

23 June 2022

Ms Anna Collyer
Australian Energy Market Commission
GPO Box 2603
Sydney NSW 2000

via online submission

Dear Ms Collyer

RE Efficient reactive current access standards for IBR

TasNetworks welcomes the opportunity to respond to the Australian Energy Market Commission's (**AEMC's**) consultation on Efficient Reactive Current Access Standards for Inverter-based Resources (**IBR**).

TasNetworks is the Transmission Network Service Provider (**TNSP**), Distribution Network Service Provider (**DNSP**) and Jurisdictional Planner in Tasmania. The focus of these roles is to deliver safe, secure and reliable electricity network services to Tasmanian and NEM customers at the lowest sustainable prices. TasNetworks recognises the important role renewable generation, including IBR, will play in the energy transition and is supportive of any changes that support their connection while maintaining a secure power system.

The Consultation Paper refers to the joint Clean Energy Council (**CEC**) and Australian Energy Market Operator (**AEMO**) Connections Reforms Initiative (**CRI**) work undertaken in 2021. TasNetworks is supportive of this work and was represented on the specific CRI working group that was tasked with addressing the minimum access standards for Schedule S5.2.5.5 (Reform Area 1.1: Network Access). This collaborative CRI working group included the Original Equipment Manufacturers (**OEMs**) in the consortium making the rule change proposal as well as other network service providers (**NSPs**), AEMO and other industry representatives. The work undertaken by the CRI for this reform area sought to address many of the issues identified by the OEMs in the rule change submission. TasNetworks notes that the AEMC will consider the work of the CRI as part of this consultation.

TasNetworks agrees that compliance to access standards is not always mutually understood and in some instances may potentially introduce adverse network impacts in how the response from the generators is provided. Whilst TasNetworks supports the intent of the

proposed rule changes, to fully address these proposals this consultation must also seek to undertake a review of the original intent of the performance requirements specified in S5.2.5.5(f) and (n). TasNetworks notes that a review of the original intent of these requirements is also a key recommendation of the CRI roadmap. This is particularly pertinent following recent rule changes that have likely altered the base assumptions for these requirements set by the Generator Technical Performance Standards rule change in 2018. TasNetworks specifically refers to the recent Efficient Management of System Strength on the Power System and the Connection to Dedicated Connection Assets rule changes that may now address (in part) the requirements of this particular performance requirement.

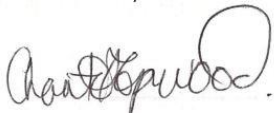
Broadly, TasNetworks is generally supportive of the proposal from the OEMs. The proposal to assess performance closer to the generating unit's terminals and to allow the maximum response to be limited to the nominal apparent rated current of the generating unit is supported. This added flexibility in where performance standards are assessed suggests a less aggressive reduction to the minimum standard threshold would be more appropriate.

TasNetworks does not support the proposal to use X/R ratio as a metric for the level of reactive current injection. The rule change proposal would seem to remove a level of flexibility by replacing it with a fixed requirement for reactive response. TasNetworks believes the OEM rule change addresses most of the issues identified by RER and therefore TasNetworks does not support this aspect of the rule change proposal.

Specific comments on both proposals are provided in an attachment.

Should you have any questions, please contact Tim Astley, Network Reform and Regulatory Compliance Team Leader, via email (tim.astley@tasnetworks.com.au).

Yours sincerely



Chantal Hopwood

Leader Regulation

Attachment

The Renewable Energy Revolution (RER) Pty Ltd Proposal

When negotiating an access standard, the RER has identified that S5.2.5.5(u) may not be appropriate for generating systems seeking connection between 66 and 132 kV. The RER proposal is to limit the generating system's response to a fault to be a function of a single system parameter (X/R ratio) with a look-up table provided. A proposed new rules term (half-integer X/R ratio) to facilitate the change has also been included in the RER proposal.

The intent of the proposed rule change is to better reflect actual network requirements in "lower voltage" connections where the maximum reactive response may not be appropriate. TasNetworks' view is that this proposal may introduce unnecessary complexity and its intent could be achieved through simpler mechanisms. For example, the OEM submission practically achieves the same result by proposing a reduction of the minimum access standard of S5.2.5.5(n) as well as allowing a more flexible approach when negotiating this particular response. Having such an approach should allow the network and the generating system to negotiate a more appropriate response.

TasNetworks is also concerned by the concept of tying performance to a single network parameter defined at a specific point of time. By defining performance based on a single network parameter, that potentially does not fully describe the surrounding network and its interactions, reduces the ability to use good engineering judgement. By undertaking connection studies it is possible to identify more appropriate levels of reactive response that take into consideration the holistic network and generating system control response. This rule change proposal would remove this ability by replacing it with a fixed requirement for reactive response.

The Original Equipment Manufacturer (OEM) Proposal

The OEMs have provided a more general rule change proposal that seeks to address identified commercial and compliance issues with the current wording of the minimum access standard (S5.2.5.5(n)). To address the issues identified, it is proposed that the performance requirements in S5.2.5.5(n) be reduced and a more flexible approach be adopted when negotiating an appropriate performance access standard.

TasNetworks in principle supports the OEM proposal, our main concern being is that by setting the response to 'no additional reactive current during a fault' it will deliver inefficient outcomes for both IBR and the power system as a whole. TasNetworks agrees with the OEM proposal that it is more appropriate to assess this particular performance closer to the generating unit's terminals and to allow the maximum response to be limited to the nominal apparent rated current of the generating unit. By allowing for more flexibility in where to assess this capability TasNetworks suggests a less aggressive reduction to the minimum threshold of 1% per 1% voltage change would be more appropriate.

Whilst the OEM's have proposed a change to the minimum access standards, the principals of 5.3.4A(b1) must remain as no changes to the automatic access standard (S5.2.5.5(f)) have been recommended. The proponent will still be required to demonstrate capability as close as practicable to the automatic access standard (5.3.4A(b1)) noting why a negotiated access standard is appropriate as per 5.3.4A(b2). Notionally, by reducing the requirements of the minimum access standard, both the network and the proponent have greater scope for negotiation where the existing response may not be ideal. This would also address the concerns raised by RER.

Whilst an interim change may be required, TasNetworks is of the view that to fully address the concerns of the OEMs and address network requirements going forward, the original intent of the requirements of S5.2.5.5 should be revisited. Generating systems are still best suited to provide a cost effective voltage support to the wider network when delivered properly. The requirements of S5.2.5.5 should aim to provide clearer guidance into how and why the generating system will need to respond during and following a disturbance.

Having clearer performance requirements detailed S5.2.5.5 will provide better guidance in developing more appropriate responses that provide suitable support to the generating system and the network. Currently, TasNetworks understands some OEMs are implementing "switched" on/off type logic within their voltage controllers to meet the wording of S5.2.5.5(f) and (n). This may not meet the intent of the schedule. A switched type response based on fixed voltage thresholds can potentially introduce voltage instability and adverse impacts on the wider network. Whilst not the intent of S5.2.5.5, this type of response will likely increase as more generators seek connection using these voltage controllers.

Also raised by the OEMs is the appropriateness of prioritising reactive current over active current during disturbances. In Tasmania this issue is already manifesting with frequency disturbances being observed because of generating systems going into fault ride through mode. TasNetworks believes this issue should also be considered when addressing the original intent of S5.2.5.5 and whether a more holistic response is required.

Inclusion of inverter based loads in reactive current injection

Traditionally generating systems have formed the backbone for the provision of technical capabilities to the grid. Loads have been seen as a passive element in the network, reflected in their current NER performance requirements (S5.3) which are mainly limited to power quality and steady state elements.

TasNetworks generally agrees with the OEM submission, that in the transition to the network of the future, loads will have an equally important part to play in the performance of the network. Loads are already increasingly becoming active participants in the network with similar performance to generating systems. Their performance requirements should evolve to

a level commensurate with those of generating systems to reflect their ability to impact the network, both positively and negatively.

While the OEM submission has partially touched on the need for a more holistic review of S5.3 of the NER, TasNetworks believes addressing the performance requirements of loads should be undertaken separately to this consultation.