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Australian Energy Market Commission
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Re: ERC0319 – Governance of Distributed Energy Resources Technical Standards

Reposit Power Pty Ltd (Reposit) thanks the AEMC for the opportunity to contribute to the rule making process currently considering the proposed Governance of Distributed Energy Resources (DER) Technical Standards rule change. The following submission constitutes Reposit's response to the AEMC's Consultation Paper on this proposed rule change.

QUESTION 1: ASSESSMENT FRAMEWORK

Do you agree with the proposed assessment framework? Should the assessment framework include any additional considerations, and if so, what are they and why?

Reposit partly agrees with the AEMC's assessment framework for this proposed rule change.

Reposit suggests that the AEMC should also include the impact on investment efficiency that a rule change of this nature would have. Reposit also suggests that the "long term interests of consumers" aspect of the NEO or NERO must be primary in the assessment framework.

Efficient investment

At present AS4777 and AS3000 are the primary standards documents considered by DER product managers when considering supply to the Australian market. These are precise technical documents that change slowly. This means that investments made to comply with these documents can be relatively certain and remain relevant for long periods of time.

Developers of products for use in the NEM will need to consider the new governance regime when considering entering their products into the Australian market, and will need to price the risk created by the governance regime accordingly. Product choice and price will be negatively impacted where Developers consider the governance regime to deliver imprecise and short-lived technical standards. In short, a governance regime that degrades investment certainty will result in higher prices for consumers.

Long term interests of consumers

Additionally, the "long term interests of consumers" aspect of the NEO and NERO are easily interpreted in the context of this rule change to provide increasing favor to DER as more consumers invest their capital in DER assets. It is an interesting side-effect of the formulation of the NEO and NERO that the returns from capital

invested by consumers should take precedent to the returns on capital invested by anybody else. Especially where consumers are participating in the same markets as everybody else and receiving the same price signals. There are limited degrees of freedom in which this favoring can play out, but technical standards are one of them.

QUESTION 2: IDENTIFYING GOVERNANCE PROBLEMS

1. Do you agree with the problems identified by the rule change request? Why?

Reposit's opinion is that the rule change request was prompted by AEMO responding too strongly to data on the prevalence of DER not riding through voltage transients in line with what is specified in AS4777. Reposit understands AEMO's sensitivity to voltage ride through failures, but considered AEMO's proposed minimum technical standards rule change to be inconsistent with the achievement of the NEO. This was a perspective shared by many. The result of the rule change proposal was the more preferable final rule made by the AEMC on 25 February 2021.

Reposit considers Dr. Schott's subsequent rule change (this one) to be at least partly motivated by the AEMO minimum technical standards rule change. As such, the proposed rule change is defensive in its nature. It seeks to address deficiencies that make it difficult for the NEM to understand what DER will do under certain circumstances. The implicit assumption is that the behavior of DER will be knowable when there are effective standards governing its behavior across the entire NEM.

Reposit considers this rule change proposal and the AEMO one before it to imply that DER-delivered MW and MWh are not as valuable as MW and MWh delivered by Centralised generation. Reposit's opinion is that both of these rule change proposals view DER as a nuisance at best, and an existential threat at worst. Reposit believes that this view is behind this rule change request's specific desire for NEM-wide consistency, and a mechanism to rapidly apply new standards.

Reposit suggests that the "uncontrolled" nature of solar PV is the root of this thinking and points out that the NEM is well equipped with price signals that solar could respond to. But instead of using these mechanisms, the policy environment applies poorly-formulated, direct technical control in an attempt to make DER "behave".

This thinking ignores that DER, like Centralised generation, is looking to maximize return on capital. And that the maximization of returns from DER may take precedence over maximization of returns from Centralised generation, under the current formulation of the NEO.

Reposit is sensitive to the use of technical standards to gain consistency, homogeneity and knowability of DER behavior. These things are not important to the NEO or to Consumers. Reposit is concerned that a "DER containment" approach will degrade the efficient investment in, and efficient operation, and use of electricity services for the long term interests of consumers.

2. Do you agree with the rule change request on the causes of identified problems? Why?

Reposit agrees that the AS4777 should not be DER's sole governing standard and that the pressures for it to be so have caused it to bloat in such a way that it is becoming inconsistent with the NEO. AS4777 should be part of DER's analogue to Generator Performance Standards (GPS).

Reposit disagrees that any NER-empowered governing body will be able to stop subsidy-providing entities of any form from requiring additional behavior from DER they subsidise.

3. To what extent has the Commission's recent rule change on DER technical standards resolved or likely resolve the identified governance issues?

Reposit suggests that the recent rule change has done very little to materially resolve the governance issues. AS4777 is now enshrined as the governing standard, making the AS4777 committee the sole governing body. This rule change created stability in the regulatory environment but it has not improved overall governance.

4. When do longer term issues such as interoperability and cyber security need to be addressed? Can existing governance arrangements and the recent rule change address these issues in a timely manner or is further governance reform required?

Reposit's opinion is that further governance reform is required. Standards Australia is not bound to achieve the NEO and is increasingly making decisions that are affecting the economic efficiency of the NEM and degrading the long term interests of consumers.

In terms of interoperability and cyber security, Reposit does not have an opinion on when they should be addressed. Reposit suggests that it is efficient to see if there is actually a market failure in addressing these issues before a regulatory intervention is made.

5. Are there any other governance problems not identified by the rule change request? If so, why does the AEMC need to consider these issues?

Reposit's opinion is that the only governance problem that requires addressing immediately is the formulation of a body to implement the DER equivalent of Generator Performance Standards. Once that body has been created, DER can be considered in line with Centralised generation where issues such as cyber security and "interoperability" require consideration.

The AEMC has been instrumental in formulation and definition of Generator Performance Standards, most recently with ERC0222 in 2018. The processes and reasoning used in this determination can be readily applied to a DER analogue. As a result it is most efficient for the AEMC to formulate this analogue.

QUESTION 3: ASSESSING THE MARKET IMPACT OF IDENTIFIED PROBLEMS

- 1. Do you face any costs from governance arrangements in place prior to the commencement of the new DER technical standards rule change on 18 December 2021? Can you quantify these costs?**

Updates to AS4777 have resulted in Reposit retesting known-good inverters once they have been updated to meet the new AS4777 standard. This means that Reposit must retest many inverters, from many manufacturers. Often this must happen in a very short period of time as inverter manufacturers can leave AS4777 certifications till the last moment, leaving very little time for Reposit testing of certified units.

Inverter retesting costs Reposit an average of \$21k/inverter. This is mainly in the labor required to place the inverter into the laboratory, execute the performance characterisation processes, investigate any change in performance, inform the manufacturer of results, and in applying and retesting any updated firmware or control boards.

- 2. Alternatively, how would you be impacted if the Commission does not establish new governance arrangements for DER technical standards?**

Reposit would continue to be impacted by the regulatory uncertainty this sustains. That is, without new governance arrangements Reposit will continue to be engaged in ad-hoc, defensive actions against the usual sources of anti-NEO regulatory uncertainty where DER technical standards are concerned.

- 3. How certain are you about any forecast future costs?**

Reposit is currently preparing new inverters, and AS4777:2020 updated versions of already supported inverters, for fleet inclusion. Our measured costs from testing are current and accurate. It is likely these costs will increase as the cost of highly skilled labor increases.

QUESTION 4: DER TECHNICAL STANDARDS IN THE RULES

- 1. Should DER technical standards relevant to the NEM be included in the NER, or a subordinate instrument?**

DER technical standards should be placed directly into the NER.

The NER's most important subordinate instrument is the Market Ancillary Services Specification (MASS). It is subordinated to AEMO and its modification is regulated under Chapter 8 of the NER.

AEMO has complete control of this document and has used this control to subsequently subordinate the Frequency Control Ancillary Service Verification Tool (FCASVT) from the MASS. The FCASVT is an instrument that contains the methodology by which FCAS-providing Participants have their service delivery performance judged by AEMO.

Since MASS v5, the FCASVT is the singular source of truth on how to calculate the FCAS service delivery amounts of current or future FCAS-providing plant. That is, this document (a Microsoft Excel spreadsheet) is the tool used by AEMO to determine a complete and successful FCAS service delivery against an FCAS bid, and is also used to determine new FCAS capacity during DUID registration. A Participant faces significant loss of revenues if they are assessed negatively by this document. The FCASVT is in many ways more important to Participants than the MASS.

This document is completely unregulated by the NER and is the key service definition governing more than \$100M+/annum in investment signals and costs to Consumers. The FCASVT can be changed at any time by AEMO, and has no independently managed change record.

Reposit considers this state of affairs to be problematic. Especially in the context of the increasing importance and value of FCAS services, the introduction of the Very Fast FCAS service, and with the increasing difficulty AEMO is experiencing in managing MASS consultations.

Reposit considers the subordination of the MASS to AEMO to have resulted in significant inefficiency. Reposit suggests that a subordinate document for DER technical standards allows for similar inefficiency to arise.

2. *How could any new governance arrangements interact with Standards Australia existing processes in a way which avoids duplication, while ensuring standards are developed in a timely manner?*

Reposit suggests that the roles of Standards Australia and the AEMC be made clear and explicit. Reposit's suggested delineation is:

- **Standards Australia** – Responsible for defining the standards that are concerned with inverter physical and electrical safety, inverter protective functions, inverter markings and documentation and inverter islanding/islanded behavior.
- **AEMC** – Responsible for defining how active and reactive power transfer is made to/from the grid and the measurement of that power transfer.

This delineation assigns safety and product quality concerns to Standards Australia, and economic efficiency concerns to the AEMC.

AS4777 is highly unusual in the standards world in that subsequent iterations of the standard have begun to dictate business model formation and economic efficiency. This has occurred in absence of the governance provided by an appropriate economic body. AEMC governance of technical standards resolves this absence and allows for the simplification and refocusing of AS4777.

3. *What would be the main benefits from including DER technical standards in the NER, NERR, or a subordinate instrument? Are there any risks?*

The main benefit is the application of strong governance from a body (the AEMC) obligated and driven to achieve the NEO. The current Standards Australia definition of DER technical standards does not consider economic efficiency and hence delivers standards that increasingly make the achievement of the NEO more difficult.

4. Did the recent rule change on DER technical standards partly address problems identified by Dr Schott's rule change request?

No. It has simply enshrined the AS4777 committee as the sole governors of DER technical standards. Reposit considers the AEMC to be the correct party to govern DER technical standards.

5. If so, does the recent rule change on DER technical standards reduce the need to adopt the new governance arrangements proposed by the rule change request?

No. It has increased the need for new governance arrangements.

QUESTION 5: WHO DEVELOPS AND MAINTAINS DER TECHNICAL STANDARDS

1. Should a new committee be responsible for determining or advising on DER technical standards in the NEM?

Reposit's opinion is that the Reliability Panel (RP) should assume the function of governing DER technical standards. It should be advised by a purpose built committee of DER experts.

The RP should decide upon which Australian Standards to adopt (as is already a function of the RP) and the committee should provide recommendations on those parts of the standards that should be ignored or redefined. The committee should also provide recommendations to the RP on how power transfer from DER is made, and how it should be measured.

2. If so, how should members be appointed to the new committee?

Members should demonstrate practical, current, non-trial experience with DER interactions in the NEM. They should be gathered from DNSPs, aggregators, retailers, inverter manufacturers, Standards Australia and AEMO.

Membership to the committee should be moderated by a process similar to a Bar entrance exam. A candidate's understanding of electrical, economic, information exchange and NEO concepts should be formally assessed and scored. New members must at least maintain the average score of the committee.

3. What knowledge and experience would be needed to develop and maintain DER technical standards in the NEM?

See above.

4. Should membership of a new committee be paid or voluntary?

It should be voluntary. The incentive to join the committee should be the rewards associated with a successful NEM-wide integration of DER under NEO principles.

5. Should the committee report to the Commission as proposed by the rule change request? Or should the new committee report to another entity? If so, who?

The committee should report to the Reliability Panel as it already has a function of adopting Australian and International standards as NEM standards for a particular class of plant. The proposed governance arrangements are an extension of this fundamental function.

6. How would the governance arrangements proposed by the rule change request interact with existing governance arrangements and the recent DER technical standards rule change? Are there any risks of duplication or divergence?

The new governance arrangements would embrace and moderate the Standards Australia process, while actively considering the NEO in the formulation of technical standards. The proposed structure addresses both divergence and duplication concerns.

7. Are the proposed governance arrangements likely to reduce how long it takes to develop and implement new DER technical standards for the NEM? If not, would any alternative approaches increase the pace of setting standards for the NEM?

Yes. By splitting physical/electrical concerns from power transfer concerns, the proposed governance arrangement allows for a higher cadence on power transfer concerns. This allows safety standards to evolve slowly and power transfer standards to evolve more quickly.

8. Is there a trade-off between how quickly new technical standards are developed and other NEM objectives such as the safety, security and reliability of power supply?

No. Not under the proposed governance arrangements.

QUESTION 5: WHO DEVELOPS AND MAINTAINS DER TECHNICAL STANDARDS

1. How much prescription should be included in the NER to implement the proposed new governance arrangements?

Only as much required to:

- Create a committee for DER technical standards that reports to the RP
- Give that committee the function of making recommendations to the RP on how DER power transfer should be made, and how it should be measured

- Give that committee the function of making recommendations to the RP on which Standards should be adopted, and which parts of the standard should be ignored or redefined, as well as providing redefinitions where required
- Define the criteria for membership to the committee
- Obligate the RP to either implement the recommendations of the committee, or ask the committee to provide an alternative recommendation. That is, the RP cannot formulate its own DER technical standards.

2. *Should the AEMC periodically review DER technical standards to determine if further regulatory intervention is needed? What level of prescription should be included in the NER to implement this option?*

DER technical standards should be reviewed in synchronization with Generator Performance Standards. These Standards should be considered peers and treated as such.

3. *Are there any solutions that can complement voluntary initiatives to address DER technical standards? For example, how could new governance arrangements in the NER support DEIP?*

The proposed solution creates an opportunity for DEIP outcomes to be evaluated and implemented by those parties that actively operate DER in the NEM. This could be via DEIP members being included on the committee (if they were to meet selection criteria), or through DEIP members finding a champion on the DER technical standards committee. This mode of interaction is also available to any other voluntary initiatives.

4. *Is it feasible to amend the role of the Reliability Panel to cover DER technical standards? Would this be preferable to creating a new advisory committee on DER technical standards?*

Yes. As mentioned above the RP does already seem to have a function to adopt standards if necessary.

Reposit suggests that DER is a complex, multi-disciplinary field and an advisory committee will be required to support the RP in this expanded role.

Continued Engagement

Reposit would welcome the opportunity to more fully discuss this rule change proposal with the AEMC and other stakeholders.

Kind Regards



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