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30th January 2025

Achint Jain
Australian Energy Market Commission (AEMC)

Subject: SMA's comments on 'Improving the NEM access standards draft rule and determination'

Dear Achint,

SMA is a solution provider focusing on the development and supply of state-of-the-art power conversion, control technology, and engineering services for PV, BESS, and power to gas systems with over 40 years of experience at the forefront of enabling technologies for the transition towards a decarbonised, renewable energy dominated power systems around the world.

SMA's grid forming technology was developed over 20 years ago and it has since undergone a continuous improvement process to ensure stable, reliable, and affordable inverter dominated power supply systems.

SMA general position

SMA is supportive of the rule change, and we understand it is aimed at addressing some of the challenges faced under the previous 2018 rule change due to rapid changes in network needs and technological advances and limitations in the field of IBR.

SMA was an active participant during AEMO's industry consultations focused on changes to the technical requirements under S5.2.5. We provided relevant feedback aimed at optimising the use of grid services from IBR the NEM to facilitate the transition towards a higher penetration of renewable energy and BESS in the system.

We consider IBR technology to be a key aspect of the NEM and will become even more crucial as additional generators are coupled to the system via IBR. It is therefore critical that the access standards allow the use of the technology to the greatest potential.

SMA appreciates the opportunity to provide feedback on Improving the NEM access standards draft rule and determination. SMA's comments on specific clauses is provided below.

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Best regards,

Andros Cadavid
Strategic Development Manager
SMA Australia

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SMA's comments

Clause S5.2.5.1 Reactive power capability	
Temperature derating for reactive power (a1)	The requirement for supplying reactive power continuously with no temperature derating up to 50°C can be problematic for some technologies and needlessly limit the functionality of the plant and significantly increase cost. Given that derating is, in large measure, based on internal component temperature, we suggest allowing for some derating after a period of time at higher ambient temperatures. Additionally, we would suggest using a different wording as de-rating should not be the focus of the rule but rather the reactive power capability instead.
Mid-point voltage (a1)	We suggest increasing transparency around how mid-point voltage is determined. Mid-point voltage should be determined by the NSP based on specific system needs
Requirements when connected by not in service (a2) & (b2)	Definitions of the terms 'connected' and 'in service' are not specific enough and could be open to different interpretations in the context of reactive power provision as a unit could be electrically connected and not generating but still be considered in service. More clarity is needed around the reactive power requirements for units under these scenarios.
Proportional derating of active and reactive power (d1)	Generating units based on semiconductors and software controls such as inverters often have independent active and reactive power control algorithms. It is unclear what the intended benefit for the network is with this requirement and what the advantages of proportional derating are. Furthermore, this behaviour may not be practically possible under some circumstances.

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Clause S5.2.5.4 Generating system response to voltage disturbances	
Overvoltage requirement above 130 % (a)(1)	The wording 'at least marginally exceeding 130%' is unclear and introduces uncertainty when it comes to designing and assessing compliance. We suggest a clear upper limit to allow unambiguous assessment of equipment's capabilities.

Clause S5.2.5.5A Response to Disturbances Following Contingency Events	
Negative sequence current (f)(1)(iii)	We suggest rewording this section as voltage unbalance in the network are not within the capabilities of a generator's control.
Response commencement (g)	Please specify whether this commencement thresholds are at point of interconnection or at equipment terminals.
Capturing response characteristics (t)	We recommend removing this clause or explicitly limit it to grid following inverters as it is not applicable to grid forming inverters

Clause S5.2.5.13 Voltage and reactive power control	
Table S5.2.1 AAS rise & settling times	Please provide clarity on how performance on rise and settling times following a disturbance can be assessed or what testing, if at all, will be required to provide evidence of compliance.