8 March 2019

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Attention: Rainer Korte

Dear Rainer

Re: Proposed complete solution for system strength in South Australia

Thank you for your letter of 1 February 2019, which proposed a complete system strength solution[1] to meet the fault level shortfall in South Australia. Since receiving this letter, AEMO has worked closely with ElectraNet to evaluate the proposed solution. This letter responds to ElectraNet's request for AEMO to confirm:

- That the proposed solution meets the declared system strength gap.
- The extent to which the proposed solution meets the declared inertia shortfall.

System Strength Gap

AEMO's detailed studies have confirmed that ElectraNet's proposed solution meets the declared fault level shortfall during system normal network configuration, as well as a wide range of prior outage conditions. On this basis, AEMO approves the basic technical specifications for the proposed four synchronous condensers as proposed by ElectraNet, and confirms the recommended solution addresses the declared system strength gap under the Rules. A technical note consistent with this finding that outlines the results of our detailed studies will be shared with ElectraNet shortly.

Minimum inertia

The requirements for ElectraNet to meet the declared inertia shortfall[2] were outlined in AEMO's letter to ElectraNet on 21 December 2018. AEMO considers that ElectraNet's proposed system strength solution will meet the 4,400 MWs minimum threshold level of inertia for the current power system, which is required when separation is a credible risk[3]. Additional services are required during island conditions – as outlined in our previous letter.

On 5 October 2018, AEMO determined that the procurement of pre-contingent regulation FCAS in South Australia was not required for periods where separation is credible. This determination was an outcome of the generation profile required to be online for system strength purposes. As outlined in market notice 64716, AEMO will review this requirement prior to the installation of synchronous condensers in South Australia.

[1] ElectraNet's proposed solution includes two synchronous condensers at Davenport and two synchronous condensers at Robertstown.
[2] The declared shortfall is based on the existing power system and generation mix with a sufficient number of online synchronous generators (and accompanying Contingency FCAS capability).
[3] This also includes coverage for any protected events, or times when non-credible contingencies are reclassified as credible, which could result in the South Australian region being islanded.

Next steps

AEMO welcomes ElectraNet's progress on implementing the four synchronous condenser system strength solution and proposed next steps. AEMO looks forward to receiving further updates in due course, including the submission of technical specifications, performance standards, and arrangements for enabling the system strength and inertia services under clauses 5.20C.4(e) and 5.20B.6(e) respectively.

Because the generation mix in South Australia continues to change, the system strength and inertia requirements in South Australia may also change over time. AEMO will continue to review these requirements as required by the NER.

AEMO's review found that further studies are required to determine how to manage certain outage conditions – including operation in the event that South Australia becomes islanded.

Please feel free to contact me if you wish to discuss this matter further.

Yours sincerely

Elijah Pack
Acting Group Manager System Planning