



Ms. Rachel Thomas
Senior Advisor and Project Leader
Australian Energy Market Commission (AEMC)
www.aemc.gov.au
Lodged online

14 September 2023

Dear Ms. Thomas,

RE: Submission to the AEMC Integrating price-responsive resources into the NEM - Consultation Paper

sonnen Australia Pty Ltd (sonnen) is pleased to provide a response to the AEMC's Consultation Paper (ERC0352) and supports the objectives in this regulatory reform at this critical time of a consumer-led system transition. sonnen acknowledges the Commission's proactive efforts in fostering a regulatory environment that will enable an orderly, well-governed transition¹

sonnen was founded in 2010 in Germany and is now one of the global market leaders in smart solar energy storage with more than 100,000 residential sonnenBatterie systems installed worldwide. We have a rapidly growing Australian presence and an Australian HQ in South Australia. Our vision is for clean, affordable energy for everyone — energy is an essential service, and we are committed to the democratization of energy² — 'designing a system that works for the full spectrum of customers³'. sonnen is at the cutting-edge of implementing of CER, and specifically, battery energy management systems and associated electricity retail contracts.

sonnen has institutional lived experience of the costs and the opportunities of this consumer-led system transition — with unique, real-world, Behind-the-Meter insights of Australian consumers. Globally, sonnen activities include behind the meter device manufacturing, residential consumer energy portal and Virtual Power

¹ See the Finkel Review, Chapter 3: A reliable and low emissions future – The need for an orderly transition *in* The Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future, Commonwealth of Australia 2017

<https://www.energy.gov.au/publications/independent-review-future-security-national-electricity-market-blueprint-future>

² sonnen recognises the work of the AER in designing an energy equity strategy which incorporates the democratic principles of participation, affordability, and representation through the consumer voice and lived experience, see <https://www.aer.gov.au/retail-markets/guidelines-reviews/towards-energy-equity-a-strategy-for-an-inclusive-energy-market> [report, Oct 2022]

³ Anna Collyer, AEMC & ESB Chair, speech, Implementing the ESB's post-2025 market design reforms, 7 June 2022. <https://www.aemc.gov.au/news-centre/speeches/implementing-esbs-post-2025-market-design-reforms>



Plant (VPP) software solution development, B2B VPP solutions development, energy and ancillary services market participation, and provision of residential retail electricity contracts. sonnen Australia Pty Ltd is a registered Demand Response Service Provider and participates in contingency FCAS markets by coordinating residential battery systems. sonnen Australia works with Energy Locals to provide residential electricity contracts facilitated by our sonnenVPP and sonnenCommunity.

sonnen agree with the Commission that enhanced visibility of CER/DER resources will improve the efficiency of the broader system and reduce overall costs for consumers. Reducing forecasting errors across both dispatch and reliability planning time frames is an important skill required for operating a highly renewable energy market.

sonnen support improving visibility of CER/DER where there is an expected material benefit in forecast performance against defined performance objectives. sonnen request the Commission consider establishing forecasting performance objectives as part of a more preferable Rule and utilize those objectives to establish visibility data needs and the commercial basis for procurement of data from traders/aggregators/third-party modellers.

Detailed responses to the Commission's questions are included as an appendix to this submission.

Thank you for considering this submission. We look forward to continued participation in the consultation process.

Kind Regards

Alister Alford
Director Wholesale and Flexibility Markets
sonnen Australia Pty Ltd

Attachments:

Appendix A:
Detailed responses to the AEMC Consultation Paper Questions

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Detailed responses to the AEMC Consultation Paper Questions

QUESTION 1: DO YOU AGREE THAT PRICE-RESPONSIVE RESOURCES NEED TO BE INTEGRATED INTO THE NEM?

- 1. The Commission has identified five types of issues with increasing volumes of price-responsive resources. Do you agree with this breakdown of the issues? What do you consider the magnitude of each issue is? How is this likely to change over time?*

sonnen operate market exposed, aggregated, price responsive CER/DER resources (principally residential batteries) to manage wholesale market costs/risks and network costs in all NEM jurisdictions. Pre-dispatch accuracy, particularly in the period 6 hours prior to dispatch, has a material impact on sonnen's ability to efficiently utilize CER/DER flexibility within our customers' expectations. sonnen agree that inefficient 'price discovery' increases the cost of operating CER/DER 'in market'.

Pre-dispatch inaccuracy also disproportionately impacts smaller energy users and aggregators that are less likely (due to cost) to utilize alternative (non-AEMO) forecasting tools.

sonnen remain wary that attributing benefits to price-responsive resource visibility in the categories of security, reliability and networks as any benefits are dependent on the willingness of AEMO and DNSP/TNSPs to utilize that information to operate the market/power system/network more efficiently. sonnen are disappointed with the excessively conservative discounting in the 2023 ESOO of the reliability benefits of VPP coordinated CER/DER. Such arbitrary and discretionary responses ultimately lead to higher costs for end users.

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QUESTION 2: REPRESENTING PRICE-RESPONSIVE RESOURCES IN SCHEDULING PROCESSES

1. *Is participation in this mechanism dependent on whether price-responsive resources can be separated at or behind the connection point (currently being considered through the “Unlocking CER benefits through flexible trading” rule change)? Please explain what impacts separating CER would have on traders’ participation in energy markets.*

Different CER/DER devices behind the meter should reasonably be expected to have different cost functions and hence price responsive behaviour, particularly if consumer preferences are factored in. For example, an acceptable charging cost threshold for a “must achieve” next day EV range would be different to a “full charge” price threshold.

Unbundling multiple resources behind the meter facilitates aggregators expressing more accurate market price driven behaviour without sharing commercial and customer information.

2. *Do you have views on the need to define price-responsive resources or the traders that might coordinate a large amount of such resources?*

In the residential CER/DER space there may be some challenges defining if a ‘price responsive’ resource is operating on a ‘stand-alone’ or ‘aggregated’ basis. For example, a spot market exposed residential consumer (for example Amber Electric, Local Volts) CER/DER based optimization might make ‘price responsive’ decisions without reference an overarching objective from a VPP aggregator, however the load/generation is ultimately ‘price responsive’.

QUESTION 3: VISIBILITY MECHANISM - ENCOURAGEMENT TO PARTICIPATE

1. *What are your views on the incentive mechanisms outlined in Table 3.1?*

sonnen support the ‘Direct Payment’ model only.

The ‘Mandatory Participation’ model is particularly onerous penalizing consumers when they choose an aggregator to optimize their CER/DER devices.

2. *Are there any alternative incentives the Commission should consider?*

sonnen suggest that ‘visibility’ should be treated as tradable ‘market resource’. That is, information about resource behaviour may reasonably be considered a ‘commodity’ and transacted as such. AEMO or a DNSP may achieve greater benefit from data at specific locations/times or from specific resource categories. The ‘data consumer’ may subscribe to the data exchange that provides the ‘least cost’ information resource to deliver the necessary ‘forecasting skill’ to manage the market/power system/network.

AEMO currently utilize data from third-party providers (for example weather forecasts) and enter commercial agreements where there is sufficient expected utility from the service provided.

Furthermore, from a consumer data rights perspective it is important to only collect data that is needed to achieve an agreed objective.

3. *Should mandatory participation in the visibility mode be considered?*

No, the 'Mandatory Participation' model is particularly onerous penalizing consumers when they choose an aggregator to optimize their CER/DER devices.

- a. *If so, what types of traders/ resources should be required to participate and what criteria (for example size in a region) or circumstances (observed behaviour or performance) could the requirement to participate be based on?*

QUESTION 4: ASSESSMENT OF VISIBILITY MODE

1. *Do you think visibility mode would be effective as designed? If not, what improvements or amendments would you suggest and why?*

The current visibility model doesn't specify the required modelling (pre-dispatch/PASA etc.) outcome improvements or target accuracy/skill. Without a clear objective it is difficult for sonnen to provide feedback on the effectiveness of design elements. sonnen recommend the Commission consider defining clear objectives in forecasting accuracy.

2. *Do you agree with the Commission's initial assessment of visibility mode's ability to achieve the outcomes identified?*

sonnen does not share the Commission's haste to heavily discount the potential benefits from the 'visibility mode' and 'price-adjusted demand curve' proposal. In sonnen's view:

- a 'price-adjusted demand curve' will likely influence a participant's view/modelling on expected dispatch price outcomes and therefore influence market facing behaviour. The existing pre-dispatch process only has 'moderate' predictive skill due to implementation limitations, so the Commission should expect that more sophisticated market facing entities will form an enhanced view on potential dispatch outcomes based on a deeper insights on price responsive resources. Unfortunately, less sophisticated market exposed parties (including spot exposed residential/SME customers) receive a sub-optimal benefit unless the demand expectations flow through to the 'pre-dispatch process'.

- All modelling inputs to reliability planning processes are future expectations and hence ‘uncertain’. The consequence of ‘uncertainty’ is typically addressed through ‘sensitivity scenarios’ in reliability modelling. The recent history of unexpected long duration outages of coal fired generation highlights forward expectations are not infallible. Investment in ‘Reliability infrastructure’ that ignores the expected response from CER/DER has a significant potential to lead to stranded assets (likely unwritten by governments) and increased costs for energy consumers. Ignoring the growing sophistication of demand side response does not improve the sector’s ability to efficiently allocate capital to achieve reliability targets.

3. *If we progress with this mode, what should the Commission consider in terms of implementation of this mode?*

sonnen strongly recommend that in consultation with potential participants the Commission develops strong ‘guard rails’ and ‘objectives’ in the proposed Rule with limited scope for AEMO to shape the operationalization of the Rule.

4. *Is visibility mode needed as a stepping-stone to the dispatch mode?*

Not necessarily, as the proposed ‘visibility’ activities represent only part of what is needed to prepare an organization for the deeper operational investment associated with the proposed ‘dispatch mode’.

QUESTION 5: DISPATCH MODE — INCENTIVES TO PARTICIPATE

1. *Do you think dispatch mode would be effective as designed? If not what improvements or amendments would you suggest and why?*

The combination of the 1MW dispatch target resolution of the current NEMDE implementation and the proposed zonal LSU approach may lead to ‘granularity’ issues for LSU operators. For example, the ideal dispatch for an LSU might be 32.85MW but dispatch options are limited to 32MW or 33MW.

2. *What costs would traders incur to participate in dispatch mode?*

sonnen anticipates the costs will be incrementally higher compared to participation in contingency FCAS with aggregated resources. The biggest differences arising from SCADA Lite and higher operational overheads associated with more dynamic energy market operations (additional bidding/PASA etc.).

3. *Is access to the wholesale electricity market and other markets (for example regulation FCAS and PFR) sufficient incentive to participate in dispatch mode?*

Access to Regulation FCAS and NEMDE co-optimized contingency FCAS is a significant incentive in sonnen's view.

4. Are there other factors that would encourage or discourage participation in the dispatch mode?

5. Should participation in the dispatch mode be required? If so, what types of traders/resources should be required to participate, against what criteria and in what circumstances?

This question may be better addressed by modelling the dispatch control required to achieve clearly established market performance objectives. sonnen would appreciate the Commission consider which objective measures should be utilized to find the right balance of additional cost and efficiency of the dispatch process.

QUESTION 6: ASSESSMENT OF DISPATCH MODE

1. Do you agree with the Commission's initial assessment of the ability of dispatch mode to address the outcomes identified?

Broadly yes, but sonnen remain wary of attributing benefits to improved network utilization as DNSP/TNSP business models are biased towards expansion of their 'regulated asset' base.

2. If we progress dispatch mode, what does the Commission need to consider in terms of implementation of this mode?

sonnen prefers an opt-in model that has a low minimum LSU size. Potential participants may prefer to enter the market early with somewhat 'sub-optimal' LSU's to build market facing capabilities within their business as the volume of aggregated resources grows.

QUESTION 7: OTHER ISSUES RAISED IN RELATION TO THE SCHEDULED LITE MECHANISM

1. Do you consider that the proposed mechanism (or a similar mechanism) should be introduced through a principles-based framework, with the details considered through AEMO's procedures and guidelines?

sonnen is wary of a 'principles-based framework' that is not supported by robust clear objectives and performance measures. If the Commission adopted a 'principles-based framework' sonnen would appreciate deep industry engagement to establish performance objectives and measures during the Rule making process rather than relying on AEMO's interpretation of a less specific Rule. Visibility is valued by sonnen, and our expectations haven't always been met during AEMO's development of procedures and guidelines.

2. *Do you consider that the proposed mechanism (or a similar mechanism) requires changes to the NERR to protect consumers?*

sonnen encourage the Commission to further examine the need for enhanced consumer protections but we do not have any further recommendations at this stage.

QUESTION 8: ARE THERE PREFERABLE ALTERNATIVE ARRANGEMENTS?

1. *Are there any alternative solutions that you think would be preferable to AEMO's proposal and more aligned with the long-term interests of consumers? What are the costs and benefits of any proposed alternative arrangement?*

sonnen prefer services such as 'visibility' to be procured on an objective need's basis, and where possible via a 'market based' mechanism. The amount of 'Visibility data' required to achieve acceptable planning/pre-dispatch/dispatch performance has not been clearly established in this Rule change proposal. It's plausible that a 'data broker' platform may be a feasible commercial matching service between the data subscription needs of AEMO/DNSPs and data providers.

QUESTION 9: ASSESSMENT FRAMEWORK

1. *Do you agree with the proposed assessment framework? Are there additional principles that the Commission should take into account or principles included here that are not relevant?*

Yes, however sonnen request the Commission consider in its analysis the efficiency that co-ordination of CER/DER brings to wholesale market risk management. sonnen are strong proponents of managing market risk 'from the bottom up' to ensure that flexible resources create the greatest value for consumers. The renewables transition is creating new challenges to the existing risk management models largely driven by the increased variability of supply/demand. sonnen believe that an efficient 'two-sided market' is critical to managing risk in a highly renewable electricity market.

QUESTION 10: VISIBILITY MODEL — PARTICIPATION, DATA AND OPERATIONS

1. *Would traders be readily able to participate and provide the data as proposed? What implementation considerations and costs would be required to participate?*

There are no major technological barriers to providing the data as proposed. The appetite for participation will largely be driven by the cost/benefit views of traders/aggregators.

2. *Is there anything the Commission could do in designing the rule that would help to minimize the costs and maximise the benefits?*

sonnen believe that costs can be minimized by:

- establishing clear objectives for forecasting accuracy;
- balancing the overall uncertainty of all inputs into the forecasting process and their impact on model performance;
- only procure visibility data that materially improves the overall forecasting process
- procure visibility data via a competitive process such as a 'data broker' exchange
- regularly review forecasting performance and adjust data requirements and modelling techniques

QUESTION 11: DISPATCH MODEL — PARTICIPATION, DATA AND OPERATIONS

1. *Could price-responsive resources comply with the operational and data requirements?*

Yes, but achieving a relevant LSU size within the limits of the NEMDE process may limit initial growth in participation.

If not:

a. How difficult would it be to change your systems to comply with the requirement outlined above?

b. Does this depend on what resource is participating?

2. *Do the proposed compliance arrangements strike an appropriate balance between the reliability of the response and the barrier to participation?*

Provided the current ex-ante price process is retained (a critical link in market risk management) there is adequate flexibility for traders to assess when it is economic to bring complying resources to the market.