23 June 2022

Ms Anna Collyer
Chair
Australian Energy Market Commission

Lodged via the AEMC website

Dear Ms. Collyer,

Re: ERC0272 Efficient reactive current access standards for inverter-based resources

ACEN Australia is pleased to provide a response to the Australian Energy Market Commission (AEMC)'s consultation paper.

ACEN Australia is a fully owned subsidiary of the AC Energy Corporation (ACEN). ACEN, headquartered in Manila, is one of the largest renewable energy companies in South-East Asia. The company has 2,600 MW of attributable capacity in the Philippines, Vietnam, Indonesia, India, and Australia. It currently has several GW of projects at various stages of development across the National Electricity Market (NEM), including in New South Wales, Victoria, South Australia, and Tasmania. For more on ACEN, visit www.acenergy.com.ph[1]

We support the rule proposal of the wind turbine original equipment manufacturers (OEMs).[2] The proposal focuses on relaxing minimum access standards for provision and absorption of reactive power during power system disturbances under clause S5.2.5.5 of the National Electricity Rules.

In our view, several key principles should be considered in setting access standards, which we discuss briefly below.

Access standards should not discriminate between different technologies

Access standards should reflect the reasonable physical capability to meet those standards for different technology types, otherwise the standard will create an unnecessary barrier to new entry. Under an open access regime access standards should not discriminate between different technologies based on the inherent or unique characteristics of the technology (thus forcing some generators to install expensive equipment to meet the standard). For example, extensive internal reticulations systems are an inherent characteristic of large wind farms, setting access standards in a way that penalises wind farms for this could distort investment outcomes (eg. splitting large windfarms into smaller farms or directing financial capital into alternative technologies). There should be sufficient flexibility in setting

[1] In 2017 ACEN acquired an 80% equity stake in UPC Renewables Australia Pty Ltd, headquartered in Tasmania and part of the global UPC Renewables Group that was established in the early 1990s. The UPC Renewables Group has developed, owned, and operated over 10,000 MW of large-scale wind and solar farms in 10 countries across Europe, North America, North Africa, China, Southeast Asia, and Australia, with an investment value of over $5 billion USD. In 2021 ACEN fully acquired UPC Renewables Australia Pty Ltd to form ACEN Australia
[2] Rule proponents are GE International, Vestas, Goldwind Australia and Siemens Gamesa

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access standards to allow for more innovative negotiated solutions where this is feasible, provided the solution does not degrade system security (as reflected in the system standards).[3]

Access standards should be about ensuring 'no harm' to the network

The test for setting access standards in an open access regime should fundamentally be about ensuring connecting parties do not degrade system security by virtue of their connection, rather than as a means for NSPs to procure 'system services' without paying for them.[4] This interpretation is consistent with the concept of access standards as described by the AEMC in previous consultation papers and determinations on access standards.[5] Specifically, the access standard applied should reflect a level of performance falling somewhere between the minimum access standard (the level of performance where there is a high degree of certainty of an adverse system security impact) and the automatic access standard (the level of performance where there is a high degree of certainty that there will be no adverse system impact) regardless of the technology and location on the network. In this context, the minimum access standard "should be sufficiently low that no connection applicant is denied access to the power system when their connection is unlikely to adversely affect system security."[6] It does not appear that the current minimum access standards for provision of reactive power during disturbances meet this criterion.

Access standards should be flexible and adaptable

Access standards should reflect local power system conditions. Ensuring a level of flexibility to vary access standards where appropriate would allow for more tailored solutions that lower cost for connecting parties without compromising the security of the power system. This in turn lowers costs for consumers. For example, voltage varies by connection point based on a range of factors, including the number and types of nearby generators, local fault levels and impedance. The need for reactive power varies depending on the X/R and/or short circuit ratios at each connection point. Consequently, reactive power requirements should reflect this variability. The level of the minimum access standard needs to be low enough to allow reasonable scope for negotiation on reactive power provision, as otherwise the minimum standard risks being too high relative to need in some parts of the network, unnecessarily increasing connection costs for connecting parties.

Access standards should reflect an efficient allocation of risks and costs

Where an access standard involves provision of a system service, it is important to consider which party is best placed to provide the service. As with a range of other system services, such as system strength, we consider reactive power is best provided by the NSP, because it can do so more cheaply by leveraging economies of scale and scope and reducing transactions costs.[7] In other words, if reactive power capability can be more cheaply provided at a connection point by the NSP, then access standards should be relaxed or removed accordingly (recognising that connection costs are ultimately passed through to consumers regardless of whether they are levied on the NSP or the generator). We note for example that synchronous condensers can provide fault current (for system strength) but also reactive power across numerous connection points. Consequently, there appears to be potentially economies of scale and scope possible in provision of reactive power, which could lower the cost of providing the service on a per connection point basis. The Network Support and Control Ancillary Services (NSCAS) arrangements could be used to procure reactive power services to support system

[3] In principle, the proposal of the wind OEMs to shift the point of assessed compliance for reactive power from the connection point to the generator unit terminal appears to achieve the outcome, by having sufficient requirement at the generator terminal this should ensure the generator at least does not increase the risk of voltage oscillation at POC.

[4] We use the term system service in the same way as the AEMC in its consultation paper "System Services Rule Changes," 2 July 2020, where system services describe a range of services requires to support network security and reliability including, frequency control, system strength, inertia support, and voltage control.

[5] See for example AEMC Reliability Panel, "Technical Standards Review" Draft report 2008, which provides detailed definition and explanation of meaning of minimum, negotiated and automatic access standards.

[6] Ibid, page 14

[7] While in principle generators could also leverage economies of scale by coordinating and collaborating on a solution, in practice this has not happened due to complexities around coordination and negotiation (transactions costs).

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security. This may be done relatively cheaply if equipment capable of providing reactive power support, such as synchronous condensers, are already in place to support NSPs system strength procurement obligations.

To conclude, we urge the AEMC to take these broader principles into account in its assessment of the wind farm OEMs proposed rule change. In light of the federal and jurisdictional governments' ambitious climate policies it will be important to ensure the access framework does not impose unnecessary barriers to investment in renewable generation capacity.

If you would like to discuss any of the comments in this submission further, then please contact Con Van Kemenade at con.vankemenade@upc-ac.com or phone: 0439399943.

Sincerely,

Dr Michael Connarty
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ACEN Australia