

CREDIT LIMIT PROCEDURES: APPLICATION OF OFFSETS IN THE PRUDENTIAL MARGIN CALCULATION

ISSUES PAPER

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EXECUTIVE SUMMARY

The publication of this Issues Paper commences the first stage of the Rules consultation process conducted by AEMO to consider proposed amendments to the Credit Limit Procedures made under clause 3.3.8 of the National Electricity Rules (NER). AEMO is also consulting on related amendments proposed to the reallocation timetable published under clause 3.15.11 of the NER.

On 22 September 2016, the Australian Energy Market Commission (AEMC) made the *National Electricity Amendment (Application of Offsets in the Prudential Margin Calculation*) Rule 2016 (PM Offsets Rule).

With effect from 20 October 2017, the PM Offsets Rule gives AEMO the ability to offset trading amounts against reallocation amounts when determining a Market Participant's prudential margin (PM), as part of its prudential settings in the National Electricity Market (NEM). This would allow the PM for a Market Participant to be reduced if:

- The Market Participant has negative aggregate trading amounts (i.e. net load) and positive aggregate reallocation amounts (i.e. net credit reallocations). The PM would be based on the load offset by the net credit reallocations.
- The Market Participant has negative aggregate reallocation amounts (i.e. net debit reallocations) and positive aggregate trading amounts (i.e. net generation). The PM would be based on the debit reallocations offset by the net generation.

AEMO is required to amend its Credit Limit Procedures as necessary to take account of the PM Offsets Rule by 1 July 2017. This Issues Paper discusses the proposed amendments, together with additional proposed changes that AEMO has identified to clarify or correct other areas of the Credit Limit Procedures. AEMO also proposes to make consequential changes to the reallocation timetable and the MCL calculator.

In summary, the key proposals involve:

- Amendments to the Credit Limit Procedures in line with the PM Offsets Rule and other improvements, including:
 - Introduction of a new (and alternate) PM calculation to include offset between positive trading amounts and positive reallocation amounts. This calculation applies where a Market Participant is able to meet an extended prospective reallocations timetable requirement (14 days ahead) and opts in to the 'PM full offset' calculation. The full offset option will also require Market Participants to maintain reallocations in accordance with this extended timetable for the purposes of their outstandings limit (OSL) calculation.
 - Clarification of the PM calculation that applies for Market Participants that have not opted in for full offsets.
 - A maximum credit limit (MCL) calculation for Market Network Service Providers (MNSPs). Historically, the estimated load and estimated generation for a MNSP has been assigned as zero, resulting in zero credit support being required. However, recent experience confirms that MNSPs can frequently flow against price. This results in the NEM being exposed to a prudential risk inconsistent with the prudential standard. The MCL for a MNSP is proposed to be based on its highest level of accrued liability in the preceding year.
 - Managing MCL season transition: AEMO has recognised that the transition between seasons creates particular issues for prudential management, where a large reduction in MCL may lead to an exposure which is not consistent with the prudential standard.



AEMO has proposed provisions to recognise this issue and promote pre-emptive action by Market Participants to reduce the risk of prudential breaches.

- Estimated generation: The process for estimation of generation amounts has been reviewed and updated to protect the prudential standard. Where a generator exhibits significant differences in generation levels between 35 day outstandings periods within the past 12 months, an assessment of daily generation for inclusion in the MCL calculation may consider the lowest average generation over an appropriate period (where no outage has occurred).
- Updates to the reallocation timetable: the ex-ante reallocations timetable is extended from the current seven business days to 14 business days for Market Participants who wish to opt in to full offsets in the PM calculation.
- Updates to the MCL Calculator: the MCL calculator has been amended to include the PM full
 offset calculation. This calculator should assist participants to estimate the PM with the new full
 offset calculation.

Stakeholders are invited to submit written responses on the issues and questions identified in this paper, and any other matter they consider relevant to the proposed amendments, by **31 March 2017**, in accordance with the Notice of First Stage of Consultation published with this paper.



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1. STAKEHOLDER CONSULTATION PROCESS

As required by clause 3.3.8 of the NER, AEMO is consulting on proposed amendments to the Credit Limit Procedures in accordance with the Rules consultation procedures in rule 8.9 of the NER. In addition, AEMO is seeking feedback on its proposed changes to the reallocation timetable published under clause 3.15.11 of the NER.

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

Deliverable	Indicative date
Issues Paper published	23 February 2017
Submissions due on Issues Paper	31 March 2017
Draft Report published	28 April 2017
Submissions due on Draft Report	16 May 2017
Final Report published	28 June 2017

Prior to the submissions due date, or in a submission on this Issues Paper, stakeholders can request a meeting with AEMO to discuss the proposed changes.

2. BACKGROUND

2.1 NER requirements

Under NER clause 3.3.8, AEMO is responsible for developing and publishing the Credit Limit Procedures, which may be amended or replaced from time to time. The Credit Limit Procedures may be amended in accordance with the 'rules consultation procedures' set out in NER rule 8.9.

2.2 Context for this consultation

The initial Credit Limit Procedures were implemented in November 2013, following a 2012 rule change to introduce the 'New Prudential Standard and Framework in the NEM' (the New Framework).

A key aspect of the New Framework was the concept of a 'prudential standard', defined as a 2% prudential probability of exceedance (POE). This effectively requires the prudential arrangements to ensure that no payment shortfall will arise in 98 out of 100 instances of a Market Participant default that is not remedied. In the remaining 2% of cases, as AEMO pays Generators for the energy they generate, Generators would potentially be short paid. The maximum credit limit, which is the outstandings limit plus the prudential margin, is calculated in order to meet the prudential standard.

On 22 September 2016, the AEMC made the PM Offsets Rule following consultation on a rule change request from AEMO. From 20 October 2017, the PM Offsets Rule will give AEMO the ability to offset positive reallocation amounts against trading amounts in PM calculations. A reallocation is a process under which two Market Participants ask AEMO to make matching debits and credits to the financial position of those Market Participants with AEMO. Clause 3.3.8(e) of the NER currently precludes such offsets in the PM from being applied to reduce collateral required to cover trading amounts, and vice versa. The Rule is expected to allow for a more efficient use of Market Participant collateral, reduce barriers to entry and meet the prudential standard at a lower cost.



By 1 July 2017, AEMO must amend the Credit Limit Procedures and the reallocation procedures or the reallocation timetable as required to account for the PM Offsets Rule. AEMO has also identified corrections and additional amendments in other areas of the Credit Limit Procedures that it considers timely to consult on at this stage in the interests of clarity and efficiency.

AEMO therefore proposes to amend the Credit Limit Procedures to:

- Reflect the PM Offsets Rule, including the introduction of alternative PM calculation methodologies clarifying when and how AEMO may offset between trading and reallocation amounts when determining a Market Participant's PM.
- Clarify that the PM cannot be negative, in accordance with the PM Offsets Rule.
- Determine a maximum credit limit for MNSPs due to observed changes in the operation of MNSP services, resulting in a prudential risk inconsistent with the prudential standard.
- Highlight the prudential risk that can arise as a result of the transition between MCL seasons and encourage Market Participants to pre-emptively manage that risk.
- Update the process for estimation of generation amounts where there is material variation in past levels.
- Update the section on the impact of the repealed Clean Energy Act 2011.
- Extend the ex-ante reallocation timetable from seven days to 14 days for Market Participants who have elected to opt-in for full offsets in the PM calculation.
- Updated the MCL calculator to allow participants to estimate the PM with the new full offset calculation.

It is intended that the proposed changes for PM offsets will be implemented within AEMO's systems and be effective for the Summer season 2017–18 (for MCLs, effective from 30 November 2017). Other changes resulting from this consultation would take effect on or shortly after AEMO's final determination and are expected to be applicable from the date of the publication of new version of the Credit Limit Procedures.

3. PROPOSED CHANGES

To help stakeholders and other interested parties respond to this Issues Paper, AEMO has published a draft of the Credit Limit Procedures and the reallocation timetable incorporating the changes AEMO proposes for consultation. Clean and change-marked versions are available at: http://www.aemo.com.au/Stakeholder-Consultation/Consultations.

3.1 Credit Limit Procedures

This section describes the material amendments proposed to the *Credit Limit Procedures*, for consultation. Minor editorial amendments have not been noted in this Issues Paper, however the change-marked versions are available at: <u>http://www.aemo.com.au/Stakeholder-Consultation/Consultations.</u>

3.1.1 Application of offsets in the Prudential Margin

Currently, a Market Participant can reduce its collateral requirements with AEMO to some extent by registering reallocation requests with a credit reallocation amount for that Market Participant. Likewise, a Market Participant that registers debit reallocations has its collateral requirements reduced somewhat



by generation trading amounts. Prospective reallocations (including credit reallocations registered at least seven business days in advance) can be offset against trading amounts (generation and load) in the Market Participant's OSL calculation. When the PM Offsets Rule comes into effect, AEMO proposes to allow offsetting of reallocation amounts against trading amounts in both the OSL and PM calculations where the Market Participant can maintain credit reallocations at least 14 business days in advance. This period is considered sufficient to indicate that reallocations can be considered firm through to the end of the reaction period (to which the PM calculation applies).

AEMO proposes amendments to clauses 4.3.3, 4.3, 5, 6 and 9.4.5 to reflect alternative PM offsets calculations. A Market Participant who chooses to opt-in for 'PM full offset' (Opt-in participant) would have its reallocation amounts offset against trading amounts if, and only if, they maintain reallocations for the next 14, instead of the usual seven business days. The ex-ante reallocations timetable is accordingly extended from the current seven business days to 14 business days for Opt-in participants. It is noted that application of full PM offsets is at AEMO's discretion based on NER clause 3.3.8(d). Accordingly, AEMO does not propose to take into account credit reallocation amounts for Opt-in participants if the requests are not registered at least 14 business days ahead. This applies to both the OSL and the PM calculations. A Market Participant can choose to opt out of PM full offset at any time, after which its OSL and PM calculations would be determined based on the current process ('PM Limited Offset').

Question 1: AEMO seeks feedback on whether this optionality is beneficial. The proposal is that participants who can maintain reallocations 14 business days in advance can opt-in and get additional benefit in the PM. Participants who can't maintain reallocations 14 business days in advance should not should not opt-in, or must opt-out again, to maintain the status quo (7 business day reallocations are offset in the OSL).

In clause 6, a calculation for the PM with full offsets between reallocation and energy amounts has been included. The new PM calculation is very similar to the existing OSL calculation except that:

- PM cannot be negative.
- The volatility factor is VFPM_R.
- \circ The time period is T_{RP}.

The following table illustrates the impact of the proposed alternate PM calculations in a scenario where a participant has both load and credit reallocations in a single region. In this scenario, all values not explicitly identified, for example value of daily generation (VEG_R), are zero.

PM example for a single region participant with load and credit reallocations

Regional Parameters:	
Price (P _R)	\$50 / MWh
Reaction period (T _{RP})	7 days
Volatility Factor (VFPM _R)	2.0
Goods and Services Tax (GST)	10%



Participant Parameters relating to load:	
Load (EL _R)	500 MWh / day
Participant risk adjustment factor Load (PRAF _{L,R})	1.2
Value of daily energy load (VEL _R) VEL _R = EL _R x P _R x PRAF _{L,R} x VFPM _R x (GST + 1)	\$66,000
Participant Parameters relating to reallocations:	
Credit Reallocations (RC _R)	250 MWh / day
Participant risk adjustment factor (PRAF _{R,R})	1.1
Value of daily credit energy reallocations (VRC _R) VRC _R = RC _R x P _R x PRAF _{R,R} x VFPM _R	\$27,500
PM calculation when participant does not opt in to full offsets:	
Value of <u>energy</u> in PM with no allowance for regional volatility on net credits (PM _R , PM _{R,E} = MAX [(VEL _R – VEG _R) x T _{RP} , (VEL _R – VEG _R) x T _{RP} / VFPM _R]	\$462,000
Value of <u>reallocations</u> in PM with no allowance for regional volatility on net credits	-\$96,250
$(PM_{R,R})$ $PM_{R,R} = MAX [(VRD_R - VRC_R + RD\$_R - RC\$_R) \times T_{RP},$ $(VRD_R - VRC_R) / VFPM_R \times T_{RP} + (RD\$_R - RC\$_R) \times T_{RP}]$	
PM with Limited Offset (PM _L) PM _L = MAX [Σ_R (PM _{R,E}),0] + MAX[Σ_R (PM _{R,R}),0]	\$462,000
PM calculation when participant opts in to full offsets:	
PM with full allowance for regional volatility (PM _{R,U}) $PM_{R,U} = (VEL_R + VRD_R + RD\$_R) \times T_{RP}$ $- (VEG_R + VRC_R + RC\$_R) \times T_{RP}$	\$269,500
PM with no allowance for regional volatility (PM _{R,I}) PM _{R,I} = (VEL _R + VRD _R) x T _{RP} / VFPM _R - (VEG _R + VRC _R) x T _{RP} / VFPM _R + (RD\$ _R - RC\$ _R) x T _{RP}	\$134,750
PM with Full Offset (PM _F) PM _F = MAX [\sum_{R} MAX(PM _{R,U} , PM _{R,I}), 0]	\$269,500

The example illustrates that where limited offsets are applied, the credit reallocations do not reduce the PM and the calculation simply reflects seven days of energy debits, i.e. load. When offsets are applied, the seven days of energy debits (load) are offset by the seven days of credit reallocations and a reduced PM is determined.

The allowance for volatility becomes important when you have a credit in one region (represented as a negative PM value) that reduces a net debit position in another region. For a single region example, such as the above, the 'no volatility allowance' calculations have no impact.

3.1.2 Adjustment for Carbon Price

Clause 9.1, Adjustment for the Introduction and Repeal of a Carbon Price, has been updated to reflect the fact that the Clean Energy Act 2011 was repealed in 2014.





3.1.3 Estimation of Daily Generation amounts

In Clause 9.4.3, Estimated Generation (EG_R), updates have been proposed to the process for estimating generation amounts to protect the prudential standard where a generator exhibits significant differences in generation levels between one 35 day period and another in recent months. In this case AEMO has proposed that assessment of the expected generation is based on the lowest generation in an outstandings period over the past 12 months (where no outage has occurred) rather than an average over the same period. Generators with no load and no debit reallocations will not be impacted because their MCL will still result in zero if they have no debit amounts. An example of generation volatility over a sample 12 month period is provided below. It is evident that an annual average generation is much lower than the annual average.



Question 2: For the calculation of Estimated Generation (EG_R), AEMO seeks feedback on its proposal to use the lowest average generation in an outstandings period over the past 12 months (where no outage has occurred). Are there seasonal dependencies that make an alternative, such as the lowest average generation in the most recent corresponding MCL season more suitable?

3.1.4 Estimation of Daily Reallocation amounts

AEMO proposes to update clause 9.4.5, Reallocation Amounts (RC_R/RD_R), (RCS_R/RDS_R), (PCS_R/PCS_R), ($RCC_{R,C}/RDC_{R,C}$), ($RC\$_R/RD\$_R$), to clarify the operational process in relation to treatment of reallocations in the calculation of OSL and PM. AEMO estimates the average reallocation values as one or more of the following:

- The quantity and type of reallocations proposed for up to four weeks from the effective date of the review.
- Where a participant has opted-in for PM Full Offset, daily reallocation amounts will only take into account those reallocations which meet, and continue to meet, the required ex ante time frame (14)





business days ahead). This daily reallocation estimate is then used in both the PM with full offsets and OSL calculation.

- Where a participant has not opted-in for PM full offset, daily reallocation amounts will only take into account those reallocations which meet, and continue to meet, the required ex ante time frame (seven business days ahead). This daily reallocation estimate is then used in both the PM with limited offsets and OSL calculation.
- Any sudden changes in reallocation patterns for periods in the immediate future including lower credit reallocation amounts, higher debit reallocation amounts, or changes in the timing of lodgement and authorisation of reallocation requests.
- AEMO may consider written advice from Market Participants intending to commence regular prospective (ex ante) reallocations in determining the values, where the reallocation amounts would increase the MCL.

The following is an example of the impact of the opt-in/opt-out decision for PM Full Offsets on the reallocation estimation and therefore the OSL calculation for a participant who maintains 250 MWh of daily credit reallocations ten days ahead. These are reallocations that do not meet the requirements of the ex ante time table for PM Full Offsets.

Regional Parameters:	
Price (P _R)	\$50 / MWh
Outstandings Period (T _{OSL})	35 days
Volatility Factor (VFOSL _R)	2.0
Goods and Services Tax (GST)	10%
Participant Parameters relating to load:	
Load (EL _R)	500 MWh / day
Participant risk adjustment factor Load (PRAFL,R)	1.2
Value of daily energy load (VEL _R) VEL _R = EL _{R X} P _{R X} PRAF _{L,R} x VFOSL _R x (GST + 1)	\$66,000
Participant Parameters relating to reallocations if PM Full Offsets (opt in):	
Credit Reallocations (RC _R)	zero MWh / day
Participant risk adjustment factor (PRAF _{R,R})	1.1
Value of daily credit energy reallocations (VRC _R) VRC _R = RC _R x P _R x PRAF _{R,R} x VFOSL _R	\$0
Participant Parameters relating to reallocations if PM Limited Offsets (opt out):	
Credit Reallocations (RC _R)	250 MWh / day
Participant risk adjustment factor (PRAF _{R,R})	1.1
Value of daily credit energy reallocations (VRC _R) VRC _R = RC _R x P _R x PRAF _{R,R} x VFOSL _R	\$27,500



OSL calculation when participant opts in to full offsets: (reallocations are not included in daily estimation)	
$\begin{array}{llllllllllllllllllllllllllllllllllll$	\$2,310,000
$ OSL \ with \ no \ allowance \ for \ regional \ volatility \ (PM_{R,l}) \\ OSL_{R,l} = (VEL_R + VRD_R) \ x \ T_{OSL} / VFOSL_R \\ $	\$1,155,000
OSL with opt in for Full Offset OSL = MAX [\sum_{R} MAX(OSL _{R,U} , OSL _{R,I}), 0]	\$2,310,000
OSL calculation when participant opts out of full offsets: (reallocations are included in daily estimation)	
$ \begin{array}{ll} \text{OSL with full allowance for regional volatility (OSL_{R,U})} \\ \text{OSL}_{R,U} = & (VEL_R + VRD_R + RD\$_R) \ x \ T_{OSL} \\ &- & (VEG_R + VRC_R + RC\$_R) \ x \ T_{OSL} \end{array} $	\$1,347,500
OSL with no allowance for regional volatility ($PM_{R,I}$) OSL _{R,I} = (VEL _R + VRD _R) x T _{OSL} / VFOSL _R	\$673,750
 (VEGR + VRCR) x Tosl / VFOSLR + (RD\$R - RC\$R) x Tosl 	

A participant is better off choosing not to opt in for PM Full Offsets if they are unable to meet the ex ante timetable for PM Full Offsets. AEMO includes daily reallocation amounts in the MCL calculation which meet the required ex ante timetable based on the participant's decision to opt in to PM Full Offsets. This estimation of daily reallocation amounts will be used in determination of both the PM and the OSL.

The operational processes which AEMO implements to ensure that reallocations are maintained in accordance with the ex ante timeframes do not allow for OSL reallocations to reflect one time frame and PM offset reallocations to meet a different timeframe.

3.1.5 Managing MCL seasonal transitions

A new clause, 9.4.9, Managing MCL Season Transition, is proposed to highlight the prudential risks that arise during transition from one season to the next, and encourage pre-emptive management of any anticipated issues. Large changes in reallocations at start of seasons may lead AEMO to recalculate a Market Participant's MCL based on like periods, to manage the market exposure where the outstandings could be higher than the credit support provided to AEMO. When this situation arises AEMO will work with the Market Participant in advance to reduce the risk of a trading limit breach on the MCL effective date. In cases where Market Participants are not able to prospectively manage their prudential position, AEMO will establish an MCL for the Market Participant to reduce the risk of a trading limit breach during the season transition.

An example has been provided in the graph below demonstrating that a large change in a participant's reallocations at the start of the season may lead to an MCL which is insufficient during the transition period. AEMO currently relies on the Market Participant providing a security deposit to cover the exposure on the day it occurred. This is considered an inappropriate risk.





The new provision is intended to promote Market Participant awareness and encourage them to manage their position in advance by:

- Voluntary extension of the current credit support beyond the MCL effective date and until the new outstandings level is established.
- Voluntary security deposits or ex-post reallocations ahead of the MCL effective date to manage the level of outstandings to the level of the new outstandings limit.
- Early review of the MCL by AEMO to reflect the current outstandings levels. This MCL will be effective at the start of the season until the new reallocations have been in place for a sufficient time to be reflected in the level of outstandings (up to 35 days).

3.1.6 MCL for MNSPs

A proposed new clause, 10.3, Maximum Credit Limit for MNSPs, replaces some of the text in clause 9.4.1 and provides for the determination of an MCL amount for MNSPs. Historically the estimated load and estimated generation for a MNSP has been assigned as zero in the MCL calculation, based on the theory that MNSPs would typically operate so that energy is dispatched from one region to another in a direction and at times that lead to positive surplus settlement residue accrual and a credit in the MNSP's settlement account. As a result, MNSPs have not previously been required to provide credit support in the NEM.

AEMO has noted in recent history that MNSP services are frequently dispatched in a direction that causes a negative settlement residue to accrue. This change in MNSP behaviour results in a prudential risk inconsistent with the prudential standard. To manage this risk, and due to the lack of a strong correlation between MNSP dispatch and regional pricing, AEMO is proposing to amend the Credit Limit Procedures so that the OSL for a MNSP will be set at the value of the highest unpaid liability accrued by the MNSP period in the previous 12 month period and the Prudential Margin will be set at a percentage value of the OSL (currently proposed to be 20%). It is noted that for periods where an MNSP's





outstandings is higher than its MCL, the MNSP is required to provide cash deposits to AEMO to manage its prudential position.

3.1.7 Updated Format in next consultation stage

Since the Credit Limit Procedures were last revised, AEMO has updated its procedures template. In the next consultation stage, AEMO may make minor documentation changes to include formatting and numbering, and changes to the way in which introductory provisions are presented.

3.1.8 Effective Date

At the conclusion of this consultation process, the amended Credit Limit Procedures will apply from 20 October 2017 in time for summer season 2017–18. Market Participants will be able to enter PM offset opt-in/ opt-out requests with AEMO from this date. To be clear, MCL calculations effective prior to the summer season will not have the PM calculation with full offsets applied.

3.2 Reallocation Timetable

AEMO is proposing changes to the Reallocation Timetable, in alignment with AEMO's proposed changes to the Credit Limit Procedures and the application of full offsets in the prudential margin, where Opt-in participants will need to maintain the average reallocations for the next 14, instead of the usual seven business days, to benefit from any offset in their MCL calculation. The ex-ante reallocations timetable is extended from the current seven business days to 14 business days for Opt-in participants. It is noted that opting in to PM Offsets is at AEMO's discretion based on NER clause 3.3.8(d), and AEMO retains the ability to supersede/override the PM offset for Opt-in participants who fail to maintain the average reallocations for 14 business days.

AEMO has published a draft Reallocation Timetable with this Issues Paper.

3.3 MCL Calculator

The MCL calculator has been amended to include the PM full offset calculation. This calculator should assist participants to estimate the PM with the new full offset calculation.

AEMO has provided a draft MCL calculator with this Issues Paper.