National Electricity Amendment (Generator Technical Performance Standards) Rule 2017 (ERC0222)

Alinta Energy

Submission

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1. Introduction

Alinta Energy (**Alinta**) welcomes the opportunity to provide a submission to the Australian Energy Market Commission's (**AEMC**) *Generator Technical Performance Standards Rule 2017*.

Alinta is both a generator and retailer of electricity and gas in the east and west coast energy markets. Alinta has an owned and contracted generation portfolio of 1957MW, including 1700MW of gas-fired generation facilities, and in excess of 800,000 customers including more than 250,000 in east coast markets. Under the implementation of the Generator Technical Performance Standards rule change, Alinta expects both our existing generator portfolio fleet and future green-field generator projects to be directly impacted.

Alinta is cognisant of the challenges facing the National Electricity Market (**NEM**) and the Australian Energy Market Operator (**AEMO**) given the non-trivial task of integrating an unprecedented and increasing proportion of variable renewable energy into the power system.

Nonetheless, Alinta holds concerns that some of changes as proposed by AEMO in the rule change will be technically burdensome in practise and are disproportionate to the problem. Alinta is therefore concerned that the rule change, if implemented in its current form, could potentially result in excessive costs being added to the development of new generator connections, and therefore increase the costs to the end consumer.

As such, Alinta considers it critical that the AEMC seek to pragmatically balance system security in the NEM with the costs participants will face in complying with the proposed amended generator technical performance standards while identifying the appropriate generator technical performance standards to address the issues facing the NEM today.

The rationale for Alinta's concerns is outlined in further detail in section 2.

1.1 Preface Note – NEM Jurisdictions Only

The views expressed in Alinta Energy's submission below are provided in the context that the rule change would be implemented within NEM state jurisdictions only, and not be replicated in other Australian jurisdictions, such as Western Australia.

In Alinta Energy's view the non-NEM jurisdictions have fundamentally unique generation markets and network system arrangements, and as such the reforms proposed within this Generator Technical Performance Standards Rule Change could not be implemented in non-NEM jurisdictions on a like for like basis without significant thought as to the specific network issues in Western Australia.

If the rule change is sought to be applied to jurisdictions other than the NEM state jurisdictions, Alinta Energy reserves its rights to reconsider specific technical standards and requirements in the Western Australian context.

2. Alinta's key issues

2.1 Proposed transitional arrangements

Alinta notes that AEMO has proposed to apply the new technical standards and negotiating process changes contemplated in the rule change proposal to all performance standards

that were not agreed by the date the rule change request was submitted (11 August 2017), even if the agreed performance standards result from a connection application that was made before any new rule comes into effect. Alinta does not support this proposal, particularly noting its concerns in sections 2.3 to 2.7 below. This is on the basis that the proposed rule change will only come into force at some time in the future and therefore the access standards should not apply retrospectively to connection applications lodged prior to the enactment of the rule change. Alinta is concerned that the transitional arrangements proposed by AEMO could have significant impacts on investments already planned or committed. As such, Alinta supports the AEMC carefully considering both the legal and policy implications of the transitional arrangements that apply for any amending rule that is made.

2.2 Applicability of revised access standards to existing generators

AEMO has noted that, based on current policy, the revised access standards would only apply to new generating systems; The rule change request however suggests that there should be consideration of whether the additional capabilities should also be sought from existing generation. Broadly, Alinta does not agree that existing generators should have their standards modified (unless the generation plant is subject to material reconfiguration) and suffer additional costs – which will ultimately be passed onto end consumers.

2.3 System Strength

(Clause S5.2.5.3)

Alinta notes that the draft rule change proposes a new access standard:

"*the minimum access standard is a generating system and each of its generating units must be capable of continuous uninterrupted operation for any short circuit ratio to a minimum of 3.0 at the connection point.*"

As noted in section 2.2, Alinta understands that this new access standard would represent the new minimum requirement for all newly connecting generators, and that any existing generation plant already connected would remain exempt. Alinta is supportive of the requirements only applying to newly connected generation plant, and suggests that it be explicitly clear that existing generation plant will continue to remain exempt going forward.

2.4 Disturbance Ride Through

(Clause S5.2.5.5)

Alinta notes that the draft rule proposes to introduce a new set of additional clauses specifying rise and settling time, and reactive and active power consumption upon the occurrence of a fault:

1) "*the reactive current response must have a rise time of no greater than 30 milliseconds, a settling time of no greater than 60 milliseconds and must be adequately damped*"; and

2) "*any reactive power consumption immediately upon the occurrence of a fault must not exceed 5% of the maximum continuous current of the generating system and is limited to the duration of rise time".*

Alinta is of the view that these two clauses are technically challenging and would struggle to be implemented in practise. In Alinta's experience, modelling/simulating rise and settling time and reactive power (within the parameters specified above), is an exceptionally challenging task to undertake. In light of the practical challenges associated with the modelling, Alinta suggests these two clauses should be reviewed to make them more reasonably implementable.

(Clause S5.2.5.4)

The rule change proposes to require generation plant to maintain the continuous uninterrupted operation for a specified time range, as a function of the degree of over-voltage when it occurs (over the 110% normal reference standard).

Alinta would caution that this proposed requirement, for the specified over-voltage magnitude time periods, could potentially lead to transformer and generation plant damage if undertaken in practise. As part of the next stage of the consultation process, Alinta suggests that the AEMC should direct AEMO to undertake modelling and analysis on considering the potential network / generation plant damage this requirement inadvertently may cause.

(Clause S5.2.5.5)

The rule change proposes the addition of the following criteria regarding transient active power consumption upon application of a fault:

"*any active power consumption immediately upon the occurrence of a fault must not exceed 5% of the maximum continuous current of the generating system and is limited to 20 milliseconds*."

In Alinta's view this criterion has been drafted too broadly and requires clarification as in practise this criterion would be applied against every generator in the NEM. A more preferable arrangement may be to only apply this clause against generators on a case by case basis in regard to the specific technical condition of the generation plant and the specific region of the network system they are connected to.

2.5 Voltage Control

(Clause S5.2.5.1)

The rule change proposes to remove the existing provision which states: "*that no capability is required to supply or absorb reactive power at the connection point*" and to replace it with a requirement to supply and absorb continuously an amount of reactive power set at the voltage set point range as specified in the performance standard.

In Alinta's experience the requirement to supply and absorb reactive power continuously is highly dependent on each specific generation plant type, and in some cases may not be achievable without additional equipment being installed and connected. As such, Alinta suggests that this clause should only apply on a case by case basis as determined by AEMO from a connected system perspective level, as opposed to on a specific generator level.

(Clause S5.2.5.13)

Alinta notes that AEMO proposes to add additional requirements to reduce the settling time for asynchronous generation plant of over 30MW to 5 Seconds (previously 7.5 seconds) for a 5% voltage disturbance. Additionally, the proposed rule change requires such systems to

have reactive power rise time, for a 5% step change in the voltage set point, of less than 5 seconds.

In Alinta's view these new obligation will result in generation plant being forced to procure additional hardware as most existing generation packages will not be able to meet the new requirements unless supported by additional power electronics packages or alternate technical means.

As such, Alinta suggests that the AEMC's analysis should focus adequate attention to the additional costs which may be borne by participants in meeting the proposed requirements.

2.6 Active Power Control Requirements

(Clause S5.2.5.11)

The rule change proposes to include a new set of general technical requirements regarding the active power response to frequency disturbances. Alinta does not agree with the proposed new set of additional requirements

In Alinta's view some of the proposed new requirements may be technically unworkable in practise, and if indeed they are feasible, are likely to be highly expensive to attain. Alinta suggests that the AEMC should place a high degree of weighting on the feedback gathered from original equipment manufacturers in regard to whether such additional requirements are in fact even achievable with standard generation packages across thermal and renewable generation plant alike.

(Clause S5.2.5.14)

Alinta notes the rule change proposes amending the existing S5.2.5.14 clause to remove the 30MW threshold and require all generators connecting under both the automatic and minimum access standards to have the capability to receive and automatically respond to signals delivered from the AGC, as updated at a rate of one every four seconds.

Alinta is strongly of the view that this new requirement will add non-trivial costs in establishing a new connection and is highly likely to be financially unviable for small generators to implement in practise.

If the intention of the new requirement is to elicit an increased frequency ancillary service response, Alinta notes the newly established Market Ancillary Service Provider registration category by AEMO, which has recently been introduced to enable additional load-side aggregation for frequency control ancillary services. This new addition should in practise already help AEMO gain significantly more frequency ancillary service participation without the need to impose strict AGC requirements on all <30MW generators. As such, Alinta does not see a strong need for this additional requirement at this time.

2.7 Remote Monitoring and Control

Alinta notes that the draft rule proposes that new remote monitoring capabilities should apply in respect of newly connecting generators with a capacity of 30MW or more (clause S5.2.6.1).

Alinta would caution that some of the proposed remote monitoring and control requirements are likely to add material costs to the connection of a new generator. Nonetheless, Alinta is

supportive of the new requirement only applying to newly connecting generation and not to existing generation plant.

3. Conclusion

In the interests of system security in the NEM, Alinta has always been supportive of AEMO addressing real technical issues when they arise. However on balance, Alinta considers that the rule change as currently proposed by AEMO, contains elements which would add material costs to a new connecting generator in the NEM for potentially no corresponding net-technical benefit.

As such, Alinta suggests that the proposed rule change requires a comprehensive review and should not be accepted in its current form.

Please contact Mr Anders Sangkuhl on anders.sangkuhl@alintaenergy.com.au or 02 9375 0992 if you have any queries in relation to this submission.

Yours Sincerely

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