



Clean Energy Council submission to the Energy Transformation Taskforce Issues Paper - DER Roadmap: Orchestration Roles & Responsibilities

The Clean Energy Council (CEC) welcomes the opportunity to provide feedback on the Energy Transformation Taskforce Issues Paper on Distributed Energy Resources (DER) Orchestration Roles and Responsibilities.

The Clean Energy Council 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 rooftop solar installers, 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 smarter and cleaner.

The CEC supports the leading work on energy policy being undertaken in Western Australia (WA). We warmly welcome the initiative to demonstrate the network benefits that can be provided by DER. We note that trials for a distribution services market for network support are currently scheduled to commence July 2024. We encourage the Energy Transformation Taskforce to bring forward the date for the commencement of trials so that the development of policy and legislation can be informed through the experience gained in trials.

We strongly support the 'Project Symphony' proposal, which will inform policy with real-world experience. Where possible, we would encourage the Energy Transformation Taskforce to allow trials to proceed prior to making any final decisions on changes to WA energy policy and regulation.

We welcome the decision to define the nameplate rating of a DER facility as the maximum injection capability of the facility if all generating components were generating at full capacity with no load. This is superior to the approach currently used elsewhere by the Australian Energy Market Operator (AEMO), which is based on the virtual power plant (VPP) response capacity.

We would be very happy to discuss these issues in further detail with representatives of the Energy Transformation Taskforce and Energy Policy WA. We look forward to contributing further to this important area for policy development.

Responses to questions raised in the Issues Paper

1. What processes or arrangements should be used or created to register an aggregator that provides network support services to the DSO (Western Power)?

It would be preferable that aggregators be required to only register once for market services and network support services. We encourage Energy Policy WA to develop a single registration form for aggregators. The registration form should encompass a suite of different services, allowing aggregators to use one form to register for the specific services their fleet can deliver.

We would also encourage as much transparency as possible. This should include transparency of expenditure by the DSO in respect of non-network solutions.

2. Should different 'use of system' charges apply for DER customers? If so, how should the costs and benefits of DER be accounted for?

We recommend that Energy Policy WA consider tariff structures faced by customers prior to reform of 'use of system' charges. The recent moves toward time-varying feed-in tariffs is a good start and should be followed with time-varying tariffs for electricity imports.

Prior to considering the issue of differential 'use of system' charges we would recommend the Energy Transformation Taskforce should first establish an agreed methodology for valuation of the costs and benefits of distributed energy resources (DER). An agreed methodology would have application beyond the question of 'use of system' charges. The Australian Energy Regulator (AER) has recently commissioned CSIRO and CutlerMerz to develop a methodology for the valuation of DER for use in assessing the relative merits of proposed expenditure by distribution network service providers (DNSPs) on integration of DER. The Energy Transformation Taskforce could consider adopting a similar approach. When developing its methodology, we recommend:

- The analysis should adopt an 'all of society' approach to system boundaries. The economic benefits of avoided greenhouse gas emissions should not be defined as 'out of scope'.
- Benefits of DER for reducing electricity bills should be acknowledged and incorporated, being mindful of the need to avoid double-counting.
- Government subsidies for DER should be treated as external funding.
- Customer preferences should not be overlooked.

For the assessment, the WA Government should publish a nominal value for avoided greenhouse gas emission that can be used for the calculation of economic costs and benefits.

If 'use of system' charges are reformed, we would suggest simple and practical tariffs. They do not need to be dynamic, for example.

3. Taking into consideration how the future registration of aggregated DER is outlined in the Registration and Participation Framework in the Wholesale Electricity Market paper, are additional changes required to incorporate aggregated DER in the WEM?

It is unclear at this stage what additional changes would be beneficial. We expect to be in a better position to comment when we have the benefit of experience gained through trials.

4. Should energy exported from DER be more explicitly integrated into the WEM?

An objective of the policy reforms should be to ensure that, where practical, aggregated DER has the same access to wholesale markets as utility-scale electricity generation. However, aggregated DER is unlikely to be able to meet the same scheduling requirements as utility scale assets. There will be a need for greater flexibility regarding scheduling of DER.

5. *Monitoring and compliance for participation in energy, capacity and ESS markets needs to be considered for aggregated DER. How should aggregated DER be monitored and measured for compliance?*

Monitoring and compliance requirements should be determined using an outcome-based approach, cognisant of what needs to be measured in the context of the services being provided. The focus should be on asset level monitoring (direct from devices and/ or third-party monitoring equipment) and potentially require a high-speed meter for sampling purposes (1 per state). Mandating use of supervisory control and data acquisition (SCADA) is unnecessary and would be prohibitively expensive. The [DER Monitoring and Visibility best practice guidelines](#) could be considered for guidance on what could be monitored. The 'how' of the monitoring could come from a universal application programming interface (API) and/or a backend platform for integration such as IEE2030.5, which has already been demonstrated in the Horizon Power Onslow Project. The API could come from the work ongoing by AEMO or something like the platform developed with SA Power Networks.

6. *What performance standards should apply to aggregated DER facilities?*

There is currently an absence of 'performance standards' for DER. AS/NZS 4777.2 does not specify efficiency or response times. The recent work by DNV-GL to develop a battery performance best practice guide / standard is inadequate because it focused on module-based performance. Additional work on the battery performance best practice guide / standard would be required to make it applicable to assessment of the performance of DER in an integrated / aggregated platform. There are likely to be challenges managing system level performance requirements (through AS/NZS 4777.2) against fleet level performance requirements.

7. *Are any additional arrangements needed to incorporate aggregated DER facilities into the new scheduling and dispatch process (SCED)?*

A key difference between aggregated DER and utility scale assets is the need for DER to serve customer load. It is difficult to judge the type of arrangements that will be needed in advance of trials. 'Project Symphony' and other trials should be allowed to proceed prior to making a final decision on forecasting and scheduling policy and regulation

8. *Other than for device level communications, what other communication is required to manage aggregated DER? For example, communications between the aggregator and the DSO (Western Power) or AEMO*

Mandating use of SCADA is unnecessary and would be prohibitively expensive. The aim should be to communicate via device level or through minimum cost additional kit, such as the products available from SwitchDin, Reposit and others. The functionality could very simply be built into the DER itself assuming that there was an agreement on the interface (API) and connection protocol (IEEE 2030.5).

9. *What aggregation options or models could deliver the most efficient outcome for the system and consumers?*

The aggregators need to be able to revenue stack in whatever model is ultimately chosen. It would be counter-productive to restrict aggregators to a handful of services.

If third party aggregators are allowed, it will be necessary to explore options for multiple trading relationships. Requiring systems to be installed behind a separate connection point would impact on customer benefits. Allowing multiple trading relationships would be preferable.

10. Are there any current barriers to DER aggregation? If so, what are they and how could they be overcome?

There are no technical barriers to DER aggregation. However, there are regulatory, market and customer education barriers. The only barriers to broad DER aggregation of different product types will be the lack of a common device level interface (API) and connection protocol (such as IEEE2030.5).

These barriers can be overcome by continuing this work and fast-tracking proper trials and customer engagement.

11. What should be the key elements of a regulatory framework for aggregation?

'Project Symphony' and other trials should be allowed to proceed prior to making a final decision on the key elements of the regulatory framework for aggregation.

12. Should aggregators be able to participate in all WEM market segments in order to stack the value of available DER services?

Yes. The starting point for policy should be that aggregators are able to participate in all WEM market segments.

13. Have stakeholders experienced difficulties in accessing consumer meter data for the purpose of providing DER services? If so, what were those difficulties and how did they limit opportunities to unlock the value of DER?

Yes. Members have reported that it is "impossible" to access smart meter data via an Application Programming Interface (API) even with customer permission.

14. Should a customer with new or upgraded DER be required to participate in an aggregation scheme to mitigate the risk of a significant proportion of DER in the SWIS remaining 'passive'? If yes, what should be the trigger for such a requirement? If not, why not?

There are several options that could be considered to address the issues that may arise from increasing amounts of passive DER in the SWIS. Aggregation is one solution, but it is not the only solution. Network augmentation is another solution, but not necessarily the most cost effective. Solutions that are utilised or being considered elsewhere include:

- Aggregation of DER,
- Static export limits on individual DER systems,
- Dynamic export limits on individual DER systems, and
- Allowing DNSPs to charge customers for additional export capacity, beyond a minimum level.

Wherever possible, customers should be allowed to choose. We understand that unlimited exports from passive DER is unlikely to be one of the choices on offer. CEC's preferred approach is dynamic export limitation. We strongly oppose static zero export limitation.

15. What provisions need to be made for customers who make the choice to participate in aggregation services, for example to limit their energy export while enabling them to use their DER for their own purposes?

Prioritisation between customer load and scheduled output should be the responsibility of the aggregator.

16. If the application of dynamic operating envelopes results in temporary limits on customer DER exports, what measures should be put in place to ensure that this does not unnecessarily limit DER output in preference to other alternatives such as load management or other generation sources? That is, what criteria should apply to the network operator's assessment of when to undertake a network enhancement to remove constraints that prevent the export of DER energy and to maximise the ability of small DER owners to participate equally with other energy resources?

Approval of network expenditure to remove constraints that prevent the export of DER energy should be based on consideration of the costs and benefits to society, taking account of customer preferences. The AER methodology for valuation of DER would be a sensible starting point when assessing the relative merits of proposed network expenditure for integration of DER.

17. Would aggregated DER providing services into the WEM require changes to metering and settlement arrangements? If so, how could this be implemented without multiple meters at a customer site and the associated costs?

It is challenging to provide advice at this stage on the likely changes that would need to be made to metering and settlement arrangements. We expect to be in a better position to comment when we have the benefit of experience gained through trials.

18. How can we ensure equity of access of DER to markets? That is, how can the greatest number of customers be allowed to install DER and provide services, if they choose? How could this be implemented?

Dynamic export limitation will allow DER to continue to be connected and to export. More uptake of virtual power plants (VPPs) will also assist with enabling customers who have not yet purchased DER systems to do so. Connect to the grid and export energy.

19. As tariffs (import and export) and other incentive mechanisms evolve to consider active DER, is it reasonable to require that, where practicable, non-contestable customers can access services provided by aggregators? If so, how could this be achieved?

Yes, this is a reasonable expectation. If third party aggregators are permitted to provide services to non-contestable customers, it will be necessary to explore options for multiple trading relationships. Requiring systems to be installed behind a separate connection point would impact on customer benefits. Allowing multiple trading relationships would be preferable.

20. Should there be guidelines or rules around how DER within aggregator schemes, other factors being equal, are dispatched?

Yes.

21. Should the DSO (Western Power) or the System Operator (AEMO) be able to issue instructions directly to end-user DER in the presence of a network reliability risk or system security risk, or should all instructions come via an aggregator?

In the presence of a network reliability risk or a system security risk, it is logical and reasonable that instructions would be issued by Western Power or AEMO. However, Western Power and AEMO should not be given *direct control* of DER. The instructions should not be issued by them *directly* to end-user DER. They should instead issue instructions to the aggregator, who should be responsible for ensuring its DER fleet responds appropriately. We note that Roadmap Action 28 states, "By June 2022, introduce adapted network connection agreements that enable the DSO, once established, to interact with devices on the distribution network". That interaction should be mediated by aggregators. AEMO and the DSO should not be given direct control of aggregated DER. DER end users should via their

Aggregator be required to respond for system reliability instructions, but the response should be optional for market-based instructions.

The complexity of controlling a fleet of inverters should not be underestimated. A recent article¹ by Joseph Kassouf (chair of CEC's Inverter Listing Working group) titled 'Why controlling residential inverters is more complicated than it appears' should be compulsory reading for all policy makers proposing regulations for integration of DER.

22. Who should be responsible for the dispatch of DER owned by Western Power to address network support needs?

It would be preferable for an independent organisation to manage dispatch to ensure there is no conflict of interest in Western Power dispatching its own DER to address network support needs. Virtual power plants (VPPs) should be able to compete for provision of network support services. Separating the dispatch function from Western Power would address the perception of a conflict of interest, as would divestment of the assets. Similarly, there should be provisions to ensure that Western Power cannot use its DER to compete in wholesale markets or to sell energy directly to customers.

We recommend the Energy Transformation Taskforce consider the need for appropriate ring-fencing requirements to delineate the network and DSO functions from participation in the emerging market for DER services and to ensure the separation of Western Power's regulated monopoly business activities from services in contestable markets. This should be the subject of further public review and consultation.

¹ Kassouf, J. (2020), *Why controlling residential inverters is more complicated than it appears*, available at <https://www.linkedin.com/pulse/why-controlling-residential-solar-inverters-more-than-joseph-kassouf/>