

AEMO REVIEW OF TECHNICAL REQUIREMENTS FOR CONNECTION UNDER SCHEDULES 5.2, 5.3 AND 5.3A OF THE NATIONAL ELECTRICITY RULES

24 APRIL 2023

INTRODUCTION

The Energy Users' Association of Australia (EUAA) is the peak body representing Australian commercial and industrial energy users. Our membership covers a broad cross section of the Australian economy including significant retail, manufacturing, building materials and food processing industries. Combined our members employ over 1 million Australians, pay billions in energy bills every year and in many cases are exposed to the fluctuations and challenges of international trade.

Thank you for the opportunity to make a submission under the Review of Technical Requirements for Connection Under Schedules 5.2, 5.3 and 5.3A of the National Electricity Rules Draft Paper.

The EUAA acknowledges the necessity to update connection rules as new technologies are adopted by market participants. EUAA's support is provided where rule changes are made to improve the efficiency of markets, improve system security and where the costs and risks are allocated to those best able to manage them.

Schedule 5.2 Generator Recommendations

Application of Schedule 5.2 based on plant type instead of registered category and extension to synchronous generators

The EUAA supports the inclusion of synchronous condensers in the rules pertaining to performance standards as well as the shift to plant type instead of registration category. By recognising the specific characteristics and limitations of different generator types, the EUAA believes that these changes will ultimately lead to a more secure energy system.

However, care must be taken in ensuring that the term chosen (connected participant or registered participant) to replace the current terms (Generator and Integrated Resource Providers) does not inadvertently confer these rules intended for Generators and network service providers on other categories of Registered Participant such as "Customer" (Schedule 2.3 of the NER).

The EUAA recommends that if either of the proposed terms "Registered Participant" or "connected participant" is used to replace Generators and Integrated Resource Providers, that a list of exempt Registered Participants per Chapter 2 of the NER is included.

Treatment of reactive power capability considering temperature derating

EUAA recommends that reactive power temperature derating should be considered in terms of the actual conditions observed by the generation system and not defaulted to the manufacturers specifications for the ambient conditions on the day. For example, hydro generation located underground and inverter-based generation in an air-conditioned environment are not exposed to ambient temperature and thus derating on the basis of ambient temperature and manufacturer specifications is irrelevant. Using the irrelevant figures could trigger unnecessary market interventions creating unnecessary anxiety for consumers and reduces the consumers' confidence in AEMO's role as market operator. For the purpose of market clarity, AEMO could consider exempting generators with climate-controlled environments from the requirement of providing derating data.

Simplifying standards for small connections

The EUAA supports simplifying the connection process for small generator connections up to 30MW. The EUAA is aware of some developers avoiding the complicated connections process for generators less than 30MW by splitting installations into many 4.9MW facilities, which do not require network modelling and do not meet the NER's monitoring and control requirements. EUAA anticipates that by simplifying the connection process for generators less than 30MW, a market signal will be sent to the sub 5MW developers to create larger installations. However, care must be taken to ensure that developers do not split facilities larger than 30MW to meet the proposed simplified connections process for sub-30MW facilities.

Requirements for overvoltage above 130%

The EUAA agrees that none of the proposed options fully cover the different causes of overvoltage above 130%. The EUAA considers that where a generator is exposed to overvoltage above 130%, and this is caused by:

- network infrastructure: the NSP should be the participant that investigates and remediates the cause;
- the generator: the generator should investigate and remediate the cause, and
- a juxtaposition of generators and/or network infrastructure then AEMO should investigate and determine the cause and direct the remediation to the appropriate participant(s).

The EUAA recommends that more work and discussions are needed before a rule or rules are drafted for consideration to define these separate events separately, and not under one definition. The EUAA considers this as each cause for overvoltage has quite different causes and participants responsible. By separately defining each event the responsible participant and action required will be clear.

Reactive Currents

The EUAA supports AEMO's recommended approaches to reactive power to improve system stability.

Reclassified contingency events

The EUAA supports AEMO in removing the current situation whereby generators must ride through a non-credible contingency event, even when reclassified as a credible contingency event. However, the EUAA recommends that further discussion is needed before expanding the credible contingency reference by reference to specify credible contingency events selected by the NSPs. The EUAA considers this is the role of the market operator, AEMO, and not the NSPs.

Emergency over frequency response

The EUAA supports AEMO's proposed amendments to bring the emergency over frequency response in line with the Rapid Frequency Response rules.

Schedule 5.3a Market Network Service Providers (MNSP)

Introduction to the Schedule

The EUAA supports the decoupling of HVDC systems from the broad category of MNSP. EUAA understands that HVDC connections will become more commonplace (through interconnectors and offshore wind farms) and provision of their own registration category will allow AEMO to better manage the technical performance and their contribution to system security and operation of the market. Specifically, EUAA supports AEMO's proposed alignments of HVDC connections with the connection requirements for generators through Schedule 5.2 with respect to reactive power, voltage disturbances, frequency disturbances, fault ride-through requirements and monitoring and control requirements.

In addition to the above commentary, the EUAA recommends that AEMO and/or the AEMC consider that the minimum standard for inverter-based generation is reviewed to align with modern inverters. EUAA believes this will reduce the need for the requirements for specific clauses in the NER. For example, specifying a minimum standard comparable to the grid forming inverters that respond to voltage, will react and correct over- and under-voltage conditions and frequency variations quicker than the current proposed changes to Schedule 5.2 above. In this way, and similar to the proposed changes to Schedule 5.3, AEMO can better manage inverter-based contributions to the market and system security into the future when it is expected that high percentages of generation are provided through inverter based variable renewable energy.

As raised in the introduction to this submission, the EUAA maintains that rule changes should only be made to improve the efficiency of the electricity market, improve system security and to clarify the allocation of cost and risks to those best able to manage them. While consumers are becoming more involved in energy markets it is in many cases by necessity rather than choice and is a step away from their core business. We would be very concerned if customers were inadvertently and unfairly required to behave as generators or networks under these proposed rule changes.

Do not hesitate to be in contact should you have any questions.



Andrew Richards
Chief Executive Officer