



NEWS

New rules to protect the power system from extreme emergencies

Australian Energy Market Commission

Emergency frequency control schemes - final determination

30 March 2017

The AEMC today clarified the Australian Energy Market Operator's power to intervene in the power system to manage the risks of extreme emergencies.

Commission Chairman John Pierce released a new management framework for emergency frequency control schemes which are the 'last line of defence' mechanisms and help prevent system-wide blackouts.

The rules also require the market operator to regularly and transparently assess emerging risks caused by swapping out older synchronous generators, for non-synchronous generation technology like wind and solar.

Power systems with lots of non-synchronous generators have less time to recover from sudden equipment failures before frequencies collapse beyond technical operating limits and blackouts cascade quickly across entire grids.

The market operator matches demand and generation at all times to keep the power system stable and securely operating close to 50 hertz. Its systems automatically detect any sudden loss of generation which causes frequency to fall; or a large drop in demand (also called load) which pushes frequency higher.

Uncontrolled frequency deviations in either direction can lead to blackouts. In broad terms the Australian Energy Market Operator (AEMO) maintains balance by using standby generation or by coordinating schemes installed by network companies to automatically and rapidly shed load by turning off customers.

"Emergency events in the power system are not new," John Pierce said today.

"It's not always possible to keep the lights on when bushfires, extreme weather or major equipment failures cause security crises.

"But today we also need to operate a secure power system given changes in generation technology."

Mr Pierce said the package of actions included a new obligation on AEMO to conduct regular forward-looking reviews of power system frequency risks so that

- all available technological solutions could be brought to bear on limiting the community consequences of emergency frequency events
- and the Reliability Panel could economically assess the costs to the community of AEMO's proposals to operate the power system in ways that limit the consequences of high impact emergency events.

Media contact:

AEMC Communication Director, **Prudence Anderson** 0404 821 935 or (02) 8296 7817

Today's determination is part of a rule change package which addresses immediate concerns about emergency protections particularly relating to South Australia's current frequency issues; as well as new mechanisms to maintain security across the entire power system.

About the AEMC power system security work program

In July 2016 the AEMC self-initiated a review on whether wholesale energy market frameworks are suitable to complement increasing volumes of non-synchronous energy and to maintain power system security as the industry transforms.

The impact of non-synchronous energy on system security was highlighted as an important focus in the AEMC's strategic priorities for market development. The *System security market frameworks review* has been initiated by the Commission to continue its work in this area.

The *System security market frameworks review* is addressing possible changes to market arrangements that lead to more efficient outcomes for energy consumers while delivering a secure operating system. The review puts an umbrella over many issues being raised by stakeholders in relation to the power system's ability to keep the lights on while maintaining its frequency at a constant level.

Today's determination is part of a package of rule change requests which address both immediate concerns in relation to emergency protection particularly relating to South Australia's current frequency issues; as well as new mechanisms to allow security to be maintained across the entire power system.

Glossary

Security events happen when electricity supply breaks down. Causes include storm damage to wires or unexpected generation equipment failure. Breakdowns affect the stability of the power system. The system is secure when it can maintain technical parameters such as voltage and frequency and withstand faults when they happen.

Reliability events happen if there are not enough generators and poles and wires to transport electricity to customers on demand. Reliable supply needs adequate infrastructure planning and maintenance across the whole supply chain.

Ends