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Dear Commissioners

Integrating price-responsive resources into the NEM — Consultation paper — 3 August 2023

EnergyAustralia is one of Australia's largest energy companies with around 2.4 million electricity and gas accounts across eastern Australia. We also own, operate and contract a diversified energy generation portfolio across Australia, including coal, gas, battery storage, demand response, wind and solar assets, with control of over 5,000MW of generation capacity.

EnergyAustralia is supportive of interventions to efficiently scale up and harness consumer energy resources (CER) in a way that maximises benefits to the customer. We agree with AEMO's sentiments regarding the risk and opportunities associated with large scale CER deployment. Falling costs for small scale batteries and rooftop solar, and pushes towards the electrification of transport and heating, mean that CER upscaling is inevitable. Orchestrated CER could potentially play a significant role in ensuring investment in total system resources are optimised over the longer term, and in underpinning reliability for the benefit of all customers in operational timeframes. There is also a growing focus on the prospects of smaller scale resources connected to distribution networks as a means to potentially avoid planning and social licence barriers in connecting utility scale projects.

AEMO's Scheduled Lite proposal would be a significant change and raises a variety of issues in integrating CER into wholesale electricity markets. Significant further work is required to validate the feasibility of particular elements, chose between design options and to determine whether the proposal as a whole would deliver net benefits to customers. The Commission should also examine the timing of implementation options which again should reflect the desire to maximise net benefits to customers in enabling and shaping CER deployment.

AEMO's quantification of cost and benefits is too simplistic

AEMO cost estimates reflect a generic size-based approach and its proposal states that it has benchmarked and tested this against the experience of projects such as 5 minute

settlement and the Wholesale Demand Response Mechanism (WDRM). We therefore take it on face value that the likely order of magnitude of costs for Scheduled Lite reflects around $18 million in establishment and ongoing costs of around $10 million over ten years.[1] Costs to industry participants and to customers appear to have not been estimated and would likely be material. AEMO correctly notes that only the incremental costs incurred by parties would be relevant to assessing the net benefit of its proposal.[2]

AEMO's calculations of benefits derive from the scale of CER deployment in the Step Change scenario of its 2022 Integrated System Plan (ISP), which would see 31GW of coordinated CER storage in operation by 2050:

> The potential consumer cost impacts, and the broader benefits of distributed resource integration, are explored in Appendix A. Looking simply at the potential for avoided costs of duplication in large-scale investment, if 20% of the projected coordinated DER storage in the 2022 ISP Step Change scenario were to be replicated through investment in grid-scale shallow storage each year to 2040, the cumulative capital cost would come to approximately $1.8 billion, rising to approximately $4.4 billion if 50% of the capacity needed to be replicated over that same period. Studies exploring the broader opportunity and benefits of distributed resource integration have found a similar magnitude of economic benefits, demonstrating significant potential to offset the need for additional investment in large-scale assets.[3]

AEMO quotes the range of $1.8 to $4.4 billion as a potential benefit of its Schedule Lite proposal. AEMO quotes other studies in support, which estimated various benefits of CER via more sophisticated methods:

- CSIRO – up to $10 billion net benefit by 2050
- Baringa - $6.5 billion to 2039.
- NERA - $8 to $18 billion.

Noting its calculations are simple, AEMO's benefit range of $2 to $4 billion compares to its expected costs of around $30 million over ten years, suggesting a benefit-cost ratio in the order of 100 to 1. This seems implausibly large. The CER projections that form inputs to the ISP are based on a variety of assumptions including degrees of policy support and non-financial factors affecting consumer decisions and behaviour. As it relates to Virtual Power Plants (VPPs), it is assumed that customers are provided an upfront incentive payment, and that payoffs at the customer level generally would decline as higher rates of uptake deliver benefits through lower power prices.[4] These effects at the customer level will be important to explore and for the moment we note that the rule change proposal (understandably) reflects the perspective of the system planner and operator.

AEMO's comment that only incremental costs of its proposal are relevant also applies to the calculation of benefits. Retailers and aggregators are and will continue to orchestrate CER without direct market or AEMO interfaces. AEMO will continue gathering and analysing data on price responsive load to improve its forecasting. AEMO's approach of valuing only 20 to 50% of equivalent grid scale storage potentially reflects the incremental gain that Scheduled Lite might deliver, although the issue of additionality is

[1] AEMO, *Electricity Rule Change Proposal – Scheduled Lite*, January 2023, pp. 38-39.
[2] ibid., p. 38.
[3] ibid., p. 37.
[4] GEM Report (aemo.com.au) pp 54-55.

not explicitly addressed. AEMO list a range of other factors that would likely significantly CER uptake generally and specifically where resources might be orchestrated.[5] A thorough examination of these limiting factors and others must be undertaken prior to progressing this proposal.

Exploring trial outcomes and the experience of other interventions

Many of the above issues are being specifically explored in various technology trials including Project EDGE and Symphony. Our view is that AEMO's proposal is somewhat premature in this regard and could have been better scoped and justified once technology trials had been completed and their findings socialised.

AEMO's discussion of VPP trials, completed in 2021, suggests an ongoing need for operational visibility of VPPs once they reach "material thresholds".[6] It is not clear whether this is a generic reference but presumably trial data would have enabled some identification of deployment thresholds whereby AEMO's forecasting was materially improved relative to the cost of obtaining and processing real time data for trial participants.

The Commission should also reflect on the effectiveness of the WDRM as the objectives and expectations of that reform align with the Scheduled Lite proposal. The Commission's decision to exclude small customers from participating in this mechanism still seem relevant however could be revisited. Recent commentary highlights that the WDRM should have been most effective during recent periods of high elevated spot prices however only 30MW of resources were activated[7] and registrations also appear to be much less than anticipated. Given this experience, stakeholders will be sceptical about further, likely high cost, proposals to capture the same type of expected benefits from wholesale market integration.

Further to points about the additionality of benefits, our expectation is that other initiatives listed by AEMO but dismissed should be subject to considered cost benefit assessments, including with potential enhancements, such as the DER Register, DSP information portal, DER Data Hub[8] and Semi Scheduled self-forecasting. Many of the issues identified by AEMO in terms of demand forecasting should be addressed irrespective of attempts to provide more visibility or integration of CER. Forecasting improvements on the basis of other data sources and channels may capture a significant proportion of expected benefits.

Specific comments on Visibility and Dispatch modes

In principle we support low cost voluntary measures that enable market benefits to be captured and passed back onto customers via CER enablement. The proposal is based on the notion that there is a continuum of costs and benefits, such that higher integration effort, and at the extreme mandatory participation, would capture greater scale and hence system benefits. This is reflected in the Commission's initial assessments of

[5] AEMO, section A4.2.
[6] ibid., section B.1, p. 10.
[7] The Wholesale Demand Response Mechanism: Leading a horse to water (energycouncil.com.au)
[8] AEMO, section 3.2.2.

Visibility and Dispatch modes in that it finds the latter is more likely to deliver benefits. A positive correlation between stringency of requirements and effectiveness should be tested as in many cases it appears to depend on AEMO's confidence in the data submitted and out-turn performance of participants. There also seems to be the notion that a minimum amount of CER uptake must be reached to justify incurring any fixed costs. Uptake rates, degrees of price responsiveness and system benefits could level out as different customer cohorts are serviced e.g. moving beyond highly engaged early adopters.

As mentioned above, identifying payoffs at the individual customer level would inform further thinking including what might be needed to encourage participation in Visibility mode. Non-financial factors like customer preferences for simplicity, trust and grid independence may be more influential for some customer types.

Current and foreseeable commercial models around CER involve aggregators and retailers using various means to capture value within their own cost structures and share these with customers, whereas the premise of Scheduled Lite appears to be that AEMO captures these benefits up front, creating practical challenges in identifying a pool of actual cashflow savings and distributing this to customers in a way that encourages necessary CER integration in the first place. In considering this issue in the case of Scheduled Lite's Visibility mode, AEMO proposes that incentives be in the form of a pre-determined payment for service.[9] We agree this option would avoid administrative complexity however still gives rise to further questions:

- whether it is still necessary and possible to determine the total quantum of payments on offer by reference to some sort of baselining
- whether payments based on benchmark or actual costs of provision would be sufficient to incentivise customers
- how the cost of these payments would be recovered. While not likely to be material, the payment burden seems like to fall on non-responsive or non-CER enabled customers, giving rise to equity considerations that are more nuanced than simply avoiding overinvestment in grid scale infrastructure[10]
- if the intent is for resources to be paid for and enabled during times of supply scarcity, and are subject to tender arrangements, they effectively reflect RERT procurement and potentially displace these resources.

The realisation of system benefits and participation payments also need to consider payback periods for the customer, particular resource types and commercial models used by retailers and aggregators. Adoption of CER for many customers depends heavily on high up front capital costs and amortising these against offsetting benefits from a retail perspective depends on managing the risk of customer churn, which may include termination fees. The arrangements for Scheduled Lite may therefore need to compensate participants for additional once off costs in enabling Visibility or Dispatch mode even though this might not align with benefits that accrue over time.

[9] ibid., pp. 46-47
[10] ibid., section B2.1.2.

Specifically with respect to Dispatch mode, AEMO's proposal suggests that flexible export limits at the distribution network level are at least initially outside its scope[11] however seem to be a significant complicating factor and might need to be addressed as a matter of precedence. In line with the various trials and work programs surrounding this proposal we encourage the Commission to explore AEMO's investigation of cost-efficient forms of SCADA and alternative data exchange channels.[12]

If you would like to discuss this submission, please contact me on 03 9060 0612 or Lawrence.irlam@energyaustralia.com.au.

Regards

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[11] AEMO, Appendix B, p. 54.
[12] ibid.