



Credit Limit Procedures – IESS and related changes

Draft Report – Standard consultation
for the National Electricity Market

Published: 10 November 2023

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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 (**Consultation**) on its proposal (**Proposal**) to amend the National Electricity Market (**NEM**) Credit Limit Procedures (**Procedures**), to:

- implement the *National Electricity Amendment (Integrating energy storage systems into the NEM) Rule 2021 (IESS Rule)* by reflecting changes to terms and concepts in the National Electricity Rules (**NER**) under the IESS Rule;
- account for ancillary services payments and costs in prudential settings; and
- improve prudential determinations for new participants with bidirectional energy flows.

This Consultation is undertaken as required by NER 3.3.8(g) following the standard rules consultation procedure in NER 8.9.2.

In the Consultation Paper published on 14 August 2023, AEMO sought feedback on the Proposal.

AEMO received no submissions in response to the Consultation Paper.

Draft determination

AEMO's draft determination is to implement the Proposal and amend the Procedures to reflect the form published with this draft report, with a proposed effective date of **3 June 2024**.

Consultation notice

AEMO invites written submissions from interested persons on the Proposal and issues identified in this draft report to **prudentials@aemo.com.au** by 5:00 pm (Melbourne time) on **11 December 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.

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, 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.

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1. Stakeholder consultation process

As required by National Electricity Rules (**NER**) clause 3.3.8(g), AEMO is consulting on proposed amendments to the Credit Limit Procedures (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
NEM Wholesale Consultative Forum	18 July 2023
Consultation paper published	14 August 2023
Submissions due on consultation paper	22 September 2023
Draft report published	10 November 2023
Submissions due on draft report	11 December 2023
Final report published	22 December 2023

AEMO's consultation webpage for the Proposal is at: <https://aemo.com.au/consultations/current-and-closed-consultations/credit-limit-procedures-ies-and-related-changes> 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 did not receive any written submissions or hold any meetings with stakeholders.

2. Background

2.1. Context for this consultation

In December 2021, the AEMC made the *National Electricity Amendment (Integrating energy storage systems into the NEM) Rule 2021 (IESS Rule)*. The IESS Rule updates the regulatory framework to recognise energy storage systems and hybrid facilities in the NER (as ‘bidirectional units’ and ‘integrated resource systems’) and make it easier for operators of those facilities to register and participate in the NEM. The majority of NER changes introduced by the IESS Rule will come into effect on 3 June 2024. The IESS Rule introduced a transitional provision which requires AEMO to review, and where it considers it necessary or desirable, amend and publish, procedures to take into account the IESS Rule (NER 11.145.9).

The concepts and associated terminology introduced by the IESS Rule will necessitate corresponding terminology updates to the Procedures. At the same time, AEMO has taken the opportunity to consider how to address gaps in the Procedures in accounting for:

- Ancillary services trading amounts.
- Bidirectional flows for relevant new market participants,

Historically these gaps have not had a material prudential impact. However, as the number of energy storage systems and hybrid facilities in the NEM continues to grow, they are increasingly likely to result in more significant misalignment of some market participants’ credit support requirements with their prudential risk. AEMO considers these issues should be addressed by amending the Procedures to appropriately account for these matters in prudential calculations.

2.1.1. Credit support in the NEM

Market participant confidence in the financial settlement of spot electricity transactions is critical to the operation of the NEM and setting the spot market price. AEMO’s obligation to settle payments in a billing period is limited to the funds received from market participants in that billing period or provided under credit support arrangements and security deposits. Any shortfall in funds available to make payments in a billing period will proportionately reduce the amount of energy or reallocation payments due to be made by AEMO in that billing cycle (typically resulting in short payments to generators).

Credit support requirements should be set at a level that ensures that in 98 out of 100 of market participant default events, AEMO holds enough credit support to avoid a shortfall. This is referred to as the 2% prudential standard.

The NER require market participants to provide credit support in the form of unconditional guarantees to AEMO from acceptable financial institutions, at or above the value of the maximum credit limit (**MCL**) determined for each market participant in accordance with the NER and the Procedures. The MCL, therefore, determines the minimum credit support available to achieve the objective of meeting the prudential standard.

2.1.2. IESS Rule change

The IESS Rule will make a number of NER changes including:

- A new registration category, the Integrated Resource Provider (IRP), that allows storage and hybrids to register and participate in a single registration category rather than under two different categories.

- New classification categories for energy producing and consuming facilities, including bidirectional units, integrated resource systems and ancillary service units.
- Clarity for the scheduling obligations that apply to different configurations of hybrid systems, including DC-coupled systems, so that operators of these systems have the flexibility to choose whether to be scheduled or semi-scheduled.
- Allowing hybrid systems to manage their own energy behind the connection point, subject to system security limitations.
- Clarifying that the current approach to performance standards that are set and measured at the connection point will apply to grid-scale storage units, including when part of a hybrid system.
- Transferring existing small generation aggregators to the new IRP category, with new aggregators of small generating units and/or storage units also registering in this category.
- Aggregators registered in the IRP category will be able to provide market ancillary services from generation and load.
- Amending the framework to recover non-energy costs based on a market participant's net consumed and sent out energy at each market connection point over relevant intervals, irrespective of its registration category.

The Proposal aims to ensure that the Procedures will reflect all relevant changes from the IESS Rule. Further context on this aspect of the Proposal is provided in Section 3.1.

2.1.3. Ancillary services

AEMO procures ancillary services in accordance with its obligation under the NER to maintain and improve power system security. Market and non-market ancillary service costs incurred depend on the service price and quantity required at a given time. Market ancillary service payments in particular can vary substantially from period to period. The ancillary service payments made to each ancillary service provider are recovered from market participants based on their generated or consumed energy, using an allocation framework established in the NER for each type of ancillary service.

Currently under the Procedures, the MCL calculations do not consider ancillary service trading amounts receivable or payable by market participants, although the credit support held by AEMO for a defaulting market participant would be used to pay its share of the ancillary service costs. Ancillary service payments are not subject to short payment provisions under the NER, which could increase the potential for energy and reallocation payments to be reduced in cases where credit support is insufficient.

As the level and diversity of participation in the ancillary service markets increases, the Proposal aims to ensure that MCL calculations appropriately reflect the anticipated net ancillary service revenues or liabilities of market participants. Further context on this aspect of the Proposal is provided in Section 3.2.

2.1.4. Prudential requirements for new market participants

The Procedures define specific MCL calculations for new market participants based on participant type. These calculations only apply for an initial period (approximately three months) beyond which actual load and/or generation data is used to determine MCL. In general, MCL calculations for new market participants considered load only (not generation). There is no specific calculation available for market participants with bidirectional flows.

Further context on this aspect of the Proposal is provided in Section 3.3.

2.2. NER requirements

The Procedures are made under clause 3.3.8 of the NER, with the objective of establishing the process by which AEMO determines the prudential settings for each market participant so that the 2% prudential standard is met for the NEM. The prudential settings for a market participant comprise its MCL, outstandings limit (**OSL**) and prudential margin (**PM**). The MCL is the sum of the OSL and the PM (under clause 3.3.8(k) of the NER), and each market participant is required to procure credit support equal to or greater than its MCL. AEMO may draw down on the credit support and apply it against the market participant's liabilities in the event of a default.

The prudential standard of 2% is set by clause 3.3.4A of the NER and refers to the 'prudential probability of exceedance'. That is, the probability of a market participant's MCL being exceeded by its outstandings within 7 days after a payment default (being the 'reaction period' within which the market participant is likely to be suspended).

Clause 3.3.8(d) of the NER sets out the factors that AEMO must take into account when determining the prudential settings methodology, which are:

- Regional reference prices.
- Time of year.
- Volatility of load and regional reference price for a region.
- AEMO's estimate of a market participant's generation and load.
- The relationship between average load and peak load for a market participant.
- Prospective reallocations for the assessment period.
- Correlations between energy, reallocations and the regional reference price,
- Statistical distribution of any accrued amounts owing to AEMO.
- The time period for which the prudential settings are being calculated.
- Any other factors AEMO considers relevant having regard to the objective of the Procedures to meet the prudential standard for the NEM.

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 and discussion 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.	Changes to reflect the IESS Rule	AEMO
2.	Accounting for ancillary services in the prudential settings	AEMO
3.	Prudential calculations for new market participants with significant bidirectional flows	AEMO

Each of the material issues in Table 2 is discussed below.

3.1. Changes to reflect the IESS Rule

3.1.1. Issue summary and submissions

AEMO has identified changes to the Procedures which are necessary or desirable to take into account the NER amendments made by the IESS Rule. These changes are administrative (i.e. replacing existing terms with new terms from the NER), and result in no changes to the current methodology for calculating MCL under the Procedures. No submissions were made in relation to this issue.

3.1.2. AEMO's assessment

In accordance with NER 11.145.9, AEMO proposes to amend the terminology used in the Procedures to reflect and give effect to the IESS Rule. The most significant terminology changes proposed will:

- Where appropriate, replace load and generation terminology with terms reflecting energy quantities.
- Include IRPs as a market participant category and remove small generation aggregators for the purposes of calculating prudential requirements.
- Change references to generating units either to production units or, where appropriate, replace them with terms reflecting energy quantities.

These changes reflect the updates which are being made to AEMO's systems to implement the IESS Rule. They will also ensure consistency with the amendments to the NER, enhancing clarity and certainty of interpretation.

3.1.3. AEMO's conclusion

The Procedures should be amended to reflect the terminology changes arising from the IESS Rule.

3.2. Accounting for ancillary services in the prudential settings

3.2.1. Issue summary and submissions

Currently, the methodology for calculating a market participant's MCL does not consider trading amounts relating to ancillary services (either payments or recovered costs). When the Procedures were first developed, trading amounts associated with ancillary services were generally considered to be marginal compared with energy and reallocations. However, in recent years the level and diversity of participation in ancillary services markets has substantially increased and ancillary service trading amounts have

grown to become more significant. In some cases these amounts can have a material impact on MCL calculations, potentially leading to two issues:

- Overestimating prudential requirements
- Underestimating prudential requirements

No submissions commented on this issue.

3.2.2. AEMO's assessment

AEMO proposes to update the MCL calculations in the Procedures to include an estimated ancillary service trading amounts value (**EAS\$**) in the OSL and typical accrual (TA) calculations. The EAS\$ would be an amount that represents the estimated average daily dollar value of ancillary service trading amounts for that Market Participant and would be calculated by referencing historical data and transaction patterns.

The key outcomes of the proposed changes will be:

- For market participants who receive net ancillary service payments – a potential decrease in MCL (in some cases to zero). This change will benefit market participants with batteries, in cases where ancillary service provision is a primary source of that participant's NEM settlement revenue.
- For participants who make net ancillary service payments – a potential increase in MCL. Based on AEMO's analysis, very few participants in this category would be impacted, as in most cases, any increase in MCL would be lower than the effects of rounding (i.e. rounding up to nearest \$10,000 under \$250,000, and the nearest \$100,000 if over \$250,000).

3.2.3. AEMO's conclusion

The Procedures should be amended to include an estimated ancillary service trading amounts value in the OSL and TA calculations, to enable a more accurate assessment of prudential requirements for all market participants.

3.3. Prudential calculations for new market participants with significant bidirectional flows

3.3.1. Issue summary and submissions

Market participants with bidirectional flows are currently classified in the NEM as both a market customer and a market generator. Under the IESS Rule, from June 2024 participants with bidirectional facilities (such as batteries) will be registered under the new IRP market participant category. The Procedures do not include a specific approach for calculating MCLs for such participants at the time of registration. The current Procedures outline the process by which MCL is calculated for new market participants (i.e. before AEMO has actual data to base the calculations on) but this does not account for their generation. This results in MCL determinations that are likely not commensurate with the prudential risks such participants represent, considering their load/discharge characteristics.

No submissions commented on this issue.

3.3.2. AEMO's assessment

AEMO considers that for new market participants with significant bidirectional flows (i.e. batteries and some hybrid systems), the current MCL calculations (which are based solely on load and do not include generation) are not commensurate with prudential risks.

AEMO proposes to add a new section to the Procedures to describe how MCL will be calculated for new participants with “Significant Bidirectional Flows”.

AEMO proposes to define Significant Bidirectional Flows in the Procedures as market participants with “bidirectional units where the difference between the output and consumption attributable to the unit in a relevant period is anticipated to be less than 30%”. The threshold value of 30% was chosen as it will allow a variety of bidirectional units to be assessed under this new methodology but will exclude systems with small bidirectional flows.

For such participants, MCL will be set at \$10,000 per 100MW (or part of) of production capacity, allowing prudential risk to be adequately covered and the 2% prudential standard met, while keeping the process simple for participants to understand and low cost (in terms of credit support requirements).

For new market participants with significant bidirectional flows, the proposed approach will:

- Result in an MCL that is equal to or potentially lower than under the current methodology.
- Provide certainty for new market participants with significant bidirectional flows about how MCL will be calculated and the amount of collateral they will be required to provide at the time of registration to meet their prudential obligations under the NER.

3.3.3. AEMO's conclusion

AEMO proposes that the Procedures be amended to include a specific MCL calculation for new market participants with “Significant Bidirectional Flows” which considers the specific prudential risk associated with such participants.

3.4. Proposed effective date

The proposed effective date for all amendments to the Procedures considered in the Proposal is 3 June 2024, when the IESS Rule comes into effect.

4. Other matters

There were no submissions commenting on the proposed changes, and there are no other matters for discussion in relation to the consultation.

5. Draft determination on Proposal

AEMO's draft determination is to amend the Procedures in the form published with this draft report, in accordance with NER 3.3.8 (g).

Implementation of the Proposal by amending the Procedures in this way, will meet the objectives of the credit limit procedures as set out in NER 3.3.8 by:

- Ensuring the prudential standard is met for all relevant participant categories in the NEM;
- Improving existing methodologies to enable AEMO to take into consideration more accurate information about generation and load for certain categories of market participants.

The updated terminology and methodologies in the amended Procedures will be clearer for participants to understand and will be more closely aligned to participant's actual activities and prudential risks.

5.1. Meeting the objectives of the NER and the NEO

The confidence of the market participants in the financial settlement of spot electricity transactions is critical to the operation of the NEM and setting the spot market price. An enabler of this confidence, under the NER, is the setting of credit support arrangements so that in 98 out of 100 of participant default events, AEMO holds enough credit support to avoid a shortfall (otherwise referred to as the 2% prudential standard under NER 3.3.8 (b)).

In 2022, AEMO's report on the *Effectiveness of the NEM Prudential Settings Methodology*¹, found that the prudential standard was not met in most regions over the analysis period, being exceeded in the NSW region at 2.83% and the QLD region at 2.66% in the VIC region at 3.14% and the TAS region at 5.17%. The report also stated that AEMO would “explore additional ways the NER, regional model and/or the Procedures could be updated to ensure the prudential standard is met in the future”.

While there were a variety of reasons for the prudential standard not being met in 2022, to meet its obligations under NER 3.3.8(b), AEMO makes continuous improvements to its prudentials methodology (such as the proposed changes) to ensure that the prudential standard will be met in the future. By better aligning the actual activities of market participants with their prudential settings and by accounting for ancillary service costs and reflecting the operation of systems with bidirectional energy flows, the proposed changes will improve AEMO's ability to determine the prudential setting for each market participant, thereby improving the likelihood of the 2% prudential standard being met.

The proposal also meets the NEO of promoting the efficient operation of electricity services for the long term interests of consumers by seeking to ensure that the costs of non-payment are not factored into electricity prices.

Additionally, as result of the proposed changes, some market participants will have lower credit support requirements (and thus lower credit support costs) that more closely reflect their actual prudential risk profile. In some cases, credit support requirements will be reduced to zero, eliminating both the costs and the administrative burden associated with credit support provision. AEMO considers that these outcomes are consistent with the NEO of promoting the efficient operation of electricity services for the

¹ https://aemo.com.au/-/media/files/electricity/nem/settlements_and_payments/prudentials/report-on-effectiveness-of-the-nem-prudential-settings-methodology-2022.pdf?la=en

long term interests of consumers by reducing the costs of participating in the NEM for some market participants.

The *Statutes Amendment (National Energy Laws) (Emissions Reduction Objectives) Act 2023 (SA) (Amending Act)* recently amended the NEL to incorporate a new emissions reduction element into the national electricity objective (**NEO**). AEMO is not required to apply the amended NEO to a process which has started but will not be completed on 21 November 2023, but it has a discretion to do so. This consultation process is such a process.

AEMO has determined that the amended NEO should not apply to this consultation process because the application of the amended NEO will not make a material difference to AEMO's final determination. This is because:

- the framework for the credit limit procedures set out in NER 3.3.8 does not allow for consideration of the achievement of emissions reduction targets and there is no other requirement or basis for AEMO to consider the new emissions reduction element in the NEO in making its prudential decisions;
- the amendments to the Procedures will have no influence on the level of Australia's greenhouse gas emissions or on related emissions targets, and so consideration of emissions reduction or related targets will not be relevant to the Procedures or this consultation process;
- actions taken under the Procedures fall within the real time systems and operations functions performed by AEMO which are not intended to be affected by the new emissions objective².

5.2. Effective date

AEMO's proposed effective date for the determination is 3 June 2024, when the IESS Rule comes into effect.

² Second Reading Speech, Statutes Amendment (National Energy Laws) (Emissions Reduction Objectives) Bill 2023, Hansard, South Australian House of Assembly, Wednesday June 14, 2023 (The Hon A Koutsantonis).

Appendix A. Glossary

Term or acronym	Meaning
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator Limited
IRP	Integrated Resource Provider
MCL	Maximum Credit Limit
NEM	National Electricity Market
NEO	National Electricity Objective
NER	National Electricity Rules
OSL	Outstandings Limit
PM	Prudential Margin
Procedures	The NEM Credit Limit Procedures
SGA	Market Small Generation Aggregator