



Generator technical performance standards draft rule

Publication of a draft rule on technical performance standards

The Commission has made a draft rule to change the way levels of technical performance are set for equipment connecting to the power system, particularly new generating systems. This draft rule is made in response to a rule change request submitted by the Australian Energy Market Operator (AEMO).

Draft rule

The energy mix is changing and this is creating new challenges when it comes to managing the power system efficiently. In particular, the ability to effectively control frequency and voltage on the power system so that it remains in a secure state is diminishing as synchronous generating systems exit the market and new asynchronous generating systems and distributed energy resources enter the market.

The energy mix will continue to change, and so will the way the system is managed. The draft rule supports these changes by improving and clarifying the negotiating process for connections. Under the draft rule negotiations can occur more efficiently so that each connection has a level of performance that balances system security, quality of supply and cost. The draft rule also changes the technical requirements for connecting generators to be able to:

- control their active power output, to limit their contribution to frequency and voltage disturbances
- supply and absorb reactive power for the control of voltage where this service is needed on the power system
- inject and absorb reactive current during disturbances, and
- maintain operation in the face of certain frequency and voltage disturbances (including faults and contingency events).

Stakeholders are encouraged to make a submission to the draft determination by 13 July 2018.

Background to the connection process and technical requirements

The access standards for generators connecting to the power system relate to a wide range of technical requirements and are set out in Schedule 5.2 to the National Electricity Rules (NER). The access standards in the NER can be viewed as the reference points used for negotiations between connection applicants, the network service provider and, where relevant, AEMO, to set the specific levels of technical performance of equipment that connects to the power system.

For any given technical requirement, a connection applicant can propose to connect at the level set out in an automatic access standard, or propose a negotiated access standard that is at or above the minimum access standard. Where the automatic access standard is proposed by a connection applicant, the equipment will not be denied access to the grid because of that technical requirement.

Where a negotiated access standard is proposed, the applicant and network service provider negotiate a level of performance for that technical requirement. AEMO advises the network service provider for some access standards, called "AEMO advisory matters." The network service provider must reject a proposed negotiated access standard if, among other things, AEMO advises it would adversely affect power system security or the network service provider considers it would adversely affect the quality of supply to other network users. Equipment that does not meet the minimum access standard will be denied access.

The levels of performance set through this process (the automatic access standard or other standard agreed by negotiation) become the performance standards applicable to the specific connected equipment. Those performance standards form part of the terms and conditions of the connection agreement between the connection applicant and the network service provider.

Technical connection requirements for connecting generators are one of the tools available to protect system security. In addition AEMO and NSPs have a range of other tools available to manage the power system day to day and in emergencies. These include the design and augmentation of networks and use of network support services, the operation of the power system and the constraints applied, and the use of ancillary services.

Reasons for the draft rule

In its rule change request, AEMO considered that the current process to negotiate access standards, and the access standards for generators, are no longer adequate to ensure the ongoing security of the evolving power system. AEMO therefore proposed changes to:

- the negotiating process used to set the levels of performance required of all equipment connecting to the power system, and
- a number of access standards for connecting generating systems, including those relating to active power capability and control, reactive power capability and control, reactive current response during disturbances, and the access standards related to the ability to maintain operation in the face of certain disturbances and low system strength conditions.

The Commission agrees with AEMO that a changing energy mix is creating new challenges for the efficient management of the power system in a secure state. In particular, the ability to effectively control frequency and voltage on the power system is diminishing as synchronous generating systems exit the market and new asynchronous generating systems and distributed energy sources replace them. The current negotiating process and generator access standards in the NER are no longer appropriate to address these challenges.

The Commission's draft rule accepts many of AEMO's proposed changes, and amends or rejects others where it considers it in the long term interests of consumers. In coming to its decision, the Commission has considered: what arrangements are required to maintain power system security and the quality of supply at least cost to consumers, allocate costs and risks to those parties that are best placed to manage them, provide the right balance between regulatory certainty and having sufficient flexibility in regulatory arrangements, and that access standards should not represent an inefficient barrier to entry for any technology type.

Transitional arrangements

A significant number of connection applications are currently before network service providers and AEMO. The draft rule proposes transitional arrangements that would introduce all of these requirements as soon as possible, balancing the risks of delay to the efficient operation of the power system in a secure state with the risks to investment certainty potentially created by a more rapid transition to the new rules.

The Commission's draft rule therefore:

- would commence on the date that is 8 weeks after the date of the final determination, and
- for negotiations that on the date of commencement have a full set of access standards agreed for a proposed connection, allows for the access standards for the project to be based on the rules that were in force immediately prior to the commencement date.

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