

Consultation on request for protected event declaration

Reliability Panel invites submissions on consultation paper

The Reliability Panel has released a consultation paper on a request by AEMO for the declaration of a protected event to help AEMO maintain power system security in South Australia in the most cost-effective way. Submissions are due by 8 February 2019.

Overview of AEMO's request

AEMO has requested that the Panel declare a protected event to manage the risk of loss of transmission elements causing generation disconnection when destructive wind conditions are forecast in South Australia. Declaring a protected event allows AEMO to incur the costs of managing the system at all times to limit the consequences of a low probability but high consequence system security event. AEMO's request is an outcome of its 2018 *Power System Frequency Risk Review (PSFRR)*, in which it noted that the risk of generation loss leading to unstable power swings on the Heywood interconnector is heightened at times of destructive wind conditions.

The Commission's final determination on the *National Electricity Amendment (Emergency frequency control schemes) Rule* in March 2017 introduced protected events as a category of non-credible contingency event for which there are net economic benefits from AEMO taking some pre-emptive action to manage. Protected events may be declared by the Panel in response to a request from AEMO. This is the first request for the declaration of a protected event which has been received by the Panel.

AEMO's request proposes that the protected event be defined as **"the loss of multiple transmission elements causing generation disconnection in the South Australia region during forecast destructive wind conditions"**.

AEMO is currently managing this risk by constraining the amount of power being imported into South Australia on the interconnector when destructive winds are forecast. However, AEMO considers that declaring a protected event would enable it to develop a more cost-effective, transparent and fit-for-purpose mechanism for the ongoing management of the risks associated with destructive wind conditions (i.e. wind speeds above 140km/h) in the region.

AEMO has identified a number of potential options for managing the proposed protected event. AEMO's recommended option is to:

- upgrade the existing System Integrity Protection Scheme (SIPS), which is an Emergency Frequency Control Scheme (EFCS) that is designed to identify and counteract conditions that could result in a loss of synchronism between Victoria and South Australia; and
- limit the total import capacity over the Heywood interconnector to 250 MW at times when destructive wind conditions have been forecast in South Australia.

AEMO has assessed that its recommended option for managing the proposed protected event will result in an annual net economic benefit of between \$1.5 million and \$10 million.

Background

AEMO's request identifies a number of characteristics of the South Australian power system which can create challenges from a power system management perspective.

These include:

- the region's high reliance on gas powered generation for system strength and inertia response
- a high penetration of rooftop solar PV and wind generation
- the radial design of the transmission network, with load centres being serviced by transmission elements connecting generation in remote parts of the network with low system strength
- the transmission network's susceptibility to severe storms and destructive winds.

AEMO noted that these characteristics contribute to the South Australian power system being vulnerable to the loss of a large amount of generation. In particular, if the region is importing a significant amount of power from Victoria over the Heywood Interconnector, a sudden increase in power flow and overload of the interconnector following the loss of generation in South Australia could lead to the disconnection of the interconnector and a potential black system event.

AEMO considers that the risk of a large loss of generation in South Australia leading to the loss of the Heywood Interconnector is increased during destructive wind conditions due to the heightened risk of occurrence and potentially greater magnitude of line failures and other transmission faults.

What is a protected event?

A protected event is a low likelihood, high consequence non-credible contingency event for which AEMO must maintain the power system security standards, including the frequency operating standards, following the occurrence of the event. To do so, AEMO may utilise ex-ante measures such as the purchase of frequency control ancillary services (FCAS) or constraining generator dispatch, in addition to some limited load or generation shedding.

What is the Reliability Panel's role in relation to protected events?

The Reliability Panel, which forms part of the AEMC's institutional arrangements, is comprised of members who represent a range of participants in the national electricity market, including consumer groups, generators, network businesses, retailers and AEMO.

Upon receiving a request to declare a protected event, the Reliability Panel is tasked with determining if there are net economic benefits from AEMO taking pre-emptive actions to manage a particular risk. Where the benefits of managing the event outweigh the costs, the Reliability Panel may declare the non-credible contingency event a protected event.

Issues for consideration

This consultation paper has been prepared to facilitate public consultation on AEMO's request. In particular, the Panel is seeking stakeholder feedback on:

- the technical feasibility of the options identified by AEMO for managing the protected event
- AEMO's assessment of the costs and benefits of its recommended option for managing the protected event.

This will inform the Panel's determination of whether AEMO's recommended option for managing the protected event is the most appropriate and cost-effective approach.

The Panel invites written submissions on this consultation paper by **5pm, 8 February 2019**.

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