



Technical Standards for Consumer Energy Resources (CER) Interoperability

Clean Energy Council Submission

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CER Taskforce
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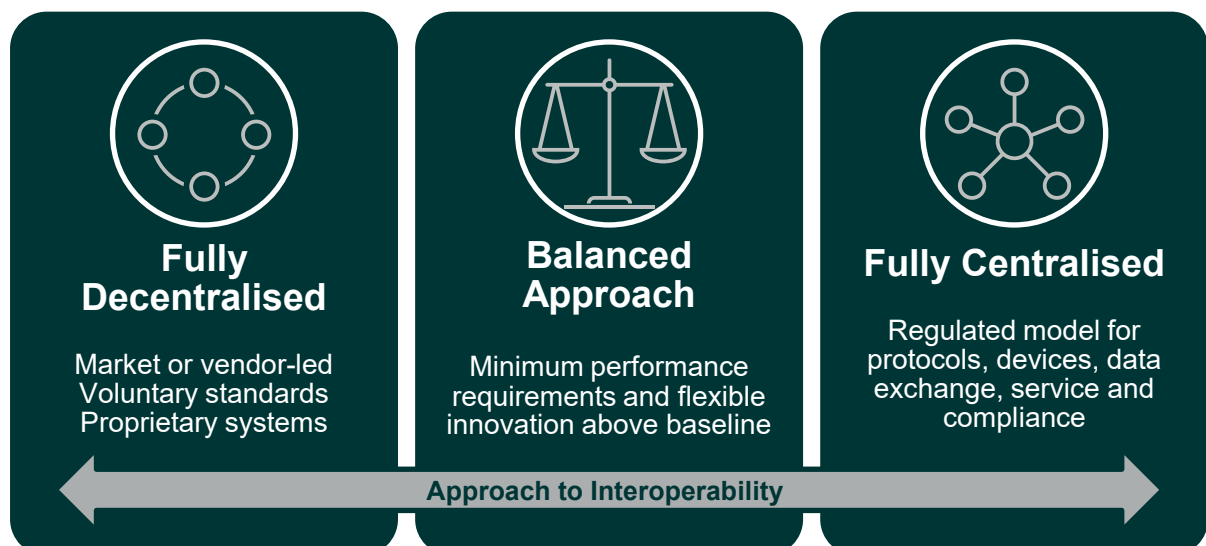
Response to Technical Standards for Consumer Energy Resources Interoperability Consultation Paper

The Clean Energy Council (CEC) welcomes the opportunity to provide feedback to the Department of Climate Change, Energy, the Environment and Water's (DCCEEW) Technical Standards for Consumer Energy Resources (CER) Interoperability Consultation Paper.

The CEC is the peak body for the clean energy industry in Australia. We represent and work with Australia's leading renewable energy and energy storage businesses, as well as accredited designers and installers of solar and battery systems, to further the development of clean energy in Australia. We are committed to accelerating the transformation of Australia's energy system to one that is cleaner, equal, fair and transparent for all consumers.

The CEC supports in principle the establishment of a performance baseline to guide interoperability requirements across the CER ecosystem. Establishing clear, consistent expectations for minimum device and system capability is a logical and valuable step.

However, we emphasise that interoperability must not be conflated with consistency in product functionality and service. The following diagram provides an overview of the spectrum of the application of interoperability standards with the CER ecosystem. Ranging from a fully decentralised system through to a fully centralised system.



Technology functionality that exceeds minimum performance standards, along with differentiated service offerings, should not be seen as threats to the energy system. In fact, they are essential drivers of customer value and innovation. Consumers who invest in higher-performing technologies rightly expect a seamless, tailored experience that meets their individual needs. Interoperability standards must support and enable this level of differentiation, rather than constrain it.

Achieving this requires a flexible approach to interoperability. While standardised communications pathways are often viewed as the default solution, they are not the only option. Application Programming Interfaces (APIs) offer a powerful alternative that enables cost-effective, scalable, and flexible integration between technologies. API-based interoperability can deliver the seamless connectivity and user experience consumers expect, without the rigidity or delay that often comes with full standardisation. Embracing APIs allows the energy system to keep pace with innovation, ensuring interoperability enhances rather than limits technology choice and consumer value.

Further, the scope of interoperability must extend beyond individual devices. It should include all layers, including device, data, communications, and systems integration. This will support a coherent national framework. In this context, achieving national harmonisation on key protocols such as Common Smart Inverter Profile - Australia (CSIP-AUS) is essential. Consistent national implementation will reduce compliance complexity and integration costs while unlocking the potential for emerging services like vehicle-to-grid (V2G) and dynamic orchestration.

By way of example, minimum performance standards that establish a baseline for system functionality and maintain system security, without restricting higher-tier functionality, innovation and services may include the following minimum requirements:

- **Functional:** Captures communication protocol (see below for further discussion on this); secure registration and discovery on the relevant utility or aggregator platform; unique, verifiable identification; ability to register with a network and aggregator server; basic metadata exchange (e.g. location, capabilities, model number); devices must be able to declare capabilities (e.g. Export limits, frequency/voltage response modes, demand response support, state of charge / availability reporting (for batteries); devices must support real-time or near-real-time status reporting (e.g. operational state, active power output/input, communication health); support core utility or aggregator control signals (e.g. curtailment, disconnect/reconnect command, mode switching (grid-following versus grid-forming)); devices must log control events, communication disruptions, security events, and logs must be accessible via a secure channel for audit or diagnostics.
- **System Security:** Capture authentication and authorisation (e.g. Public Key Infrastructure); data integrity, confidentiality and privacy; firmware updates; credential management; software and hardware tamper detection; and event reporting.

The CEC prefers such a balanced approach that sets a nationally harmonised interoperability baseline performance requirements for grid-facing functions but also allows market-led innovation in customer-facing services and platform design. We believe this approach is most likely to deliver both consumer benefits and system-wide reliability without locking out differentiated service offerings. We also support where standardisation is sought, Australia seeks to align with international requirements in the first instance.

We note and acknowledge that work across some of the functional and system security aspects mentioned above has commenced.

Down and up-stream harmonisation to support interoperable minimum performance standards

When considering the adoption of CSIP-AUS or any related AS/NZS standards for system functionality, it is essential that harmonisation extends beyond the technical specifications to include the implementation of communication protocols, utility server testing, application processes and change management.

The phased, state-by-state rollout of emergency backstop mechanisms serves as a clear example of the risks of fragmented implementation. While there was national agreement on a baseline standard to enable backstop functionality, variations in adoption timelines, interpretations of the protocol, and technical implementation led to inconsistent outcomes. Many Distribution Network Service Providers (DNSPs) developed bespoke utility server solutions, often without reference to existing systems or prior implementations. This approach has introduced unnecessary duplication, cost inefficiencies, and integration complexity.

To ensure system-wide interoperability and reduce unnecessary fragmentation, we strongly recommend that any future deployment of standards, such as CSIP-AUS, be accompanied by nationally coordinated implementation guidance, including utility server certification, common test procedures, and consistent interpretation of protocols across jurisdictions. As such, the CEC is supportive and an active participant of efforts by the Smart Connect initiative to achieve nationally consistent implementation of CSIP-AUS test harness and utility servers.

Switching and interoperability

We acknowledge the importance of provider switching as a key feature of a healthy, competitive energy market. However, it should not be viewed as the singular priority within interoperability reform. The greatest long-term consumer benefit lies in establishing standards that enable consistent, reliable grid-facing integration, while also preserving the flexibility for energy service providers to innovate, differentiate, and deliver tailored offerings. Seamless switching between services is important, but it must be built on a robust and adaptable interoperability framework, not enforced through rigid uniformity that could stifle innovation.

Given the rapid evolution and competitiveness of Australia's CER market, the risk of vendor lock-in or dominance appears low in the short term. Where consumer protections are necessary, existing regulatory mechanisms, such as the Australian Competition and Consumer Law, may be better placed to uphold those protections than imposing prescriptive technical requirements. If gaps in these frameworks are identified, additional technology requirements could be considered, though ideally these would align with international approaches to avoid introducing bespoke, Australia-only obligations that risk creating unnecessary complexity or market barriers.

The CEC believes the effectiveness of the consultation paper could be enhanced by adopting a *prototype interoperability framework*. This would be like the prototype in the *National Technical Regulatory Framework*¹.

¹ Refer to page 13, of T1 Consultation Paper, [National Consumer Energy Resources \(CER\) Roadmap - Consultation on technical priorities - Department of Climate Change, Energy, Environment and Water](#)

A Framework prototype can support a more informed outcome for minimum performance standards for interoperability as it can:

- **Provide clarity on regulatory design and expectations:** The National Technical Regulatory Framework prototype lays out functions, roles, interfaces, and necessary boundaries. Without such a prototype, stakeholders in the interoperability paper risk ambiguity in how performance requirements will be applied, who will enforce them, and how trade-offs (e.g. between cost and capability) are handled.
- **Generate stronger stakeholder engagement:** A prototype allows external stakeholders, including OEMs, service providers, network operators and consumer groups to review what the proposal might look like in practice, and comment meaningfully. This leads to better design, more realistic performance requirements and fewer unintended consequences.
- **Better align across T1 & T2 priorities in the CER Roadmap:** The CER Roadmap sets out two linked priorities: T1 (interoperability technical standards) and T2 (national technical regulatory framework). A prototype in T1 would help ensure design of the standards anticipates the regulatory regime in T2, making implementation smoother and costs lower.
- **Improve risk mitigation:** Prototyping allows testing of assumptions (technical, economic, operational). It assists to reveal interoperability challenges (communication, data security, device control rights, switching between providers and local interactions) before requirements are fixed or mandated.

The Clean Energy Council welcomes further opportunity to discuss the recommendations in this response with DCCEE. If you have any queries or would like to discuss the submission in more detail, please contact Con Hristodoulidis (christodoulidis@cleanenergycouncil.org.au).

Kind regards,



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