

12 April 2017

Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

Generating System Model Guidelines Consultation on Request for Rule Change

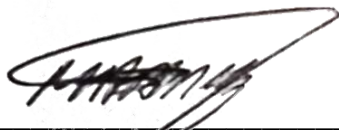
Vestas welcomes the opportunity to make a submission to the Australian Energy Market Commission's (AEMC)'s consultation on the proposed rule change submitted by AEMO.

Vestas is the world's leading supplier of wind power solutions, having installed close to 82 GW of wind turbines in 76 countries across the globe. Vestas is also a member of the Clean Energy Council (CEC).

Vestas is pleased to submit the attached document outlining our comments.

Please feel free to contact us should you require further information or other supporting documents.

Yours sincerely,



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Consultation Paper: National Electricity Amendment (Generating System Model Guidelines) Rule 2017

BoP Engineering Comments

4th April 2017

Major Points to Engage

***Consultation Paper:
National Electricity Amendment
(Generating System Model Guidelines) Rule 2017***

Issue 1.1: Are changing power system conditions impacting on the ability of AEMO, and other parties, to accurately model the power system?

Vestas Response:

It is acknowledged that changing power system conditions will result in certain system performance and response changes, but Vestas does not believe these changes will impact AEMO's ability to accurately model the power system. Vestas believes the models provided by Vestas are sufficient and adequate to operate under different power system conditions.

Major Points to Engage

Consultation Paper: National Electricity Amendment (Generating System Model Guidelines) Rule 2017

Issue 6.

13: Should third parties have access to EMT-type model

Vestas Response:

Third parties can access black-box (encrypted) EMT-type model on a need to know basis with specific NDA agreed and signed with Vestas.

15: Should EMT-Type model data be provided only to AEMO, or should NSPs also have access ?

Vestas Response:

Vestas position is always that only black-box (encrypted) EMT-model be provided on a need to know basis with specific NDA/ confidentiality agreement /clause signed or agreement with parties that require the information/model.

Major Points to Engage

Consultation Paper: National Electricity Amendment (Generating System Model Guidelines) Rule 2017

Issue 3

8: What data provision requirement should apply to a generator that is halfway through the connection process, when new data provision requirements are introduced.

Vestas Response:

Vestas believes for generator that is halfway through the connection process, old data provision requirements should apply. Applying the new data provision requirements will significantly delay the connection process, which could result significant financial impacts.

9: Could the cost of any new data provision requirements form a barrier to entry for new participants

Vestas Response:

Vestas believes a clear process that define what data/new data is required under what scenario is needed, otherwise it could act as a form of barrier.

Minor Points to Engage

Consultation Paper: National Electricity Amendment (Generating System Model Guidelines) Rule 2017

Issue 1

2: Given any such impacts, do existing NER requirements for the provision of model data remain sufficient for parties to undertake effective power system studies

Vestas Response:

Vestas believes given such impacts, the current provision of model data remain sufficient for AEMO to undertake effective power system studies.

Issue 1.

3: Is it necessary to amend the NER to place more explicitly defined the obligation on participant to provide specific modelling data to AEMO

Vestas Response:

Vestas believes the current rule is sufficient.

Minor Points to Engage

Consultation Paper: National Electricity Amendment (Generating System Model Guidelines) Rule 2017

Issue 2

1 Does AEMO have scope to gather sufficient information under existing NEL/NER provisions ?

Vestas Response:

Vestas acknowledges AEMO's needs for requesting more detailed information (EMT model) under the rule of information gathering power. These detailed information such as the EMT model can only be shared with AEMO in the form of blackbox (encrypted) model and on a need to know basis. The EMT model can not be shared to any other third parties unless the third party has a specific NDA signed and agreed with Vestas.

Issue 2

2: Is the solution proposed appropriate ?

Vestas Response:

As above.

Minor Points to Engage

Consultation Paper: National Electricity Amendment (Generating System Model Guidelines) Rule 2017

Issue 3

6: What are the likely costs for participants of providing a broader scope of modelling data, or more detailed EMT-type models, to AEMO /

Vestas Response:

Generally speaking, the cost of developing EMT-type models varies and depends on the requirement and scope of work.

Issue 3

7: Is there a difference in costs if an EMT-type model is requested before connection, or required retrospectively after the connection is completed

Vestas Response:

No Comment.

Minor Points to Engage

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Issue 3

8: What data provision requirement should apply to a generator that is halfway through the connection process, when new data provision requirements are introduced.

Vestas Response:

Vestas believes for generator that is halfway through the connection process, old data provision requirements should be followed.

9: Could the cost of any new data provision requirements form a barrier to entry for new participants

Vestas Response:

It is sometimes unclear what level of data provision is required and under what process and circumstance these additional data provision will be required. In such cases, it could be a barrier for the new participants.

Minor Points to Engage

Consultation Paper: National Electricity Amendment (Generating System Model Guidelines) Rule 2017

Issue 4

10 Are there any restrictions associated with providing data of the type contemplated in the rule change request?

Vestas Response:

There are two points here;

- 1) In general the generator/asset owner will negotiate as part of their supply agreement that all required models need to be submitted.
- 2) This will only become a barrier/restriction if the detailed model is to be shared with a third party that does not have a specific NDA with Vestas.

Minor Points to Engage

Consultation Paper: National Electricity Amendment (Generating System Model Guidelines) Rule 2017

Issue 5

11 Should AEMO be able to request additional modelling data from existing generators who are already registered and have executed connection agreements ?

Vestas Response:

Vestas would like to help AEMO to have a better understanding of the performance of our equipment and its impact on the system. However, Vestas can only provide those additional modelling data on a need to know basis and in the case of EMT-type model, only in black-box (encrypted) format.

12 Does the rule change request and the proposed rule provide sufficient guidance or clarity regarding what circumstances AEMO may require additional model data from existing participants

Vestas Response:

Again, Vestas acknowledges the need for AEMO to require additional model data from existing participants, but it is not clear to Vestas under what circumstances or conditions that AEMO may require additional data. Vestas' position is always that detail model data can be provided on a need to know basis and in the case of EMT-type model, only available in black-box (encrypted) format.

Minor Points to Engage

Consultation Paper: National Electricity Amendment (Generating System Model Guidelines) Rule 2017

Issue 6

14 What information should be made available to third parties ? Would encryption of this data provide sufficient protection to address issues related to commercial sensitivity of the data

Vestas Response:

Only blackbox (encrypted) RMS-model can be share with third parties on a need to know basis. Any detailed information related to EMT-type model can only be provided in blackbox (encrypted) format on a need to know basis with NDA signed and agreed between Vestas and the third parties.

16 Does the rule change request and the proposed rule provide sufficient guidance or clarity regarding what circumstances AEMO may require additional model data from existing participants

Vestas Response:

Vestas acknowledges the need for AMEO to require additional model data from existing participants, but it is not clear to Vestas under what circumstances or conditions that AEMO may require additional data. Vestas' position is always that detail model data can be provided on a need to know basis and in the case of EMT-type model, only available in black-box (encrypted) format.



Electricity Rule Change Proposal Rule Change Submission for Revision of AEMO's Generating System Model

BoP Engineering Comments

4th April 2017

Comments

Electricity Rule Change Proposal
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Generating System Model

Section: 3.5.2 Harmonic Model requirements

Vestas Comments:

Vestas believes that the most appropriate simulation models for Harmonic studies is to use a voltage/current injection with impedance scan, which can be done in both PowerFactory and PSCAD. However, using PSCAD turbine models to emulate this behavior could result in inaccurate performance, due to both the complexity of the PWM switching strategy and the consideration of cancelation factors.

Comments

Electricity Rule Change Proposal
Rule Change Submission for Revision of AEMO's
Generating System Model

Section: 3.6.1 Model Requirement for fault level studies

Vestas Comments:

Vestas believes the current model provided is sufficient enough to calculate fault contribution level.

Major Points to Engage

Electricity Rule Change Proposal
Rule Change Submission for Revision of AEMO's
Generating System Model

Section: S5.2.4 Provision of information

Vestas Comments:

Vestas will not provide unencrypted form for EMT type model. An encrypted/black-box EMT type model can only be provided on a need to know basis with NDA signed between Vestas and the third party.