Credit Limit Procedures - Reassessing MCL in Extreme Market Conditions

Consultation paper – Standard consultation for the National Electricity Market

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Explanatory statement and consultation notice

This consultation paper commences the first stage of the standard rules consultation procedure conducted by AEMO to consider proposed amendments to the Credit Limit Procedures (Procedures), to add a process to reassess market participant prudential settings during extreme market conditions. The Credit Limit Procedures are made under clause 3.3.8 of the National Electricity Rules (NER). The standard rules consultation procedure is described in NER 8.9.2.

The Procedures establish the methodology by which the AEMO determines the credit support requirements for each market participant – represented by the maximum credit limit (MCL) - so that the 2% prudential standard is met for the NEM. The prudential standard represents the probability of a market participant's credit support being insufficient to cover its outstanding liabilities by the time of suspension, following a payment default.

A sustained period of very high pricing in the NEM in 2022, particularly from May onwards, resulted in a mismatch between market participant credit support and accrued liabilities. This was due to actual spot prices being significantly higher, for an extended period of time, than the forecast prices used in the credit support calculations. This highlighted a gap in the Procedures, which allow AEMO to revise credit support requirements for load and reallocation changes, but not for significant price changes. This mismatch between credit support and actual market liabilities has led to an increase in the probability of a shortfall upon a default, beyond the 2% prudential standard prescribed in NER 3.3.4A.

AEMO is proposing to amend the Procedures to assist in re-establishing the prudential standard. The proposed amendments would allow AEMO, to reassess a market participant's credit support requirements to better align with accrued liabilities as described below:

- AEMO may reassess a market participant's MCL when its average current accrued liabilities over the prior 21 days exceeds the amount of credit support held by AEMO for the market participant.
- In these circumstances, the MCL can be increased in line with the average current accrued liabilities.
- A market participant can ask AEMO to review their revised MCL if their current accrued liabilities are on a downward trend and below their outstandings limit.

The proposed amendments **will not remove** the ability for market participants to provide security deposits to manage changes in their prudential position on a short term basis.

AEMO has considered other options to ensure that credit support requirements are better aligned with accrued liabilities and the 2% prudential standard is met. These rely on ensuring the forecast prices used in the typical seasonal MCL calculations are more reflective of actual market conditions by being more responsive to market movements.

AEMO considers the proposed amendments to be preferable to the alternative options considered as they:

- Can be implemented quickly and in a cost-effective way with minimum system/process changes.
- Do not change seasonal market participant MCL calculations or increase seasonal collateral requirements.
- Are an efficient way to increase market participants credit support requirements only if actual liabilities are high.

- Require no/minimal process or system changes from participants.
- Allow all other aspects of the prudentials process to remain unchanged.

The detailed sections of this consultation paper include more information on the proposal and AEMO's reasons for making it.

Consultation notice

AEMO is now consulting on this proposal and invites written submissions from interested persons on the issues identified in this paper to prudentials@aemo.com.au by 5:00pm (Melbourne time) on 27 January 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. We 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 the National Electricity Rules (NER) clause 3.3.8(g), AEMO is consulting on proposed amendments to the Credit Limit Procedures (proposal) in accordance with the standard rules consultation procedure in NER 8.9.2.

Note that this consultation paper uses terms defined in the NER and in the Procedures, which are intended to have the same meanings. There is a glossary of additional terms and abbreviations in Appendix A.

AEMO's indicative process and timeline for this consultation is outlined below. Future dates may be adjusted and additional steps may be included if necessary, as the consultation progresses.

Consultation steps	Dates
Initial stakeholder presentation and opportunity for feedback	11 October 2022
Consultation paper published	18 November 2022
Submissions due on consultation paper	27 January 2022
Draft report published	3 March 2023
Submissions due on draft report	7 April 2023
Final report published	5 May 2023

On 11 October 2022, AEMO presented an outline of the proposal to the Settlement Managers Working Group (SMWG). The online meeting was attended by approximately 100 stakeholders. Some market participant questions were answered at the meeting, and AEMO invited additional feedback from participants after the presentation.

AEMO's SMWG presentation is available at: https://aemo.com.au/en/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/settlement-managers-working-group

AEMO incorporated responses to the relevant questions from the SMWG in this consultation paper, including on the continued usage of security deposits to manage trading margin breaches, the process around supplying additional guarantees, the use of pre-payments in the NEM and the potential for load following reallocations and digital guarantees.

2. Background

2.1. NER requirements

Under NER 3.3.8, AEMO is responsible for developing, publishing and maintaining the Procedures. The Procedures may be made or amended in accordance with the Rules consultation procedures set out in NER 8.9.

The Procedures establish the methodology by which the 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 are its maximum credit limit (MCL), outstandings limit (OSL) and prudential margin (PM). The MCL is the sum of the OSL and the PM (under NER 3.3.8(k)), 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 in NER 3.3.4A, 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).

NER 3.3.8(d) 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.

2.2. Context for this consultation

The Procedures use forecast regional market prices and associated volatilities in the calculations to determine market participant MCL. The methodology for determining forecast regional prices and volatilities relies on a complex statistical calculation based on past NEM data, which aims to smooth changes in MCLs resulting from one-off changes to price and volatility, while responding to longer-term trend changes. The methodology cannot accurately incorporate sustained very high market prices under extreme market conditions, into the forecasts, and under certain circumstance can result in forecast prices and volatilities being significantly below actual market conditions. The MCL methodology is described in more detail in section 3.

Market conditions in the NEM from May 2022 onwards resulted in a mismatch of market participant prudential settings and market participant accrued liabilities, as actual spot prices were significantly higher (for an extended period of time) than the forecast regional prices (and volatilities) used in the MCL calculations for the same period.

This meant the MCL for a significant number of market participants (and hence their minimum credit support requirement) was below their outstandings for extended periods. In these cases there was a 100% probability of the market participant's outstandings exceeding its MCL if it failed to rectify a breach of its OSL.

This highlighted a gap in the Procedures, which allow AEMO to reassess MCLs for any load and reallocation changes, but not for significant price changes, increasing the probability of a shortfall beyond the prudential standard.

The proposed changes aim to reduce the risk of loss given default to a level commensurate with the prudential standard going forward. Further context is provided in section 3.

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. Proposal discussion

3.1. Current position

3.1.1. 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 arrangements need to 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.

3.1.2. How does AEMO determine the level of credit support?

The NER requires market participants to provide credit support in the form of an unconditional guarantee to AEMO from an acceptable financial institution, at or above the pre-determined MCL value. The MCL is, therefore, what determines the minimum credit support available to meet the prudential standard. As noted in Section 2.1, the MCL is the sum of OSL and PM for a market participant.

The OSL is the amount needed to cover liabilities for all trading periods that have occurred but not yet been paid for (i.e. 35 days). The PM is the buffer intended (i.e. 7 days) to cover accruing liabilities while a defaulting participant is removed from the market (suspended).

In simplified terms:

- OSL = Load x Forecast Price x Forecast Volatility Factor x PRAF[1] x 35 x GST
- PM = Load x Forecast Price x Forecast Volatility Factor x PRAF x 7 x GST

AEMO uses a complex statistical calculation to determine the regional forecast prices and volatilities used in the MCL calculation based on past NEM data, which aims to smooth changes in MCLs resulting from one-off changes to price and volatility, while responding to longer-term trend changes.

3.1.3. When can AEMO reassess a market participants MCL?

AEMO can, and routinely does, reassess a market participant's MCL if the market participant's load, generation or reallocations change. Currently AEMO **cannot** reassess a market participant's MCL if actual prices/volatility are higher than those used in the MCL calculation. As a result, market participant actual liabilities can significantly exceed their MCL at times of very high spot prices.

3.1.4. When are security deposits used?

Security deposits can be used by market participants to manage their day to day outstandings, on occasions where their liabilities exceed a predetermined limit (trading limit breach) based on the credit support held by AEMO. Given the smoothing mechanisms applied in the MCL calculation, it is expected

[1] PRAF – Participant Risk Adjustment Factor

that there will be periods of market volatility, causing occasional trading limit breaches that it is not practical to manage by providing additional credit support for relatively small amounts or short periods.

Security deposits are envisaged under the NER and the Procedures as a short term and marginal ways for market participants to manage liabilities, as inherently they are a lesser form of security than unconditional guarantees. Under the NER, security deposits cannot be used to meet MCL obligations, which are always required to be covered by credit support. Importantly, only the value of the MCL (representing credit support) is used to measure the prudential standard.

Please note that the proposed amendments will not affect market participants ability to manage any trading limit breaches with security deposits. Processes for the provision, return and exchange of security deposits will remain unchanged.

Please see the AEMO's NEM Security Deposit Arrangements document for all processes that apply to security deposits:

https://aemo.com.au/-/media/files/electricity/nem/settlements_and_payments/prudentials/2018/security-deposit-arrangements-v13.pdf?la=en&hash=57548EA63089407C65F2CAF7C8DC9FE0

3.2. Decline in the prudential standard

Over the 2022 winter season, with very high prices, the credit support held by AEMO to protect the market against shortfall was significantly below the level needed to meet the 2% prudential standard.

The low amount of credit support held by AEMO is a reflection of low MCLs, as a result of overall low forecast volatility-adjusted prices (2 to 4 times lower than actuals) used in the MCL calculations. The forecast volatility-adjusted prices are based on long term, seasonal statistical averages, and cannot take account of long running extreme market conditions, such as those experienced over May to July 2022.

As many MCLs were significantly below participant outstandings based on actual market conditions, the risk of a shortfall increased significantly above the 2% prudential standard. Additionally, to manage their trading limits, market participants increasingly had to provide AEMO with large security deposits (up to nearly one billion dollars, as shown in Table 1), which AEMO held for extended periods, contrary to the position envisaged in the NER that the bulk of market participant accrued liabilities should be covered with credit support (unconditional guarantees).

Table 1 NEM prudential summary (July 2022)

Aggregate MCL	Credit support	Security Deposits	Credit support + Security deposits
~1.2 $B	~$2.2B – 1.8 times the total MCL	> $900M – 30% of total collateral held	~ $3.2B – 2.5 times the total MCL requirements

3.2.1. Meeting the 2% prudential standard

The prudential standard is the value of the prudential probability of exceedance (POE), expressed as a percentage and is set at 2% (NER clause 3.3.4A). The POE over the past three years, for each NEM region is shown in Table 2.

As shown, at the end of the current analysis period (31 August 2022), the prudential standard was only met in the South Australia region. The prudential standard is exceeded in all other regions, being between 2.66% and 5.17%[2]. The POE was on a downward trend for all regions since 2017/2018 in response to the measures taken by AEMO to recalibrate and adjust the regional model used for the calculation. However, since 2021, and particularly in 2022, there has been a large increase in POE in all regions. The POE increased by between 0.53% to 0.86% over the past year.

Exceeding the prudential standard does not mean there will be a settlement shortfall in any given year. The purpose of the prudential standard is to provide a target within which AEMO seeks to maintain the risk of loss in the event of market participant default. However, in 2022 to date, there have been a number of default events, including two resulting in a shortfall, despite AEMO's highly responsive operational processes. This confirms there is a very real risk to the market, and AEMO considers it appropriate to take steps to improve the correlation between the MCL and actual outstandings during extreme market conditions.

Table 2 POE over the past three years

	Prudential data to 31 August 2020	Prudential data to 31 August 2021	Prudential data to 31 August 2022	Increase from 2021
NSW	**2.00%**	**2.30%**	**2.83%**	**0.53%**
QLD	**1.50%**	**1.80%**	**2.66%**	**0.86%**
SA	**1.30%**	**1.30%**	**1.90%**	**0.60%**
TAS*	**4.70%**	**4.40%**	**5.17%**	**0.77%**
VIC	**2.60%**	**2.60%**	**3.14%**	**0.54%**

3.3. Proposed solution – key considerations

AEMO's key considerations in developing the proposed solution for an MCL reassessment was that it:

- Should act as a safety valve and only be triggered after a protracted period of a market participants liabilities significantly exceeding their credit support.
- Should not be triggered under normal market conditions or under short lived price spikes (e.g. heatwaves).
- Should give the option for AEMO to reassess MCL, but not compel it to do so. There may be circumstances where although the trigger point is met, there are other extenuating reasons an MCL review is not necessary for a particular market participant.
- Should be easy for market participant to understand and plan for ahead of time.
- Should allow for a staged exit from the reassessed MCL, where the market participant can request an MCL review if liabilities are falling, but are not yet at the previous MCL level. This may allow some of the additional credit support to be returned or exchanged by AEMO where practicable.

AEMO's proposed solution has 3 key steps (described in the sections below):

1. Triggering an MCL reassessment
2. Calculating the revised MCL

[2] The TAS region joined the NEM in 2006 (1999 for all other regions), resulting in a smaller data set being available to use in the regional model, and making it harder for the prudential standard to be met. This, together with the Basslink outage in 2016, partially accounts for the POE for the TAS region being higher than for other regions.

3. Exiting from the revised MCL.

3.4. Triggering an MCL reassessment

AEMO proposes a new clause in the Procedures, which if certain trigger conditions are met, gives AEMO the option to reassess a market participant's MCL so that it is more closely aligned with current accrued liabilities. After looking at a variety of ways an MCL reassessment could be triggered, with the key variables being the amount owed by a market participant and the amount of collateral held for that market participant, AEMO proposes using a comparison between:

(i) the credit support (i.e. guarantee amount) held by AEMO for the market participant, and

(ii) the average current accrued liabilities of the market participant over 21 days.

Thus the proposed trigger for AEMO being able to reassess MCL would be when a market participant's average current accrued liabilities (i.e. the average dollar amount owed to AEMO) over the prior 21 days, exceeds the amount of credit support held by AEMO for that market participant.

3.4.1. Credit support held

Managing trading limit breaches on a daily basis to tight timelines by providing security deposits can place significant financial and administrative stress on participants. Thus, at times when MCL is inadequate compared to market participants liabilities, a significant number of market participants voluntarily choose to provide additional credit support to AEMO to manage their prudential obligations (or use reallocations to the same effect).

For this reason, the amount of credit support held by AEMO is proposed as part of the trigger for MCL reassessment, as participant MCL only needs to be reassessed if a market participant has not already taken proactive steps to manage their prudential obligations.

3.4.2. Average current accrued liabilities over 21 days

AEMO is proposing to use a 21 day average of market participant current accrued liabilities as part of the trigger for MCL revision. A 21 day average was chosen as it's believed to be a:

- long enough time to avoid any short periods of high prices/high participant liabilities triggering the MCL reassessment process; and
- short enough time to ensure that AEMO deals with extreme events where MCLs are inadequate in a timely manner to avoid eroding the prudential standard (and hence increasing the potential for a shortfall).

Additionally, as the trigger point doesn't compel AEMO to reassess MCL, but rather gives AEMO the option to do so, it gives AEMO a long enough time period to assess whether any price event is short and transitionary and increase in MCL is not warranted, or a period (like winter 2022) where there is a significant and ongoing uplift in prices over a long period of time.

3.5. Calculating the revised MCL

Once the option of an MCL reassessment has been triggered, AEMO proposes that the MCL be increased in line with the average current accrued liabilities. Under the proposal, the reassessed OSL would be equal to the market participant's average current liabilities over the prior 21 days, according to the following:

- Revised OSL = average 21 day current accrued liabilities

- PM = unchanged
- Revised MCL = Revised OSL + PM

This will ensure that the additional credit support amount needed to meet the revised MCL will be adequate, and not result in a trading limit breach at that point in time. Trading margin limit breaches may happen in the future and they can be handled under existing processes, with the use of security deposits, reallocations and/or additional credit support as preferred by the market participant.

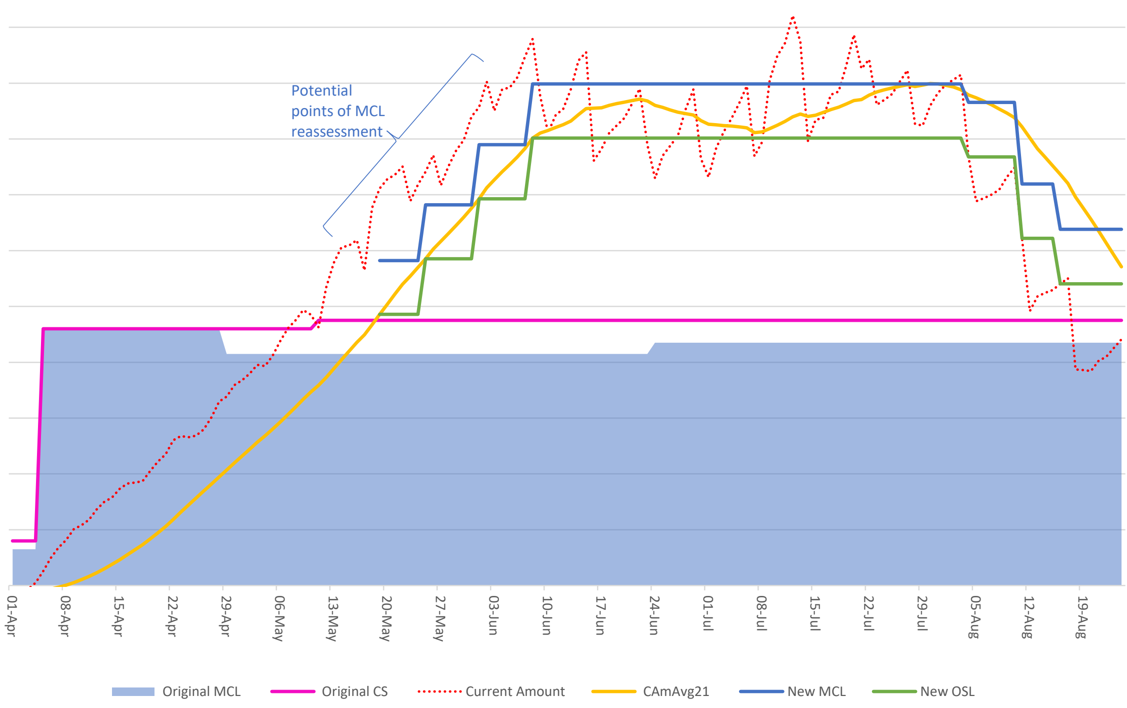
Once the revised MCL is calculated, the standard process for an ad-hoc MCL review would be followed. The market participant would receive an MCL letter and would then have to provide additional credit support to meet that MCL.

When AEMO holds valid credit support that is greater than or equal to the market participant's reassessed MCL, any security deposits not required to maintain a market participant's trading limit can be applied to payment of monies owing by that market participant to AEMO.

Figure 1 shows an illustrative example of a market participant's MCL, credit support, daily current accrued liabilities (Current Amount) and the average of current accrued liabilities over 21 days (CAmAvg21). It demonstrates how the MCL could be increased to follow accrued liabilities. There may be multiple MCL reassessments, if the extreme market conditions stretch over long time period.

In the illustration, MCL is shown to increase instantly once the average accrued liabilities over 21 days exceed the amount of credit support. In reality, the step up in MCL would not be instantaneous, as time would be required for AEMO to review the MCL and issue the MCL letter, which would be effective at a specified time to allow the market participant to provide the appropriate credit support to AEMO.

Figure 1 Increasing MCL: illustrative example



3.6. Exiting from a revised MCL

After considering a variety of ways to reduce MCL once market participant's accrued liabilities fall, AEMO's proposal is to use a comparison between the revised OSL and accrued liabilities.

This proposal would allow a 'staged' exit from the revised MCL, where AEMO could reduce MCL once participant accrued liabilities fall to a level below their current OSL, and have been on a downward trajectory for the previous 7 days. This potentially allows part of the market participant's credit support to be returned before their accrued liabilities return below the original MCL level.

The Procedures would allow a market participant to ask AEMO to review their revised MCL in these circumstances.

AEMO would then review the market participant MCL, according to the following:

- OSL = current accrued liabilities
- PM = unchanged
- MCL = OSL + PM

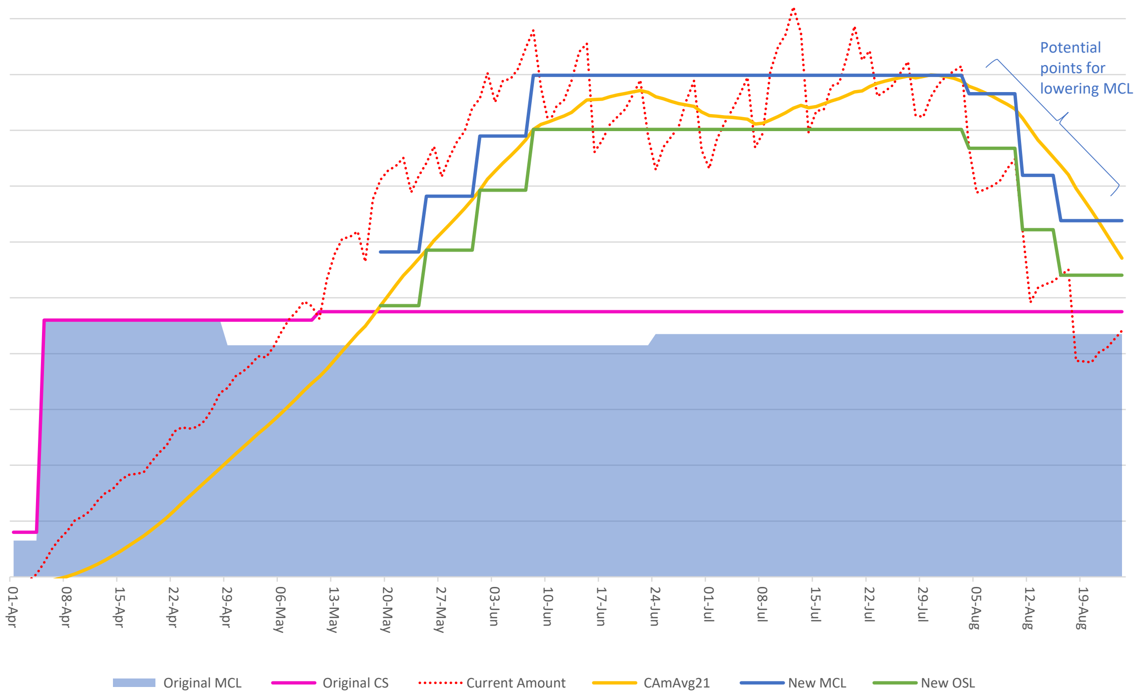
Market participants could have several downward reviews of their MCL, with credit support returned in stages (or exchanged) where the size of individual guarantees allows, as their current accrued liabilities fall.

Please note that in all cases the 'standard' MCL calculation (outlined in the CLP) is the **floor** on MCL requirements. The proposed MCL reassessment process will allow AEMO to increase collateral requirements at times of extreme market conditions. There is no proposal to reduce MCL requirements below the routine seasonal MCL calculation for a market participant.

Figure 2 shows an illustrative example of a market participant's MCL, credit support, daily current accrued liabilities (Current Amount) and average of current accrued liabilities over 21 days (CAmAvg21). It demonstrates how the MCL could be decreased to follow falling accrued liabilities. As indicated, there may be multiple assessments as accrued liabilities fall to 'normal' levels over time.

In the illustration, MCL is shown to decrease instantly once the accrued liabilities are below the OSL. In reality, the step down in MCL would not be instantaneous, as time would be required for AEMO to review the MCL and issue the MCL letter.

Figure 2 Decreasing MCL: illustrative example



3.7. Benefits of the proposed changes

AEMO considers that the proposed changes to the Procedures will have a number of benefits, including:

- **Meeting the prudential standard** - increasing MCL levels to be more in-line with actual market conditions during extended times of very high prices will help AEMO meet the 2% prudential standard set by the NER as part of the design principles of the NEM.
- **Reducing the likelihood and size of any shortfall** - by allowing AEMO to reassess MCLs, and request obtain additional credit support at times when participant liabilities exceed their existing credit support over an extended period, the likelihood of any shortfall and its size is reduced.
- **Reducing the number of trading limit breaches** - managing trading limit breaches for extended periods on a frequent (potentially daily) basis with security deposits increases the risks of default events and requires significant resources from both impacted market participants and AEMO. If market participant MCLs are better aligned with actual accrued liabilities, the number of trading limit breaches will be reduced.
- **Increasing the security of collateral held by AEMO** - in effect, the proposed changes would convert market participant security deposits to the more secure collateral of bank guarantees. In total, AEMO would hold the same amount of collateral for a participant, but the level and role of security deposits would be reduced, and better aligned with intent of the NER.
- **Prudential efficiency** - the proposed change would avoid the need for frequent credit support increases, as it will only be triggered for extreme market conditions resulting in market participant liabilities significantly exceeding MCL levels and credit support provided to AEMO. The proposal also allows for the period of increased credit support to be minimised.

3.8. Cost and benefits of proposed changes for market participants

The proposed change may have associated cost for some market participants if their MCL is reassessed upwards. Any additional costs will be based on the fees banks charge for the provision of any additional guarantees versus the cost of providing security deposits. These costs vary depending on market participant type and risk profile and may be based on a flat fee, a percentage on guarantee total and/or the requirement that the guarantee be backed by cash.

Without the proposed changes, these market participants would continue to be required to prevent or rectify any trading limit breaches by providing the same amount of cover as the proposed increase from a reassessed MCL, in the form of security deposits.

Under the proposal, market participants would be able to monitor their current accrued liabilities (as they currently can) and have the opportunity to provide additional credit support and/or use reallocations if they wish to manage their prudential position before any MCL reassessment is triggered. In this way they can ensure that at no time are they providing both a security deposit and credit support to cover the same liabilities. However, if an overlap does occur, it would only be for a maximum of one week, as any excess security deposit held by AEMO can be applied to the next settlement payment.

While this proposal may have a cost to some participants in some circumstances, conversely it will improve the integrity of the market as a whole. Specifically, it will reduce the risk to market participants who are net suppliers to the market, typically traditional generators, storage providers and demand response service providers. As shortfalls to date have been small and rare, those at risk of shortfall may not realise the potential exposure and thus the importance of the proposal. It is AEMO's responsibility to ensure that the prudential settings are appropriate for the protection of all NEM participants and adhere to the Rules and the core principles (i.e. the 2% prudential standard) that is critical to the operations of the NEM.

3.9. Specific concerns

Some stakeholders raised specific concerns about potential impacts of the proposal in AEMO's initial, informal consultation conducted through the SMWG, which are addressed here.

3.9.1. Continued use of security deposits

The proposed changes will not impact market participant ability to provide security deposits to manage trading margin breaches.

Under the NER, market participants are required to provide AEMO with valid credit support that is greater than or equal to their MCL. The MCL is already subject to regular seasonal reviews, and is also reviewed for individual market participants on an ad hoc basis for load, generation or reallocation changes, which can change the credit support requirement. Once valid credit support is provided to AEMO to cover a reassessed MCL under the proposal, any further trading limit breaches will continue to be managed as they are currently, though the use of security deposits.

3.9.2. Time for providing additional credit support

AEMO will continue to work with market participants, as it does now when ad-hoc MCL reviews are undertaken, to ensure that they are aware an MCL review will be happening and what options they may have for managing their prudential position. AEMO will also work with participants, as it currently does, to allow a reasonable notice period to provide any additional credit support required to cover a revised MCL.

3.9.3. Prepayments

There are no ‘prepayments’ in the NEM similar to those that exist in some gas markets. In the NEM, security deposits can be applied to offset final statements and have no effect on MCL calculations.

3.10. Alternative options considered

AEMO considered other potential options to ensure that credit support requirements are better aligned with accrued liabilities and the 2% prudential standard is met.

The proposal relies on increasing market participant MCL if there is a sustained increase in participant liabilities (i.e. post event). The alternative options AEMO considered rely on ensuring the forecast prices used in the seasonal MCL calculations are more reflective of actual market conditions by being more responsive to market movements (as opposed to the current methodology which greatly smooths out price/volatility changes and only slowly incorporates any large price changes).

This could be achieved in multiple ways, including by:

- Using the adjustable variables currently in the Procedures to ensure forecast prices/volatility are more reflective of actual seasonal market conditions.
    - Increasing the weighting factor for average prices ($W_{P,R}$) currently at 20%.
    - Increasing the cap on changes to P_R in any one year, currently +/-20%.
    - Increasing either (or both) $W_{P,R}$ or the cap on P_R (i.e. to 50%) would allow the forecast prices used in the MCL calculations to reflect recent season prices more closely, as opposed to being more reflective of longer term seasonal price averages.
    - As the longer terms average prices have tended to be lower, and recent seasonal prices higher, it is likely that an increase to either the $W_{P,R}$ or the cap on P_R would result in an increased regional forecast prices and increase seasonal MCLs for all market participants.
- Moving away from the current forecast price/volatility methodology and using an alternative methodology to forecast seasonal prices.
    - Redesign of price forecasting methodology to be more responsive to market movements.
    - Use other sources of price information such as futures prices in MCL calculations.

Assuming current price trends continue, at least in the near future, these options would invariably increase the seasonal MCL level for all market participants.

3.10.1. The preferred solution

The proposal is AEMO’s preferred option in comparison to the alternative options described above as it:

- Can be implemented quickly (within the next six months to a year) and therefore will be in place to deal with any extreme market conditions arising in the relatively near future.
- Are very cost-effective as it requires minimal system changes and relies mostly on manual inputs from AEMO.

- Does not change seasonal market participant MCL calculations and hence market participants will not have an increase in seasonal collateral requirements as a result of this change.
- Is an efficient way to increase market participants credit support requirements only if actual liabilities are high.
- Requires minimal/no process or system changes from participants.
- Allow all other aspects of the prudentials process and the Procedures will remain unchanged.

3.11. Other potential process improvements

Regardless of the implementation of the proposed changes, AEMO has an ongoing obligation to review the prudential methodology annually and assess whether it remains fit for purpose in the current NEM. As such, AEMO does not rule out subsequent changes in the future to the MCL calculation including in the way the forecast prices/volatilities are calculated. This would require significant analysis and further consultation before any changes could be made.

AEMO will also continue to investigate proposals that would be beneficial to the market overall, but could also mitigate prudential risks in extreme market conditions, including digital bank guarantees and load following reallocations as described below. However, these are not part of the proposal for this consultation.

3.11.1. Digital bank guarantees

Digital bank guarantees could significantly simplify the process of providing credit support to AEMO, and also their return/exchange, reducing the time taken and the costs and the risks associated with this time critical function. They could be especially helpful during extreme market conditions where market participants may voluntarily want to provide additional credit support to AEMO to manage their prudential proposition or may have their MCL reassessed under the proposed changes.

Over the last few years AEMO has been providing information to Lygon (a consortium created by CBA, Westpac, ANZ, Scentre Group and IBM) on how a digital bank guarantee product could cater to the specific requirements of energy markets. Lygon have presented to various market participant forums including the Settlement Managers Working Group (SMWG) on this topic. AEMO intends to continue to support prototyping of this initiative with advice on appropriate refining and testing of a digital bank guarantee platform appropriate for energy markets. While AEMO sees significant benefits to digital bank guarantees, prior to any deployment AEMO will need to be satisfied that there are no legal or rule based restrictions on using the platform.

3.11.2. Load following reallocations

Load following reallocations would require the market participant to nominate a NMI (or gensetID for generation) to participate. After each relevant trading interval, the amount of energy used for the NMI would be calculated, and a reallocation made for the dollar amount for that energy at the RRP for each trading interval. It would also work similarly for generation.

Similar to the current reallocation functionality, any ex-post reallocations would affect the prudential position of the relevant market participants. Ex-ante load following reallocations, would affect MCL calculations. Participants using load following reallocations could be expected to have a lower likelihood of their MCL being inadequate, compared with prevailing market conditions,

AEMO will continue to work on developing a process for load following reallocations and consult with participants in due course.

4. Drafting for proposed changes

AEMO has not provided a mark-up of the Credit Limit Procedures at this stage. This will be provided with AEMO's draft report on the consulted proposal, after considering feedback from the first stage of consultation.

At this stage, however, AEMO considers that the proposal could be implemented by including additional provisions in clause 9.4 of the Procedures allowing for an MCL review and increase as described in sections 3.4 and 3.5 of this consultation paper, and subsequent reviews and potential reduction towards the seasonal MCL level as described in section 3.6.

5. Summary of issues for consultation

Submissions may be made on any matter relating to the proposal discussion in this consultation paper. AEMO would welcome particular comment and feedback on the following matters:

1. Is there any additional clarifying information required in the Procedures for the reassessment of MCL under certain circumstances, so that it is better aligned with market participant current accrued liabilities?
2. Are there any additional options for the reassessing MCL when it significantly differs from market participant accrued liabilities over a significant period of time that AEMO should consider?
3. Are there comments on the trigger chosen for the MCL reassessment (i.e. average current accrued liabilities over 21 days above the credit support amount)?
4. Are there any comments on the proposed way to calculate OSL for the reassessed MCL (i.e. use the current average current accrued liabilities over 21 days) ?
5. Are there comments on the proposal to allow a market participant to ask AEMO to review their revised MCL if their current accrued liabilities are on a downward trend and below their OSL ?
6. Are there any unintended/adverse consequences of the proposed changes as described in the Procedures?

Appendix A. Glossary

Term or acronym	Meaning
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator Limited
CLP	Credit Limit Procedures
MCL	Maximum Credit Limit
NEM	National Electricity Market
NER	National Electricity Rules
OSL	Outstandings Limit
PM	Prudential Margin
PRAF	Participant Risk Adjustment Factor
Procedures	These Credit Limit Procedures
SMWG	Settlement Managers Working Group