facilitate flexibility in charge point pricing to encourage more drivers to charge during times of excess renewable energy?
Topic(s)	*mandates and incentives, pricing and tariffs*

Stakeholder views

There was stakeholder consensus that flexible intra-day price variability is useful in the Australian context, with the use of an app or similar to publish kWh prices for public EV chargers for different times of the day. There were differing views as to whether app-based pricing communication is sufficient for consumers, or other methods of advertising prices are required. Some stakeholders were of the view that convenience rather than price will determine charging patterns. There was a view pricing options should be left to the market, and that strong price signals from the NEM will give CPO an incentive to maximise utilisation by spreading charging throughout the day and avoiding the peak charges.

Stakeholder views

While the ESB's Customer Insights Collaboration will explore these issues, jurisdictions, networks and market participants are also considering how to promote efficient charging practices. The ESB does not consider it has a further role in promoting the efficient use of public charging infrastructure.

Question 22: Payments for the use of public charging

Consultation	What do stakeholders view to be important considerations for ensuring protections are fit for purpose for consumers using public EV chargers with regard to payments and any associated disputes?
Topic(s)	*data sharing, roaming, billing and payments, customer protections, public charging*

Stakeholder views

Concerns were raised about potential complex and onerous processes that may result from public charge networks controlled by digital apps, pricing not being always clear and transparent, and charge processes being designed only for 'tech savvy' early adopters rather than the mass market.

ESB view

Whilst these issues were not highlighted as a priority for most industry participants today, given the nascent level of uptake domestically, the ESB will consider insights from national and international experiences as to how customer expectations will be met as uptake increases. This includes how customer outcomes can be enhanced through the adoption of modern standards and technologies such as Plug&Charge.

Question 23: Roaming

Consultation	The ESB welcomes stakeholder views on when they consider the issues associated with roaming might become a policy issue to address in Australia?
Topic(s)	*data sharing, roaming, billing and payments, customer protections, public charging*

Stakeholder views

Stakeholders generally considered that, because the Australian EV market is still an emerging one, it is too early for the establishment of a roaming network to be of major concern for EV drivers. Some stakeholders did support the adoption of standards to facilitate roaming between CPO networks and noted the merit of following international developments. Stakeholders communicated the nature of this issue as a matter of customer experience rather than customer protection. One stakeholder outlined the importance of certificate management and the need for a trusted certificate authority.[8]

ESB view

The ESB will consider advanced EVSE communications and interoperability functionality in the context of system security, energy market development and delivering good customer experience. This will be progressed in conjunction with its Interoperability work program.

[8] Authentication and authorisation for digital communications can be achieved using certificates. These digital certificates serve to verify identities, much like a driver's licence. The management of these certificates requires one or more certificate authorities (CA) that issue digital certificates for use by other entities.

Appendix: List of public respondents

AGL

ARENA

Ausgrid

Australian Energy Council

Battery Storage and Grid Integration Program

BP Australia

Charge HQ

CitiPower, Powercor and United Energy

Clean Energy Council

Consumers Federation Australia

CS Energy Limited

Electric Vehicle Council

EnergyAustralia

Energy & Water Ombudsman NSW

Energy Networks Australia

Energy Queensland

Essential Energy

EVIE Networks

FIMER

Jet Charge

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