



# Congestion Information Resource Guidelines

Draft Report – Standard consultation  
for the National Electricity Market

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New South Wales | Queensland | South Australia | Victoria | Australian Capital Territory | Tasmania | Western Australia

Australian Energy Market Operator Ltd ABN 94 072 010 327

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## Executive summary and consultation notice

The publication of this draft report commences the second stage of the standard consultation procedure conducted by AEMO on the Congestion Information Resource (**CIR**) Guidelines under the National Electricity Rules (**NER**).

This consultation is undertaken as required by NER 3.7A, following the procedure in NER 8.9.2.

AEMO's original proposal was to revise the CIR Guidelines to:

- remove the requirement to table items at the Electricity Wholesale Consultative Forum (**EWCF**), and
- publish network outage statistics on AEMO's website.

AEMO received six submissions with thirty nine different items raised (both records for CIR consultations) in response to the first stage of the consultation. A number of submissions requested AEMO to conduct a full consultation on the CIR Guidelines, and AEMO released this notice on 12 February changing to a standard consultation.

There was general support for the Network Outage Scheduler (**NOS**) file, but the removal of the Wholesale Consultative Forum item was not supported. AEMO will restore that item in the draft CIR Guidelines.

The majority of submissions requested reinstating and updating of the network diagrams, which AEMO is investigating.

Many of the submissions requested more or improved information for outages from the network outage scheduler (NOS) in closer to real time. AEMO is reviewing what can be provided and is planning on updating the publishing of the NOS files. AEMO will also update the guidelines to including a timing requirement for the submission of outages.

EnergyAustralia submitted several proposals for improved constraint equation information and performance, and AEMO has undertaken to update documentation to address these items.

EnergyAustralia and Global Roam requested more information on mis-pricing, and EnergyAustralia requested a consolidated table for constraint information. Both these items will be discussed at the EWCF.

In response to the submissions, AEMO is going to restore the requirement to table items at the EWCF.

AEMO's draft proposal is to amend the CIR **Guidelines** in the form published with this draft report.

### Consultation notice

AEMO invites written submissions from interested persons on the draft proposal and issues identified in this draft report to [ben.blake@aemo.com.au](mailto:ben.blake@aemo.com.au) by 5:00 pm (Melbourne time) on 19 May 2025.

Submissions may make 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 include supporting reasons.

Before making a submission, please read and take note of AEMO's consultation submission guidelines, which can be found at <https://aemo.com.au/consultations>. Subject to those guidelines, submissions will be published on AEMO's website.

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

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.

Interested persons can request a meeting with AEMO to discuss any particularly complex, sensitive or confidential matters relating to the proposal. Please refer to NER 8.9.1(k). Meeting requests must be received by the end of the submission period and include reasons for the request. AEMO will try to accommodate reasonable meeting requests but, where appropriate, AEMO may hold joint meetings with other stakeholders or convene a meeting with a broader industry group. Subject to confidentiality restrictions, AEMO will publish a summary of matters discussed at stakeholder meetings.

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# 1. Stakeholder consultation process

As required by National Electricity Rules (**NER**) 3.7A(m), AEMO is consulting on review of Congestion Information Resource (**CIR**) Guidelines in accordance with the standard rules consultation procedure in NER 8.9.2.

Note that this document uses terms defined in the NER, which are intended to have the same meanings.

AEMO's process and expected timeline for this consultation are outlined below. Future dates may be adjusted and additional steps may be included as needed, as the consultation progresses.

**Table 1 Consultation process and timeline**

Consultation steps	Dates
Draft report published (taken to be consultation paper)	2 December 2024 (completed)
Procedure change request deadline	16 December 2024 (completed)
Submissions due on published draft report (taken to be consultation paper)	22 January 2025 (completed)
Draft report published	15 April 2025 (completed with this publication)
Submissions due on draft report	19 May 2025
Final report published	Expected 24 July 2025

AEMO's consultation webpage for the proposal is at <https://www.aemo.com.au/consultations/current-and-closed-consultations/2024-congestion-information-resource-guidelines>, containing all previous published papers and reports, written submissions, and other consultation documents or reference material.

In response to its consultation paper on the proposal, AEMO received six written submissions.

AEMO also held three meetings with submitted stakeholders for clarification on the submissions, on 31 January 2025, 3 February 2025, and 19 March 2025.

AEMO thanks all stakeholders for their feedback on the proposal to date, which has been considered in preparing this draft report, and looks forward to further constructive engagement.

## 2. Background

### 2.1. Context for this consultation

The matter for consultation is the CIR Guidelines, to consider and seek stakeholder feedback on the following questions:

- Whether the quality, relevance and frequency of information provided in the CIR remains appropriate.
- What additional information stakeholders consider should be included in the CIR, including explanations of the value to stakeholders.
- What current congestion-related information AEMO could stop publishing in the CIR with no or little loss of value for stakeholders (for example because it is published elsewhere or no longer relevant).
- AEMO's proposal to publish network outage statistics on AEMO website, as set out in the draft CIR Guidelines published with this notice.

### 2.2. NER requirements

This consultation is being conducted under NER 3.7A(m), in accordance with the Rules consultation procedures detailed in rule 8.9 of the NER.

### 2.3. The national electricity objective

Within the specific requirements of the NER applicable to this proposal, AEMO will seek to make a determination that is consistent with the national electricity objective (**NEO**) and, where considering options, to select the one best aligned with the NEO.

The NEO is expressed in section 7 of the National Electricity Law as:

*to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:*

- (a) *price, quality, safety, reliability and security of supply of electricity; and*
- (b) *the reliability, safety and security of the national electricity system; and*
- (c) *the achievement of targets set by a participating jurisdiction—*
  - (i) *for reducing Australia's greenhouse gas emissions; or*
  - (ii) *that are likely to contribute to reducing Australia's greenhouse gas emissions.*

### 3. List of material issues

The key material issues arising from the proposal or raised in submissions or consultation meetings are listed in the following table:

**Table 2 List of material issues**

No.	Issue	Raised by
1.	Improvement on constraint formulation and information <ol style="list-style-type: none"> <li>1. Review constraint naming for easier identification of constraint</li> <li>2. Review accuracy of Pre Dispatch (PD)/Short Term (ST)/Medium Term (MT) during binding period</li> <li>3. Review of 0.07 left hand side (LHS) coefficient limit</li> <li>4. Collaboration between constraint and Electricity Statement of Opportunities (ESOO) constraint library</li> <li>5. 13-month rolling window detailing significant constraint set and library change.</li> <li>6. Limit advice documents</li> </ol>	EnergyAustralia (items 1,2,3,4,5) Iberdrola Australia (item 6)
2.	Improvement on published information <ol style="list-style-type: none"> <li>1. AEMO produce a table for consolidated key constraint information providing one stop resource for in depth analysis</li> <li>2. Publication of underlying constraints in dispatch local price table</li> <li>3. Have a way to specifically know which constraints are used in the mis-pricing calculation (local_price_adjustment value), and which ones are not</li> <li>4. Retain historical records of constraint invocation time in GENCONSETINVOKE table</li> <li>5. Real-time publishing of line ratings including dynamic ratings</li> </ol>	EnergyAustralia (items 1,2,5) Iberdrola Australia (items 4) Global Roam (item 3) Clean Energy Council (item 5)
3.	Information on transmission outages <ol style="list-style-type: none"> <li>1. Qualitative measure of expected impact of planned outage such as flow or generator output</li> <li>2. Detail reason for information update of planned outages if the change is material</li> <li>3. Four months' notice of planned transmission outages</li> <li>4. Establish measurable criteria for high impact outage (HIO) assessment</li> <li>5. Outages which have caused binding constraints or impact on interconnector/intraconnector flow and generators to be categorised as HIO</li> </ol>	Clean Energy Council (items 1,2,3,5) EnergyAustralia (items 3,4)
4.	Information provided by AEMO <ol style="list-style-type: none"> <li>1. Constraint changes to be reflected in Market Notice by including constraint ID</li> <li>2. Automatic notification of significant planned and unplanned outage with associated constraint</li> <li>3. Real-time status of networks</li> <li>4. Provide HIO flag for planned transmission outages</li> <li>5. Annually or biannually updated transmission line diagrams</li> <li>6. Technical operational data for planned transmission project in MT timeframe.</li> </ol>	Iberdrola Australia (items 1,2,5) EnergyAustralia (items 4,5) Shell Energy (items 3,5) Clean Energy Council (items 3,5,6)
5.	Stakeholder consultation <ol style="list-style-type: none"> <li>1. Annual consultation and review of CIR</li> <li>2. Engage CIR consultation forum more often in a structured way</li> <li>3. NEM reform program consultative forum to replace NEM wholesale forum</li> <li>4. AEMO to extend CIR consultation period and follow standard rules consultation</li> <li>5. Review of Negative Residue Management (NRM) documentation</li> <li>6. Notification and consultation of inverters/turbine limits requirement</li> </ol>	Clean Energy Council (items 1.2.4) Shell Energy (item 3) Iberdrola Australia (items 5,6)

Each of the material issues in Table 2 is discussed in Section 4.



## 4. Discussion of material issues

### 4.1. Improvement on constraint formulation and information

#### 4.1.1. Issue summary and submissions

EnergyAustralia requested enhanced constraint naming for better categorisation, raising Pre Dispatch (**PD**)/Short Term (**ST**)/Medium Term (**MT**) accuracy of the constraints during binding time and constraint left hand side (**LHS**) coefficients to a value of 0.07 regarding how this applies to interconnector. Energy Australia said it would like to see collaboration between constraint and the Electricity Statement of Opportunities (**ESOO**) constraint library, and a 13-month rolling window of significant constraint set and library change.

#### 4.1.2. AEMO's assessment

AEMO had a follow up meeting with EnergyAustralia and discussed in detail its concerns raised in the submission. At the meeting, EnergyAustralia provided examples of constraint IDs.

AEMO has investigated and will clarify the naming by updating the Constraint Naming Guidelines to address the issues raised by EnergyAustralia as well as address the constraint IDs/types that were provided at the meeting.

EnergyAustralia provided AEMO with examples of pre-dispatch differences. AEMO will publish more information in the CIR Guidelines on the various methods used for improving pre-dispatch right hand sides (**RHSs**) and is investigating changes to internal reporting on dispatch/predispatch performance.

In reviewing the request on the thresholds for LHS factors, AEMO is of the view that a lot has changed in the 15 years since this threshold was determined, and it should be reassessed considering the current constraint equations and left-hand sides. A consultation on the Constraint Formulation Guidelines will commence in April 2025.

Some limits advice, such as system strength for all mainland regions as well as stability limits in Victoria, are already published on AEMO's website. AEMO continues to work with transmission network service providers (**TNSPs**) to increase the amount of limits advice being made available to market participants. The CIR Guidelines have also been updated on the requirements for TNSPs to provide limits advice.

AEMO is currently investigating how to improve the linkages (particularly for the constraint equation IDs and reporting of congestion) between the ES00 and the constraint equations used in dispatch. Key constraint equations will be aligned in the 2025 ES00, with further work planned for the 2026 ES00.

As indicated in the 2021 CIR consultation, AEMO is limited in how far in advance it can provide information on constraint changes. However, there have been several changes since the 2021 CIR consultation. AEMO now issues Market Notices for stability system normal changes and flags these changes at the fortnightly industry briefing. Additionally, the system normal limits advice for Project EnergyConnect (**PEC**) Stage 2 will be provided in advance of PEC Stage 2 energisation. AEMO does not have a 13-month plan for constraint changes, and manages this more near term. AEMO will investigate what information could be provided to participants in the near term as well as clarifying the process of constraint changes in the Constraint Implementation Guidelines.

### 4.1.3. AEMO's conclusion

AEMO will update the Constraint Naming Guidelines and Constraint Implementation Guidelines by the end of 2025. AEMO has commenced an investigation on changes to its internal reporting for dispatch/pre-dispatch reporting.

AEMO commenced a Constraint Formulation Guidelines consultation in April 2025<sup>1</sup>.

The CIR Guidelines will be updated to clarify what is required for limits advice and timing.

## 4.2. Improvement on published information

### 4.2.1. Issue summary and submissions

EnergyAustralia said it would like to see constraint information present in super constraint table consolidated key constraint information.

Iberdrola Australia suggested retaining a historical record of invoked constraints in the 'GENCONSETINVOKE' table.

EnergyAustralia and Clean Energy Council requested real-time dynamic rating information.

Global Roam said it would like to see a way to specifically know which constraints are used in the mis-pricing calculation (local\_price\_adjustment value), and which ones are not.

### 4.2.2. AEMO's assessment

The super constraint table request is best discussed at the Electricity Wholesale Consultative Forum (**EWCF**) for prioritisation and a detailed discussion on what is required. This was raised at the April 2025 meeting.

The 'GENCONSETINVOKE' table has already been identified by AEMO for the improvement suggested in the submission and will be implemented as part of the uplift of AEMO's dispatch systems.

The dynamic rating information is available to market participants via the NETWORK\_REALTIMERATING table via Data Interchange.

The constraint equations included in the local price calculations need to satisfy the following three conditions:

1. the Left-Hand Side contains a scheduled generator, load, wholesale demand response unit or bidirectional unit with an Energy bid type,
2. the marginal value is non-zero, and
3. it is not in an exclude list pattern (e.g. #\*, \$\*, ~\*, NC\*, NSA\*) or is in an include list (#R\*RAMP\*).

The information needed by participants (including the above conditions and the publication of the constraint equations in the mis-pricing) will be discussed at the May 2025 ECWF and AEMO will investigate where to best include this information in the CIR.

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<sup>1</sup> See <https://www.aemo.com.au/consultations/current-and-closed-consultations/isf-consultation-of-constraint-formulation-guidelines>.

### 4.2.3. AEMO's conclusion

AEMO raised the super constraints table and the mis-pricing information at the EWCF on 8 April 2025 and further discussion is proposed at the May 2025 EWCF.

AEMO will investigate where best to include the information in the CIR.

## 4.3. Information on transmission outage

### 4.3.1. Issue summary and submissions

Clean Energy Council and EnergyAustralia said they would like to see improvement on quality and lead time of transmission outages and information and classification of High Impact Outages (HIO).

### 4.3.2. AEMO's assessment

The criteria for how AEMO classifies an outage as high impact is published to market participants in SO\_OP\_3718 Outage Assessment<sup>2</sup> (section 7), which is referenced by a footnote in the CIR Guidelines. AEMO regularly reviews the outages classified as HIOs in response to market and power system changes.

AEMO agrees with the submission to add a timeframe for notice of transmission outages and will update the guidelines to include a four-month timeframe. The requirement in the guidelines already indicates this is for outages that are classified as HIOs and those that have historically caused binding constraint equations. AEMO does not agree that a qualitative measure is needed in the CIR, as the existing requirement with the new timeframe covers this.

AEMO will work with TNSPs to develop a guideline to provide greater transparency on reason for outage re-submission.

### 4.3.3. AEMO's conclusion

AEMO will update the CIR Guidelines to indicate a minimum timeframe for outages to be submitted into NOS and will also work with TNSPs on guidelines on outage resubmit reasons.

## 4.4. Information provided by AEMO

### 4.4.1. Issue summary and submissions

Iberdrola Australia requested that AEMO review the timeliness and consistency with which significant planned and unplanned network changes as reflected in constraint invocation/withdrawal are reflected in AEMO's Market Notices.

EnergyAustralia request that the HIO flag is published as part of the NOS information.

EnergyAustralia and Clean Energy Council requested real-time dynamic rating information.

Four of the six written submissions to the CIR requested updates to the transmission diagrams. The Clean Energy Council's submission provided Transpower New Zealand's website as an example.

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<sup>2</sup> See <https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/power-system-operation/power-system-operating-procedures>.

The Clean Energy Council requested more information for planned transmission and generation projects.

#### 4.4.2. AEMO's assessment

AEMO currently publishes two files for NOS information. The first (which is updated every 15 minutes) is available directly from the CIR. The second is available via NEMWeb/Data Interchange and is updated every 30 minutes, and was implemented in response to a previous CIR consultation to keep a history of outages. While both files are sourced from NOS, there are differences in the data provided.

The NOS is the primary source for outage information for AEMO. AEMO is of the view that providing this information to participants in a more timely and consistent manner will address the requests for more information on outages. AEMO is investigating providing this NOS file at a greater frequency, such as every five minutes. This solution will also be simpler and faster to provide to participants than the suggestion of automating Market Notices, and the NOS contains more information on each outage.

The submissions clearly outlined why transmission diagrams were required by market participants and AEMO is investigating how to network diagrams can be produced on an annual schedule.

AEMO does not have information on generation and transmission projects, and does not agree that this level of information is appropriate in the CIR. TNSPs have this information (for example Transgrid has information on future projects in its online portal) and AEMO does not think this information should be duplicated in the CIR. However, noting the comment above on the 13-month plan of constraints, AEMO is investigating what near-term information (in the next 2 or 3 months) could be provided.

#### 4.4.3. AEMO's conclusion

AEMO will update the NEMWeb/Data Interchange to include the same information (such as the recommended constraints) as the original NOS file, increase the frequency of updates and add the HIO flag. The original NOS file will be retired.

AEMO is currently investigating how transmission networks diagram can be produced and will provide an answer on this in the final report on the 2025 CIR consultation.

## 4.5. Stakeholder consultation

### 4.5.1. Issue summary and submissions

Clean Energy Council suggested several improvements regarding CIR consultations.

Iberdrola Australia suggested a Negative Residue Management (NRM) review and raised concerns related to stakeholder consultation and notification regarding inverter limits.

### 4.5.2. AEMO's assessment

AEMO agrees that a regular Congestion Forum will be beneficial to participants and is currently investigating the format, regularity, and members of the forum. The first forum will occur before the end of 2025.

AEMO will also consider how the EWCF can also be used to raise items relevant to the CIR Guidelines. Both forums are useful for raising items that can form part of future CIR consultations. However, AEMO is not of the view that the CIR Guidelines should be changed to require a yearly frequency. Instead, the

timing of consultations is better determined based on the discussions at forums. The timing in the CIR Guidelines does not preclude running consultations with greater frequency.

AEMO switched to the standard NER consultation process and notice published on 12 February 2025.

The NRM documentation is due to be consulted on through the PEC Market Integration NEM Reform project in the coming months, and the issues raised here have been passed onto that team<sup>3</sup>.

AEMO discussed the inverter limits concerns with Iberdrola. AEMO has already commenced a project to better manage inverter/turbine upper limits. This project includes discussions with stakeholders on developing processes to respond to changes in the upper limits.

#### 4.5.3. AEMO's conclusion

AEMO will update the CIR Guidelines to include regular forums that are beneficial to participants, such as the Congestion Forum and the EWCF<sup>4</sup>.

AEMO will shortly commence consultation on the NRM documentation through NEMReform and has a project to improve the inverter/turbine management.

AEMO is investigating a Congestion Forum and will schedule the first forum before the end of 2025.

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<sup>3</sup> See <https://aemo.com.au/initiatives/major-programs/nem-reform-program/nem-reform-program-initiatives/project-energyconnect-market-integration-project>. Please refer to the PEC-MI Draft HLIA for more information.

<sup>4</sup> See <https://aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/electricity-wholesale-consultative-forum>.

## 5. Draft determination on proposal

Having considered the matters raised in submissions to the consultation paper and at consultation meetings, AEMO's draft determination is to amend the **CIR Guidelines** in the form published with this draft report, in accordance with NER 8.9.

## Appendix A. Glossary

Term or acronym	Meaning
AEMO	Australian Energy Market Operator
CIR	Congestion Information Resource
ESOO	Electricity Statement of Opportunities
EWCF	Electricity Wholesale Consultative Forum
HIO	High impact outages
NEM	National Electricity Market
NER	National Electricity Rules
NOS	Network Outage Scheduler
NRM	Negative Residue Management
TNSP	Transmission Network Service Provider

