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Department of Climate Change, the Environment, Energy and Water

Consumer Energy Resources Taskforce

Submissions via DCCEEW website portal

12 September 2025

Consultation Paper – National Consumer Energy Resources (CER) Roadmap – Technical Standards for CER Interoperability – T1

AGL Energy (**AGL**) welcomes the opportunity to provide responses to the questions posed by the Department of Climate Change, the Environment, Energy and Water (**DCCEEW)** in response its Consultation Paper on national technical regulatory framework for CER.

AGL supports the CER Roadmap's vision where CER becomes an integral part of Australia's secure, affordable and future electricity systems, delivering benefits and equitable outcomes to all consumers. CER interoperability will play an important role in enabling this future.

AGL supports the 'first principles' approach taken by DCCEEW to consider CER device requirements. As the energy mix changes, many energy consumers will change too. Diverse customer preferences will drive the need for a broad suite of products and services. Some customers may choose to accept third-party coordination of their devices, while others will seek to retain control of their assets but will respond effectively to the right incentives (e.g., event-based rewards or simple, actionable and fair price signals). Interoperability requirements – and if necessary, the associated interoperability standards – will need to be able to meet consumer needs and preferences as a first principle. They should support scalability, industry innovation, and competition.

Better interoperability offers the opportunity for improved product choice and customer experience. However, cost-effective, scalable and flexible interoperability solutions can be developed without adoption of standardised communications pathways – for example, via Application Programming Interface (API) integration. Where standardisation is sought, Australia should seek to align with international requirements in first instance.

AGL supports the collaborative and transparent development of Australia-specific interoperability standards, where these can be voluntarily adopted by industry. However, mandatory adoption of local standards should be carefully balanced against the of risks limiting innovation and consumer choice. Where consumer protections are needed, existing regulatory frameworks, such as Australian Competition and Consumer law, may be better suited to ensure these protections are preserved rather than bespoke technical requirements.

Appendix A includes responses to select questions in the consultation paper. If you have any queries about this submission, please contact Andrea Espinosa on aespinosa2@agl.com.au.

Yours sincerely,

Kyle Auret

Senior Manager Policy and Markets Regulation

AGL Energy

About AGL

Proudly Australian for more than 187 years, AGL supplies energy and other essential services to residential, small and large businesses and wholesale customers. AGL is committed to providing our customers with simple, fair and accessible services as they decarbonise and electrify the way they live, move and work. AGL is investing in flexibility and has been making strong progress against our grid-scale battery and distributed energy resources (DER) targets. As of FY25 AGL had 1.49 GW of decentralised assets under orchestration, and a FY27 target of 2.5 GW of demand-side flexibility. AGL is also a market leader in the development of innovative products that enable consumers to make informed choices on how and when to optimise their energy usage to better manage their energy costs.

Appendix A – Response to consultation questions

Question	Response
Question 1 - Should the capacity for consumers to switch energy service providers (churn) be prioritised and what are the impacts?	Consumer churn is already possible at a retailer level. VPP customers can churn service providers and choose from a range of compatible products. There are some limitations in market systems (e.g., complexity to update National Meter Identifiers enrolled for Frequency Control Ancillary Services participation), but these do not prevent a customer from churning. At an original equipment manufacturer (OEM) level, interoperability standards could play a role in dictating the minimum functionalities expected of CER. AGL is supportive of the principle of achieving a minimum level of consistency across OEMs, as this can improve consumer choice and stimulate market development and competition. However, this needs to be balanced against the risk of higher consumer costs if prescriptive requirements led to OEM exit and fewer options for consumers. Many OEMs in the Australian market are global and have a choice about whether to prioritise building for Australian markets or larger international markets. Addressing churn may improve consumer confidence, but it would not address other barriers which limit the transition to an 'interoperable' CER ecosystem – for example, customer reluctance to accept external control of their assets. While interoperability requirements can be used to support a minimum level of 'openness', the extent of these should be carefully considered against the impacts on innovation and consumer choice. For example, DCCEEW could seek to prioritise minimum requirements that allow CER to be orchestrated, without necessarily enabling customers to access and change operational settings. Australia's CER market is rapidly evolving and highly competitive, so the risk of vendor dominance is likely low in the short-term. Where consumer protections are needed, existing regulatory frameworks, such as Australian Competition and Consumer law, may be better suited to ensure these protections are preserved rather than technical requirements. If these are not found suitable, technology requirements could be considered but these would ideally not be bespoke requirements for the Australian market.
Question 2 - What are your views on interoperability hierarchy via the vehicle and an EVSE? Do you think the EVSE should take precedence over the vehicle or vice versa?	There are advantages and disadvantages to both approaches, but it may be preferable for EVSE (Electric Vehicle Supply Equipment) to take precedence. Advantages associated with EVSE precedence include: - EVSE are the first connection point into the electricity network - EVSE is responsible for ensuring the power delivery is safe, within limits and compliant with network regulations - EVSE tend to have smart charging capabilities as a default, provided it is running a supporting Open Charge Point Protocol (OCPP), that can be adjusted based on external signals to balance the supply load, in co-ordination with an electric vehicle's (EV) preferences - EVSE precedence could help limit instances where EVs 'bypass' the chargers' instructions. A key disadvantage of this approach is affecting vehicle battery performance and warranties. However, this could be potentially resolved through direct agreements between EVSE and EV manufactures. Additionally, EVSE can override EV's preferences which may result in a poor driver experience and inconsistent charging behaviour.

Question	Response
Question 3 - Should minimum device/system requirements be applied to EV Level 1, Mode 1 and Mode 2 charging technologies, as per discussion in section 4.1?	No. These requirements should not apply to EV Level 1 (Mode 2 and 3) chargers at this stage.
Question 4 – Should minimum device/system requirements be applied to public EVSE?	AGL does not oppose these requirements if they are consistent with international applications – e.g., OCPP. However, minimum service requirements should take into consideration dependence on network conditions, and signals (e.g., constraints) that might be applied by the network and which would affect the EVSE service.
Question 5 - Are there any CER device types or use cases not adequately captured in the 13 identified requirements?	The analysis seems comprehensive.
Question 6 - Are there any other standards that can support each identified requirement?	The analysis seems comprehensive.
Question 7 - In the mapping exercise in Table 5.14, do you agree with the identified gaps? Are there existing standards that could fill these identified gaps?	The analysis seems comprehensive.
Question 8 - Do you have views on the prioritisation of further standards work to address the identified gaps?	Further standards should only be pursued when it's evident the gap is causing material issues. Injecting standards prematurely into CER products and services will not necessarily increase deployment. Some of the aims of this paper, such as increasing the uptake of CER orchestration, will not necessarily be addressed by the creation of interoperability standards if they do not address material gaps such as consumer acceptance for these types of products.
Question 9 - How can Australia align with international standards while maintaining flexibility for local conditions?	Australia should seek to align with international requirements. Mandatory adoption of local standards risks reducing consumer choice by locking-out products from the Australian market. AGL supports the collaborative and transparent development of Australia-specific interoperability standards but not their mandatory adoption unless there is a critical system need. If these standards can help support product development and offer value to consumers, then they are likely to be voluntarily adopted by industry.

Question	Response
	As noted in the cover letter, cost-effective, scalable and flexible interoperability solutions can be developed without adoption of standardised communications pathways – for example, via API integration.
Question 10 - Are there any risks associated with the identified requirements, such as remote updating of device settings?	Generally, broad access to CER data can exacerbate privacy and cyber security risks. Where information is sought on consumers' CER, it will be important to ensure this is supported by customer acceptance (either through the creation of the right incentives or through effective engagement from industry and governments) and underpinned by the appropriate data privacy measures. While indirectly related to the requirements, the level of information collected from consumers should not go beyond what's strictly necessary for system and network management and should be underpinned by the appropriate management of personally identifiable information. Furthermore, not all functionalities may be needed for each device at a site. One asset with functionality per site may be sufficient to support the outcomes sought in this paper. Some of these requirements could also be challenging for EVSE which are not V2G compatible (as V2G EVSE must adhere to AS/NZS 4777.2 in Australia). Specific risks identified include: - R-8 (monitor site-level power generation and loads) – This functionality may be achievable for inverter-based systems adhering to AS/NZS 4777.2 but not for other types of CER. - R-11 (local CER to CER coordination) – This poses a risk of unnecessarily complex CER coordination if there are multiple devices receiving / sending information and which have the potential to make 'decisions' on consumers' energy usage.
Question 11 - Modulating power in response to grid conditions or an external signal can be implemented through zero generation or zero export. Is there a preference for either of these approaches or both?	AGL's preference is for this to be implemented via zero export, as this has the lowest impact on consumers.
Question 12 - What are the risks of supplier (OEM) lock-in under current standards, and how might these be mitigated?	Refer to question 1.

Question	Response
Question 14 - What are potential pathways to accelerate the standards development and modification processes?	The existing processes could be subsumed within the national technical regulatory framework (as part of function 1) and occur in close consultation with industry. The process should prioritise the adoption of international standards to avoid impacting consumer choice. Appropriate lead time should be given to industry to adjust to new obligations. Where Australia-specific standards are being developed, DCCEEW / the regulator should ensure there is a balanced representation of interests and expertise as part of this process.
Question 15 - The design of CSIP-AUS has 4 possible pathways (native, gateway, cloud, cloud/gateway). Only the native pathway enables consumers to switch providers. Do you have views as to the merit of the alternative pathways for CSIP-AUS?	The existence of 4 different pathway facilitates integration from different technology providers at lower cost. AGL's preference is for these alternative pathways to be retained as CSIP-Aus is already mandated for emergency backstop implementations across several jurisdictions and is being utilised by networks to implement dynamic operating envelopes. Further restrictions in its application could create additional costs on consumers and limit product choice. More broadly, these are some of the risks and benefits associated with different communication pathways: • **Native pathways** have improved plug-and-play flexibility, which can enable consumers to switch providers without hardware change. It also avoids proprietary gateways or cloud dependencies. • **Gateway pathways** are a practical solution that can offer simplified integration for OEMs and aggregators, but do introduce some vendor lock-in risks. They are also more prone to interoperability fragmentation. • **Cloud pathways** are scalable for aggregators and OEMs. However, they can obscure control transparency for consumers and complicate compliance with standards. This could potentially be mitigated through consumer protections, rather than technology requirements. • **Cloud / gateway pathways** may combine the drawbacks of both cloud and gateway devices, potentially leading to higher cost and complexity, greater risk of interoperability failure and limited consumer transparency.
Question 16 - What are the benefits or disadvantages of facilitating control of a physical device or via the cloud?	[redacted] AGL's broader views on the benefits and disadvantages of cloud-based versus physical device control are outlined overleaf.

Question	Response
	Cloud-based control *Benefits:* • Scalability and flexibility: Cloud platforms allow for rapid scaling, remote updates, and integration with third-party services. • Centralised orchestration: Enables aggregated control of fleets (e.g., EV chargers, home batteries) for grid services, demand shaping, and energy optimisation. • Data-driven insights: Cloud systems can collect and analyse usage data to optimise performance and personalise customer experiences. *Disadvantages:* • Dependency on connectivity: Cloud control requires stable internet access; outages can disrupt functionality. • Vendor lock-in: Proprietary cloud platforms may limit interoperability and consumer switching. **Physical device control** *Benefits:* • Direct, low-latency control: Commands are executed locally, reducing reliance on external networks and improving responsiveness. • Enhanced consumer autonomy: Consumers retain control over their hardware, which supports switching providers and can avoid vendor lock-in. • Resilience to outages: Local control can continue functioning during internet disruptions, which is valuable in remote or disaster-prone areas. *Disadvantages:* • Complexity in coordination: Managing multiple devices across different brands and protocols can be technically challenging and costly. • Limited scalability: Physical control requires on-site infrastructure and maintenance, which can hinder rapid deployment or upgrades. • Higher upfront costs: Installation and configuration of physical control systems often involve significant capital expenditure.

Question	Response
Question 17 - What are the benefits and disadvantages of applying interoperability standards at a site versus a device level?	**Site-Level Interoperability** *Benefits:* • Simplified compliance: Standards applied at the site level reduce duplication. A single smart device (e.g. battery or EMS) can coordinate other devices, avoiding the need for every device to meet all requirements. • Lower cost and complexity: OEMs can avoid embedding full compliance into every device, which reduces manufacturing and certification costs. • Practical orchestration: Site-level control allows for holistic energy management, especially in mixed-device environments (e.g. solar + EVSE + battery), which is common in commercial and residential deployments. *Disadvantages:* • Limited granularity: Site-level standards may not capture device-specific behaviours or capabilities, which can hinder advanced orchestration or diagnostics. • Risk of single point failure: If the coordinating device fails, the entire site may lose interoperability functionality. • Reduced portability: Devices may not be interoperable when moved to another site unless reconfigured or re-certified. **Device-Level Interoperability** *Benefits:* • Enhanced flexibility and portability: Devices can be moved between sites or networks without losing functionality, supporting consumer switching and modular upgrades. • Granular control and diagnostics: Enables precise orchestration, telemetry, and fault detection at the individual device level. • Future-proofing: Devices with built-in interoperability can adapt to evolving standards and use cases (e.g. V2G, dynamic pricing). *Disadvantages:* • Higher cost and complexity: Each device must meet full compliance, increasing development, testing, and certification burdens for OEMs. • Risk of fragmentation: Without strong standardisation, device-level requirements can vary widely, leading to inconsistent performance and consumer confusion. • OEM resistance: Manufacturers may resist open standards that reduce their control over device ecosystems, leading to “walled garden” scenarios.
Question 18 - What lessons can be drawn from the current approach to CSIP-AUS in terms of testability and conformance?	AGL’s submission to the NSW Emergency Backstop Mechanism consultation provides a detailed perspective on this question. In summary, the implementation of CSIP-Aus across networks is not trivial and there is a high risk of non-compliance, technical challenges, and in some instances, poor customer experience. Harmonisation of requirements across and within jurisdictions is essential to facilitate industry’s adoption of Australian-specific standards. Testing and conformance requirements may also not be suitable for larger systems – e.g., commercial and industrial (C&I) installations – and should be adapted to reflect the actual design and operation of these systems.

Question	Response
Question 19 - What are the net benefit and cost implications of adopting different standards pathways (e.g. native vs adapter/HEMS-based)?	**Native pathway** *Net Benefits:* • Consumer switching: Enables seamless provider churn without hardware changes. • Lower long-term cost: Avoids proprietary lock-in and stranded asset risks. • Regulatory alignment: Supports future standards accreditation models. *Cost Implications:* • Higher upfront OEM compliance costs: Devices must meet full protocol and performance standards. • Testing and certification burden: Requires robust validation frameworks, which may increase time-to-market. **Adapter/HEMS-based pathway** *Net Benefits:* • Lower OEM compliance burden: Standards applied at the HEMS level reduce duplication across devices. • Rapid deployment: Easier to retrofit legacy devices via protocol adapters or cloud-based HEMS. • Flexible orchestration: HEMS can coordinate multiple devices and optimise load across a site. *Cost Implications:* • Higher integration complexity: Requires robust site-level coordination and may introduce single-point-of-failure risks. • Ongoing operational costs: Cloud services, software updates, and data management add recurring costs. • Potential consumer lock-in: Proprietary HEMS platforms may limit switching and interoperability.
Question 20 - What are the benefits and costs implications of requiring all EVSE (both uni-directional and bidirectional chargers) to support OCPP 2.0.1 and ISO 15118-20 to promote V2G use cases?	AGL is broadly supportive of the adoption of OCPP 2.0.1 as its adoption is mature across the market. Some of the challenges raised by the paper (e.g. lock-in into third party vendors) have been resolved in earlier versions of OCPP. AGL agrees that OCPP 2.0.1 has better security features than OCPP 1.6J, and would help EVs and EVSE to talk to each other in a standard way, making features like Plug & Charge and vehicle-to-grid (V2G) easier to use Implementing OCPP 2.0.1 and ISO 15118-20 requires more sophisticated hardware (currently costs more than $8,000) and software in both the EVSE and the electric vehicles themselves. Government incentives and support for research and development will be crucial to mitigate the costs of these requirements and to accelerate the realisation of a truly smart and interactive EV network.