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Mr Sebastien Henry
Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235
Lodged electronically via www.aemc.com.au

System Security Market Frameworks Review (project reference code EPR0053, incorporating ERC0208, ERC0214 and ERC0211)

Dear Mr Henry

SEA Gas welcomes the opportunity to comment in response to the Commission's System Security Market Frameworks Review (the **Review**) Consultation Paper and the associated proposed rule amendments. Comments herein apply to all and any of the subject rule change requests and the Review.

Although SEA Gas is a gas transmission pipeline operator, it has a significant interest in the electricity market as a key provider of gas transmission services to power station operators, both in South Australia and Victoria. Inter alia, SEA Gas' ability to cater for rapid variations in short term gas supply is a critical enabler in the provision of frequency control services by gas-fired generators to support system security.

In relation to the Review, SEA Gas' general observations are as follows:

- The Australian energy market is experiencing a period of unprecedented change, driven by a number of factors including significant shifts in local dynamics plus more global effects such as increasing trends toward decarbonisation and advancements in technology. In entering such unchartered territory, it is prudent to maintain as much flexibility as possible and avoid locking into long term positions that may ultimately prove inefficient or ineffective as the environment further evolves.
- Given that the importance of inertia and system strength in maintaining system security has not warranted particular attention until recently, it stands to reason that distributed synchronous capacity (the traditional form of electricity generation) is a proven means by which both of these attributes can be readily achieved via current technology. SEA Gas understands that alternatives such as increased interconnection and fast frequency response may provide partial solutions but, for now at least, only go part way to addressing the issues that must be overcome.
- Absent any incentives, whether in the form of mandatory standards, price signals, or otherwise, there has previously been no motivation for parties to explicitly consider the ability of new technologies to deliver the full range of services that contribute to system security. Notwithstanding, technologies with such capabilities already exist, and AEMO has indicated that

potential technical solutions abound[1]. Establishing appropriate incentives, including access standards and price signals, should encourage interested parties to bring a range of potential technical solutions to the fore.

SEA Gas considers that strong incentives are required to ensure that all elements and services necessary to achieve a stable and secure system are delivered. Maintaining flexibility to enable those services that best meet evolving system requirements to be secured is likely to encourage appropriate market responses to emergent issues that threaten system security over time, thereby yielding the best outcomes for consumers.

SEA Gas considers the proposed rule amendments (project reference codes ERC0208, ERC0214 and ERC0211) each contribute towards this outcome; accordingly, SEA Gas supports each of these three proposed rule amendments.

SEA Gas' responses to the specific questions raised in the Consultation Paper are provided as an attachment.

I trust that SEA Gas' submission will be of assistance to the Commission in completing its Review. Should you wish to discuss any of the points raised, please contact Paul Frederick, Head of Business Development on (08) 8236 6823.

Yours sincerely

Wendy Oldham
Chief Executive Officer

[1] Slide 12 of AEMO's presentation "*What it means for industry and consumers, what it will achieve*", Future Power System Security Program Roadshow (August 2016).

ATTACHMENT

Question 1
Do you consider that the issues outlined above [in section 2.3.1 of the Consultation Paper] cover the matters that need to be considered going forward in managing changes in system frequency?

SEA Gas considers that, whilst the Consultation Paper generally documents the issues relevant to managing changes in system frequency, it falls short in highlighting the key matters that need to be focused upon in order to address current challenges to system security. SEA Gas believes such matters include the need to establish robust RoCoF standards and associated rule changes that will:

(i) require AEMO to manage RoCoF within the defined standards;

(ii) allow AEMO to acquire services such as inertia and/or fast response frequency control to limit the RoCoF; and

(iii) in certain situations, enable AEMO to take pre-emptive and proactive action to mitigate the potential consequences of events that may otherwise be considered non-credible.

Whilst acknowledging it may ultimately be determined that the particular circumstances in South Australia on 28 September were such that a black system event could not have been avoided, SEA Gas believes it highly probable that the consequences of similar events in the future may be able to be materially reduced if AEMO was empowered to pre-emptively and proactively manage potential threats, for example, by taking action to effect increased despatch of synchronous generation.

SEA Gas notes that materials recently published by AEMO[1] indicates that the AEMC is exploring the merits of introducing something similar to the "protected event" (being a non-credible event that warrants some level of management) category adopted in the United Kingdom.

SEA Gas considers that the "*Managing Power System Frequency*" proposed rule amendment (project reference code ERC0214) largely covers the above, and therefore supports that proposed rule amendment. In addition, SEA Gas considers that the concept of introducing something similar to the "protected event" category adopted in the United Kingdom, as discussed in point (iii), above, is a further, highly desirable, change that should be pursued.

Question 2
What do you consider to be the issues associated with low power system strength?

SEA Gas considers the key issues associated with low power system strength to be that:

- it is an issue that must be addressed at a local network level but has the potential expose the broader network to outages due to mal-operation of protection equipment;
- absent appropriate action, a continuing shift towards asynchronous generation is likely to further degrade system strength, in turn increasing the threat to overall system security;
- in their current form, access standards do not appear to ensure that adequate system strength is maintained; and
- there is a pressing need to address the fact that no party is currently responsible for setting fault levels and managing system strength within acceptable limits (accordingly, SEA Gas supports the proposed rule amendment "*Managing Power System Fault Levels*", project reference code ERC0211, which seeks to deal with this matter).

[1] Section 6 of AEMO's document "*Future Power System Security Roadshow – Questions and Discussion Points*" (August 2016).

Question 3
Do you consider it beneficial to set a standard for RoCoF? What format should this standard take and what factors should be taken into account when setting the standard? Who should set it?
Would the establishment of a new standard trigger significant additional costs to comply?

SEA Gas considers it beneficial to set a standard for RoCoF.

SEA Gas is not in a position to comment on what form the RoCoF standard should take. However, the standard should be designed to ensure the system is managed within a secure operating envelope by limiting the RoCoF during any:

(i) credible contingency event (and any "protected event" as contemplated in SEA Gas' response to Question 1) to a level that would avoid tripping generation or load; and

(ii) non-credible contingency event to ensure UFLS schemes remain effective and to avoid potential damage to equipment.

SEA Gas supports the proposed rule amendment "*Managing Power System Frequency*" (project reference code ERC0211) and agrees with the suggestion put forward therein that the standard for RoCoF should be set by the Reliability Panel.

SEA Gas believes that a new RoCoF standard is unlikely to impose undue additional costs to comply and, further, that the costs of compliance would compare favourably to the true economic costs of the alternative.

Question 4
What roles do you consider services such as inertia and fast frequency response should play in maintaining system security in the NEM? How else could RoCoF be managed?

SEA Gas considers that services such as inertia and fast frequency response play a critical role in maintaining system security. It is SEA Gas' understanding that these services:

(i) provide an effective first line of defence in managing frequency disturbances; and

(ii) otherwise limit RoCoF to ensure that fall-back protection schemes such as UFLS remain effective.

SEA Gas is doubtful that a single NEM-wide solution to managing RoCoF will be identified, instead it is more likely this will be achieved through a combination of approaches such as:

- synchronous inertia;
- fast frequency response;
- revised access standards;
- reduction of contingency size (including through adoption of a "protected event" category (refer SEA Gas' response to Question 1, above) and network augmentation and/or interconnection); and
- targeted deployment of fast detection devices.

the individual merits of which may vary, depending on specific circumstances at the time and particular region or section of the network in question.

Question 5
Do you consider it beneficial to establish new mechanisms for the procurement of additional systems security services?
What form of mechanism do you consider to be preferable and which services should the mechanism be targeted at?

SEA Gas considers it beneficial to establish new mechanisms for the procurement of additional system security services.

SEA Gas' view is that the preferred mechanism is that which most effectively delivers the necessary services in the timeframe required. To that end, SEA Gas supports the proposed rule amendments associated with the Review, and subscribes to the mechanisms and services put forward in "*Inertia Ancillary Services Market*" (project reference code ERC0208) and "*Managing Power System Frequency*" (project reference code ERC0214). Equally, SEA Gas would support alternative mechanisms, such as introduction of additional constraint equations, to the extent that the same are likely to deliver a timelier solution to particular issues requiring urgent attention.

Question 6
What form of cost recovery do you consider to be preferable in the design of a mechanism to procure additional system security services?
Should the cost recovery mechanism be designed to create stronger incentives to provide the required services?

SEA Gas believes that cost recovery mechanisms should be designed to create strong incentives to provide the required services.

In terms of amending rules in respect of the NEM as it currently exists, SEA Gas considers that a broad form of cost socialisation is most appropriate, such as the cost recovery mechanism put forward in the "*Inertia Ancillary Services Market*" proposed rule amendment (project reference code ERC0208). However, with regard to any subsequent changes to the status quo once revised rules are in place, SEA Gas believes that, to the extent possible, the approach should be one of causer pays.