



Review of the System Black Event in South Australia on 28 September 2016

AEMC commences consultation on its review of the system black event in South Australia

The Australian Energy Market Commission (AEMC) invites stakeholder submissions on an issues and approach paper, which sets out the systemic issues arising from the pre-and post event periods of the black system event in South Australia on 28 September 2016. The paper also sets out the AEMC's approach to conducting the review.

Background

South Australia experienced a 'black system' event at 16:18 AEST on Wednesday 28 September 2016 (the event). Approximately 850,000 South Australian customers lost electricity supply including households, businesses, transport, community services, and major industries. Most electricity supply was restored in 8 hours, however the wholesale market in SA was suspended for a total period of 13 days. The total cost of the black system event to South Australian business was estimated at \$367 million.

On 16 December 2016, the COAG Energy Council provided terms of reference to the AEMC (Commission) to build on the work conducted by AEMO and the AER through identification of any systemic issues that contributed to the black system event in South Australia, or affected the response. The AEMC is required to commence this review when the work of both of AEMO and the AER is complete:

- AEMO published its final integrated incident report into the South Australian black system event in March 2017.
- On 14 December 2018, the AER published its assessment into pre- and post black system event compliance. This did not include consideration of the event itself.

With the publication of both the AEMO incident report and AER pre- and post-event compliance report, the Commission has commenced its review as required by COAG Energy Council. However, as the AER has not yet published a compliance report or issued any findings related to the black system event period itself, the review will focus its assessment on the pre- and post-stages of the event. The Commission will defer consideration of the black system event period itself, until such time as the AER has publicly reported or otherwise issued findings on compliance during this period.

The Commission is intending to publish a draft review report in mid-September and a final review report in December. Submissions on the issues and approach paper close on 24 May 2019 and can be made via the AEMC website.

Systemic issues and AEMC approach to conducting the review

On 18 April 2019, the Commission published an issues and approach paper setting out the systemic issues arising from the pre-and post event periods of the black system event in South Australia. The paper also set out the Commission's approach to conducting the review. The issues addressed in the issues and approach paper reflect the review's terms of reference which require the AEMC to consider and report on:

- whether existing system security frameworks and procedures operated effectively leading up to, during and following the event, and
- whether power system security frameworks are sufficient to manage high impact, low probability (HILP) events, and whether improvements in existing processes, tools available to the system operator or components of the electricity system in South Australia would

assist in preventing future black system events.

Existing power system security frameworks during the pre and post event period

The issues and approach paper considers whether existing system security frameworks and procedures operated effectively leading up to, and following the event. The following frameworks are considered:

- non-traditional system security risks and system security frameworks
- system restoration, and
- market suspension.

There were rapid changes in wind farm output observed during the pre-event period due to the high winds in South Australia on 28 September 2016. While these rapid changes in wind farm output did not lead to the black system event, they represented an additional, non-traditional, risk to power system security during the pre black system event period. The AEMC intends to investigate whether existing frameworks for system security are fit for purpose in managing such events.

System restoration occurred following the black system event within the time frame required by the rules. However, a number of issues arose during the system restoration process on 28 September 2016, most notably the failure of Origin Energy's Quarantine Power Station to deliver system restart services as contracted. A lack of clear rule arrangements may have contributed to this failure. In this review, the AEMC will consider whether rules arrangements regarding the roles and responsibilities of different parties and arrangements for information flows before and during a restart event are clear.

The market suspension period following the South Australian black system event was an unprecedented 13 days long. During this time, AEMO and market participants restored the power system, established the causes of the black system, and implemented new arrangements to maintain system security given the system security vulnerabilities identified in the South Australian power system. However, a number of issues arose that require consideration by the review. In particular, the review will consider the extent to which market rules early apply during a period of market suspension, and rules arrangements regarding the use of certain types of constraints for achieving system security outcomes.

Power system resilience and High Impact Low Probability (HILP) events

The review terms of reference require the AEMC to consider whether power system security frameworks are sufficient to manage high impact, low probability (HILP) events, and whether improvements in existing processes, tools available to the system operator or components of the electricity system in South Australia would assist in preventing future black system events.

The review will consider these requirements through the lens of 'power system resilience'. The issues and approach paper provides a definition for the concept of resilience, outlines the existing frameworks that fall within it, including the actions taken by the AEMO and the Commission to enhance the resilience of the power system since 28 September 2016. The review will also consider how power system resilience might be enhanced, and metrics for measuring power system resilience.

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18 April 2019