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20 May 2026

Mr Rainer Korte
Chair, Reliability Panel
Australian Energy Market Commission
Level 15, 60 Castlereagh Street
Sydney NSW 2000

Dear Mr Korte,

AEMO submission on Draft Template for Compliance Programs

AEMO appreciates the opportunity to provide a submission to the Reliability Panel on its draft *Template for Compliance Programs* (Template).

AEMO considers that the Panel's proposed updates to the Template provide fit-for-purpose guidance to an expanded range of registered participants on how to monitor compliance with their performance standards. This guidance is necessary given the changing mixture of plant technologies in the National Electricity Market (NEM) and recent updates to the scope and content of access standards requirements in the National Electricity Rules (NER).

AEMO supports the Panel's proposed Template changes and has also identified a few areas where the Template could be further improved. These are set out in the attached submission. AEMO also supports the Panel's proposed rule change recommendations in principle.

If you would like to discuss this submission, please contact Hannah Heath, Group Manager – Strategic Market Reform, at hannah.heath@aemo.com.au.

Yours sincerely,

Violette Mouchaileh
Executive General Manager – Policy and Corporate Affairs

Attachments: AEMO submission, Draft Template for Compliance Programs

AEMO Submission: Draft Template for Compliance Programs

AEMO considers the Panel's draft updates to the Template promote clear and fit for purpose monitoring of compliance against performance standards by registered participants.

Effective compliance regimes (including confidence in technical performance, and computer models used to represent that performance) are crucial for efficient maintenance of system security in the NEM. Compliance regimes underpin the planning of the NEM, the definition of technical limits used by AEMO's central dispatch engine, and assessment of requirements for connecting parties. Compliance arrangements are also an important mitigation of operational risks – mitigating potential for unexpected performance outcomes in response to system disturbance events. On this basis, AEMO provides the following high-level comments. Table 1 sets out further, specific comments on the draft Template.

Efficient compliance

The Template allows registered participants discretion in the implementation of their compliance regimes. AEMO supports this discretion as it facilitates efficient maintenance of system security and efficient monitoring regimes of compliance with performance standards. Improving the efficiency of compliance monitoring can generally be expected to reduce the costs of providing electricity – which ultimately benefits consumers. That said, under the NER, compliance is not optional[1] and registered participants must establish regimes that provide reasonable assurance of compliance with the performance standards[2] for their specific plant. In this context, efficiency is about facilitating the lowest-cost compliance monitoring necessary to provide this level of reasonable assurance. AEMO suggests that this could be made explicit in the compliance principles for clarity.

Continuous monitoring

AEMO considers the emphasis on continuous plant monitoring appropriate and supports the use of continuous plant monitoring as it:

- provides a real indication of performance under actual network conditions which provides assurance that plant is performing as expected within the dynamic and evolving electricity system,
- Facilitates prompt identification and management of issues, and
- facilitates early detection of performance degradation, control system drift, or configuration changes that could lead to non compliance if left unaddressed.

Model validation

AEMO supports the updated Template's emphasis on model validation, but considers that the Panel should consider the role of periodic model validation in compliance monitoring. AEMO agrees with the Panel that registered participant's compliance programs should:

- consider whether any gaps remain in the model validation performed as part commissioning and post-commissioning processes when establishing a compliance program for its plant, and

[1] NER 4.15(a)(1) provides that a Registered Participant must ensure that its plant meets or exceeds the performance standard applicable to its plant.
[2] As required under NER 4.15(c)(4)

- be sufficient to detect situations when the model information supplied to AEMO and the relevant NSP is incomplete, inaccurate, or out of date. [3]

Models of plant performance are used to predict how the power system will behave under different scenarios. Accurate models of plant performance ensure constraint equations reflect actual plant stability limits.

Prior to connection, models are used to assess compliance with performance standards – tests are limited to a series of small disturbances which primarily validate linear control systems about the steady-state operating point. Due to several potential factors, actual performance may differ to the expected and modelled performance which means that, for some plant, behaviour may diverge from the model while performance standards remain fixed. Further:

- routine changes have potential to introduce errors or unexpected changes,[4] and
- performance of non-linear controls, particularly on inverter-based resources or power electronic interfaced loads that are not tested during commissioning may reveal unexpected outcomes due to major system disturbances.

This can increase risks and inefficiencies when models influence the operation of the power system or are used for long-term planning and investment decisions. Given this, there may be role for periodic model validation. Continuous monitoring of modelled plant performance against actual plant performance allows for the identification of modelling and compliance issues. However, this may be too late – as the issues could be identified when they are impacting the power system.

Periodic model validation can be prudent where models/performance standards have not been, or cannot be, validated via continuous monitoring prior to causing power system impacts. AEMO notes that periodic model validation is required overseas.[5] In this context, AEMO submits that the Panel consider the use of periodic model validation in the Template.

Comments on draft rule change recommendations

The Panel has identified two rule changes that it considers would improve the effectiveness and efficiency of the compliance framework. AEMO's comments on these proposed changes are as follows.

Flexibility on when the Panel must review the Template

AEMO supports the Panel's proposed rule change to provide increased flexibility on when the Template should be reviewed and updated and recommends the Template be reviewed after any final rule that materially changes the NER access standards. The NER currently require that the Panel review the Template at least every five years.[6] AEMO notes that the Improving the NEM access standards – Package 2 rule change will conclude shortly after the Panel has updated the Template and the updated Template will no longer reflect the most up to date access standards requirements until such time as the Panel initiates another review. As an interim or additional measure, the Panel could consider including an additional requirement in the Template that registered participants must adapt the Template for their individual

[3] Reliability Panel AEMC, Draft Template Template for Compliance Programs, 2 April 2026, p. 6.
[4] Examples include: AEMO, *Loss of SCADA and line protection at Keilor Terminal Station on 29 June 2023*, April 2024 and AEMO, *Trip of multiple generators and lines in Central Queensland and associated under-frequency load shedding on 25 May 2021*, October 2021.
[5] For instance, NERC Standards MOD-025, 026 and 027 require testing be performed every 5 or 10 years.
[6] Unless otherwise requested by the AEMC.

compliance programs as necessary to account for subsequent rule changes affecting the access standards applicable to their plant. This is suggested in Table 1 in relation to short circuit ratio standards.

Expanding the scope of the Template

The Panel is proposing rule changes to expand the scope of the Template under the NER to cover all performance standards and any related NER or market-based obligations. AEMO supports the Panel's recommendation to allow the Template to provide additional testing and monitoring methods on other NER or market-based obligations a Registered Participant may have, but only to the extent they relate to the performance standards. Extending the scope of the compliance template in this way can help support compliance with broader NER obligations (particularly where compliance is interrelated with performance standards) such as compliance with AEMO's *Power System Model Guidelines* and *Primary Frequency Response Requirements*.[7]

Expanding the scope more broadly could be problematic when there is overlap with existing compliance requirements. The Template shouldn't duplicate such requirements such like those specified in the AER's *Rebidding and Technical Parameters Guideline*[8] and in the AER's compliance reports. Instead, it would be beneficial for the template to point to these existing requirements.

[7] See: AEMO, *Power System Model Guidelines*, July 2023 and AEMO, *Primary Frequency Response Requirements*, May 2024.
[8] AER, *Rebidding and Technical Parameters Guideline, Final Guideline*, October 2024.

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Table 1 AEMO's detailed comments on draft Template

Compliance Template reference	AEMO comment
3.2 Model Validation and Updates (pp. 6-7)	Sections 3.2.2 and 3.2.4 are currently silent on the impact of changes to the short circuit ratio (SCR) on model validation and subsequent model updates. In practice, the SCR value can change between the initial commissioning of a plant model and the later validation of an existing (legacy) plant model. Any variation in SCR has the potential to materially affect plant performance and control behaviour. AEMO submits the Template should include guidance on how a Registered Participant is expected to manage situations where the SCR used during initial commissioning differs from the SCR applicable at the time of model validation. This guidance should clarify expectations around reassessment of plant performance, model amendments, and any required revalidation activities to ensure the model remains representative of actual plant behaviour under the revised system conditions.
3.5 Performance of remote equipment operated by another party (p. 9)	Performance of remote equipment operated by another party is not the responsibility of the registered participant. Drafting potentially implies there is a gap in the compliance framework. If a third party is responsible for compliance – what makes the third party responsible for testing? Suggest reference networks specifically noting networks also have responsibility as registered participants to monitor compliance.
3.6 Non-compliance with performance standards (pp 9-10).	Compliance Template could note the civil penalties for non-compliance and not instigating an appropriate compliance regime under NER 4.15 and civil penalties for non-compliance with performance standards under NER 5.7.3.
Monitoring definition (p. 17)	Definition of monitoring does not appear to align with its to use in 'real-time monitoring' given reference to 'active routine monitoring'
A.21 Other requirements (p. 46)	Checking whether the plant follows AEMO VDS (VAr Dispatch Schedule) set points may also be a good idea for participating plants. Continuous monitoring would be the best approach for checking this.

A.1 Reactive power capability S5.2.5.1 (p. 19), and **C7. Reactive power capability S5.3a.8 (p. 58)**	Reactive power capability testing should cover the full voltage range 0.9 - 1.1 pu, or as much as possible depending on the network conditions at the time of testing. Coordination with NSPs and AEMO may be required.
B.10 Short circuit ratio S5.3.11 (p. 52)	The withstand SCR assessment was developed with a focus on asynchronous production units. With improved knowledge of large load modelling and recent large load connection experience, it is recognised that a 'short circuit ratio' system strength assessment is not directly applicable to inverter based loads. This issue has been noted in AEMO's submission to the AEMC's draft decision on Improving the NEM access standards – Package 2 | AEMC.