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Mr Damien Sanford
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Submitted by email to: SystemStrengthGuidelines@aemo.com.au

Dear Damien

First Stage of Consultation on System Strength Impact Assessment Guidelines

TransGrid welcomes the opportunity to provide feedback on the draft System Strength Impact Assessment Guidelines.

TransGrid is the operator and manager of the high voltage transmission network connecting electricity generators, distributors and major end users in New South Wales and the Australian Capital Territory. TransGrid's network is also interconnected to Queensland and Victoria, and is instrumental to the national electricity system that allows for interstate energy trading.

TransGrid commends the approach followed by AEMO in the development of the draft System Strength Impact Assessment Guidelines in consultation with the relevant stakeholders, including the jurisdictional transmission network planners.

TransGrid considers that the guidelines will provide a long-term, strategic and nationally-coordinated approach to connect renewable energy resources, maintain system security and deliver electricity at lowest possible cost.

In this submission, TransGrid requests AEMO to revise the guideline to further clarify the following aspects:

> Provisions for increasing the utilisation of the available transmission capacity and maximising the generation capacity that can be connected to the network;
> Roles and limitation of responsibilities of the NSPs when undertaking the system strength impact assessments.

Increasing the utilisation of transmission capacity and maximising connection capacity

The draft guidelines (section 4, pp. 13), recommend that NSPs take into consideration: "...all proposed generating units or generating systems or proposed market network service facilities where an application to connect has been submitted..."

TransGrid's experience to date suggests that there is considerable uncertainty associated with the performance of the proposed connections at the "application to connect" stage and will require significant further close scrutiny by the proponents, suppliers, NSPs and AEMO, prior to finalising the plant performance. Further, there is also a significant uncertainty associated with the commitment of the proposed connections and intended timeframes for their development. If all the

proposed connections are to be taken into consideration in assessing the system strength impact of a particular connection, this uncertainty would be likely to negatively impact on the assessed ability of the proposed connection to connect. On the other hand, limiting the potential connections to be considered in the assessment only to committed plant, where they require a SCR above that required for commonly available technology, may ultimately result in limiting the quantity of generation connected to the network below the economically efficient level.

TransGrid requests that the guidelines be amended to reflect:

- The assessing NSP to consider the impacts of the connection proposal under assessment based only on existing and committed connections, rather than all proposed connections.
- The assessing NSP to require the proposed connection to be able to perform at a system strength that corresponds to a short circuit ratio (SCR) at the connection point as low as reasonably practical, if in its opinion the NSP considers:
  a. there is a reasonable likelihood that other generating units or generating systems or market network service facilities may connect to the same connection point or electrically close to the connection point in the future
  b. inferior performance of the proposed connection (e.g. proposed connection requiring a SCR higher than commonly available technology to perform satisfactorily) is likely to reduce the generation capacity that can be connected to the network below the maximum capacity the network can accommodate efficiently and effectively. In TransGrid's experience, with presently available technology, some wind turbine generators are capable of operating under SCR of 1.2 and solar farm generators are capable of operating under SCR of 1.5. TransGrid considers that this approach will further encourage equipment suppliers to improve equipment capability through implementation of more robust controls.
- In order for efficient identification and use of the committed generating units, generating systems, or market network service facilities, in the system strength impact assessment:
  a. AEMO should maintain a central and up to date register of all the committed generating units, generating systems, or market network service facilities, in the NEM
  b. NSPs should advise AEMO in a timely manner of the committed applications to connect, to be included in the above register
  c. AEMO to provide access to the above register to all NSPs undertaking system strength impact assessments

In considering the system strength impact of connections in close proximity but to different NSPs, it is critical that all of their performance standards are adequately considered, modelled and evaluated, both for preliminary assessment as well as for detailed assessment. In order for this process to work efficiently, existing and committed connections need to be transparent for the assessing NSPs. Maintenance of a central register of connections by AEMO (together with corresponding plant models and parameters, SCR capability and connection arrangements) would be an efficient means of achieving this outcome.

Role and limitation of responsibilities of the NSPs

The objective of the system strength impact assessment by NSPs is to ensure that the proposed generating plant will not adversely impact on stable operation of the power system, a generating system or market network service facility. In assessing the impact of a proposed connection, NSPs rely on:

a. the performance of the proposed plant specified via the plant's performance standards and models
b. the performance of the existing and committed plants and transmission networks, based on the information available to the TNSP at the time

TransGrid notes that the system strength impact assessment is not meant to:

a. provide a guarantee in any form on the physical performance of the proposed plant when connected to the transmission system. In TransGrid's experience to date, significant discrepancies between model performance and physical performance can exist

b. perform as a tool for tuning and coordination of the controllers and parameters of the plant associated with the proposed connection

Therefore, TransGrid recommends AEMO to revise section 2 of the draft guidelines:

> to very clearly outline the obligations of each of the parties involved as well as limitations of their responsibilities

> to recommend the proponents to carry out their own assessment of the performance of the plant and be satisfied that the plant will perform adequately as per the owners expectations and can be operated in compliance with the National Electricity Rules and the Generator Performance Standards.

TransGrid appreciates the opportunity to comment and is happy to provide further assistance to AEMO if required for completing these important guidelines. If you would like to discuss this submission, please contact Jahan Peiris, Main System Planning Manager, on 02 9620 0884.

Yours sincerely

per. Gerard Reiter

Executive Manager/Network Planning & Operations