



4 December 2018

Ms Audrey Zibelman
Chief Executive Officer
Australian Energy Market Operator
GPO Box 2008
MELBOURNE VIC 3001

Email: eges@aemo.com.au

Dear Ms Zibelman,

Emerging Generation and Energy Storage in the NEM – Stakeholder Paper

Energy Queensland Limited (Energy Queensland) welcomes the opportunity to provide comment to the Australian Energy Market Operator (AEMO), on its consultation on the *Emerging Generation and Energy Storage in the NEM – Stakeholder Paper*. This submission is provided by Energy Queensland, on behalf of its related entities Energex Limited (Energex), Ergon Energy Corporation Limited (Ergon Energy), Ergon Energy Queensland Limited (Ergon Energy Retail) and Yurika Pty Ltd (Yurika).

Energy Queensland has addressed the questions raised in the Stakeholder Paper in the attached response template.

Should you require additional information or wish to discuss any aspect of this submission, please do not hesitate to contact either myself on (07) 3851 6416 or Trudy Fraser on (07) 3851 6787.

Yours Sincerely

A handwritten signature in black ink, appearing to read "Jenny Doyle", with a stylized flourish at the end.

Jenny Doyle
General Manager Regulation and Pricing

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Email: jenny.doyle@energyq.com.au

Encl: Energy Queensland's submission to the Stakeholder Paper

Stakeholder Feedback Template

This template has been developed to enable stakeholders to provide their feedback on the Emerging Generation and Energy Storage stakeholder paper.

AEMO encourages stakeholders to use this template, so they can have due regard to the views expressed by stakeholders on each issue. Stakeholders should not feel obliged to answer each question, but rather address those issues of particular interest or concern.

Stakeholder submissions will be published on AEMO’s website unless they are clearly marked as being confidential. Submissions should be sent to eges@aemo.com.au by Day **DD MMM** 2018.

Organisation: Energy Queensland

Contact name: Jenny Doyle

Contact details (email / phone): jenny.doyle@energyq.com.au / (07) 3851 6416

Questions		Feedback
Section 2 – Energy Storage System (ESS) definition		
1	Do you have any views on whether a definition of ESS should be included in the National Electricity Rules (NER)?	Energy Queensland agrees there should be a definition of ESS, if this supports the creation of a market participant category for energy storage that reflects its unique characteristics and enables it to participate on an equitable basis with other participant categories. Notwithstanding, the creation of a new category and definition of ESS should be driven by customer needs/requirements.
2	Do you have any views on whether a definition of ESS should be generic and encompass technologies other than batteries, for example, pumped hydro?	Energy Queensland suggests that a definition of ESS should be broad enough to be agnostic to technology but specific enough to avoid any risk that it is confused for technology that is clearly not intended to be an ESS. Consideration should be given to the example of electric transport, which can charge (load) and discharge (generator) at different locations. There are also similar examples with hydrogen under various use cases.
3	Do you have any views on AEMO’s suggested definition of ESS?	Energy Queensland suggests the term ‘later’ may need defined boundaries. For example, a Capacitor Bank ‘stores’ electrical energy for later but usually the time constant is short. Further, there may be benefit in providing a clearer distinction between ‘in front of the meter’ and ‘behind the meter’ sources of load and energy

Questions		Feedback
		generation.
Section 2 – Integrating ESS		
4	Do you have any views on the appropriate participation model for integrating ESS into the NEM?	<p>Energy Queensland supports the creation of maximum flexibility in the arrangements for ESS participation to accommodate a range of potential business models that may arise as the market matures.</p> <p>However, we caution that regardless of which direction is taken, all sections of the NER that could be impacted by a change and broadly by defining of an ESS, need to be reviewed to ensure there are no unintended consequences.</p>
5	<p>Would the proposed aggregation model meet your future needs, both in terms of participating in the NEM with an individual ESS or where multiple resources (e.g. ESS and generating units) are to be aggregated?</p> <p>AEMO is particularly interested to understand the additional benefit that you would derive from aggregating hybrid systems and offering them to the market as a single resource that is not available by separately offering the components to the market.</p>	<p>Energy Queensland suggests that there should be flexibility to register as either of the separate categories (generation or load) or as a hybrid (particularly where there is a staged construction).</p> <p>Whilst the creation of a hybrid subcategory may be desirable in some use cases, the ability to operate/trade co-located (e.g. ESS, generation or load) individually should also be preserved.</p> <p>Notwithstanding, we note that a hybrid category may add a level of complexity, particularly in assessing the application which may delay connection. For example, if a solar farm wished to add battery storage at some point after the initial registration, requiring a change to a hybrid registration for the whole site would be considerably more complex than adding a scheduled registration for the load at that point in time. Further, it is unclear how the model would be impacted if the solar farm is partly non-scheduled and partly semi-scheduled.</p>
6	Do you have any views on AEMO’s proposed approach to implement a single participation model to integrate ESS and other ‘new’ business models into the NEM?	In reference to the example provided in the response to question 5 above, AEMO’s approach (stream 1 and stream 2) appears to provide a practical method of working through this.
7	Do you have any views on the key requirements AEMO has identified for an ESS participation model?	<p>Energy Queensland suggests more clarity is required around the technical requirements for hybrid class versus standalone ESS for performance standards and registration purposes to guide participants with project development.</p> <p>It is important to consider projects seeking to offset / reduce energy</p>

Questions		Feedback
		consumption through solar and ESS. Consideration should be made for technical requirements and performance standard requirements for projects with no export nor participation in the market. We suggest it may be possible to manage this with an agreed (more restrictive) operational mode instead.
Section 2 – NER recovery mechanisms		
4	Do you have any views on how to integrate ESS into the NEM's recovery mechanisms? If so, please provide them.	<p>Energy Queensland suggests that any recovery mechanism should treat ESS on an equitable basis with other participant categories.</p> <p>It is unclear whether Distribution Use of System will be considered in the same manner as Transmission Use of System. While market settlement appears to have been considered, the delineation of applicable network charges would also assist with project development and may influence the decision on connecting storage systems at the DC or AC level.</p>
Section 3.1 – The application of performance standards to a generating system or load in an exempt network		
5	Are there other options to address the issue identified for connecting plant in an exempt network?	Energy Queensland supports AEMO's proposed approach.
6	Are there other costs, risks and benefits associated with the options presented? If so, please indicate what these are.	<p>Energy Queensland suggests there may be a risk that an exempt manager is not able to identify non-compliant generators on their exempt network. We question whether in such cases, the connecting NSP would be empowered to disconnect the entire exempt network, which could affect more than one party, which may or may not be the causer of the problem.</p> <p>Energy Queensland seeks clarity on how this risk would be mitigated in the extreme scenario if there is dependent major Frequency Control Ancillary Services/ESS plant connected on the exempt network.</p>
7	Which option to address the issue is your preferred option? Why?	Nil comment.
Section 3.2 – Providing NEM information to project developers		
8	Should a person intending to develop or build a generating system or ESS (and not subsequently register as a Generator) be allowed to	Energy Queensland agrees that a person intending to develop or build a generating system or ESS (and not subsequently register as a Generator)

Questions		Feedback
	register as an Intending Participant?	should be allowed to register as an Intending Participant.
9	What is the market benefit associated with allowing a person intending to develop or build a generating system (and not subsequently register as a Generator) to be an Intending Participant?	This model could potentially result in faster generation coming in to the market. However, the provision of the necessary information is required to effectively plan, design and connect a new generating system.
10	Referring to section 3.5.3, are there other options to provide a person intending to develop or build a generating system (and not subsequently register as a Generator) with the necessary NEM data?	Energy Queensland believes that the proposed option is sufficient.
11	Are there other costs, risks and benefits associated with the options presented? If so, please indicate what these are.	For projects currently in progress, issues have emerged where the first ‘developer’ proponent has agreed to certain risks, which are not realised until much later in the project stage, and the subsequent purchaser of the project experiences financial loss and/or delay. It is recommended that risks are addressed earlier in the project to avoid this in the future.
Section 3.3 – Separation of operational and financial responsibility		
12	What is the market benefit associated with allowing the separation of operational and financial responsibilities?	The separation of operational and financial responsibility allows parties with different areas of expertise to concentrate on that area. That is, a technically skilled generation party would concentrate on the generation, while the financial party would concentrate on the market.
13	What are the risks associated with allowing the separation of operational and financial responsibilities?	There is a risk that there will not be a match in intention, information being miscommunicated and decisions being inconsistent. It must be very clear where the ultimate responsibility lies in the case of non-compliance or other incidents.
14	Are there other models of separate operational and financial responsibilities that should be considered?	Energy Queensland suggests it may be possible to combine this option with the aggregator model.
Section 3.4 – Logical metering arrangements		
15	What is the market benefit associated with using logical metering arrangements?	In addition to the benefits identified in the Consultation Paper, Energy Queensland suggests there may also be a reduction in costs.
16	What are the risks associated with allowing the use of logical metering	In addition to the risks identified in the Consultation Paper, Energy Queensland suggests there may also be an increased complexity of

Questions		Feedback
	arrangements?	arrangements.
17	If logical metering arrangements are permitted to be used instead of a NEM compliant metering installation, who should pay for this? Please identify any cost recovery arrangements that you consider appropriate.	Energy Queensland suggests a user-pays model is appropriate.
Other Comments		
23	Do you have any further comments?	Energy Queensland's DNSPs are already seeing significant interest in grid scale ESS. As they will likely continue to be connected on both the transmission and distribution networks, it is important to consider the technical limitations particularly on radial distribution networks which may have technical limitations and considerations that need to be integrated into any market design.