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Submitted via email: planning@aemo.com.au

RE: Amendments to AEMO Instruments for Efficient Management of System Strength Rule – Issues Paper

Shell Energy appreciates the opportunity to provide feedback on the Amendments to AEMO Instruments for Efficient Management of System Strength Rule – Issues Paper. This submission details Shell Energy's views through responses to select questions asked in the Issues Paper. We note that a key theme in response to a number of questions is the need for transparency. Shell Energy values the work that AEMO does and we see great benefit in understanding both the assumptions being made when determining parameters and modelling inputs, as well as the reasoning behind these assumptions. We believe this understanding is the key to meaningful engagement across all stakeholders and to ensuring the best possible outcomes as the industry transitions to a lower carbon future.

About Shell Energy in Australia

Shell Energy is Shell's renewables and energy solutions business in Australia, helping its customers to decarbonise and reduce their environmental footprint.

Shell Energy delivers business energy solutions and innovation across a portfolio of electricity, gas, environmental products and energy productivity for commercial and industrial customers, while our residential energy retailing business Powershop, acquired in 2022, serves more than 185,000 households and small business customers in Australia.

As the second largest electricity provider to commercial and industrial businesses in Australia[1], Shell Energy offers integrated solutions and market-leading[2] customer satisfaction, built on industry expertise and personalised relationships. The company's generation assets include 662 megawatts of gas-fired peaking power stations in Western Australia and Queensland, supporting the transition to renewables, and the 120 megawatt Gangarri solar energy development in Queensland.

Shell Energy Australia Pty Ltd and its subsidiaries trade as Shell Energy, while Powershop Australia Pty Ltd trades as Powershop. Further information about Shell Energy and our operations can be found on our website here.

Answers to Selected Consultation Questions

Question 1: Do stakeholders have alternative suggestions for the approach to determining minimum fault level requirements?

Shell Energy is comfortable with the proposed approach to determining minimum fault level requirements. However, we note that it will be crucial to provide transparency to all stakeholders regarding how the "prudent planning margins" are calculated. AEMO should clearly show the calculation methodology behind any proposed planning margin and the benefit it provides towards ensuring the intent of the Amending Rule is ensured for proactive provision of services.

We also note that there is little detail provided regarding what is meant by AEMO's stated intention to prioritise flexibility in the SSRM to allow appropriate response to NEM transformation. It is Shell Energy's view that the level of technical flexibility should be clearly defined for market participants with appropriate transparency around the process for determining the boundaries of this flexibility.

Question 2: Do stakeholders have any alternative suggestions for the approach to assessment of projected minimum fault level requirements over the next decade? If so, please elaborate on techniques, requirements to implement, and potential benefits over simpler approaches.

[1]By load, based on Shell Energy analysis of publicly available data.

[2] Utility Market Intelligence (UMI) survey of large commercial and industrial electricity customers of major electricity retailers, including ERM Power (now known as Shell Energy) by independent research company NTF Group in 2011-2021.

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Shell Energy supports the approach outlined in the consultation paper but notes that for effective feedback from stakeholders, AEMO must detail all modelling input assumptions as well as the reasoning or evidence behind the selection of the assumptions.

Question 3: In the context of clause S5.1a.9 of the Amending Rule, what are stakeholders' views on the inclusion or exclusion of existing and forecast inverter-based resources (IBR) in the assumptions for determining minimum fault level requirements?

Forecasts of IBR are critical to determining minimum fault level requirements, both the numbers and operational profile of these generators. Shell Energy notes that it will be as critical to understand the magnitude of deployment of grid-forming inverters which can supply system strength services to other installations. AEMO's assumptions on these types of inverters will be very important and transparency will be key to stakeholder understanding of the contribution that AEMO has assumed and modelled for these devices.

Question 12: Do stakeholders consider the proposed description for stable voltage waveforms to be comprehensive? Are there any recommended additions or deletions? If so, why?

Shell Energy notes the consultation AEMO has undertaken with TNSPs and DNSPs on this issue and is generally supportive of the proposed description. However, we consider inverter designers and manufacturers to also be key stakeholders and encourage AEMO to engage with these parties to ensure their support for system requirements.

Question 13: To what degree should the SSRM indicate assessment processes that system strength service providers (SSSPs) may apply when assessing delivery of stable voltage waveforms for IBR connections and operation over the 10-year horizon?

Shell Energy considers that, rather than AEMO specify processes to SSSPs, it may be better to require SSSPs to develop their own approach and to detail how this approach provides the optimum outcome. We note that it will be important that either an AEMO developed process or an SSSP developed process must allow SSSPs to set out the mechanisms by which system strength services may be self-supplied. It must also specify the amount of self-supply that will be considered appropriate and factor in both a 5 and 10 year timeframe. The risk is that system strength services are oversupplied at the expense of consumers. This risk should be avoided by making the level of expected self supply and the additional benefits such an outcome may provide to the power system a key consideration in in this assessment process.

Question 17: What locational detail should AEMO provide for new generation – a REZ level or a specific network bus?

Shell Energy prefers the use of a zonal approach, though not necessarily aligned to REZ topography alone. This approach would define a zone using a grouping of select buses within a close geographical region similar to the approach taken by Powerlink in defining its grid regions in its Annual Planning Report.

Question 21: Is this equation-based approach for projecting the level and type of IBR for setting the system strength requirements appropriate? If not, what alternatives should be considered, and why?

Shell Energy believes that the most important question related to IBR is the proportion of these installations that will self-supply system strength resources through grid-forming inverters. The levels of penetration of these inverter systems will be crucial to determining the requirements for system strength services. Clear details about how AEMO and SSSP's will determine the assumptions around and requirements for grid-forming inverters should be set out in the SSRM.

Question 22: Do stakeholders have specific alternatives to suggest in response to AEMO's proposed approach to projecting technical capability of future plant? If so, what alternatives should be considered?

Shell Energy disagrees with the proposed default conservative approach to projecting technical capability of future plant. Our view is that connection inquiries should nominate the type of inverter to be used (grid-forming vs non-grid forming) and that this should be factored in to system strength requirement calculations. This information would then feed in to projections of future trends which would inform longer term requirements.

Question 25: Do you consider that the proposed selection criteria will allow for an appropriate set of system strength nodes to be selected? If not, please provide specific alternatives or additions.

We note that the example given in Table 6 on page 32 is not specific enough with regards to defining a node as "either side of significant intra/interconnectors". AEMO should consider detailing this definition with reference to a switchyard, for example the first major switchyard either side of an interconnector, or the first major switchyard at which load is also connected.

Question 27: Are there specific changes that should be considered to the AEMO approach to what a 'critical' planned outage should be, and the potential thresholds for those outages? If so, please note alternatives

Shell Energy considers that a critical planned outage should be defined as one which would reduce system strength availability at sufficient scale or for sufficient duration, and for which there is no substitute service available. We support further consultation on the scale and duration thresholds for such outages.

Where an alternative system strength service is available as a substitute for a network element undertaking an outage, the network outage would not be listed as a critical outage. We support critical outages being set out in the SSRM with a regular review by AEMO in consultation with market participants.

Question 30: Are there any other issues relevant to the general system strength impact that AEMO ought to take into account?

Shell Energy considers it important that as well as any reduction in system strength capability, the assessment of system strength impact should consider connections that improve system strength capability. This would provide a more balanced view of system strength changes and potentially help avoid unnecessary costs in system strength provision.

Question 31: Should there be an engineering safety margin applied to the SCR withstand capability calculation considering limitations associated with SMIB based evaluation?

When modelling is undertaken using SMIB-type models a safety margin should only be applied when justification can be supplied. Understanding when an equipment manufacture has already applied a safety margin to its technical specifications will be a key determinant as to whether or not to apply a safety margin when modelling the equipment. Doubling the safety margin in a model will lead to unnecessary costs over time.

For any question regarding this submission please contact Peter Wormald (peter.wormald@shellenergy.com.au).

Yours sincerely

[signed]

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