Meeting Notes – Emerging Generation and Energy Storage

MEETING: # 2

DATE: Thursday 8 March 2018

CONTACT: stakeholder.relations@aemo.com.au

ATTENDEES:

NAME	ORGANISATION	LOCATION
Ruth Guest (Facilitator)	AEMO	Melbourne
Emma Clarke (Secretary)	AEMO	Melbourne
Taryn Maroney	AEMO	Melbourne
Luke Robinson	AEMO	Melbourne
Jo Witters	AEMO	Sydney
Siobhan Attwood	AEMO	Brisbane
Chris Murphy	Powershop/Telstra	Melbourne
Piera Lorenz	Telstra	Melbourne
Sam Fyfield	Tilt Renewables	Melbourne
Stuart Reid	Tilt Renewables	Melbourne
Stephanie Bashir	AGL	Melbourne
Max Wilrath	Res Group	Melbourne
Deidre Rose	AusNet Services	Melbourne
Tim Biggar	EnergyQ	Brisbane
Victoria Mollard	AEMC	Sydney
Ben Davis	AEMC	Sydney
Patrick Dale	Lyon Solar	Sydney
Emma Fagan	Tesla	Sydney
Andrew Rogers	AGL	Sydney
Bruce Bennett	AGL	Sydney

1. Welcome and Introductions

Jo Witters (AEMO) gave a brief introduction and explained that the purpose of the work on emerging generation and energy storage is to enhance the existing NEM arrangements to:

- facilitate and support efficient participation of emerging generation and energy storage
- efficiently integrate technologies on the basis of technical requirements and capability of technology
- improve process and system efficiency by ensuring they are flexible, robust and transparent.

Ruth Guest (AEMO) welcomed stakeholders to the second meeting regarding Emerging Generation and Energy Storage.

2. Administration

Ruth Guest, Taryn Maroney and Luke Robinson presented AEMO's key initiatives in response to key stakeholder themes raised at the previous meeting (8 December 2017), including:

- future emerging generation and energy storage arrangements
- improving stakeholder communication and information
- improving co-ordination and processes.

3. Overview of the proposed scenarios

The emerging generation and energy storage scenarios (refer to the presentation) were discussed during the session and stakeholders provided their perspectives and experiences. The scenarios were provided to assist develop a shared view and understanding of the challenges and current limitations under the existing NEM arrangements.

Stakeholders agreed the scenarios represented the types of configurations to be accommodated in the future.

Stakeholders identified:

- it may be preferable to use terminology such as 'intermittent' or 'non-synchronous' rather than wind and solar so that any frameworks being developed to accommodate emerging generation and battery storage are energy neutral
- clarification is needed as to who would be the financially responsible Market Participant (FRMP) for a generating unit at the metering level, e.g. separate FRMP for separate elements of the generating system from the registered participant
- stakeholders requested that an additional scenario of synchronous generation and energy storage be included.
- the Reliability and Emergency Reserve Trader (RERT) technical requirements need to be more clearly defined to allow stakeholders to assess whether the service can be provided by battery systems.

Action Item # 3.1

Taryn Maroney spoke to the specific scenarios (refer to the presentation). The key challenges associated with each of the scenarios that need to be further understood or clarified are noted below.

<u>Scenario 1 – Hybrid: wind, battery and load</u>

- Effectiveness of the operation of batteries at different stages of charge – how to make use of state of charge information for batteries.
- Understand the impacts and requirements of large scale generation certificates (LGC) with respect to hybrid arrangements and batteries charging from within the generating system. Are LGC created at the point of generation?
- Requirements for one marginal loss factor (MLF) to be applied if a battery is being used for generation and another if the battery is being used for storage, i.e. dual MLFs.
- Clarify AEMO's National Electricity Rules (NER) interpretation regarding registering one NMI in two participant categories for batteries 5MW and above. Also, in this situation, what prevents the transfer of the NMI for the market load.

Action Item # 3.2

- There may be a need to delineate power flows relating to auxiliary loads and batteries for the purpose of transmission use of system (TUoS) calculations.

<u>Scenario 2 – Hybrid: solar, battery and wind</u>

- Clarify current registration requirements of a specific case regarding multiple generating units that have different technology types.

Action Item # 3.3

- Network charging impacts (dependent on local Transmission Network Service Provider policies).

<u>Scenario 3 – Wind and battery (not charging from the NEM)</u>

- Options for managing batteries that do not charge from the NEM. These do not need to be registered as a Market Customer but may be required to take part in central dispatch as if they were a scheduled load.

4. Battery and hybrid experience

AEMO's recent experience in registering and connecting battery and hybrid generation was discussed. The following items, which require investigation, were raised during the discussion:

Experience, challenges and opportunities

- The level of flexibility that is possible in relation to a 45 degree linear ramp rate.
- Controlling batteries as dispatchable generation and scheduled load.
- The rationale for scheduling the load component of a battery when other loads are not required to be scheduled.
- Clarifying the registration requirements for a bank of batteries (5 MW and above) being charged from the NEM, but not discharging into the NEM, that are used for business purposes.

  Action Item # 3.4
- Enabling the option of batteries being dispatched in a single dispatch bid rather than as a load and generation pair.
- Whether the NER should allow Performance Standards (PS) to apply to connection points within embedded networks.
- Removing the limitations in our dispatch systems to aggregate forecasting of different technologies, e.g. wind and solar generating units.
- The need to ensure that work being done in relation to distributed energy resources considers and is aligned with this work stream, including aggregations under Small Generator Aggregators (SGA).
- Considering the appropriateness of the Market Ancillary Services Specification (MASS) in the context of the services that batteries provide.

5. Next steps and meeting close

AEMO's next steps are to consider stakeholder issues and ideas together with its learnings from operational experience in registering new generating systems. These will be used to develop key policy and IT options. AEMO will hold the next stakeholder meeting when a draft strawman can be presented for discussion and stakeholder feedback.

The meeting was closed at 4.30 pm AEDT.

Emerging Generation and Energy Storage Action Items

Item	Date Raised	Topic	Action required	Responsible	By	Status
3.1	8 March 2018	Reliability and Reserve Trader (RERT)	Communicate feedback internally that Reliability and Emergency Reserve Trader (RERT) technical requirements need to be more clearly defined to allow stakeholders to assess whether the service can be provided by battery systems	Taryn Maroney	May 2018	Completed
3.2	8 March 2018	Registration	Clarify AEMO's National Electricity Rules (NER) interpretation regarding registering one NMI in two participant categories for batteries 5 MW and above.	Ruth Guest (AEMO)	May 2018	Completed
3.3	8 March 2018	Registration	Clarify registration requirements of a specific case regarding multiple generating units	Taryn Maroney (AEMO)	April 2018	Completed
3.4	8 March 2018	Registration	Clarifying the registration requirements for a bank of batteries (5 MW and above) being charged from the NEM, but not discharging into the NEM, that are used for business purposes	Ruth Guest (AEMO)	May 2018	In progress