



Constraint Formulation Guidelines

Draft Report – Standard consultation
for the National Electricity Market

Published: 09 March 2023

aemo.com.au

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

Australian Energy Market Operator Ltd ABN 94 072 010 327

© 2023 Australian Energy Market Operator Limited. The material in this publication may be used in accordance with the [copyright permissions on AEMO's website](#).

Executive summary and consultation notice

The publication of this draft report commences the second stage of the standard consultation procedure conducted by AEMO to update the Constraints Formulation Guidelines (CFG) for the 1 second FCAS (the **proposal**) under the National Electricity Rules (**NER**).

This consultation is undertaken as required by NER under clause 3.8.10(c), following the procedure in NER 8.9.2.

AEMO received one submission in the first stage of its consultation on the proposal, with feedback on aspects of all issues noted in the consultation paper.

Based on the feedback received and further review:

- AEMO will update the Constraint Formulation Guidelines to include more information on the Constraint Automation system.
- When AEMO reviewed the CVPs, we assessed that the regulation services needed to a higher priority compared to the contingency services as regulation was being supplied at all times and not following a contingency.

After considering all submissions, AEMO's draft proposal is to make the Constraints Formulation Guidelines (CFG) in the form published with this draft report, with a proposed effective date of **22 June 2023**.

Consultation notice

AEMO invites written submissions from interested persons on the draft proposal and issues identified in this draft report to cfg.consultation@aemo.com.au by 5:00pm (Melbourne time) on 12 April 2023.

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.

Please note the following important information about submissions:

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

Contents

| | |
|---|-----------|
| Executive summary and consultation notice | 3 |
| 1. Stakeholder consultation process | 6 |
| 2. Background | 7 |
| 2.1. Context for this consultation | 7 |
| 2.2. NER requirements | 7 |
| 2.3. The national electricity objective | 8 |
| 3. List of material issues | 9 |
| 4. Discussion of material issues | 10 |
| 4.1. FCAS regulation services have a higher priority than the FCAS contingency services | 10 |
| 4.2. Constraint Automation | 10 |
| 5. Draft determination on proposal | 11 |
| Appendix A. Glossary | 12 |

Tables

| | | |
|---------|--|---|
| Table 1 | Consultation process and timeline..... | 6 |
| Table 2 | List of material issues | 9 |

1. Stakeholder consultation process

As required by National Electricity Rules (**NER**) under clause 3.8.10(c), AEMO is consulting on the Constraints Formulation Guidelines (CFG) for the 1 second FCAS (the **proposal**) 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. There is a glossary of additional terms and abbreviations in Appendix A.

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 |
|---------------------------------------|-----------------------|
| Consultation paper published | 21 November 2022 |
| Submissions due on consultation paper | 20 December 2022 |
| Stakeholder meetings | January/February 2023 |
| Draft report published | 13 March 2023 |
| Stakeholder meetings (as required) | March/April 2023 |
| Submissions due on draft report | 12 April 2023 |
| Final report published | Expected 22 June 2023 |

AEMO's consultation webpage for the proposal is at [AEMO | Constraints Formulation Guidelines and Schedule of Constraint Violation Penalty Factor](#), containing all previous published papers and reports, written submissions, and other consultation documents or reference material [(other than material identified as confidential)].

In response to its consultation paper on the proposal, AEMO received one written submissions from CS Energy.

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

AEMO needs to develop and consult on an updated version of the Constraints Formulation Guidelines and an updated version of the Schedule of Constraint Violation Penalty Factors to align both with the 1 second FCAS which is due to be introduced in October 2023.

2.2. NER requirements

AEMO published the current interim Constraints Formulation Guidelines under NER 3.8.10(c) in accordance with the Rules consultation requirements detailed in clause 8.9 of the NER:

Clause 3.8.10 Network constraints

- (c) *AEMO* must, in accordance with the *Rules consultation procedures*, develop and *publish* by 1 June 2010, and, where necessary, amend *network constraint* formulation guidelines, to address, amongst other things, the following matters:
- (1) the circumstances in which *AEMO* will use *alternative network constraint formulations* in *dispatch*;
 - (2) the process by which *AEMO* will identify or be advised of a requirement to create or modify a *network constraint* equation, including in respect of:
 - (i) the methodology to be used by *AEMO* in determining *network constraint* equation terms and co-efficients; and
 - (ii) the means by which *AEMO* will obtain information from, and disseminate information to, *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants*;
 - (3) the methodology to be used by *AEMO* in selecting the form of a *network constraint*, equation including in respect of the location of terms on each side of the equation;
 - (4) the process to be used by *AEMO* for applying, invoking and revoking *network constraint* equations in relation to different types of *network constraints*, including in respect of:
 - (i) the circumstances in which *AEMO* will use *alternative network constraint formulations* and *fully co-optimised network constraint formulations*; and
 - (ii) the dissemination of information to *Scheduled Generators*, *Semi-Scheduled Generators* and *Market Participants* in respect of this process; and
 - (5) *AEMO's* policy in respect of the management of negative *settlements residue*, by intervening in the *central dispatch* process under clause 3.8.1 through the use of *fully co-optimised network constraint formulations*,

including in respect of the process to be undertaken by *AEMO* to manage negative *settlements residue*.

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.

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. | FCAS regulation services have a higher priority than the FCAS contingency services | CS Energy |
| 2. | Constraint Automation is briefly referred to in section 8.3 of the Guidelines | CS Energy |

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

4. Discussion of material issues

4.1. FCAS regulation services have a higher priority than the FCAS contingency services

4.1.1. Issue summary and submissions

Section 2.10.1 of the Guidelines refers to the CVP. CS Energy notes that items 35 to 42 in section 3 of the current version of the CVP indicate that the Frequency Control Ancillary Service (FCAS) regulation services have a higher priority than the FCAS contingency services, particularly the six (6) second services. This appears to be counter intuitive as arresting the frequency deviation should have a higher priority than a slower integral response such as the regulation services. CS Energy's recollection is that in previous versions of the CVP (not accessible on the AEMO website) the FCAS contingency services had a higher priority than the regulation services. There is no reference to the change in the CVP version release history. CS Energy is seeking to understand the rationale of the current CVP priority order regarding the FCAS regulation and contingency services.

4.1.2. AEMO's conclusion

When AEMO reviewed the CVPs we assessed that the regulation services needed to be a higher priority compared to the contingency services as regulation was being supplied at all times and not following a contingency.

4.2. Constraint Automation

4.2.1. Issue summary and submissions

Constraint Automation is briefly referred to in section 8.3 of the Guidelines. CS Energy proposes that reference be made to a detailed description of Constraint Automation in AEMO procedure, SO_OP3705 Dispatch , section 19.5 that will provide the required level of detail for the Guidelines.

4.2.2. AEMO's conclusion

AEMO will update the Constraint Formulation Guidelines to include more information on the Constraint Automation system.

5. Draft determination on proposal

Having considered the matters raised in submissions to the consultation paper, AEMO's draft determination is to amend the Constraints Formulation Guidelines in the form published with this draft report, in accordance with NER clause 3.8.10(c).

The published draft Constraints Formulation Guidelines is marked up to show changes from the version issued with the consultation paper.

Appendix A. Glossary

| Term or acronym | Meaning |
|-----------------|-------------------------------------|
| CFG | Constraints Formulation Guidelines |
| CVP factor | Constraint Violation Penalty factor |
| FCAS | Frequency Control Ancillary Service |
| NER | National Electricity Rules |