



Government  
of South Australia

Department of  
State Development

2017/00406

Mr Brett Rowse  
Chairperson  
Essential Services Commission of South Australia  
GPO Box 2605  
ADELAIDE SA 5001

Dear Brett

The South Australian Government welcomes the opportunity to comment on ESCOSA's Inquiry into licensing arrangements under the Electricity Act 1996 for inverter connected generators.

The generation mix in South Australia has changed significantly over recent years. There has been a move away from large-scale, centrally-dispatched generation, with distributed and intermittent generation becoming more prevalent. The changing mix has given rise to new challenges that must be appropriately managed within an increasingly complex framework.

Services that have historically been provided by traditional synchronous generators, to balance supply and demand, are still required for power system security. However, maintaining these services, or procuring suitable alternative services, to ensure system security is becoming a complex matter, due to the increasing penetration of inverter connected generators and the withdrawal of traditional synchronous generators from the State.

Whilst the National Electricity Rules provide for performance standards for generators, these Rules have not been established to consider South Australia's specific generation mix. Accordingly, the South Australian Government considers that ESCOSA continues to have an important role in setting technical conditions to successfully integrate inverter connected generators into the South Australian power system.

The South Australian Government considers ESCOSA's current licence conditions for grid connection of wind power electricity are necessary to cater for the State's unique circumstances. In addition to retaining the current conditions, ESCOSA should give due consideration to AEMO's preliminary recommendations that there may be value in including additional requirements relating to:

- Frequency control;
- Rate of change of frequency;
- System strength; and

**Energy Markets and Programs**

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- Modifying the reactive power requirements to introduce a level of negotiation.

As South Australia's generation mix continues to transition to a low carbon future, other large-scale intermittent generation is likely to be installed in the State. Development approval is already being sought and in some cases has been provided for large-scale solar generation projects. As with wind power, it is important that licence conditions for other large-scale inverter connected generators include technical requirements which should apply to ensure the generators contribute to the security of the State's power system. It will be extremely important for ESCOSA to therefore consider AEMO's advice regarding extending the licence conditions to other technologies.

Given the inverter connected generators response during the 28 September 2016 event, there may be also be value in investigating whether fault ride through provisions are sufficient for AEMO to predict the system responses during an incident. AEMO advised that during the event many of the inverter connected generators did not ride through the six voltage disturbances, resulting in a loss of 445 MW of generation. Discussions with operators suggested that this was due to 'voltage ride-through' settings set to disconnect or reduce output when between three to six disturbances are detected within a defined time period.

The South Australian Government welcomes ESCOSA's inquiry as it will assist in identifying whether existing arrangements remain adequate to manage system security challenges arising from our transition to a carbon constrained future. To this end, the SA Government has submitted to the AEMC a package of four individual system security rule change requests, as follows:

- Managing high rates of change of frequency;
- Adequacy of emergency under-frequency control schemes;
- Adequacy of emergency over-frequency control schemes; and
- Managing network low fault levels.

These rule change requests seek to provide the necessary flexibility in the Rules for AEMO to manage security challenges that may emerge over time. The South Australian Government recommends that ESCOSA considers the principles of these requests when conducting their inquiry.

The issues paper indicated that wind generators currently comply with the different licence conditions that prevailed at the time of issue. With regard to whether this arrangement should continue or whether existing plant should be required to comply with changing license conditions, the South Australian Government notes that it is not unusual for energy industry organisations to comply with changes in rules and laws where reasonable consultation and assessment of the costs and benefits have been undertaken. Importantly, existing wind generators will be significant beneficiaries of a security power system, which the licence conditions seek to ensure. The South Australian Government therefore considers that the technical conditions which ESCOSA deem necessary to ensure the security of our power system should apply to new and existing wind generators.

I would like to encourage you to work with staff in the Energy Markets and Programs Branch towards achieving a clear and consistent framework that manages system

security and reliability effectively as we transition to a carbon constrained future. Please feel free to contact Ms Rebecca Knights, Director – Energy Markets, Energy Markets and Programs Division on (08) 8226 5500.

Yours sincerely



**Vince Duffy**  
Executive Director  
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