

17 November 2022

Dear Ms Harris,

RE: Directions Paper - Interoperability Policy

Evergen Pty Limited (Evergen) welcomes the opportunity to provide feedback on the Energy Security Board's Directions Paper on Interoperability Policy, October 2022.

Evergen exists to accelerate decarbonisation of the energy system. Evergen provides a platform for monitoring, optimisation and orchestration of DER. We have an Australian origin but an international scope. Our operations in Australia cover both the NEM and the WEM.

As a cloud platform that integrates with parties across the value chain to enable interoperability and value maximisation we are keenly interested in interoperability policy and would like to offer some insights born of our practical experience.

Evergen would like to draw the ESB's attention to the following points in particular:

- A nationally consistent common communications protocol will reduce complexity and costs for industry in integrating with DNSPs to implement dynamic operating envelopes, although consideration needs to be given to how DNSP's can be encouraged to implement protocols in a way that does not undermine this intent.
- Any regulation must be wary of being agnostic in its treatment of batteries and solar as this can lead to counterproductive and perverse outcomes where batteries are prevented from delivering benefits such as taking advantage of excess solar from the grid.
- Mandating standards, including communication protocols, at the device level at the time of installation along with product whitelisting risks blocking innovation and ultimately will decrease the speed of uptake of DER and the value from DER that can be created through market and product innovation.
- There are market incentives to drive interoperability as is evidenced by Evergen and other technology providers that are successfully integrating devices with other parties including DNSPs.
- The broader governance framework for the regulation of DER technical standards should be established and clarified before further mandates are implemented to avoid continued over-regulation, duplication of regulation and regulatory conflict.

This submission, and its recommendation to defer CSIP-Aus until broader governance arrangements for DER technical standards are established, is offered in the spirit of collaboration and achieving the best possible outcome for all. I would welcome the opportunity to discuss any part of it with you.

Yours sincerely



Ben Hutt

CEO

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1. Evergen's role

Evergen is a software and cloud platform that enables the monitoring, control, optimisation and orchestration of DER. Our capability spans the full gamut from individual site monitoring, up to fleet (VPP) orchestration, and we manage small scale and utility scale assets.

Evergen does not control small-scale DER via the installation of proprietary Evergen hardware. Rather, we integrate on a cloud-to-cloud basis with manufacturers, and via this integration we obtain a channel to monitor and control individual DER via the relevant manufacturer. To date Evergen has integrations with over 10 battery/inverter manufacturers (growing rapidly).

Many battery/inverter manufacturers have already developed significant computing infrastructure to remotely monitor and control DER sites. They do this to provide monitoring to end-users via apps/portals, to aid in maintenance, and increasingly to facilitate the possibility of grid services. Evergen piggybacks off these existing capabilities and avoids the installation of additional hardware.

We also partner with suppliers and installers and have contact with end-users, such that we only gain and retain visibility/control with the explicit consent of each end-user.

Evergen provides optimisation and app/portal-based visibility to consumer end-users at zero cost. We derive income from providing a platform for monitoring and control of DER to VPP owners or consumers of VPP services, such as retailers, network operators and some system suppliers. As you would expect, any enrollment or recommendation that a site joins or participates in a VPP requires the consent of the owner.

Evergen's role is pertinent to discussion of the interoperability policy being presented for consultation by the ESB.

2. A nationally consistency communications protocol

In principle, Evergen is supportive of implementing a nationally consistent, common communications protocol to support the implementation of Dynamic Operating Envelopes (including Flexible Export Limits). It is reasonable for DNSPs to expect to use a common communications protocol with all parties when publishing an operating envelope. National consistency across DNSPs will also reduce complexity and costs for industry in integrating with DNSPs to implement dynamic operating envelopes.

The ESB outlines a potential implementation model that would place an obligation on DNSPs to be consistent with CSIP-Aus when implementing Dynamic Operating Envelopes, and suggests that one option would be to establish this directly in the NER. However, this will not necessarily ensure DNSPs implement CSIP-Aus consistently across networks. Even if mandated, DNSPs may choose to implement CSIP-Aus in a variety of ways including, for example, restricting the technology models that it would integrate with. For example, a DNSP may choose to only integrate directly with an inverter, described as the Native Model by the ESB, thereby excluding other technology models such as the cloud model, and blocking innovation.

3. DER is not homogenous - treating batteries and solar the same will counterproductive

Evergen is also concerned with current instances for regulation of DER treating all DER as homogenous in its behaviour and impact on the system. Despite an inverter having an ostensible theoretical impact on the grid proportional to rated AC output capacity, in practice the grid impact of a battery+inverter is substantially different to a solar+inverter, or to a hybrid inverter. The impacts of proposed CER standards should not be presumed to be technology agnostic. There is a risk that DNSPs requiring behaviour at a connection point, while applying standards and communications directives at the device level without distinguishing between different types of CER, can result in network issues being exacerbated by many CER. For example this may occur if batteries are prevented from what they are naturally intended to do i.e., soak up excess solar during the day and avoid excess grid imports at night.

4. Risk of stifling innovation and active consumer participation

The ESB's consultation paper seems to be proposing the mandate would apply at a device level or "installation" rather than at the connection point. Mandating at the device level at the time of installation along with product whitelisting risks blocking innovation and ultimately will decrease the speed of uptake of DER and the value from DER that can be created through market and product innovation. It is not necessary for device manufacturers to adopt this standard at the device level, just as long as each OEM has an identified pathway to deliver info to the DNSP via the one standard comms approach. For example, a device may be capable of connecting with a cloud platform that is capable of using a DNSP's APIs without immediate integration with that cloud platform on installation. Product whitelisting may also promote some technology models over others if they are seen as a more straightforward way to be whitelisted and then marketed as such.

If a mandate is imposed at a device level, Evergen anticipates that placing obligations for compliance with the consumer will be problematic. The ESB acknowledges that "in practice, it is the customer's technology provider (including consumer energy resource retailers, installers and OEM's) that ensures an installation is compliant with the DNSP's requirements.". There is significant information asymmetry between consumers and technology providers making it unreasonable to place responsibility for compliance on the consumer even if notionally they are "outsourcing" this to their technology provider.

Without consumer buy-in there will also be ongoing monitoring, compliance and enforcement challenges. For example, it will be difficult to establish whether a consumer has disconnected an inverter wilfully versus poor quality local communications services. Increasing the regulatory burden and costs of active participation for consumers risks discouraging consumers from participating in aggregation or orchestration schemes. This would be to the detriment of consumers and the broader market and energy system.

AEMO has been very explicit on the benefits of distributed storage participating in the market. The 2022 Integrated Systems Plan assumed distributed storage including coordinated VPPs is forecast to represent almost three-quarters of dispatchable capacity (in MW terms) in Step Change by 2050, reducing the need for shallow storage at utility scale. AEMO also called out that the emergence of VPPs across the NEM is expected to assist in maintaining grid reliability and provide further benefits for consumers.

5. Market incentives drive interoperability at the device level

Given regulation is not costless and can stifle innovation, it should not be used to drive outcomes where incentives would be effective in promoting interoperability. Evergen queries the necessity of a **mandate** requiring that consumer devices must be capable of a minimum common communication protocol (i.e. CSIP-Aus) to achieve this.

Although Evergen sees merit in setting a common communication protocol for DNSPs to use to publish dynamic operating envelopes, we would like to emphasise that it will be unnecessary, and problematic, to also mandate that “new installations are ‘flexible export ready’ by reference to a CSIP-Aus product certification...and common installation commissioning procedure...”. This regulatory approach is being proposed at the device level without any consideration of whether regulation at this level is needed if a DNSP adopts a common communications protocol.

Evergen’s business proposition provides an example of where markets are incentivised to integrate CER with other parties in the value chain. To date, Evergen has integrations with over 10 battery/inverter manufacturers. We have also integrated with retailers and DNSPs, and have visibility and control over many thousands of CER. Evergen is strongly of the view that where there is a common communication protocol being used by DNSPs, the market will be incentivised to offer consumers with a technology solution (not necessarily at the device level) that uses this protocol to enable consumers to opt into, or comply with, a flexible operating envelope if the incentives make sense for active participation. For instance, these incentives may include access to more favourable tariffs, or avoiding strenuous, static export limits..

6. Governance of technical standards for DER

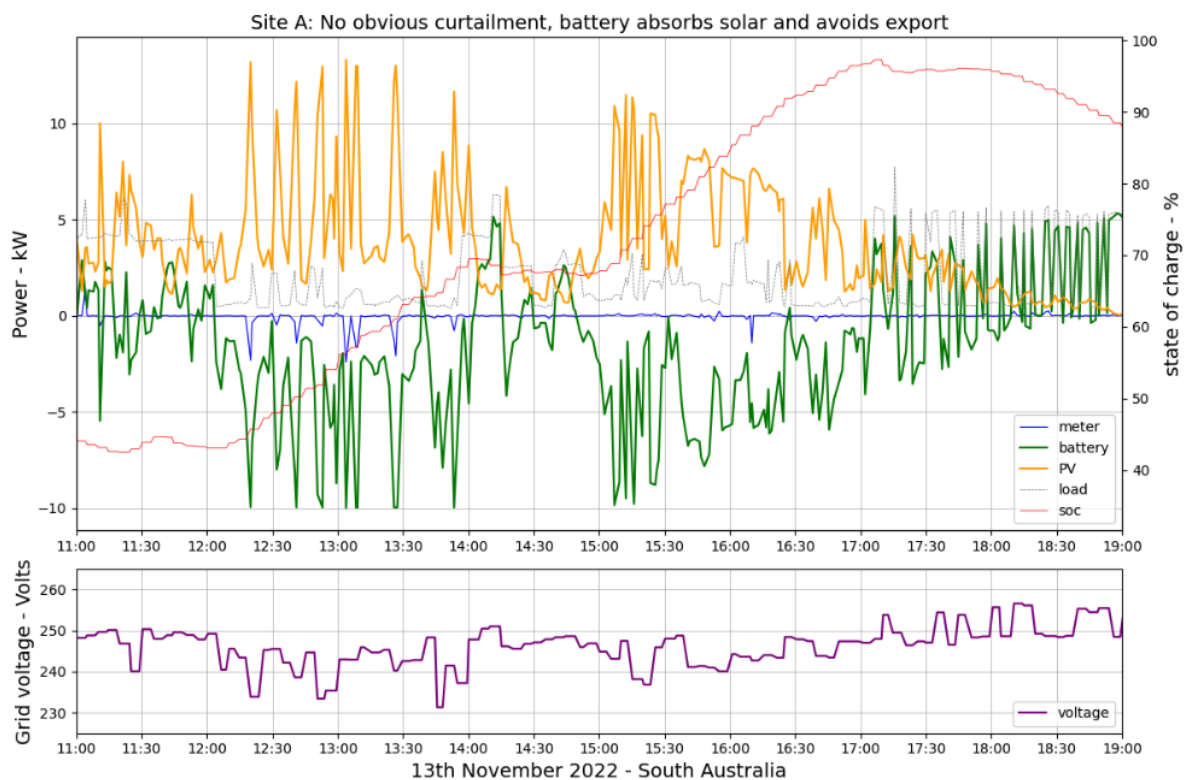
The issue of how to implement a CSIP-Aus obligation on DNSPs speaks to a much broader issue on governance of technical standards for DER. Technical governance of CER is split across a number of different market bodies at a national level, State Government legislation, Australian Standards, Federal legislation for the CER which can lead to over-regulation, duplication of regulation and regulatory conflict.

As an example: AS4777.2: 2020 already requires a good deal of automated, device level behaviour from an inverter in response to locally-detected grid conditions, such as a Volt-Watt and Volt-VAR power quality response. Being device-level stipulations, these mandated behaviours to assist network operators maintain grid stability are already blunt and fail to distinguish between solar export vs. solar to charge a local AC-coupled battery. Static and/or flexible export requirements via DNSP control are then going to be layered over the top of these behaviours independently. Further to this, there are State/DNSP-specific requirements such as the proposed QLD backstop mechanism, which is another channel and rationale for control of privately-owned DER.

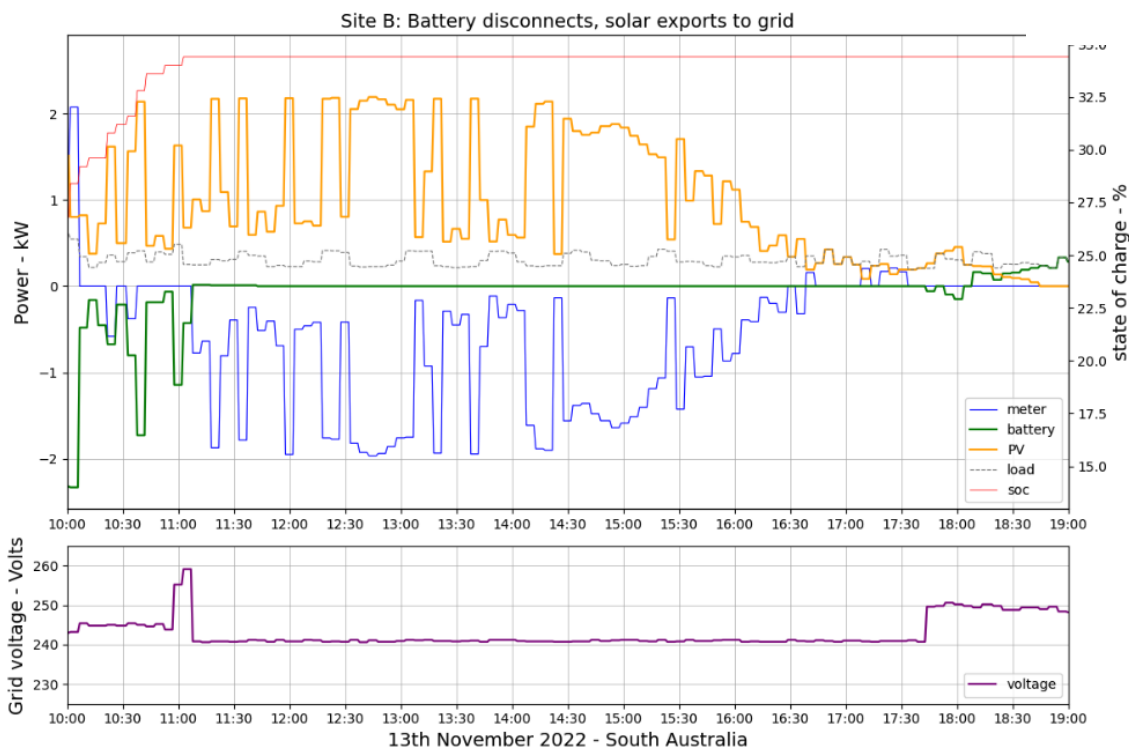
Evergen is of the view that any implementation should be deferred until a broader regulatory framework is established. This framework should provide clarity on the roles and responsibilities for the development, implementation and enforcement of DER technical standards. Such a framework will be essential to ensuring a coordinated and nationally consistent introduction of flexible exports, as well as any other future standards development implementation.

The governance challenges across CER types can be seen in the examples below from sites during curtailment initiatives in South Australia on 13th November 2022.

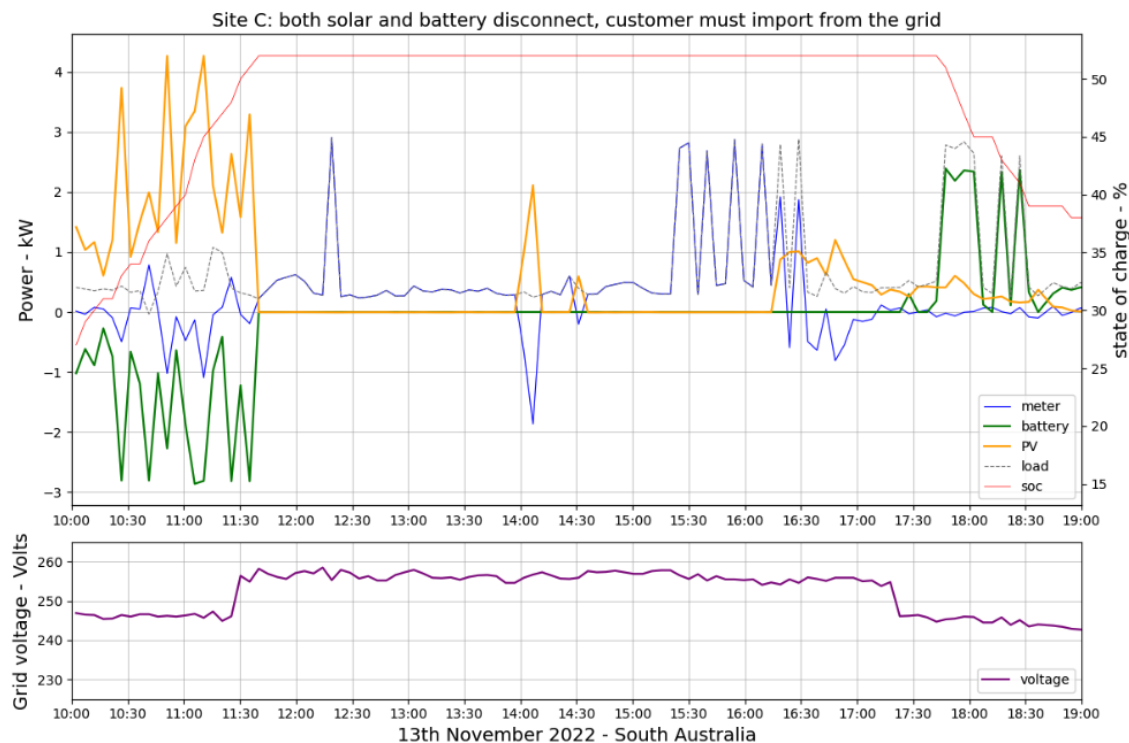
Site A looks like a win-win for consumer and DNSP: solar continues to generate over the day, but the battery absorbs almost all solar output, with minimal export to the grid. It is not evident whether this outcome was a result of this site being unaffected by curtailment initiatives through lack of communication, or if curtailment enforced at the point of common connection allowed this site to continue generating without exporting.



For Site B, a (likely SAPN-driven) jump in grid voltage seems to have not impacted solar output, but did result in the AC-coupled battery disconnecting (grid voltage measurements revert to 240V over this period, they are taken from the battery inverter). The result is a negative impact on the grid from this site from the attempt to curtail - more solar export than if the battery had remained online. This may occur when an existing, older PV system is augmented with a newer battery, and they respond differently due to changes in connection requirements over time.



Site C shows an AC-coupled site where both solar and battery inverters disconnect in response to high grid voltage (likely SAPN-driven). The end result is limited benefit to the grid from this site, but a poor outcome for the end-user, who must import from the grid for much of the day despite their investment in a solar+battery system



Recommendation

Evergen supports implementing a nationally consistent, common communications protocol to support the implementation of Dynamic Operating Envelopes (including Flexible Export Limits) in principle. However, we consider there to be adequate market incentives to drive interoperability and without further governance arrangements to promote national coordination and consistency among DNSPs, there is no guarantee that implementation of CSIP-Aus would achieve its intended aim.

As such, Evergen recommends that implementation of CSIP-Aus be deferred until a broader regulatory framework is established for the governance of DER technical standards. This framework should provide clarity on the roles and responsibilities for the development, implementation and enforcement of DER technical standards