

# Technical standards for generator licensing in South Australia 2017

## A SUMMARY OF AEMO'S RECOMMENDATIONS

### THE REQUEST

The Essential Services Commission of South Australia (ESCOSA) sought advice from AEMO in relation to two important matters:

1. The currency of the existing special licence conditions relating to technical standards for wind farms connecting to SA's electricity network, and
2. Whether there is merit in additional or amended technical requirements being imposed on other generation technologies.

### THE CONTEXT

The South Australian electricity industry has the opportunity to demonstrate to the world how a large power system can successfully operate with high volumes of non-synchronous generation such as wind and solar photovoltaics. These technologies require new techniques to maintain a secure power system because they are not based on a rotating generator spinning in sync with the grid frequency.

AEMO believes that all types of generators should incorporate features that will allow them to contribute towards a secure and resilient power system where it is cost-effective to do so.

Since AEMO's previous advice to ESCOSA on generator licence conditions in 2010, the proportion of non-synchronous generation capacity in the SA region has increased from 20% to over 43%, with this trend expected to increase in the future.

AEMO's recommendations are based on the results of a number of recent AEMO investigations, including AEMO's Future Power System Security program, and analysis into the 28 September 2016 state-wide blackout in SA.

## THE KEY RECOMMENDATIONS

AEMO's recommendations for generation licence conditions are proposed for all generation technologies greater than 5MW. They form part of a complementary package of regulatory reforms underway in Australia and will allow power system security to be maintained as the generation mix changes to a low emission future.

These recommendations are designed to provide additional system support at the lowest cost to Australian consumers.



### GENERATOR PERFORMANCE DURING AND AFTER CONTINGENCY EVENTS

The ability of generators to maintain continuous, uninterrupted operation during and following power system faults is essential. There needs to be greater clarification of what is required/expected from all electricity generators to ride through system faults.



### SYSTEM STRENGTH

A base level of power system strength is required to maintain a secure, stable grid. AEMO is recommending licence conditions on generators that will improve system performance under low system strength conditions and reduce costs to consumers in the long term. The recommendations are designed to complement the system strength Rule change currently under consideration by the AEMC.



### 'ACTIVE' POWER CONTROL CAPABILITY

Maintaining a consistent frequency within the power system is fundamental to its secure operation. AEMO recommends all new entrants into the generation fleet should be set up with the capability to provide controlled 'active' power (i.e. a controlled, usable increase or decrease in energy output) to the grid when required. These capabilities would then be available to AEMO if required in times of emergency.