6 September 2019

Ms Anne Pearson
Chief Executive
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear Ms Pearson

ERP0057 Mechanisms to Enhance Resilience in the Power System – Review of South Australia Black System Event

Ergon Energy Corporation Limited (Ergon Energy) and Energex Limited (Energex) welcome the opportunity to provide comment to the Australian Energy Market Commission (AEMC) on its Mechanisms to Enhance Resilience in the Power System – Review of South Australia Black System Event – Discussion Paper.

This submission, which is available for publication, is provided by Ergon Energy and Energex as distribution network service providers operating in Queensland.

Should you require additional information or wish to discuss any aspect of this submission, please do not hesitate to contact myself or Barbara Neil on (07) 4432 8464.

Yours Sincerely

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Encl: Ergon Energy and Energex joint submission

Mechanisms to Enhance Resilience in the Power System – Review of South Australia Black System Event

Joint response to the AEMC's Discussion Paper

6 September 2019

Part of the Energy Queensland Group

Mechanisms to Enhance Resilience in the Power System – Review of South Australia Black System Event

ABOUT ERGON ENERGY

Ergon Energy Corporation Limited (Ergon Energy) is part of the Energy Queensland Group and manages an electricity distribution network which supplies electricity to more than 740,000 customers. Our vast operating area covers over one million square kilometres – around 97% of the state of Queensland – from the expanding coastal and rural population centres to the remote communities of outback Queensland and the Torres Strait.

Our electricity network consists of approximately 160,000 kilometres of powerlines and one million power poles, along with associated infrastructure such as major substations and power transformers.

We also own and operate 33 stand-alone power stations that provide supply to isolated communities across Queensland which are not connected to the main electricity grid.

ABOUT ENERGEX

Energex Limited (Energex) is part of the Energy Queensland Group and manages an electricity distribution network delivering world-class energy products and services to one of Australia's fastest growing communities – the South-East Queensland region.

We have been supplying electricity to Queenslanders for more than 100 years and today provide distribution services to almost 1.4 million domestic and business connections, delivering electricity to a population base of around 3.4 million people via 52,000km of overhead and underground network.

Mechanisms to Enhance Resilience in the Power System – Review of South Australia Black System Event

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Mechanisms to Enhance Resilience in the Power System – Review of South Australia Black System Event

1 INTRODUCTION

Ergon Energy Corporation Limited (Ergon Energy) and Energex Limited (Energex) welcome the opportunity to provide comment to the Australian Energy Market Commission on its Mechanisms to Enhance Resilience in the Power System – Review of South Australia Black System Event Discussion Paper (the Discussion Paper).

This submission, which is available for publication, is provided by Ergon Energy and Energex as distribution network service providers (DNSPs) operating in Queensland.

Ergon Energy and Energex are committed to providing:

- safe, reliable and affordable electricity supply;
- a great customer service experience;
- customers greater control over their energy consumption;
- efficient and sustainable energy solutions; and
- access to the next wave of energy linked innovative technologies and renewables.

We note the importance of DNSPs in extending security frameworks to manage risks associated with distributed energy resources (DER), load shedding, other contingency management activities and voltage constraints. Given this, Ergon Energy and Energex suggest the criticality of the role DNSPs play in managing the complex challenges of the low voltage (LV) network be recognised in work that the Australian Energy Market Operator (AEMO) is currently undertaking. Further, while we recognise the challenges associated with implementing the General Power System Risk Review (GPSRR) in DNSP processes, we recommend that DNSP knowledge is included in this review.

2 TABLE OF DETAILED COMMENTS

Discussion Paper Feedback Question	Ergon Energy and Energex response
Issue 1 – Assessment Frameworks	
Do stakeholders agree with the Commission's assessment framework?	While the National Electricity Objective (NEO) is technology neutral, technology does have an impact on certain risks due to weather events. As such, it is appropriate to consider technological constraints for any proposed solution. Additionally, the NEO does not consider time horizons. This means that development of generation that impacts system security may be faster than the system supporting the technology that is required. The NEO is also applied as an assessment lens for the Regulatory Determinations for NSPs. It is not clear that the financial benefits of any system resilience project can be clearly articulated in a cost-benefit analysis. As such, the NEO may not be the most appropriate assessment framework for all situations.
Issue 2 – Context and Background	
Do stakeholders agree with the staff view on the need to extend system security frameworks to clearly manage risks from indistinct events?	Ergon Energy and Energex agree that it is reasonable that the system security framework covers both failures of a single element and the loss of a larger number of dispersed elements. We note that while the avoidance phase is important, it must be managed with sufficient understanding of the system. Further, implementing a smarter system as suggested in the Consultation Paper, comes at a cost which must be allowed for in NSP revenue allowances. As an example, Ergon Energy and Energex have communications to many parts of their distribution areas, with a varying level of detailed visibility and control. Filling the gaps in network visibility and control is critical for a smarter network, particularly where a significant amount of embedded generation is present. For example, when aggregated, small-scale rooftop solar photo voltaic (PV) in Queensland represents more than 2GW of power, making it equivalent to the large coal-fired generators in the state.

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	The concept of traditional 'discrete' and non-traditional 'indistinct' frameworks may not cover the traditional 'discrete' events that lead to the tripping (otherwise known as 'shake-off') of significant quantities of rooftop solar. DNSPs such as Ergon Energy and Energex should be considered best placed to manage this DER/LV integration so that it is congruent with overall National Electricity Market (NEM) system security. This is because DNSPs have the active network management capability that must be integrated with the operation of DER to align to broader network operations and operational visibility of the network.
Issue 3 – Managing Variability Arising from Credible Indistinct Risks	
Do stakeholders agree that the criterion for a secure system requires amendments to account for risks arising from generation variability due to indistinct weather events?	Ergon Energy and Energex agree that the criterion should be holistic and consider all potential risks to the secure system.
How do stakeholders see a probabilistic approach being applied in practice and integrated into AEMO operational practices, such as forecasting and pre-dispatch?	For a probabilistic approach to be successful, robust parameters must be included in the calculations and 'likelihood' values. How the lack of reserve is quantified and identified will have a significant impact on costs through calling additional generation which is not required or allowing a shortfall to occur. It is understood that AEMO has already identified weather as being a key component of operational forecasting so successful refinement of assessment risk is essential in integrating a probabilistic approach. As noted earlier in our response, DNSPs have the systems and experience to manage distributed small-scale embedded generation and mitigate potential 'shake-off' effects.
What characteristics of variability should apply to the variability qualifying for management under system security arrangements (speed and significance)?	Ergon Energy and Energex suggest an envelope of criteria should be developed, considering: • Percentage of generation from micro-units; • Ability to load shed, considering local generation levels; • Local area constraints such as voltage limitations;

Discussion Paper Feedback Question	Ergon Energy and Energex response
	• Storm-front or bushfires; • Any single generation unit loss; • Loss of generation in a particular geographic area; • Interconnector flows; and • Small scale renewable 'shake-off' due a contingency event. Any one particular element may be insignificant, but when taken as a whole it should flag the system risk. Likewise, the timing could be variable for each element, but aggregate to a particular point where the system is at risk.
What governance arrangements and arrangements for transparency, such as the issuance of market notices, should apply to this process?	Ergon Energy and Energex suggest that any criteria for governance arrangements should be clear and well-articulated.
Issue 4 – Expanding the Existing Power System Frequency Risk Review	
What are stakeholder views on: • Incorporating all assessment of system service requirements (inertia and fault level) as part of the single risk review process? • Incorporating DNSPs as formal members of the process in order to capture risks associated with high levels of DER? • How an expanded GPSRR would be integrated with other AEMO planning processes, notably the ISP? • How the GPSRR should best facilitate a time efficient process of identifying risks and	• Ergon Energy and Energex suggest the risk review should include all relevant elements – if fault level and inertia will have an impact on security, they must be considered. • We agree that DNSPs should be included in discussions involving examinations of generation at risk, load shedding required to facilitate frequency or other contingency management activities, and voltage constraints in a particular area. • We suggest the GPSRR would feed in to the ISP as another input. However, the ISP is focused on the transmission network service provider (TNSP) network and may have gaps associated with system planning for DNSPs in some areas of some regions. • This depends on how granular the GPSRR is intended to be; if covering a detailed plan and identified risk profile for each relevant area, solutions could be directly raised. If it is more a

Discussion Paper Feedback Question	Ergon Energy and Energex response
implementing arrangements to manage those risks (through the declaration of a protected event, or RIT-T/D)? • How frequently should the GPSRR be published – would a yearly publishing requirement adequately balance the time required for AEMO to conduct a thorough review, against the need to regularly capture the changing risk profile of a transitioning power system?	general discussion and broad scope of risk, further work would be required to raise solutions or projects. • A NEM-wide review of GPSRR could be published annually. Brief notes or minor updates may be required for a particular area. It is unclear how this could be managed with DNSPs as this is a proposed new process that would require extensive forecasts and analysis in addition to existing DNSP functions and is not part of existing Regulatory Proposals. It is critical that detailed DNSP knowledge and analysis is included and thus it would be expected that appropriate funding would need to be extended to DNSPs to support this additional layer of analysis.
Issue 5 – Enhancing the Existing Protected Events Framework	
The governance arrangements for standing protected events and formal protected operation are equivalent to those currently in place for protected events: • Does this give AEMO sufficient ability to manage foreseeable security risks? • Does this provide appropriate oversight from the Panel? • Should additional requirements be included?	• Ergon Energy and Energex suggest more detail is required before it can be said that the proposed framework gives AEMO sufficient ability to manage security risks. • We suggest increased visibility, action and planning in the DNSP space is a capability that needs to be integrated into broader system capability rather than duplicated. Ergon Energy and Energex are currently involved in work with AEMO and Energy Networks Australia that will help to address the question of how DNSPs can contribute to broader system visibility and security.
The proposed arrangements give AEMO an ad-hoc power to declare a period of protected operation for indistinct events during abnormal conditions: • Does it give AEMO sufficient ability to manage unforeseeable security risks? • What information should be included in market notices?	Ergon Energy and Energex support AEMO having the ability to declare a period of protected operation during certain conditions without approval from the Panel. However, after an event, a full analysis should be provided to the Panel, including all information that was used to make a decision, including generation levels, weather events, load forecasts and interconnector flows. This would allow reasonable post-event analysis to determine whether appropriate actions were taken. We suggest there should be a strong link between the risks identified in the GPSRR and the actions taken for a particular event. Any new risks identified should then be rolled into the next GPSRR.

Discussion Paper Feedback Question	Ergon Energy and Energex response
• What post event reporting requirements should be placed on AEMO? • Are there sufficient links to the GPSRR? • Is additional oversight required (e.g. the Panel)?	
Issue 6 – Interconnector Standard	
What are stakeholder views on: • The value of and rationale for monitoring and reporting on interconnector flows? • The proposed approach to monitoring and reporting on interconnector flows? • The proposed role for the reliability panel in developing an interconnector flow standard?	Where a region is predominantly importing generation, interconnector flows become an indicator of potential risk. Interconnector flow in-and-of-itself is not a risk, but when taken into consideration with other potential risk factors, could be a problem. As such, it is suggested to instead examine the interconnector flow as part of a holistic examination of the risk on the network at any one particular time, rather than a prescriptive interconnector flow standard.