

Request for system strength services in Queensland to address Fault Level Shortfall at Ross – Clarifying Information

30 April 2020

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REQUEST FOR SYSTEM STRENGTH SERVICES IN QUEENSLAND TO ADDRESS FAULT LEVEL SHORTFALL AT ROSS – CLARIFYING INFORMATION

1. Purpose and scope

Powerlink Queensland (Powerlink) issued an Expression of Interest (EOI) to the National Electricity Market (NEM) on 9 April 2020 requesting system strength services in Queensland.

The purpose of the EOI is to engage with non-network solution providers in order to ascertain and evaluate options (both non-network and network) to meet the system strength requirements identified in the Australian Energy Market Operator's (AEMO) Notice of Queensland System Strength Requirements and Ross Fault Level Shortfall also published on 9 April 2020. The option or combination of options with the lowest cost identified through the EOI consultation process and which satisfy Powerlink's regional System Strength Service Provider obligations under the National Electricity Rules (NER)¹ will be recommended for implementation.

Powerlink has had a number of questions regarding the EOI in relation to the definition of the need and how various proposals address the need. The purpose of this document is to clarify this issue for all potential proponents.

2. Clarifying Information

As identified in Powerlink's EOI, fault current is only one attribute of system strength, and is used as a measure for the level of inertia, synchronising torque, and other synchronous characteristics which a power system needs.

Under the National Electricity Rules, AEMO is required to publish a requirement for system strength services as a fault level shortfall, and in this case the Ross 275kV node has been used as a reference point for this fault level shortfall.

In development of the shortfall notice, AEMO modelled several potential solutions and the resulting fault level equivalent was a 90MVA shortfall at the Ross 275kV node. The fault level is an outcome of the modelled potential solutions rather than an end in itself. Not all potential solutions that provide 90MVA fault level at Ross will deliver the required stability outcomes as well. Also we recognise that there are innovative technology solutions that could address the stability requirements and we will be open to reviewing these proposals.

The exact requirements are dependent on the nature of the non-network solution offered and the ability of the network support to respond to and operate in accordance with system strength requirements in North Queensland. Any new services proposed to provide system strength must be validated through detailed Electromagnetic Transient (EMT) studies.

To illustrate the variety of potential system strength support combinations, it is useful to note the list of combinations identified by AEMO in their market notice, released on 27 April 2020 and shown below.

¹ NER Clause 5.20C.3.

Refer to AEMO Electricity Market Notice 75226.

“AEMO and Powerlink are continuing to investigate system strength requirements in North Queensland. A revision to the requirements will be implemented at 1400 hrs today.

The revised minimum generator combinations and limits are:

1 - 3 x Stanwell, 1 x Callide B, 1 x Callide C, 3 x Gladstone, 10 x Total Stanwell+Callide+Gladstone, 4 x Kareeya, 2 x Barron Gorge: 100% output
2 - 3 x Stanwell, 1 x Callide B, 1 x Callide C, 3 x Gladstone, 10 x Total Stanwell+Callide+Gladstone, 4 x Kareeya, 1 x Barron Gorge: 80% output
3 - 3 x Stanwell, 1 x Callide B, 1 x Callide C, 3 x Gladstone, 10 x Total Stanwell+Callide+Gladstone, 2 x Kareeya, 1 x Townsville GT: 80% output
4 - 3 x Stanwell, 1 x Callide B, 1 x Callide C, 3 x Gladstone, 10 x Total Stanwell+Callide+Gladstone, 2 x Kareeya, 1 x Barron Gorge: 70% output
4H - 3 x Stanwell, 1 x Callide B, 1 x Callide C, 3 x Gladstone, 10 x Total Stanwell+Callide+Gladstone, 2 x Kareeya, 1 x Barron Gorge, 50% or less output at Mt Emerald: 100% output for Haughton solar farm
5 - 3 x Stanwell, 1 x Callide B, 1 x Callide C, 3 x Gladstone, 10 x Total Stanwell+Callide+Gladstone, 4 x Kareeya: 70% output

The following new combination will also be implemented:

6- 3 x Stanwell, 2 x Callide C, 3 x Gladstone, 9 x Total Stanwell+Callide+Gladstone, 4 x Kareeya: 20% output

If these combinations are not met, Mt Emerald WF, Sun metals SF and Haughton SF have a limit of 0 MW and 0 inverters.”

Hence, Powerlink reiterates that detailed Electromagnetic Transient (EMT) studies will be required to assess the combined impact of any proposal with existing generation. In particular, a simple fault level study in itself cannot accurately predict whether or not a solution will address the need.

Powerlink intends to carry out detailed analysis on viable and economically efficient potential solutions after the EOI closes on **13 May 2020**.

3. Further Contact

For further enquiries, please contact

Gerard Nicolas
Acting General Manager, Network Portfolio
Powerlink Queensland
PO Box 1193
VIRGINIA QLD 4014
Tel: (07) 3860 2111
networkassessments@powerlink.com.au