

INTER-NETWORK TEST GUIDELINES

DRAFT REPORT AND DETERMINATION

Published: **July 2021**





NOTICE OF SECOND STAGE OF CONSULTATION

National Electricity Rules – Rule 8.9

INTER-NETWORK TEST GUIDELINES

Date of Notice: 26 July 2021

This notice of Second Stage of Rules Consultation (Notice) informs all Registered Participants and interested parties (**Consulted Persons**) that AEMO is commencing its second stage consultation on updated Inter-Network Test Guidelines (**the Guidelines**).

This consultation is being conducted as required under clause 5.7.7(k) of the National Electricity Rules (**NER**), in accordance with the Rules consultation requirements detailed in clause 8.9 of the NER.

Matter under Consultation

The proposed amendments under consultation are intended to maintain the currency and usefulness of the Guidelines given the predicted significant increases in interconnector capacity in the National Electricity Market over the next 20 years.

Invitation to Make Submissions

AEMO invites written submissions on the matter under consultation, including any alternative or additional proposals you consider may better meet the objectives of this consultation and the national electricity objective in section 7 of the National Electricity Law.

Please identify any parts of your submission that you wish to remain confidential, and explain why. AEMO may still publish that information if it does not consider it to be confidential, but will consult with you before doing so.

Please note that material identified as confidential may be given less weight in the decision-making process than material that is published.

Closing Date and Time

Submissions in response to this Notice should be sent by email to **Internetnetwork.testing@AEMO.com.au**, to reach AEMO **by 5.00pm (Melbourne time) on 11 August 2021**.

All submissions must be forwarded in electronic format (both pdf and Word). Please send any queries about this consultation to the same email address.

Submissions received after the closing date and time will not be valid, and AEMO is not obliged to consider them. Any late submissions should explain the reason for lateness and the detriment to you if AEMO does not consider your submission.

Publication

All submissions will be published on AEMO's website, other than confidential content.



EXECUTIVE SUMMARY

The publication of this Draft Report and Determination (Draft Report) commences the second stage of consultation by AEMO on amendments to the existing Inter-Network Testing Guidelines developed under clause 5.7.7(k) of the National Electricity Rules (NER).

On 18 May 2021, AEMO published Notice of First Stage Consultation, the Issues Paper and a draft set of updated Guidelines.

AEMO proposed a number of updates to the existing Guidelines including:

- A general review and update.
- A proposed governance structure to progress interconnector projects.
- Improved, fit-for-purpose assessment criteria to determine when inter-network testing will be required for a project.
- Inclusion of project examples including a description of how clause 5.7.7 is assessed and applied.
- Power system disturbance methods for testing purposes, including a risk assessment approach.
- An overview of the approach to model development associated with developing future study cases to support assessment of interconnector upgrades.

AEMO received one submission from Powerlink during the stage 1 consultation. AEMO held a meeting with Powerlink about their submission on 13 July 2021.

Based on the submission received, AEMO has identified a need to make a number of clarifications to the following sections of the proposed draft Guidelines:

- Inter-network testing governance arrangements.
- Application of material inter-network impact (MINI) criteria to actionable ISP projects.
- Prudent and efficient inter-network testing.
- Power system model requirements.
- Achieving conditions for inter-network testing.
- Post-test reporting requirements.

AEMO's draft determination is to amend the Inter-Network Testing Guidelines in the form published with this Draft Report.



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1. STAKEHOLDER CONSULTATION PROCESS

AEMO is consulting on the proposed updated Inter-Network Testing Guidelines (**Guidelines**) in accordance with the Rules consultation procedures in rule 8.9 of the NER.

AEMO's indicative timeline for this consultation is outlined below. Future dates may be adjusted depending on the number and complexity of issues raised in submissions and any meetings with stakeholders.

Deliverable	Indicative date
Issues Paper published	17/5/2021
Submissions due on Issues Paper	22/6/2021
Draft Report published	26/7/2021
Submissions due on Draft Report	11/8/2021
Final updated Guidelines published	24/9/2021

The publication of this Draft Report marks the commencement of the second stage of consultation.

A draft of the Guidelines is published with this Draft Report, updating the proposed Guidelines published with the Issues Paper.

2. BACKGROUND

2.1. NER requirements

Under clause 5.7.7(k) of the NER, AEMO may develop, publish and amend guidelines to assist Registered Participants to determine when an inter-network test may be required. The Guidelines may be made or amended in accordance with the Rules consultation procedures set out in NER rule 8.9.

For these Guidelines to be effective and useful, AEMO considers they should be supplemented by explanation and process guidance on the application of the essential aspects of clause 5.7.7 including:

- Application of the material inter-network impact (MINI) criteria to determine when inter-network testing is required.
- Supporting information and guidance regarding governance and processes to meet the requirements of clause 5.7.7.
- Practical examples of how the Guidelines may be applied.

2.2. Context for this consultation

AEMO considers that it is timely to review the Guidelines for the following reasons:

- The existing Guidelines were published in 2008 under the Interregional Planning Committee (IRPC) (which no longer exists), and the NEM power system and its interactions have changed significantly since then.
- The 2020 Integrated System Plan (ISP) Central scenario predicts an additional 6 gigawatts (GW) of interconnector capacity will be needed over the next 20 years¹. The majority of these upgrades will have a material impact on the power system and necessitate a coordinated approach to testing and release

¹ See <https://aemo.com.au/-/media/files/major-publications/isp/2020/appendix--3.pdf?la=en>



of new capacity to the NEM. It is therefore prudent to maintain the currency and usefulness of the Guidelines.

2.3. Proposed changes

As discussed in the Issues Paper, AEMO proposed to amend and expand the existing Guidelines in the following key areas:

- General review and update.
- Proposed governance structure to progress interconnector projects.
- Improved, fit-for-purpose assessment criteria to determine when inter-network testing will be required for a project.
- Inclusion of project examples including a description of how clause 5.7.7 is assessed and applied.
- Power system disturbance methods for testing purposes, including a risk assessment approach.
- An overview of the approach to model development associated with developing future study cases to support assessment of interconnector upgrades.

2.4. Pre-consultation workshop

To inform its development of amended Guidelines, AEMO organised a workshop on 2 February 2021 and invited representatives from TransGrid, Powerlink, TasNetworks, ElectraNet and AEMO's Victorian planning function. Ahead of the workshop, AEMO shared a pre-workshop questionnaire seeking input on key areas of the Guidelines.

At this workshop AEMO shared an initial draft of the proposed Guidelines with attendees for comment. The comments received at this initial workshop and pre-workshop questionnaire helped to inform the contents of the Guidelines published for the first stage of consultation.

2.5. First stage consultation

On 17 May 2021, AEMO issued a Notice of First Stage Consultation and published an Issues Paper and initial draft amended Inter-Network Testing Guidelines. This information is available on AEMO's website at: <https://aemo.com.au/en/consultations/current-and-closed-consultations/inter-network-test-guidelines>.

The Issues Paper included a summary of the proposed changes.

In response, AEMO received one submission from Powerlink. AEMO also held one meeting, with Powerlink on 13 July 2021. AEMO has published Powerlink's submission on AEMO's website at:

<https://aemo.com.au/en/consultations/current-and-closed-consultations/inter-network-test-guidelines>

3. SUMMARY OF MATERIAL ISSUES

The submission received raised feedback on six key areas of the proposed Guidelines.

The key issues are summarised in Table 1 and detailed in section 4 of this Draft Report.

**Table 1 Listing of material issues arising from submissions received**

No.	Issue	Raised by
1	Inter-Network Testing governance arrangements	Powerlink
2	Application of Material Inter-Network Impact (MINI) criteria to actionable ISP projects	Powerlink
3	Prudent and efficient Inter-Network Testing	Powerlink
4	Power system model requirements	Powerlink
5	Achieving conditions for inter-network testing	Powerlink
6	Post-test reporting requirements	Powerlink

4. DISCUSSION OF MATERIAL ISSUES

4.1. Inter-network testing governance arrangements

4.1.1. Issues summary and submissions

Section 3.2 of the proposed Guidelines outlined the governance structure consisting of a System Integration Steering Committee (SISC) and associated workstreams for addressing the requirements of undertaking an inter-network test. This proposed structure is centred around establishing a System Integration Steering Committee (SISC) with relevant representation from the Proponent, the Relevant TNSP and AEMO. The Guidelines also outline the key activities expected to be undertaken by the SISC and how the SISC may interact with other working groups.

Powerlink expressed concerns that the proposed structure could be too prescriptive to apply across all projects involving Inter-Network Testing. Powerlink recommended a more flexible approach which proposes but does not mandate the SISC structure. Powerlink also suggested that, for less complex projects, the Guidelines could specify tasks/processes that need to be fulfilled only.

4.1.2. AEMO's assessment

AEMO believes any governance structure would normally contain representatives from the *Proponent*, the *Relevant TNSP* and AEMO. This represents the key parties who are likely to be impacted by any Project that has been assessed to have a MINI.

As acknowledged in Powerlink's submission, AEMO notes that:

- The proposed Guidelines state that the SISC may determine whether workstreams should be combined or divided. This allows the SISC to reduce the number of workstreams/teams required as appropriate.
- The proposed Guidelines outline the responsibilities of the workstreams that sit under the SISC.

4.1.3. AEMO's conclusion

AEMO has reviewed the wording in Section 3.2 to make it clear that the number of representatives and workstreams in each SISC should be suitable for the associated Project. AEMO's draft Guidelines include updated wording to make it clear the SISC can define alternative workstream structures to enable the SISC to fulfil its functions.

In addition, after discussions with the Executive Joint Planning Committee (EJPC) AEMO has updated the governance structure to reflect the formation of an Inter-network Test Reference Committee (INTRC), which provides oversight to project SISCs and reporting to the EJPC and NEMOC. The INTRC replaces the previously proposed JPC sub-committee in the draft Guidelines.



4.2. Application of MINI criteria to ISP projects

4.2.1. Issues summary and submissions

The published MINI criteria are applied to determine whether inter-network testing may be required for a particular project. The proposed Guidelines included wording in section 4.2 to establish that all actionable ISP projects are taken to have a MINI for the purposes of clause 5.7.7 and the Guidelines.

Powerlink noted that rule 5.21 of the NER requires AEMO to publish criteria to assess whether a proposed transmission network augmentation is reasonably likely to have a MINI, but considered this does not apply to actionable ISP projects as a result of clause 5.21(a). Powerlink recommended that the Australian Energy Market Commission's (AEMC's) next minor update to the NER should clarify the treatment of actionable ISP projects and whether their network impacts should be assessed using the MINI criteria.

4.2.2. AEMO's assessment

AEMO agrees with Powerlink that the application of the MINI criteria to actionable ISP projects would benefit from clarification in the NER. Given that clause 5.7.7 applies to actionable ISP projects, however, AEMO's proposed Guidelines provide as follows:

- "By virtue of their size and impact on the power system, all actionable Integrated System Plan (ISP) projects are anticipated to have a MINI."

4.2.3. AEMO's conclusion

AEMO understands that Powerlink broadly supports that the Guidelines have appropriately captured how to assess actionable ISP projects under the existing NER, and has made no additional changes in the draft Guidelines. In principle AEMO would support a rule change proposal by Powerlink to clarify the specific elements of rule 5.21 that are not applicable to actionable ISP projects.

4.3. Prudent and efficient testing

4.3.1. Issues summary and submissions

Section 4.3 of the proposed Guidelines set out considerations for assessing whether a project that has a MINI triggers a requirement for inter-network testing. The proposed Guidelines also contemplated a path to concluding that an inter-network test is not required for a project that has been identified to have a MINI.

Powerlink raised concerns that for certain projects there may be no practical advantage in requiring an inter-network test to be carried out. Powerlink considered the proposed Guidelines were too prescriptive in this area and this could result in network testing which increases project costs without being in the interest of electricity customers.

Powerlink also made a suggestion relating to Section 4.4(a)(iii), which states: "If any one of the Relevant TNSP(s), AEMO or the Proponent considers that an inter-network test is required then the JPC must not approve the recommendation and an *inter-network test* will be conducted under NER clause 5.7.7."

Powerlink suggested that where an agreement cannot be reached, the issue of whether testing is required should be referred to the Joint Planning Committee (JPC) for decision.

4.3.2. AEMO's assessment

AEMO agrees with Powerlink that network testing should only be carried out when it is reasonable and in the interests of electricity consumers to do so. In developing the proposed Guidelines AEMO had sought to address this issue:



- Section 4.3 contains a non-exhaustive list of considerations for determining whether there is a requirement and benefit to undertake *Inter-network tests*
- Section 4.4 outlines a high-level process that is to be followed when a project is identified to have a MINI but where AEMO or the *Relevant TNSP* conclude that an *inter-network test* is not required for a project.

4.3.3. AEMO's conclusion

AEMO shares Powerlink's concerns and the draft Guidelines outline a process to for AEMO and the relevant TNSPs to assess the need for inter-network testing, which should ensure that the testing requirements are appropriate for each project. This process allows the Inter-network Test Reference Committee (INTRC) to review the assessment on the requirement for testing and approve (if appropriate) and document the decision.

AEMO agrees with Powerlink's suggestion that where agreement cannot be reached on whether Inter-Network Testing is required it should be referred to the INTRC for a final decision. Section 4.4 of the draft Guidelines has been amended to reflect this.

4.4. Power system model requirements

4.4.1. Issues summary and submissions

Section 6.1 of the proposed Guidelines outlined general modelling requirements when assessing a project's impact on the power system. This section also described the modelling requirements for the installation of new systems and equipment.

Powerlink raised a concern that section 6.1(e) appears to imply that R2 models of new systems and equipment must be available before an inter-network test. Powerlink considered this requirement could unduly delay the testing and release of capacity and potentially add to system cost. Powerlink recommended that at a minimum R1 models and parameters are available during the preparation phase and R2 should be available for the later hold point testing. For new systems and equipment Powerlink suggests that it would be appropriate to progress the initial testing phases using R1 models and parameters.

4.4.2. AEMO's analysis

AEMO agrees that the guidelines should appropriately reflect the status of modelling information at the time of commencing inter-network tests.

4.4.3. AEMO's conclusion

AEMO has amended the wording in section 6.1(e) of the draft Guidelines to avoid any unintended implication that R2 data must be available prior to an inter-network test.

4.5. Achieving conditions for Inter-Network Testing

4.5.1. Issues summary and submissions

Section 8 of the proposed Guidelines described options for achieving the network conditions necessary to carry out an inter-network test as outlined in a project's test program. The Guidelines explain that a Proponent can wait for network conditions to match the test program's requirements or alternatively at the Proponents cost, procure test facilitation services as contemplated in NER clause 5.7.7(u).

Powerlink submitted that the proposed Guidelines should not set an expectation that test facilitation services that are normally free need to be procured at a cost.



4.5.2. AEMO's analysis

AEMO agrees that the Guidelines should not set an expectation that test facilitation services must always be paid for.

4.5.3. AEMO's conclusion

Section 8 of the draft Guidelines has been amended accordingly.

4.6. Post-test reporting

4.6.1. Issues summary and submission

Section 10 of the proposed Guidelines included a requirement for post-test reporting where the *proponent* must report on test results and observations. The post-test report must include:

- (i) a description of each component of the test performed;
- (ii) the test results and comparison with computer modelling relied upon for the production of the test regime;
- (iii) the new safe network limits verified by the test for power system security;
- (iv) a comparison of the new limits achieved compared with the limits proposed in the approval document for the Project (for example, the project assessment conclusions report); and
- (v) a description of any including issues encountered during testing and recommendations for future testing activities.

Powerlink was concerned that item (iv) in the above list represents an ex-post analysis of the performance anticipated through the regulatory investment test for transmission (RIT-T) process. Powerlink suggested that if this kind of analysis is required the Australian Energy Regulator (AER), rather than AEMO, is the appropriate body to request this information.

4.6.2. AEMO's analysis

AEMO considers that such reporting would be useful but not necessary for the purposes of the Guidelines.

4.6.3. AEMO's conclusion

Following consideration of Powerlink's feedback AEMO has amended Section 10 of the draft Guidelines to remove item (iv).

5. DRAFT DETERMINATION

AEMO's draft determination is to amend the Guidelines as described in section 4 of this Draft Report, together with additional minor drafting improvements and corrections, in the form of the draft Guidelines published for this second stage of consultation.