28 May 2015

Mr John Pierce
Chairman
Australia Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Dear John,

Rule Change Request – Offsets in the Prudential Margin

We request the Australian Energy Market Commission (AEMC) make an amendment to the National Electricity Rules (NER) to allow for offsetting between trading amounts and reallocation amounts in the prudential margin.

The proposed rule change will allow more efficient use of Market Participant collateral, reduce barriers to entry and meet the NEM Prudential Standard at a lower cost.

A description and drafting of the proposed rule and a statement of how the proposed Rule contributes to the achievement of the National Electricity Objective (NEO) is provided at Attachment A.

If made, AEMO provisionally seeks to incorporate this rule change in the May 2016 release of market systems. To meet this objective we would require an AEMC draft determination on the rule change by the end of 2015.

AEMO would be please if you could have these matters considered by the AEMC. For further details, please do not hesitate to contact Chin Chan, Group Manager – Market Management, on (03) 9609 8345.

Yours sincerely
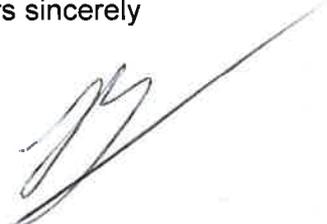
Peter Geers
Executive General Manager - Markets

cc:

Attachments:

A: Rule Change Proposal – Offsets in the Prudential Margin

ELECTRICITY RULE CHANGE PROPOSAL

OFFSETS IN THE PRUDENTIAL MARGIN

Published: **May 2015**

CONTENTS

1.   SUMMARY

AEMO asks the Australian Energy Market Commission (AEMC) to consider AEMO's proposal in relation to treatment of offsets in the prudential margin.

AEMO proposes to remove clause 3.3.8(e) from the NER and make one consequential change to clause 3.3.8(d). The effect of removing clause 3.3.8(e) is to remove the restriction that currently applies to offsetting between *trading amounts* and *reallocation amounts* in the prudential margin.

AEMO's proposal does not introduce any other changes to the high level framework outlined in clause 3.3.8. As such, the change is consistent with the AEMC's drafting and the intent of the existing rule.

The proposal aims to promote *credit support* requirements that allow for more efficient use of *Market Participant* collateral, and that reflect a level of prudential risk consistent with the Prudential Standard.

AEMO believes this proposal will have the following key benefits:

- Enhancing competition by reducing barriers of entry, specifically for smaller *Market Participants* who do not have *generation* capacity to offset *load.*

- Encouraging efficient operation of the prudential framework, through efficient use of *Market Participant* collateral.

- Reducing consumer costs by reducing prudential obligation costs for *Market Participants*.

- Reducing credit support requirements while maintaining the Prudential Standard.

The proposed change represents an approximate $12 Million (1.3%) reduction in total credit support requirements across the National Electricity Market (NEM). This is a saving of between $200,000 and $500,000 per year for *Market Participants*.

From a risk perspective, the Prudential Standard set at 2% in clause 3.3.4A of the NER continues to be met under the proposed rule, with the prudential probability of exceedance for all *regions* remaining under 2%.

Changes to AEMO systems to implement the proposed change are estimated to cost under $100,000 for design, development, testing and deployment. No impact to *Market Participant* systems or processes are expected.

2. RELEVANT BACKGROUND

2.1 The prudential margin

In 2007, the AEMC determined the National Electricity Amendment (Reallocations) Rule 2007 No.1.[1] This rule included the introduction of a Prudential Margin (PM).

The PM represents a buffer below the Maximum Credit Limit (MCL) under which a *Market Participant* is permitted to trade. The purpose of the PM is to ensure that AEMO is not exposed to prudential risk in the time required to suspend a defaulting *Market Participant* from the *National Electricity Market* (NEM) (Reaction Period).

The key principles for determining the PM were set as follows:

- The PM is calculated for the Reaction Period (i.e., 7 days).

- The PM does not allow *reallocation* credits to be used to offset *load* debits.

- The PM allows *generation* credits to be used to offset *load* debits.

The different treatment of *reallocation* and *generation* credits in relation to offsetting *load* debits in the calculation of the PM was noted in the AEMC's Review into the Role of Hedging Contracts in the Existing NEM Prudential Framework[2].

Under the original framework, the calculation of the MCL is independent of the PM, i.e., the value of the PM does not impact a *Market Participant's* MCL. A lower PM does not affect the total level of *credit support* required.

2.2 Current framework

The changes to the *National Electricity Rules* (NER) as a result of the 'New Prudential Standard and Framework in the NEM', (the New Framework) were made in 2012[3], and subsequently implemented by AEMO from November 2013.

A key aspect of the New Framework is the concept of the Prudential Standard, defined as a 2% Prudential Probability of Exceedance (POE).[4] This effectively requires the prudential arrangements to ensure that no payment shortfall will arise in 98 out of 100 instances of a non-remedied *Market Participant* default (where a *Market Participant* exceeds its *outstandings* limit and subsequently defaults and is suspended from the NEM). In the remaining 2% of cases, as AEMO pays *Generators* for the energy they *generate*, *Generators* would potentially be short paid.

2.2.1 Credit support requirements

Clause 3.3.8 (which was introduced into the NER by the New Framework) outlined a new way of determining *credit support* requirements for *Market Participants*. The concept of the PM was retained, and a new term, the Outstandings Limit (OSL), was introduced.

Under the New Framework, the Maximum Credit Limit is calculated as follows:

Maximum Credit Limit (MCL) = Outstandings Limit (OSL) + Prudential Margin (PM)

The OSL reflects the *credit support* required to cover liabilities for energy consumed but not paid, and assumes that no *Market Participant* is at risk of its *outstandings* exceeding its *trading limit*. The PM reflects the *credit support* buffer intended to cover accruing liabilities in the NEM during the Reaction Period.

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[1] See http://www.aemc.gov.au/Rule-Changes/Reallocations#.
[2] See http://www.aemc.gov.au/Markets-Reviews-Advice/Review-into-the-Role-of-Hedging-Contracts-in-the-E.
[3] See http://www.aemc.gov.au/Rule-Changes/New-Prudential-Standard-and-Framework-in-the-NEM#.
[4] See clauses 3.1.1A & 3.3.4A of the NER.

Market Participants who do not meet the approved *credit support provider* rating must provide AEMO with approved *credit support* (in the form of a guarantee from an approved *credit support provider*) that meets or exceeds the value of their MCL at all times.

The relationship between MCL, OSL and PM is depicted over a year for a fictitious *Market Participant*, in Figure 1. As shown, MCL, OSL and PM can vary over the year with scheduled and ad-hoc MCL reviews.

Figure 1 – Example relationship between MCL, OSL and PM
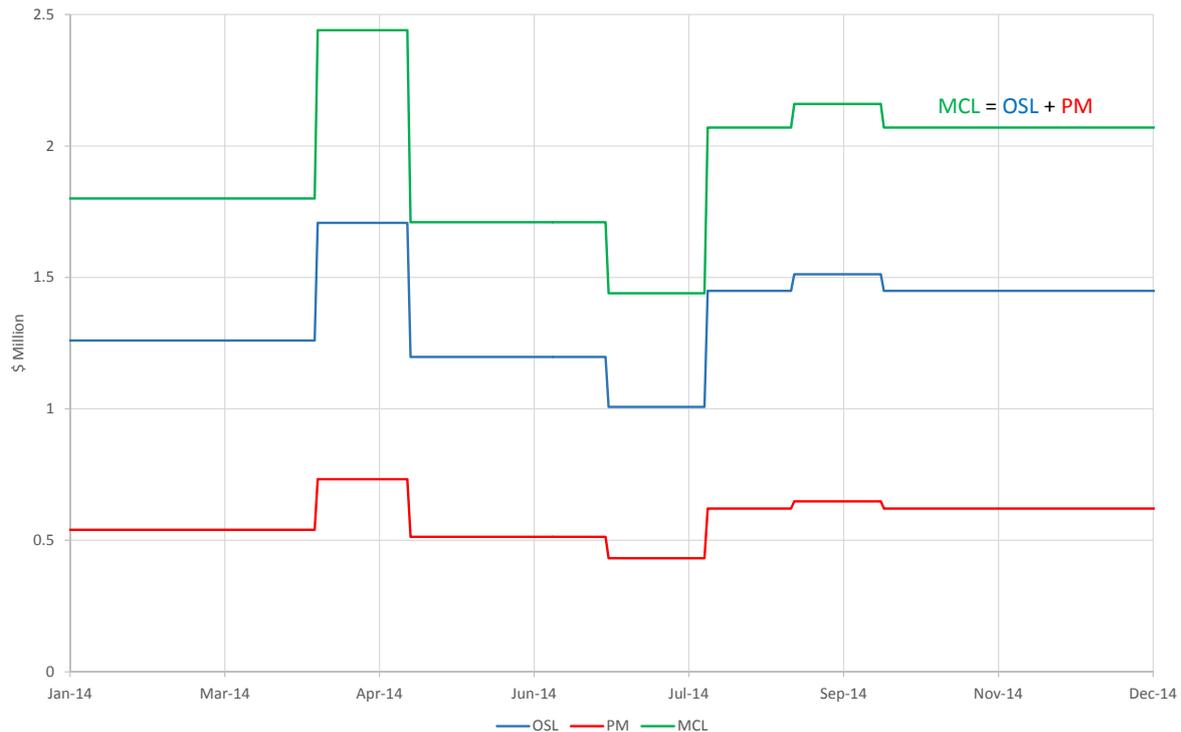
The approach to calculating a *Market Participant's* OSL and PM considers:

- *Regional* parameters such as estimated *regional reference price* (RRP) and estimated volatility.

- An estimate of a *Market Participant's* future *load*, *generation* and *reallocations*.

- A *Market Participant's* characteristics, through the use of a *load*-weighted price ratio (LWPR) for *load*, *generation* and *reallocations*.

Currently, clause 3.3.8(e) of the NER effectively prevents *trading amounts* from being offset with *reallocation amounts* when calculating the PM. Additionally, the PM cannot be less than zero. By contrast, the calculation of the OSL allows offsetting between *trading amounts* and *reallocation amounts*.

The restriction of offsets between *trading amounts* and *reallocation amounts* for the PM calculation was established under the National Electricity Amendment (*Reallocation*s) Rule 2007 when the PM and MCL calculation were independent of each other.

AEMO believes there is no longer any clear reasoning for this limitation. This rule should have been amended as part of the New Framework, but was missed due to an oversight.

2.2.2 Previous submission to the AEMC

AEMO had submitted a proposal to change the treatment of offsets in the PM in response to the AEMC's draft determination on the New Framework.[5] AEMO proposed replacing the AEMC's draft clause 3.3.8(e) with one that allowed for offsets between *trading amounts* and *reallocation amounts* in the PM. This would allow AEMO to limit credit offsets where there was a reasonable probability that the offset might not be effective during the Reaction Period. AEMO's proposal also required AEMO to have regard to the Prudential Standard when deciding whether there is a risk that the offset might not be effective.

In submissions to the second round of consultation, a number of respondents gave in-principle support for allowing full offsetting in the PM calculation and agreed that *reallocation amounts* and *trading amounts* should be treated equally in the calculation of the PM.

However, three out of the four respondents were not satisfied with what they considered to be a broad discretion granted to AEMO, particularly in relation to counting or discounting credit offset amounts in the calculation of the PM. They argued that this would increase uncertainty and costs for *Market Participants* without having demonstrated clear benefits for consumers or the *market*. These respondents also opposed the introduction of a further provision that would allow AEMO to discount positive *trading amounts* from a *Market Participant's* largest *generation facility* (if applicable) in calculating each *Market Participant's* PM.

The AEMC determined not to implement AEMO's proposal and stated that the matter could be considered further under a separate rule change proposal.

2.3 Introduction to reallocations

To understand AEMO's current proposal, it is important to have a clear understanding of the *reallocation* processes currently in place.

Reallocations under clause 3.15.11 of the NER are available to *Market Participants* to manage volatile *market* trading cash-flows and to reduce their MCL (through a reduction in their OSL). Table 1 gives a general overview of the use of *reallocations* by the four main types of *Market Participant*.

Table 1 – Use of *reallocation*s by different *Market Participant*s

Participant type	Draws electricity from NEM (-ve trading amount)	Supplies electricity to the NEM (+ve trading amount)	Debit *reallocation* counterparty	Credit *reallocation* counterparty
Market Customer	✓			✓
Generator		✓	✓	
Gentailer	✓	✓	✓	✓
Reallocator[6]			✓	✓

Where two *Market Participants* are linked by one or more off-*market* financial commitments, *reallocations* can reduce the *settlement amounts* payable by each and, consequently, lower the NEM's prudential risk. They can be particularly effective at times of extreme RRPs.

When two *Market Participants* have a *reallocation transaction* in place, one will be credited with a *trading amount* and the other will be debited with an identical *trading amount* for each *trading interval* for the duration of the *reallocation*. These *trading amounts* can be based on either MWh or dollars.

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[5] See http://www.aemc.gov.au/Rule-Changes/New-Prudential-Standard-and-Framework-in-the-NEM#.
[6] A *Reallocator* is a *Market Participant* who does not trade in the *market* per se (i.e., does not *generate* or use electricity) but provides financial *reallocations*. These *Market Participants* are generally large financial institutions (i.e., banks) who have entered into hedging contracts with *Market Participants*.

The two types of *reallocations* are ex-ante *reallocations*, lodged before the *trading intervals* to which they will apply, and ex-post *reallocations*, which are lodged after the relevant *trading intervals*. AEMO only recognises ex-ante *reallocations* in the MCL (and hence PM) calculations. Ex-ante *reallocations* must be lodged with AEMO in accordance with the ex-ante timetable.

2.3.1 The ex-ante timetable

A prospective *reallocation request* must be registered (i.e., submitted and authorised through AEMO's Electricity Market Management System (EMMS)), before the close of business on the seventh *business day* prior to the earliest *trading interval* specified in the *reallocation request*. A registered *reallocation request* may be considered by AEMO in any determination of MCL or PM with respect to the period of the *reallocation request*.

2.3.2 Prudential checks

AEMO performs prudential checks on both *Market Participants* involved in *reallocation requests* to ensure that each has sufficient *credit support* and that their prudential requirements are met.

Where a *Market Participant* notifies AEMO that it intends to *reallocate* as the credited party continuously on an ex-ante basis, the *Market Participant's* MCL can be reduced by including the *reallocation* in the calculation.

To ensure that AEMO is aware of any issues around ex-ante *reallocations* in a timely manner, there is a system of alerts to warn AEMO's prudential monitoring team that *reallocations* did not occur as expected. If the *Market Participant* fails to *reallocate* as indicated in a *reallocation request* or in accordance with the ex-ante timetable, AEMO will immediately review the *Market Participant's* MCL.

If a *default event* occurs in relation to either *Market Participant* associated with a current *reallocation request*, AEMO may deregister any part of the *reallocation request* associated with *trading intervals* that have not yet occurred.

2.3.3 Use of reallocations in the NEM

Approximately 25%[7] of *Market Participants* currently use ex-ante *reallocations*.

2.4 Issue and proposed changes

Clause 3.3.8(e) of the NER does not permit offsetting between *trading amounts* and *reallocation amounts* in the calculation of the PM.

This restriction affects *Market Participants* who use *reallocations*, but does not affect all of them equally. Table 2 outlines how different *Market Participants* are affected depending on the mix of *load/generation* and debit/credit *reallocations* in both their OSL and PM calculations.

Table 2 – Treatment of offsets when calculating PM and OSL

Market Participant type	Calculation of PM	Calculation of OSL
Retailer with credit *reallocation amounts*	Offsets not taken into account	Offsets fully taken into account
Gentailer with credit *trading amounts*	Offsets fully taken into account	Offsets fully taken into account
Reallocator with credit *reallocation amounts*	Offsets fully taken into account	Offsets fully taken into account
Generator with debit *reallocation amounts*	Offsets not taken into account	Offsets fully taken into account

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[7] Based on estimates from AEMO's Clearing and Prudentials team

In simple terms, clause 3.3.8(e) confers an advantage to vertically integrated *Market Participants* (Gentailers), who derive greater value from their credit *generation trading amounts* than other *Market Participants* from their credit *reallocation amounts*.

This, in turn, reduces a Gentailer's MCL, and the cost of providing *credit support* to meet its MCL. Other *Market Participants* with the same financial exposure as a Gentailer, but who rely on *reallocations*, are not granted the reduction in PM and, hence, they incur a higher cost providing *credit support*.

The end result is increased costs for end-use customers.

This proposal seeks to remove the distinction and promote *credit support* requirements that allow for the more efficient use of *Market Participant* collateral and reflect a level of prudential risk consistent with the Prudential Standard. The proposed change is consistent with the intent of rule 3.3.8 and does not materially change the discretion granted to AEMO under the current rules, when assessing a *Market Participant's* prudential requirements in the NEM.

2.4.1   What is different now from when the rule was made?

The current rule was made in November 2012 and implemented a year later. Relevant changes since the current rule was made, include:

- AEMO and *Market Participants* have had 16 months to experience the workings of the New Framework, including the PM calculation.

- AEMO has released its first report[8] on the 'Effectiveness of Methodology in Credit Limit Procedures'. The report indicates that the Prudential Standard is being met; that is, the POE has remained under 2%.

- The use of *reallocations* has remained consistent under the New Framework, with approximately 25% of *Market Participants* using ex-ante *reallocations*.

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[8]   Report can be found at:
http://www.aemo.com.au/Electricity/Settlements/~/media/Files/Other/consultations/nem/Credit%20Limit%20Procedure%20v2%202014/Report%20on%20Effectiveness%20of%20Methodology%20in%20Credit%20Limit%20Procedures%20v1.0.ashx

3.   STATEMENT OF ISSUE

3.1   Current rules

Table 3 outlines the terminology used Sections 3 and 4 when discussing the current and proposed rules.

Table 3 – Terminology guide

Terminology	Definition
Positive aggregate *trading amounts*	*Market Participant* net *generation*
Negative aggregate *trading amounts*	*Market Participant* net *load*
Positive aggregate *reallocation amounts*	*Market Participant* net credit *reallocation*
Negative aggregate *reallocation amounts*	*Market Participant* net debit *reallocation*

The relevant rule is clause 3.3.8(e), which states:

> In determining the prudential margin, *AEMO* must not take into account estimates of a *Market Participant's*:
>
> (1) quantity and pattern of *trading amounts* where the estimate of the aggregate of all *trading amounts* for the period being assessed is a positive amount; and
>
> (2) quantity and pattern of *reallocation amounts* where the estimate of the aggregate of all *reallocation amounts* for the period being assessed is a positive amount.

The formula for the PM calculation in the Credit Limit Procedures is specified as:

$$PM = PM_{trading\ amounts} + PM_{reallocation\ amounts}$$

Where:

- $PM_{trading\ amounts}$ is a function of aggregate *trading amounts*; and
- $PM_{reallocation\ amounts}$ is a function of aggregate *reallocation amounts*.

To demonstrate how the rule works, the two components that make up the PM calculation, and their relationship to part (1) and part (2) are examined below:

- Part (1) of the rule, referring to aggregate *trading amounts*, is the difference between *generation* and *load* for a *Market Participant*.

$$Aggregate\ trading\ amounts = generation - load$$

The rule states that "AEMO must **not** take into account" positive aggregate *trading amounts*. This means that if the amount of *generation* exceeds the amount of *load* for the *Market Participant*, the aggregate *trading amount* will be zero. Consequently, in such a case, the $PM_{trading\ amounts}$, based on the aggregate *trading amounts*, will also be zero (i.e., cannot be negative).

- Part (2) of the rule, referring to aggregate *reallocation amounts*, is the difference between credit *reallocation*s and debit *reallocation*s for a *Market Participant*.

$$Aggregate\ reallocation\ amounts = credit\ reallocations – debit\ reallocations$$

The rule states that "AEMO must **not** take into account", positive aggregate *reallocation amounts*. This means that if the amount of credit *reallocation*s exceeds the amount of debit *reallocation*s for the *Market Participant*, the aggregate *reallocation amount* will be zero.

Consequently, in such a case, the PM$_{\text{reallocation amounts}}$, based on the aggregate *reallocation amounts*, will also be zero (i.e., cannot be negative).

As both components of the PM calculation (PM$_{\text{trading amounts}}$ and PM$_{\text{reallocation amounts}}$) have to be greater than or equal to zero, it follows that the PM itself is always greater than or equal to zero.

3.1.1   Offsetting under the rule

Under the rule, the aggregation of *generation* and *load* or credit *reallocation*s and debit *reallocation*s is referred to as offsetting. Currently, offsetting **cannot** occur between *trading amounts* and *reallocation amounts*. Thus the PM for a *Market Participant* is **not** reduced if:

- The *Market Participant* has negative aggregate *trading amounts* (i.e., *load*) and positive aggregate *reallocation amounts* (ie credit *reallocation*s). The PM would be based on the *load* only, with PM$_{\text{reallocation amounts}}$ being zero.
- The *Market Participant* has negative aggregate *reallocation amounts* (i.e., debit *reallocation*s) and positive aggregate *trading amounts* (ie *generation*). The PM would be based on the debit *reallocation*s only, with PM$_{\text{trading amounts}}$ being zero.

This effect of the rule is shown in the examples in Figure 2. For examples a) and b) there is offsetting between *generation* and *load* and debit and credit *reallocations*. For examples c) and d) offsetting is not permitted, according to the rule, between *load* and credit *reallocations* and *generation* and debit *reallocations*.

Figure 2 – Simplified example PM calculations
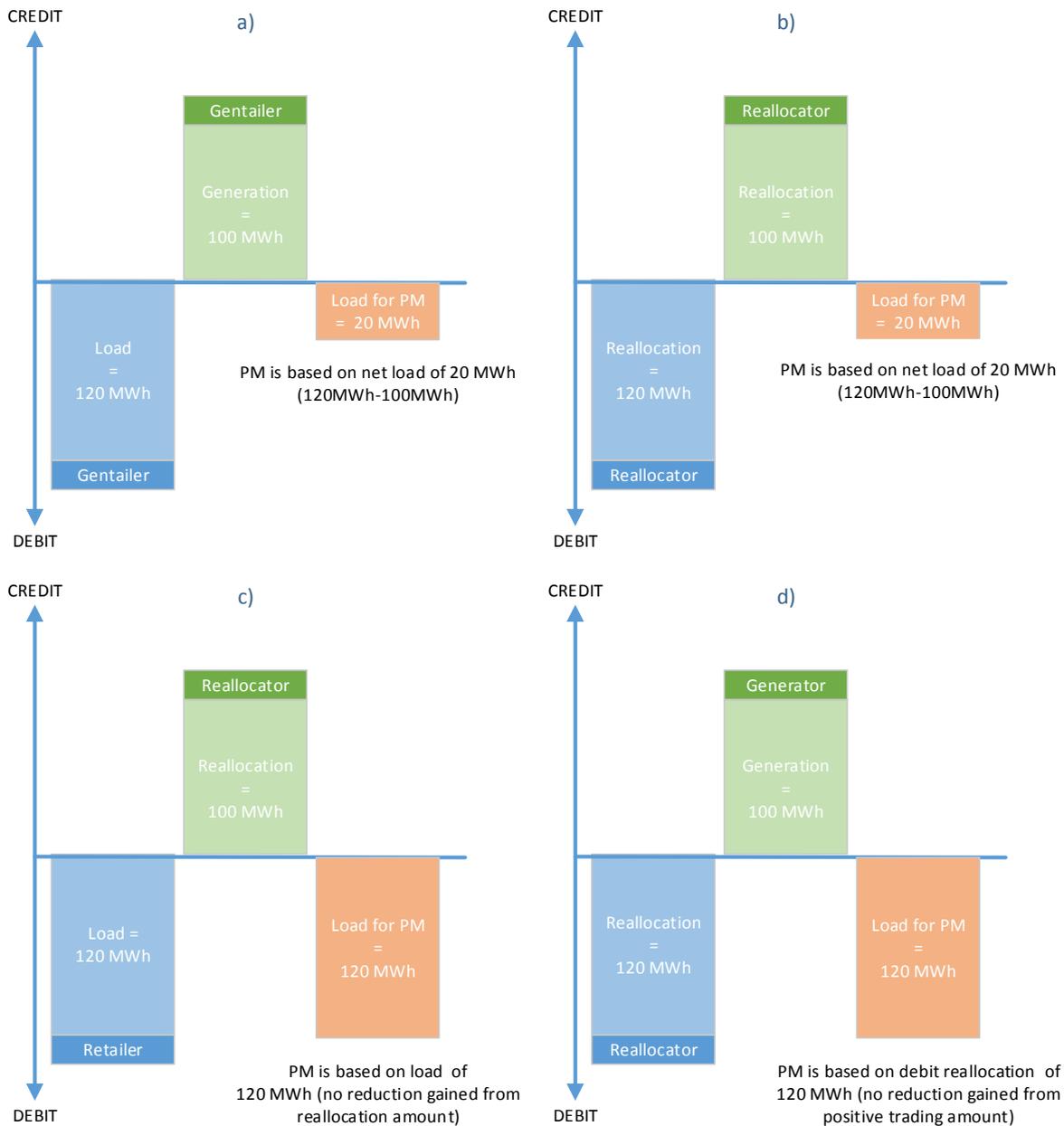
Note: MWh and $ *reallocations* are treated the same for the PM calculation

3.2 Issues with the current rule

Trading amounts cannot be offset with *reallocation amounts* in the PM calculation.

This restriction confers an arbitrary, unintended (and inefficient) advantage to Gentailers. As shown in Figure 3, Gentailers derive greater value from their *generation* credit amounts than *Market Participants* from their credit *reallocation* amounts, which reduces the Gentailer's PM (and hence MCL) but not of other *Market Participants*.

Figure 3 – Comparison between a Gentailer and a *Market Participant* using *reallocation*s to offset *load*
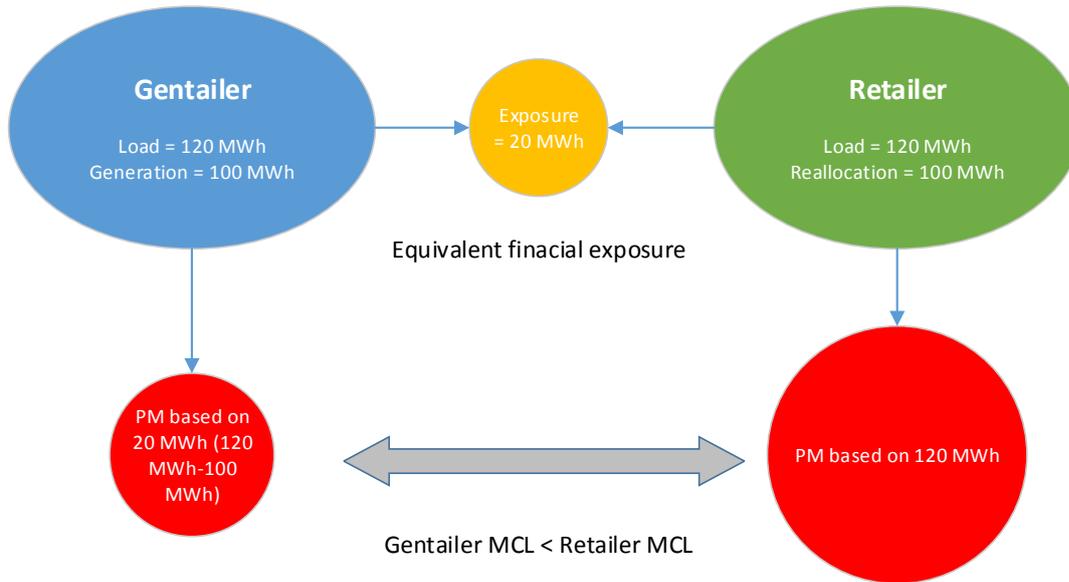
The higher a *Market Participant's* MCL, the higher the costs of meeting its *credit support* requirements. Thus a Gentailer benefits from a reduced MCL, while other *Market Participants* with arrangements relying on *reallocations* alone, but who otherwise have the same financial exposure as a Gentailer, do not get a similar reduction in their MCL.

Clause 3.3.8(e) leads to an inefficient use of *Market Participant* collateral. The end result is increased costs for end-use electricity customers.

3.2.1 Extent of the issue

Approximately 25% of *Market Participants* currently use ex-ante *reallocations*, which means that deleting clause 3.3.8(e) has the potential to benefit a significant portion of *Market Participants*.

AEMO estimates an aggregate saving in the range of $200,000 to $500,000 per year if this proposal is implemented. AEMO expects that, in a competitive market, the benefits from the removal of these unproductive costs will flow through to the electricity end user.

4. HOW THE PROPOSAL WILL ADDRESS THE ISSUES

4.1 How the proposal will address the issues

AEMO's proposal is to simply remove the restriction on offsetting between *trading amounts* and *reallocation* amounts in the PM calculation.

Under the proposed rule change, the formula for the PM calculation in the Credit Limit Procedures will remain unchanged as:

$$PM = PM_{\text{trading amounts}} + PM_{\text{reallocation amounts}}$$

Where:

- $PM_{\text{trading amounts}}$ is a function of aggregate *trading amounts*; and

- $PM_{\text{reallocation amounts}}$ is a function of aggregate *reallocation amounts*.

The aggregate *trading amounts* and the aggregate *reallocation amounts* will be determined as under the current rule*:*

Aggregate *trading amounts* = *generation* – *load*

Aggregate *reallocation amounts* = credit *reallocation*s – debit *reallocation*s

The restrictions that currently apply under clause 3.3.8(e) will be removed, meaning that positive aggregate *trading amounts* and positive aggregate *reallocation amounts* **will be** taken into account when determining a *Market Participants* PM.

The consequence of this proposal is as follows:

- if the amount of *generation* exceeds the amount of *load* for the *Market Participant*, the $PM_{\text{trading amounts}}$ based on the aggregate *trading amounts*, will be negative.

- if the amount of credit *reallocation*s exceeds the amount of debit *reallocation*s for the *Market Participant*, the $PM_{\text{reallocation amounts}}$ based on the aggregate *reallocation amount* will be negative.

As the calculation for *Market Participant* PM follows the formula, $PM = PM_{\text{trading amounts}} + PM_{\text{reallocation amounts}}$, a negative value for either $PM_{\text{trading amounts}}$ or $PM_{\text{reallocation amounts}}$ will reduce a *Market Participant's* PM.

In addition, a provision will be inserted into the Credit Limit Procedures to ensure that the PM for a *Market Participant* cannot be less than zero.

4.1.1 Offsetting under the proposed rule

Under the current rule, offsetting is allowed between *load* and *generation* or between credit *reallocation*s and debit *reallocation*s. Under the proposed rule, offsetting will be allowed between *trading amounts* and *reallocation amounts*. Thus the PM for a *Market Participant* **will** be reduced if:

- The *Market Participant* has negative aggregate *trading amounts* (i.e., *load*) and positive aggregate *reallocation amounts* (i.e., credit *reallocation*s). The PM would be based on the *load*, which is offset by the amount of credit *reallocation*s.
- The *Market Participant* has negative aggregate *reallocation amounts* (i.e., debit *reallocation*s) and positive aggregate *trading amounts* (i.e., *generation*). The PM would be based on the debit *reallocation*s offset by the amount of *generation*.

The effect of this proposal is shown in the examples in Figure 4. For examples a) and b) there is offsetting between *generation* and *load* and debit and credit *reallocations* (this remains unchanged from

the New Framework). Examples c) and d) reflect the proposal, where offsetting is permitted between *trading amounts* and *reallocation amounts*, i.e., between *load* and credit *reallocations* and *generation* and debit *reallocations*.

Figure 4 – Simplified example PM calculations – proposal

a)

CREDIT

Gentailer

Generation
=
100 MWh

Load for PM
= 20 MWh

Load
=
120 MWh

PM is based on net load of 20 MWh
(120MWh-100MWh)

Gentailer

DEBIT

b)

CREDIT

Reallocator

Reallocation
=
100 MWh

Load for PM
= 20 MWh

Reallocation
=
120 MWh

PM is based on net load of 20 MWh
(120MWh-100MWh)

Reallocator

DEBIT

c)

CREDIT

Reallocator

Reallocation
=
100 MWh

Load for PM
= 20 MWh

Load
=
120 MWh

PM is based on net load of 20 MWh
(120MWh-100MWh)

Retailer

DEBIT

d)

CREDIT

Generator

Generation
=
100 MWh

Load for PM
= 20 MWh

Reallocation
=
120 MWh

PM is based on net load of 20 MWh
(120MWh-100MWh)

Reallocator

DEBIT

4.2 Analysis of solution

4.2.1 Modelling description

AEMO analysed the effect of allowing offsetting between *trading amounts* and *reallocation amounts* in the PM calculation by using actual data from 2014 summer.[9]

PM, OSL and MCL data for each *Market Participant* and for each *region*[10] (R) was obtained from EMMS and is shown in Table 4.

Table 4 – Modelling data

Market Participant Specific Parameters	Other data
Load (MWh)	RRP
Generation (MWh)	Volatility Factor (PM)
Debit & Credit *reallocation*s (MWh)	
Debit & Credit *reallocation*s ($)	
PRAF (*load*, *generation* and *reallocation*s)	
PM (calculated according to current rules)	
OSL (calculated according to current rules)	
MCL (calculated according to current rules)	

Figure 5 shows an overview of the process for calculating the PM, both under the current rule and the proposal.

These were calculated according to the current rule (no offsetting between *trading amounts* and *reallocation amounts*), where the PM is:

$$PM = MAX \left[\sum_R (PM_{trading\ amounts,R}), 0)\right] + MAX \left[\sum_R (PM_{reallocation\ amounts,R}), 0)\right]$$

To understand the effect of the proposed rule on the PM, the PM calculation was performed with the new formula for all *Market Participants* using the same data extracted from EMMS.

Using a *Market Participant's load*, *generation* and credit and debit *reallocation amounts*, the PM for *trading amounts* and PM for *reallocation amounts* was calculated for each *region* R, for each *Market Participant*. The *regional* values for $PM_{trading\ amounts}$ and $PM_{reallocation\ amounts}$ were then summed to get the total PM according to the formula:

$$PM = MAX[(\sum_R (PM_{trading\ amounts,R}) + \sum_R (PM_{reallocation\ amounts,\ R})), 0]$$

This formula allows offsetting between *trading amounts* and *reallocation amounts*, but the PM cannot be negative.

Using the calculated PM values, a new MCL was calculated for each *Market Participant*. This new MCL was then compared to the existing MCL for each *Market Participant* to determine the reduction in MCL achieved. The MCL savings were then summed to get an understanding of the aggregate MCL saving in the NEM (see Table 5).

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[9] December 2, 2013 – 31 March, 2014
[10] The five regions used are NSW, VIC, SA, QLD and TAS

Figure 5 - Modelling diagram
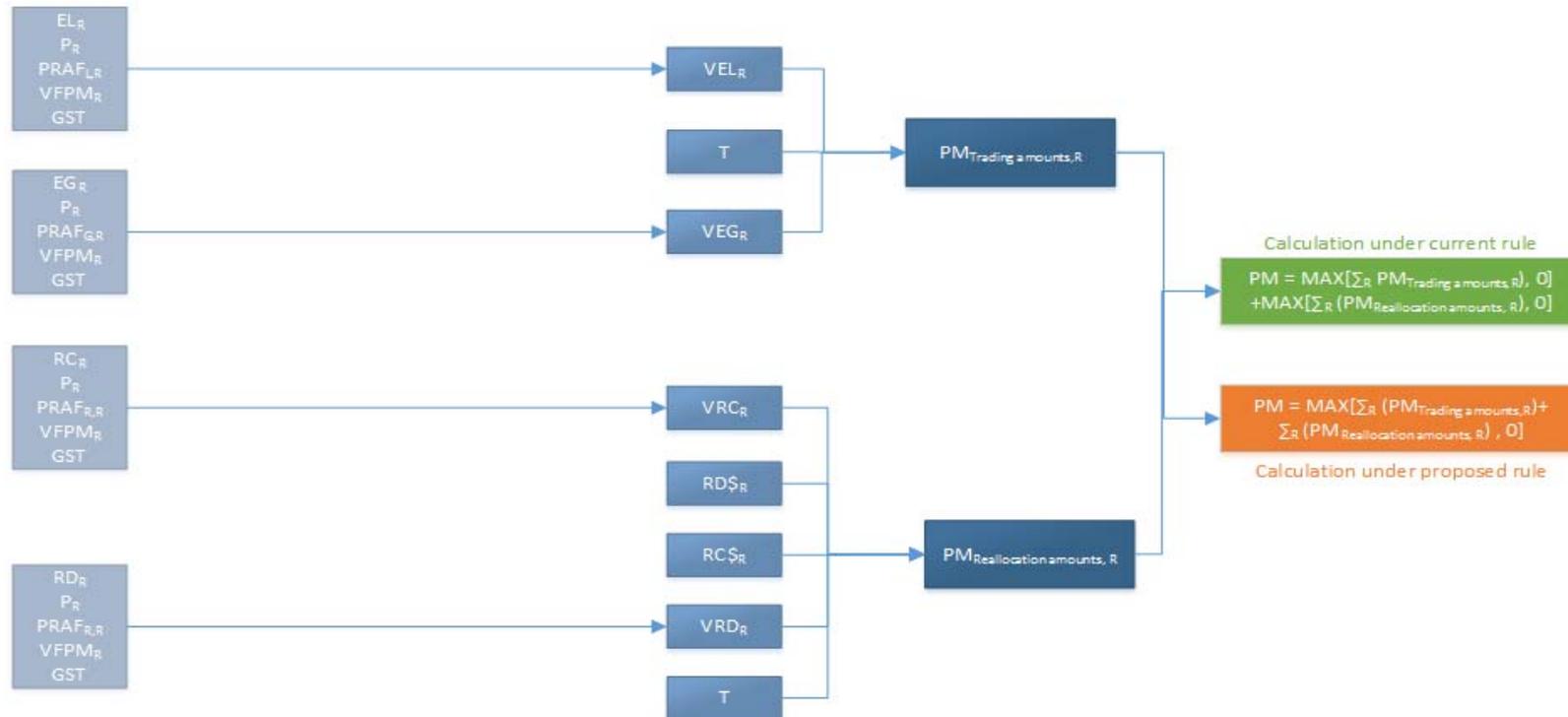
Market Participant Specific Parameters:

$PRAF_{(L,G,R)R}$ - Participant Risk Adjustment Factor (load, generation or reallocations) in region R
EL_R - Market Participant's average daily load in region R
EG_R - Market Participant's average daily generation in region R
RC_R - average daily ex ante energy reallocation transactions, for which the Market Participant is the credit party in region R
RD_R - average daily ex ante energy reallocation transactions for which the Market Participant is the debit party in region R

Other Parameters:

GST - applicable rate for the Goods and Services Tax
P_R - average future RRP in region R
$VFPM_R$ - PM volatility factor in region R

Market Participant Specific Parameters:

VEL_R - value of load for a Market Participant in region R
VEG_R - value of generation for a Market Participant in region R
VRC_R - value of credit energy reallocations for a Market Participant in region R
$RD\$_R$ - average daily ex ante dollar reallocation transactions for which the Market Participant is the debit party in region R
$RC\$_R$ - average daily ex ante dollar reallocation transactions for which the Market Participant is the credit party in region R
VRD_R - value of debit energy reallocations for a Market Participant in region R

Other Parameters:

T - reaction period

4.2.2 Modelling results

As shown in Table 5, the total MCL for all *Market Participants* was approximately $920 Million. Out of this total, the PM represented $330 Million, while the OSL was $590 Million.

Applying AEMO's proposal would result in the total PM being reduced to $266 Million, an aggregate $64 Million reduction. Not all of this reduction, however, is transferred into reducing the MCL. The MCL is calculated by the formula:

$$MCL = OSL+PM$$

Where the OSL can be negative but the MCL has to be equal to or greater than zero.

If the OSL is negative, only the portion of the PM that reduces the MCL to zero can be included in the calculation. Hence, the actual aggregate MCL savings of $12 Million are less than the aggregate PM savings.

Assuming a similar level of MCL reduction for other seasons, this represents an aggregate saving of approximately $200,000 to $500,000 per year for *Market Participants* (based on an estimated cost of *credit support* at 1.5% to 4% per annum[11]).

Table 5 – Summer 2015 analysis

Variable	Value
Total MCL collected	$920 Million
OSL	$590 Million
PM (current)	$330 Million
PM (proposal)	$266 Million
Total MCL savings	$12 Million
% Saving in MCL	1.3%
Savings (cost of bank guarantees - 1.5%)	$200,000 per year
Savings (cost of bank guarantees - 4.0%)	$500,000 per year

4.2.3 Impact on the Prudential Standard

Analysis was conducted to assess the effect of the proposed rule change on the value of the prudential POE, that is, the Prudential Standard. Clause 3.3.4A of the NER defines the Prudential Standard as 2%.

In practical terms, the POE is the probability that on a given day the *outstandings* exceed the OSL and that following this exceedance, during the Reaction Period the *outstandings* exceed the MCL.

The POE is calculated using **actual data** for the life of the NEM (from 1999 to current) for each *region* by:
- Identifying the *days* where *outstandings* exceeded the OSL (i.e., an OSL breach).
- For these *days*, identifying instances where the MCL is exceeded by *outstandings* at the end of the Reaction Period (assuming no action is taken to rectify OSL breach). The total number of such *days* is referred to as the MCL Exceedance value.
- POE = MCL Exceedance/total number of *days* over the life of NEM.

Table 6 shows the calculated POE for each *region*, under the current and proposed rule. Under the current rule, the Prudential Standard is being met with the POE for all *regions* under 2%.

To understand the effect of the proposed rule, the MCL was reduced by the MCL reduction value of $12 million[12] as calculated in Section 4.2.2. The MCL reduction was applied from the start of the

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[11] Range from industry sources and the AEMC (2010) 'Review into the role of hedging contracts in the existing NEM prudential framework'
[12] The total MCL reduction was split into *regions* according to proportion of total MCL held in each *region*.

implementation of the New Framework (28 November 2013). It was found that, under the proposed rule, there is no change to the MCL exceedance value and the Prudential Standard was met with the POE for all *regions* under 2%.

This result implies that if the proposed rule was in place since the implementation of the New Framework, there would have been no increase in prudential risk attributable to the proposed rule.

Table 6 – Prudential standard analysis

	Current rule	Proposed rule
NEM MCL reduction	0	$12 Million
POE - NSW	1.8%	1.8%
POE - QLD	1.8%	1.8%
POE - SA	1.8%	1.8%
POE - TAS	1.7%	1.7%
POE - VIC	1.8%	1.8%

4.2.4   Impact on Market Participant behaviour

Although AEMO anticipates a slight upward trend over time as *Market Participants* see the benefit in using *reallocations* to reduce their MCL, AEMO's proposal should not have a significant impact on the uptake of ex-ante *reallocations*.

4.3   AEMO procedure changes

Changes will be required to AEMO's Credit Limit Procedures to reflect the adjustments to the formulae for calculating the PM. Appendix 1 provides the relevant procedure changes.

4.4   Stakeholder engagement

AEMO consulted with stakeholders on this proposal through the NEM Wholesale Consultative Forum (NEMW-CF) on 28 May 2014 and re-presented this proposal to the NEMW-CF on 28 January 2015. AEMO received and incorporated into this document feedback from respondents. Attachment 1 provides the NEMW-CF papers.

This proposal is not seen as controversial by affected stakeholders. Some indicative comments include:

- QEnergy (small retailer) – supports the proposed rule as it would make a noticeable difference to the capital required of growing retailers whilst not compromising the integrity of the system.

- EnergyAustralia (large Gentailer) – supports the proposed rule that would treat reallocations equally with *generation* to the extent the risks are similar.

- Alternative Technology Association (not-for-profit organisation) – supportive of the proposed rule as, from a consumer perspective, it should improve the access to the NEM through improving competition, without introducing any material risk for consumers.

5.   PROPOSED RULE

5.1   Description of the proposed rule

Clause 3.3.8 of the NER provides a high level framework for the establishment and determination of the Prudential Settings for *Market Participants* in the NEM. Paragraphs (d) and (e) are the basis for the MCL (and thus OSL and PM) calculations for *Market Participants* as outlined in the Credit Limit Procedures:

- Clause 3.3.8(d) describes the factors that AEMO must take into account in developing the methodology to be used to determine the Prudential Settings to apply to *Market Participants*.

- Clause 3.3.8(e) specifically restricts offsetting between *trading amounts* and *reallocation amounts* in the PM.

AEMO proposes to remove clause 3.3.8(e) from the NER and make one consequential change to clause 3.3.8(d). The effect of removing clause 3.3.8(e) is to remove the restriction that applies to offsetting between *trading amounts* and *reallocation amounts* in the PM.

The Credit Limit Procedures establish the process by which AEMO will determine the Prudential Settings for each *Market Participant* so that the Prudential Standard is met. It contains the methodology for calculating the PM. This change will be reflected in changes to the existing PM calculation in the Credit Limit Procedures.

The proposed change removes a current restriction in relation to the PM calculation but does not introduce any other changes to the high level framework that is outlined in Clause 3.3.8. Thus, the change is consistent with the AEMC's drafting and the intent of the existing rule.

6. CONTRIBUTION TO THE NATIONAL ELECTRICITY OBJECTIVE (NEO)

National Electricity Objective
The objective of this Law is 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.

This proposal will contribute to the NEO by:

- Enhancing competition through reducing barriers of entry, specifically for smaller *Market Participants* who do not have *generation* capacity to offset *load.*

- Encouraging the efficient operation of the prudential framework, through efficient utilisation of *Market Participant* collateral.

- Reducing costs for end-use electricity consumers by reducing the cost of *Market Participants* meeting prudential obligations.

- Reducing credit support requirements while maintaining the Prudential Standard.

6.1 Impact on competition

Clause 3.3.8(e) of the NER results in the unequal treatment of *Market Participants* with similar financial exposure in the NEM.

Under the current rule, a Gentailer can offset their *load* with their *generation*. This reduces the PM calculated for Gentailers, thereby reducing the amount of *credit support* they need to provide to AEMO to cover their financial exposure during the Reaction Period.

Conversely, credit *reallocations* can only offset debit *reallocations,* and cannot be used to offset a *Market Participant's load* in the PM calculation. Thus, a *Market Participant* with *load* and credit *reallocations* who has an equivalent financial exposure in the NEM as a Gentailer, would be required to provide more *credit support* than the Gentailer to AEMO to cover their financial exposure during the Reaction Period.

An increase in the amount of *credit support* required increases a *Market Participant's* costs of participation in the NEM. In general, these increased costs are borne by smaller *Market Participant*s, who do not have both *load* and *generation* and currently cannot reduce their PM through offsetting *load* with *reallocations*.

Allowing for offset between *trading amounts* and *reallocation amounts* in the PM will remove the unequal treatment of *Market Participants* with equivalent financial exposure in the NEM. It will enhance competition through reducing barriers of entry, specifically for smaller *Market Participants* who do not have *generation* capacity to offset *load* and who currently face higher relative costs for obtaining *credit support* compared to their larger, vertically integrated competitors.

6.2 Efficient use and operation of the system

As described in Section 2.3, *Market Participants* use *reallocations* to manage volatile *market* trading cash-flows and to reduce their MCL requirements (by reducing their OSL). In AEMO's view, a Gentailer and another *Market Participant* with *reallocations* that both have the same financial exposure in the NEM and share the same risk profile. Therefore they should have equivalent MCL requirements.

A *Market Participant* who uses *reallocations* to reduce its exposure to high RRPs currently does not have this risk-mitigating action accounted for in its PM calculation. This means that the collateral it has

(i.e., *reallocations* in addition to *credit support*) is not being used efficiently. This proposal would ensure the efficient use of *Market Participant* collateral by consistently assigning MCL across all types of *Market Participants*.

Providing a reduction in credit support requirements without reducing the standard of prudential cover to the NEM, improves the efficiency of the prudential framework (and hence, the operation of the NEM). The consequence of achieving the Prudential Standard at a lower cost is that less *Market Participant* capital is tied up to support the provision of *credit support*. This reduces the financial risks for *Market Participants* and the NEM as a whole, and allows *Market Participants* to invest in other areas of their business that generate wealth.

6.3   The price impact on consumers

The proposed rule will result in a more efficient use of *Market Participant* collateral and will reduce the costs of NEM participation for *Market Participants* who use *reallocations* in meeting their MCL requirements.

AEMO estimates an approximate 1.3% reduction in MCL requirements across the NEM, which represents an aggregate saving of $200,000 to $500,000 per year for *Market Participants*. As these savings represent an overall reduction in the costs of NEM participation for *Market Participants* who use *reallocations*, this proposal should result in lower electricity prices for end-use consumers.

The proposed rule will lower the overall costs of operating in the NEM. However, the cost savings passed onto end-use customers will be determined by each *Market Participant*.

6.4   Risk management impacts

When analysing the impact of this proposal from a prudential risk perspective, we need to consider what would happen during the Reaction Period. The Reaction Period covers the time taken by AEMO to identify a *default event* against a *Market Participant*, and suspend the Market Participant.

To understand the prudential risks associated with allowing offsetting between *trading amounts* and *reallocation amounts* in the PM, we need to determine how "firm" both *generation* and *reallocation* offsets are.

In this document, a "firm" offset would continue for the duration of the Reaction Period, that is, until AEMO has been able to suspend a defaulting *Market Participant*.

6.4.1   *Reallocation* offsets

Looking at a *default event* in the context of *reallocations*, there are four key aspects of the NER that should be considered:

- AEMO may deregister a *reallocation request* in the case of a *default event* in respect of either party to the *reallocation*.

- AEMO may deregister a *reallocation request* at the request of both parties to the *reallocation*.

- AEMO may review a *Market Participant's* MCL if AEMO believes there is a prudential impact on any *reallocation requests*.

- The ex-ante timetable for *reallocations* requires *reallocation requests* to be lodged in advance to be considered for the MCL calculation.

If a *default event* occurs in relation to either party to a *reallocation* where one or more of the *trading intervals* has not occurred, AEMO can deregister the *reallocation request* by notice given at any time whilst the *default event* is subsisting (clause 3.15.11(l) of the NER).

In practice, when a *default event* occurs, AEMO considers whether any *reallocation requests* should be deregistered based on the prudential impact on the *Market Participants* involved in the proposed *reallocation,* including the following:

- Reducing exposure to the NEM by immediately deregistering any *reallocation requests* for which the debit party is subject to a *default event*.

- Reducing exposure of the NEM to the counterparties of *reallocation requests* where the credit party is subject to a *default event*.

At any point during the Reaction Period, AEMO can deregister a *reallocation,* but neither party can terminate a *reallocation* unilaterally. Even if both parties request the *reallocation request* be terminated, AEMO is not compelled to do so if it believes that the termination would increase the exposure of the NEM following a *default event*.

Additionally, AEMO can undertake an MCL review of a *Market Participant* if AEMO believes there is a prudential impact in relation to any *reallocation requests*, and due to the ex-ante timetable for *reallocations* it can be certain that *reallocations* will cover at least the Reaction Period in case of a *default event*.

With the above in mind, AEMO believes that there are adequate processes to determine the firmness of *reallocation*s and to deregister *reallocation*s that are not considered sufficiently firm in a timely manner. Thus, allowing offsetting between *trading amounts* and *reallocation amounts* in the PM would not increase the prudential risks in the NEM under most reasonable scenarios.

6.4.2   *Generation* offsets

Generation offsets are allowed in the PM calculation when *generation* is offsetting *load*. This proposal, allowing for offsetting between *trading amounts* and *reallocation amounts*, would allow *generation* to offset debit *reallocations*.

AEMO believes that it is reasonable to assume that a *Market Participant* (*Generator* or Gentailer) would continue to operate its *generation facilities* during the Reaction Period. Thus, *generation* is considered to be "firm", and allowing offsetting between *trading amounts* and *reallocation amounts* in the PM would not increase the prudential risks in the NEM under most reasonable scenarios.

AEMO recognises that the very reason for a *default event* could be the loss of a *generating unit* or an entire facility. The possibility for reduced *generation* output during the Reaction Period is an existing prudential risk when offsetting *load* with *generation*. In such a case, *generation* credits (that are offsetting *load*) would be reduced, and additional *credit support* would need to be provided by the *Market Participant* to meet their MCL requirements.

Although this proposal does not create new risks, AEMO will continue to tighten its internal processes and systems which deal with reduced *generation* capacity of a *Market Participant* to include timely alerts when *generation* drops to a level that is materially different to that assumed in the determination of MCL, similar to the alerts already used in relation to ex-ante *reallocations*.

6.4.3   Impact on the Prudential Standard

When determining the volatility factors that correspond to the 2% POE target, AEMO makes the assumption that *generation* and *reallocation* offsets will continue to exist during a *default event*. As discussed above, AEMO believes that its assumptions around offsets covers the large majority of reasonable scenarios, and therefore would not materially impact the Prudential Standard.

Additionally, the analysis in Section 4.2.3 indicates that the proposed rule will have no impact on the Prudential Standard.

7. EXPECTED COSTS AND BENEFITS

7.1 Key benefits

AEMO believes that this proposal will have the following key benefits:

- Enhancing competition through reducing barriers of entry, specifically for smaller *Market Participants* who do not have *generation* capacity to offset *load.*

- Encouraging the efficient operation of the prudential framework, through efficient utilisation of *Market Participant* collateral.

- Reducing consumer costs by reducing the cost of meeting prudential obligations for *Market Participants.*

- Reducing credit support requirements while maintaining the Prudential Standard.

In quantitative terms, the effect of allowing offsetting between *trading amounts* and *reallocation amounts* in the PM calculation is estimated to be:

- Approximately $12 Million (1.3%) reduction in total MCL requirements across the NEM.

- Resulting in aggregate savings of $200,000 to $500,000 per year for *Market Participants* who use *reallocations*.

This analysis was based on the current uptake of *reallocations*. An increase in the use of *reallocations* is possible if this proposal is implemented, which could result in further reductions in the cost of MCL requirements.

7.2 Long term market/consumer benefits

Over the long term, this proposal should improve competition in the NEM by levelling the costs borne by equivalent *Market Participants* in terms of meeting their MCL obligations.

This, in turn, should lead to reduced costs for end-use electricity consumers.

7.3 Costs of not proceeding

If this proposal is not implemented, *Market Participant* costs will continue to be an average of $200,000 to $500,000 per year higher than necessary.

7.4 Implementation costs

If this proposal is implemented, changes would be required to AEMO's systems, which will be limited to those used in undertaking the PM calculation. AEMO estimates that the required changes will cost under $100,000 to design, develop, test and deploy.

No impact to *Market Participant* systems or processes are expected.

8.   DRAFT RULE

This draft is based on version 70 of the National Electricity Rules.

The following changes are proposed to clause 3.3.8(d) & (e):

(d)   ~~Subject to paragraph (e),~~ in developing the methodology to be used by AEMO to determine the prudential settings to apply to *Market Participants*, AEMO must take into consideration the following factors:

~~(e)   In determining the prudential margin, *AEMO* must not take into account estimates of a *Market Participant's*:~~

>~~(1) quantity and pattern of *trading amounts* where the estimate of the aggregate of all *trading amounts* for the period being assessed is a positive amount; and~~

>~~(2) quantity and pattern of *reallocation amounts* where the estimate of the aggregate of all *reallocation amounts* for the period being assessed is a positive amount.~~

APPENDIX 1: DRAFT PROCEDURES

To implement the proposed rule change, adjustments will be made in AEMO's Credit Limit Procedures to the calculations of the PM. The changes are shown below and are indicated in **red.**

The latest version of the Credit Limit Procedures is available at:

http://www.aemo.com.au/Electricity/Settlements/~/media/Files/Other/consultations/nem/Credit%20Limit%20Proced ure%20v2%202014/Credit_Limit_Procedures_v2_Final_Determination_1_August.ashx

The PM calculation is represented by:

~~PM =   MAX [Σ_R ($PM_{R,E}$),0]~~

~~   +   MAX[Σ_R ($PM_{R,R}$),0]~~

PM =   MAX [{Σ_R ($PM_{R,E}$)   + Σ_R ($PM_{R,R}$)} , 0]

$PM_{R,E}$ =   MAX [(VEL_R – VEG_R) x T_{RP}, (VEL_R – VEG_R) x T_{RP}/ $VFPM_R$]

$PM_{R,R}$ =   MAX [(VRD_R – VRC_R + $RD\$_R$ – $RC\$_R$) x T_{RP},

                    (VRD_R – VRC_R) / $VFPM_R$ x T_{RP} + ($RD\$_R$ – $RC\$_R$) x T_{RP}]

VEL_R = EL_R x P_R x $PRAF_{L,R}$ x $VFPM_R$ x (GST + 1)   (value of energy *load*)

VEG_R = EG_R x P_R x $PRAF_{G,R}$ x $VFPM_R$ x (GST + 1)   (value of energy *generation*)

VRD_R = RD_R x P_R x $PRAF_{R,R}$ x $VFPM_R$ (value of debit energy *reallocations*)

                + RDS_R x (P_R x $PRAF_{R,R}$ x $VFPM_R$– PDS_R)   (value of debit swap *reallocations*)

                + Σ_C [$RDC_{R,C}$ x

                (P_R x $PRAF_{R,R}$ x $VFPM_R$ – P_R x $PRAF_{R,R,C}$ x $VFPM_R$)]   (value of debit cap *reallocations*)

VRC_R = RC_R x P_R x $PRAF_{R,R}$ x $VFPM_R$ (value of credit energy *reallocations*)

                + RCS_R x (P_R x $PRAF_{R,R}$ x $VFPM_R$ – PCS_R)   (value of credit swap *reallocations*)

                + Σ_C [$RCC_{R,C}$ x

                (P_R x $PRAF_{R,R}$ x $VFPM_R$ – P_R x $PRAF_{R,R,C}$ x $VFPM_R$)]   (value of credit cap *reallocations*)

Where:

Regional Parameters:

GST   Represents the applicable rate for the Goods and Services Tax.

P_R Represents *AEMO's* estimate of the average future RRP for each *region* R.

T_{RP} Is the *reaction period*, which is seven days.

$VFPM_R$ Is a volatility factor, which is a scaling factor specific to the PM used to achieve the *prudential standard* for each *region* R.

Market Participant Specific Parameters:

$PM_{R,E}$ Represents the value of _energy_ in the _regional_ PM with no allowance for _regional volatility_ on net credit amounts.

$PM_{R,R}$ Represents the value of _reallocations_ in the _regional_ PM with no allowance for _regional volatility_ on net credit amounts.

VEL_R Represents the value of _load_ for a _Market Participant_ in _region_ R.

VEG_R Represents the value of _generation_ for a _Market Participant_ in _region_ R.

VRD_R Represents the value of debit energy _reallocations_ for a _Market Participant_ in _region_ R.

VRC_R Represents the value of credit energy _reallocations_ for a _Market Participant_ in _region_ R.

$PRAF_{L,R}$ Is a Participant Risk Adjustment Factor (_load_) used to adjust the OSL and PM for a _Market Participant_ to reflect their relative _load_ risk and achieve the _prudential standard_ in _region_ R for the _Market Participant_.

$PRAF_{G,R}$ is a Participant Risk Adjustment Factor (_generation_) used to adjust the OSL and PM for a _Market Participant_ to reflect their relative _generation_ risk and achieve the _prudential standard_ in _region_ R for the _Market Participant_.

$PRAF_{R,R}$ is a Participant Risk Adjustment Factor (energy and swap _reallocation_s) used to adjust the OSL and PM for a _Market Participant_ to reflect their relative energy and swap _reallocation_ risk and achieve the _prudential standard_ in _region_ R for the _Market Participant_.

$PRAF_{R,R,C}$ is a Participant Risk Adjustment Factor (cap _reallocation_s) for a cap value of C used to adjust the OSL and PM for a _Market Participant_ to reflect their relative risk of cap _reallocations_ and achieve the _prudential standard_ in _region_ R for the _Market Participant_.

EL_R represents _AEMO_'s estimate of the _Market Participant's_ average daily _load_ in _region_ R.

EG_R represents _AEMO_'s estimate of the _Market Participant's_ average daily _generation_ in _region_ R.

RC_R represents the average daily _energy_ of prospective (ex ante) energy _reallocation transactions_, for which the _Market Participant_ is the credit party in _region_ R.

RD_R represents the average daily _energy_ of prospective (ex ante) energy _reallocation transactions_ for which the _Market Participant_ is the debit party in _region_ R.

RCS_R represents the average daily _energy_ of prospective (ex ante) swap _reallocation transactions_, for which the _Market Participant_ is the credit party in _region_ R.

RDS_R represents the average daily _energy_ of prospective (ex ante) swap _reallocation transactions_ for which the _Market Participant_ is the debit party in _region_ R.

PCS_R represents the swap energy-weighted average strike price for prospective (ex ante) swap _reallocation transactions_ for which the _Market Participant_ is the credit party in _region_ R.

PDS_R represents the swap energy-weighted average strike price for prospective (ex ante) swap _reallocation transactions_ for which the _Market Participant_ is the debit party in _region_ R.

$RCC_{R,C}$ represents the average daily _energy_ of prospective (ex ante) cap _reallocation transactions_ for which the _Market Participant_ is the credit party, for a cap value C in _region_ R.

$RDC_{R,C}$ represents the average daily _energy_ of prospective (ex ante) cap _reallocation_ transactions for which the _Market Participant_ is the debit party, for a cap value C in _region_ R.

RC$$_R$$	represents the average daily dollar amount of prospective (ex ante) dollar *reallocation transactions* for which the *Market Participant* is the credit party, in *region* R.
RD$$_R$$	represents the average daily dollar amount of prospective (ex ante) dollar *reallocation transactions* for which the *Market Participant* is the debit party, in *region* R.

GLOSSARY

In this document, italicised terms are defined in the National Electricity Rules. Any capitalised terms or acronyms are defined in the table below:

Term	Meaning
Credit Limit Procedures	The procedures developed, published and maintained by AEMO under clause 3.3.8 of the NER.
EMMS	AEMO's Electricity Market Management System
Gentailer	A vertically integrated *Market Participant*, which usually means it has *generation* and energy retailing businesses.
MCL	Maximum credit limit, as defined in clause 3.1.1A of the NER.
NEO	The national electricity objective, as defined in section 7 of the *National Electricity Law*.
OSL	Outstandings limit, as defined in clause 3.1.1A of the NER.
POE	Prudential probability of exceedance, as defined in clause 3.1.1A of the NER.
PM	Prudential margin, as defined in clause 3.1.1A of the NER.
Prudential Settings	As defined in clause 3.1.1A of the NER.
Prudential Standard	As defined in clause 3.1.1A of the NER.
Reaction Period	As defined in clause 3.1.1A of the NER.
RRP	*Regional reference price*
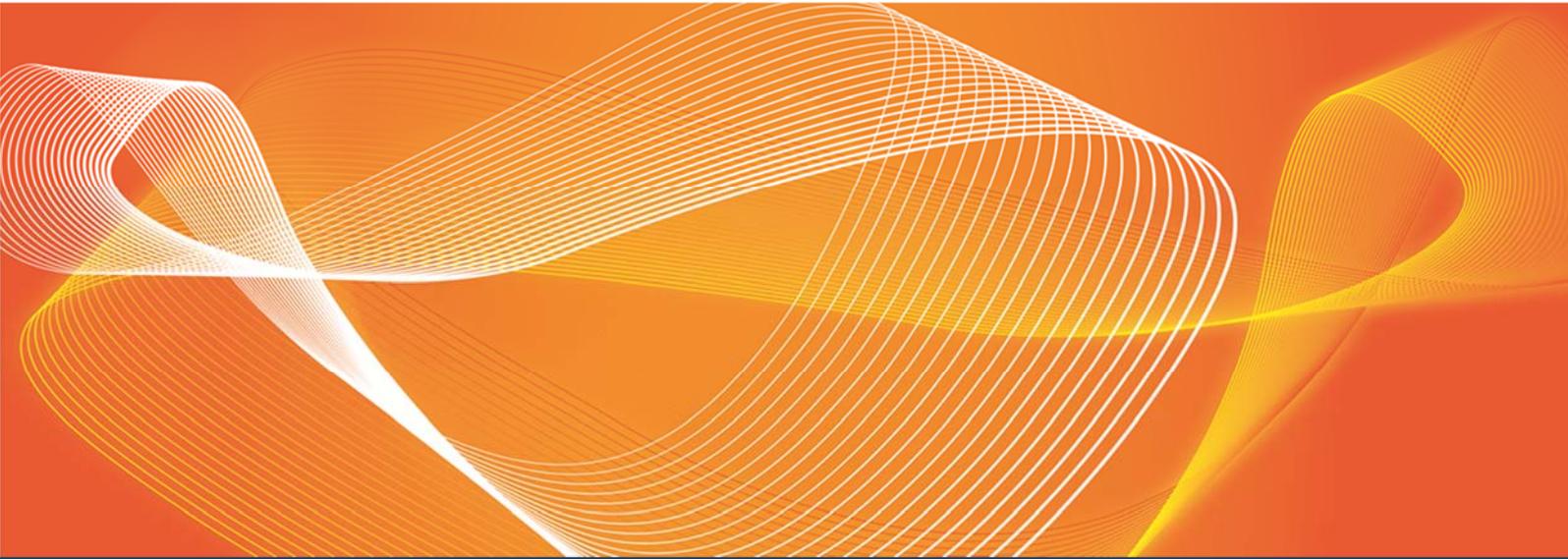
ATTACHMENT 1 – NEMWCF PAPERS

OFFSETS IN THE PRUDENTIAL MARGIN
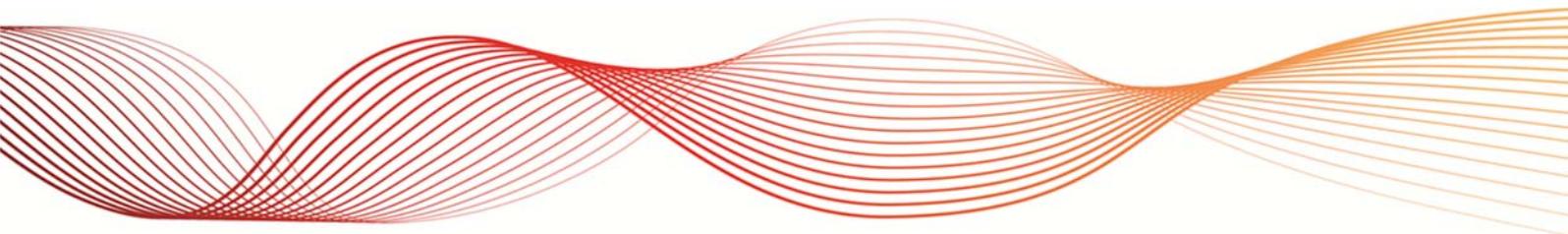
NEMW-CF CONSULTATIVE FORUM

FOR DECISION	
SUBJECT:	OFFSETS IN THE PRUDENTIAL MARGIN
CONTACT:	KATALIN FORAN
DATE:	WEDNESDAY, 28 MAY 2014

1.   PURPOSE

AEMO asks the NEMW-CF to approve AEMO moving forward to submitting a Rule change request in support of AEMO's preferred options for treating offsets in determination of the prudential margin (PM).

After considering the various options for PM offsets and including input from stakeholder consultations, AEMO has concluded the following treatment of offsets is most appropriate:

- Inclusion of full reallocation offsets[1] in the PM calculation; and

- Retention of full generation offsets[2] in the PM calculation with tighter processes.

Any Rule change would seek to achieve equitable credit support requirements, allow for efficient use of collateral and reflect a level of prudential risk consistent with the Prudential Standard.

2.   BACKGROUND

In October 2012 the AEMC published the New Prudential Standard and Framework in the NEM Rule. This Rule established that total credit support requirements (maximum credit limit (MCL)) from Market Participants equal the outstanding limit (OSL) plus the prudential margin (PM), that is, MCL = OSL + PM. The OSL reflects the level of credit support to cover liabilities for all days that have occurred and not yet been paid for assuming no Market Participant is failing. The PM reflects the credit support buffer intended to cover accruing liabilities in the NEM during the reaction period (up to seven days), this is the time it would take to remove a failing Market Participant from the NEM.

Under the National Electricity Rules (NER) the PM calculation can be summarised as:

Seven days of debit amounts from load less seven days of credit amounts from generation, where this value cannot be less than zero

+

Seven days of debit amounts from reallocations less seven days of credit amounts from reallocations, where this value cannot be less than zero.

Under this calculation load and generation amounts cannot be offset with reallocation amounts in the PM. This means that vertically integrated Market Participants (gentailers)

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[1] A reallocation is a financial arrangement between two Market Participants and AEMO, usually representing an off-market financial commitment such as a hedge contract. Under the Rules, a reallocation is the process under which two Market Participants request AEMO to make matching debits and credits to the position of those Market Participants with AEMO.

[2] Generation offsets represent credit trading amounts from generation to offset debit amounts from customer load or debit reallocations.

derive greater value from their generation credit amounts than reallocated retailers do from their credit reallocation amounts in the PM. A further outcome is that no risk is ascribed to credit amounts from generation during the reaction period.

2.1. Previous submission to the AEMC and stakeholder consultation

In 2012 AEMO made a submission to the AEMC's rule change consultation to moderate the level of generation credit amounts allowed in the PM calculation. This submission was not accepted on the basis that the timing did not allow for due process and consideration.

Since that submission, AEMO has undertaken further stakeholder consultation on the issue and the options outlined together with AEMO's preferred options have been strongly guided by Market Participant discussions.

3. DISCUSSION

The options investigated for the inclusion of generation and reallocation offsets in the PM calculation are shown in Table 1. For further details on the options, and their key advantages and disadvantages please refer to Appendix 1.

Table 1 – Options for the treatment of offsets in the PM

Reallocation offsets	Generation offsets
No reallocation offsets (current)	Full generation offsets (current)
Full reallocation offsets	Reduced generation offsets
Partial reallocation offsets	No generation offsets
	Full generation offsets with tighter processes

AEMO's preferred options for reallocation and generation offsets are:

- **Inclusion of full reallocation offsets in PM calculation** – AEMO believes that an arrangement of full reallocation offsets would be consistent with a scenario where it is reasonable to assume that all credit offsets would continue until AEMO has been able to curtail all liabilities.

- **Retention of full generation offsets in PM calculation with tighter processes** - AEMO believes that a reasonable compromise between reducing prudential risks and efficient use of Market Participant collateral would be to retain full generation offsets, coupled with tighter prudentials processes when dealing with reduced generation capacity of a gentailer.

3.1. Project tasks and timetable

AEMO asks the NEMW-CF consider the outlined options and provide support for developing a Rule change request to the AEMC based on AEMO's preferred options.

AEMO will also prepare details of the proposed process for dealing with generation offsets in the case of loss of generation. These details are likely to be included in the CLP through the Rules' consultation process.

4. RISKS / FINANCIALS

After receiving stakeholder feedback on the preferred options, AEMO will undertake a cost benefit analysis as part of developing a Rule change proposal.

5. RECOMMENDATIONS

It is recommended that the NEMW-CF consider the outlined options and approve development of a Rule change proposal based on AEMO's preferred options.

ATTACHMENTS/APPENDICES:
1. PRUDENTIAL MARGIN OFFSET ARRANGEMENTS

ATTACHMENT/APPENDIX 1:	PRUDENTIAL MARGIN OFFSET ARRANGEMENTS

1. Introduction

Over the past few months AEMO has undertaken stakeholder consultation on the treatment of offsets in the prudential margin (PM) calculation. Stakeholders have in general been supportive of AEMO's preferred options for dealing with reallocation and generation offsets. This paper presents an analysis of all of the options considered, as well as outlining AEMO's preferred options and provides an opportunity for further feedback in this forum.

The options and their key advantages and disadvantages are outlined in Table 2 and Table 3. Evaluation of the options can be found in section 3.1 and 3.2 and a recommendation on the preferred option is in section 3.3.

Subsequent to receiving feedback on this paper, AEMO will determine whether a Rule change should be submitted to the AEMC. Any Rule change would seek to ensure that the credit support requirements are equitable, allow for efficient use of collateral and reflect a level of prudential risk consistent with the Prudential Standard.

2. Options for offsetting reallocations and generation in the PM

The New Prudential Standard and Framework implemented in 2012 has established that total credit support requirements (maximum credit limit (MCL)) from Market Participants equal the outstandings limit (OSL) plus the PM, that is, MCL = OSL + PM. The OSL reflects the level of credit support to cover liabilities for all days that have occurred and not yet been paid for assuming no Market Participant is failing. The PM reflects the credit support buffer intended to cover accruing liabilities in the NEM during the reaction period (up to seven days), this is the time it would take to remove a failing Market Participant from the NEM. Under this calculation load and generation amounts cannot be offset with reallocation amounts in the PM.

AEMO believes that the exclusion of reallocation offsets from the PM calculation is an inefficient use of Market Participant collateral and potentially creates a competitive advantage for gentailers over independent retailers without generation assets. AEMO sees three possible options in dealing with reallocation offsets:

- No reallocation offsets (current)
- Full reallocation offsets
- Partial reallocation offsets

Currently generation offsets are fully included in the PM calculations. AEMO believes that there are potential risks associated with credit amounts from generation during the reaction period. AEMO sees four possible options for dealing with generation offsets, which are:

- Full generation offsets (current)
- Reduced generation offsets
- No generation offsets
- Full generation offsets with tighter processes

Table 2 and Table 3 outline the options investigated for the inclusion of reallocation and generation offsets in the PM calculation and their key advantages and disadvantages.

Table 2 - Reallocation offsets – key advantages and disadvantages

Option	Advantages	Disadvantages
No reallocation offsets (current)	- No Rule or system changes required. - No changes to prudential risks or the prudential standard.	Inefficient use of Market Participant collateral.
Full reallocation offsets	- More efficient use of Market Participant collateral. - Has general industry support of	- Requires Rule and system changes. - Has the potential to impact on prudential risks (see section 3.1 for further analysis).
Partial reallocation offsets	More efficient use of Market Participant collateral.	- Does not fully utilise Market Participant collateral. - Requires Rule and system changes. - Has potential to impact on prudential risks (see section 3.1 for further analysis).

Table 3 - Generation offsets - key advantages and disadvantages

Option	Advantages	Disadvantages
Full generation offsets (current)	- Efficient use of Market Participant collateral. - No Rule or system changes required.	May not fully account for potential risks associated with credit amounts during the reaction period.
Reduced generation offsets	May more fully account for potential risks associated with credit amounts during the reaction period (see section 3.2 for further analysis).	- Inefficient use of Market Participant collateral. - Requires Rule and system changes.
No generation offsets	Removes any risks associated with credit amounts during the reaction period (see section 3.2 for further analysis).	- Inefficient use of Market Participant collateral. - Requires Rule and system changes.
Full generation offsets with tighter processes	- Efficient use of Market Participant collateral. - May more fully account for potential risks associated with credit amounts during the reaction period (see section 3.2 for further analysis). - No Rule or system changes required. - Has general industry support.	Process changes required (Market Participants and AEMO).

3. Prudential risk assessment of options

When analysing any proposed options from a prudential risk perspective, a key factor to consider for both generation and reallocations is the expected behaviour of the offset during the reaction period.

The reaction period covers the time taken by AEMO to identify a default event against a Market Participant, and execute processes to transfer or remove further liabilities. During the reaction period a number of events may occur which results in the market's exposure to a Market Participant increasing or trending higher.

Currently, the calculation of the PM does not permit the inclusion of reallocation credits to be offset against load, however generation credits can be fully offset against load. Conversely both generation and reallocation amounts are fully taken into account for calculating the outstandings limit (OSL).

This suggests that it is a case of determining how "firm" both generation and reallocation offsets are, specifically during the reaction period, to assess the prudential risk associated with each option.

Here AEMO defines an arrangement as "firm" if it is reasonable to assume that all credit offsets would continue until AEMO has been able to curtail all liabilities.

3.1.   Reallocation offsets

3.1.1.   The reallocation process

To assess the firmness of reallocation offsets it is helpful to first understand the prescribed processes around reallocations during default events. There are four key aspects of the Rules that should be considered for this analysis:

- AEMO may deregister a reallocation request in the case of a default event in respect of either party to the reallocation;

- AEMO may deregister a reallocation request at the request of both of the parties to the reallocation;

- AEMO may perform a review of Market Participant MCL if it believes there is a prudential impact in relation to any reallocation requests; and

- The ex-ante timetable for reallocations necessitating that reallocation requests be lodged in advance to be considered for the MCL calculation.

In accordance with Rule 3.15.11 (l) if a default event occurs in relation to either party to a reallocation where one or more of the trading intervals has not occurred, AEMO can deregister the reallocation request by notice given at any time whilst the default event is subsisting.

In terms of process, when a default event occurs, AEMO considers whether any reallocation requests should be deregistered based on the prudential impact on the Market Participants involved in the proposed reallocation including the following:

- Reducing exposure to the NEM by immediately deregistering any reallocation requests for which the debit party is subject to a default event; and

- Reducing exposure of the NEM to the counterparties of reallocation requests where the credit party is subject to a default event.

3.1.2.   Reallocation offsets options analysis

Currently load and generation amounts cannot be offset with reallocation amounts in the PM calculation. There are two other potential ways of approaching reallocations:

- Full reallocation offsets; and

- Partial reallocation offsets.

An arrangement of full reallocation offsets would be consistent with a scenario where it is reasonable to assume that all credit offsets would continue until AEMO has been able to curtail all liabilities (i.e. for the reaction period). For a retailer, liabilities are expected to cease once Retailer of Last Resort (RoLR) processes has been affected.

As outlined above, according to the Rules, at any point during the reaction period AEMO can deregister the reallocation if deemed necessary and neither party can terminate the reallocation unilaterally. Even if both parties request the reallocation request be terminated, AEMO is not compelled to do this if it believes that the deregistration would increase the exposure of the NEM to a default event.

Additionally, AEMO can perform an MCL review of a Market Participant if it believes there is a prudential impact in relation to any reallocation requests and due to the ex-ante timetable for reallocations it can be certain that reallocations held will cover at least the reaction period in case of a default event.

All these factors imply that reallocations are indeed "firm" and AEMO can reasonably assume that all credit offsets would continue until AEMO has been able to curtail all liabilities. Thus allowing for reallocation offsets in the PM would not increase the prudential risks and would represent more efficient use of Market Participant collateral.

Allowing for partial reallocation offsets in the PM calculation would mean that the reduction in the reallocations allowed would be predicated on a scenario of two party failure (first of a generator and then a retailer) where some portion of the credit offsets with all counterparties would cease immediately at the start of the reaction period. This would result in reduced credit reallocation offsets from the start of the retailer's reaction period.

Although AEMO does not believe that allowing partial reallocation offsets would alter the prudential risks, this scenario of two party failure is not viewed as reasonably possible, and would represent an inefficient use of Market Participant collateral.

3.2. Generation offsets

3.2.1. Generation offsets options analysis

AEMO believes that it is reasonable to assume that a gentailer would continue to operate their generation facilities during the reaction period. However, it is also reasonable to envisage a scenario where the very reason for the default of a gentailer is predicated by the loss of a generating unit or an entire facility. AEMO believes that this possibility for reduced generation output during the reaction period introduces additional prudential risks that to date have not been accounted for. AEMO has suggested three potential ways of mitigating these risks:

- No generation offsets;
- Reduced generation offsets; and
- Full generation offsets with tighter processes.

Allowing for no generation offsets in the PM calculation would completely mitigate any risk associated with reduced generation capacity during the reaction period. However as it is not considered likely that a gentailer would lose all its generation capacity, it is unreasonable to assume that multiple, geographically separate and separately operated facilities would all cease to operate for the reaction period. AEMO believes that this option would be overly conservative and would represent an inefficient use of Market Participant collateral.

Partial generation offsets where the PM calculation for a Market Participant would make allowance for the complete loss of a gentailers single largest generation facility for the entire reaction period would also represent a reduction in prudential risks as it would limit any

exposure in the reasonable scenario of unit/generation facility failure for a gentailer. Although this option would reduce the prudential risks, due to its non-dynamic nature, AEMO believes that it would still represent an inefficient use of Market Participant collateral.

AEMO believes that reasonable compromise between reducing prudential risks and efficient use of Market Participant collateral would be to retain full generation offsets coupled with tighter prudentials processes when dealing with reduced generation capacity of a gentailer. These tightened process may include:

- An expectation for Market Participants to notify AEMO of loss of generation within a prescribed time period;

- An expectation for Market Participants to provide AEMO with regular updates after loss of generation including expected timing/capacity for resumption of generation;

- AEMO formalising expectations around information and its timing that Market Participant are expected to provide to AEMO in the case of loss of generation. These expectations will be formalised in a Guide or as an amendment to the CLP; and

- AEMO using information already provided to it by Market Participants such as that in Projected Assumed System Availability (PASA) data to alert to loss of generation or generation at a level that is materially different to that assumed in the determination of MCL.

3.3. Preferred options

The central tenant of the above analysis is the development of a solution that results in credit support requirements that are equitable, allow for efficient use of collateral and reflect a level of prudential risk consistent with the Prudential Standard. The preferred options also need to be consistent with the National Energy Objective (NEO), contributing to the efficient operation of electricity services and ultimately demonstrating reduced costs to end user customers.

After considering the various options outlined in section 2, together with the input from stakeholder consultations, AEMO has concluded the following treatment of offsets is most appropriate:

- Inclusion of full reallocation offsets in the PM calculation; and

- Retention of full generation offsets in the PM calculation with tighter processes.

3.4. Impact of the preferred options on the Prudential Standard

The Prudential Standard is defined as 2% probability of loss given default P(LGD). This means that the prudential arrangements set an expectation that no shortfall of monies collected by AEMO would arise in 98 out of 100 instances of retailer default (where a retailer exceeds their outstandings limit and subsequently defaults and is removed from the market). In the remaining 2% of cases, as AEMO pays generators for the energy they generate, generators would bear a shortfall incurred as a result of the retailer failure.

When determining the volatility factors that uphold the 2% P(LGD), AEMO makes assumptions around the value of generation and reallocation offsets during a default event. AEMO believes that the preferred options cover the large majority of outcomes and would therefore not materially impact on the Prudential Standard.

NEM WHOLESALE CONSULTATIVE FORUM

Subject:	RULE CHANGE PROPOSAL - OFFSETS IN THE PRUDENTIAL MARGIN
Agenda item:	3.1
Contact:	Katalin Foran
Date:	WEDNESDAY, 28 JANUARY 2015

1. EXECUTIVE SUMMARY

Item raised by:	AEMO, towards continuous improvement.
Rule Requirement:	NER 3.3.8 (e), regarding prudential requirements.
Link to National Objectives:	NEO: Reducing costs of participation in the market.
Previous forum discussion(s):	NEMW-CF: AEMO raised this issue on 28 May 2014. Forum agreed for AEMO to proceed and draft a Rule change.
Item impact:	The proposed Rule change aims to create more equitable credit support requirements that use market participant collateral more efficiently. In total, market participants will have reduced Maximum Credit Limit (MCL) requirements, saving between $200,000 and $500,000 a year.
Impacted parties:	Market participants who use reallocation offsets.
Purpose:	INVOLVING stakeholders: participants to review AEMO's draft Rule change, and provide feedback by 27 February 2015.
Desired outcome:	Forum participants provide feedback that helps AEMO finalise the Rule change request to the AEMC.

2. BACKGROUND

In 2012, the New Prudential Standard and Framework in the NEM Rule established that:

Maximum credit limit (MCL) = Outstandings limit (OSL) + Prudential margin (PM)

The OSL reflects the level of credit support to cover liabilities for all days that have occurred and not yet been paid for. The PM reflects the credit support buffer intended to cover accruing liabilities in the NEM during the reaction period.[1]

Under the current rules, the calculation of prudential margin does not permit the inclusion of reallocation credits to be offset against load, however generation credits can be fully offset against load. AEMO considers that the current offset arrangements do not equitably treat the

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[1] Time it would take to remove a failing market participant from the NEM (up to seven days).

respective prudential benefits of reallocation and generation credits, and understate the benefit of credit reallocations.

2.1. Previous submission to the AEMC and stakeholder consultation

AEMO originally submitted a proposal to change the treatment of reallocation offsets in the PM to the AEMC in 2012. This proposal was not accepted, as the AEMC believed the topic needed to be considered in more depth. Since then, AEMO has consulted further with stakeholders on the issue and drafted a revised proposal for the treatment of offsets. This was considered by and broadly supported by the NEM Wholesale Consultative Forum (NEMW-CF) on 28 May 2014.

3. DISCUSSION

In May 2014, AEMO outlined to the NEMW-CF its preference for including full reallocation offsets in the PM calculation. AEMO believes that an arrangement of full reallocation offsets would be consistent with a scenario where it is reasonable to assume that all credit offsets would continue until AEMO has been able to curtail all liabilities.

AEMO also presented the NEMW-CF with its preferred option for the treatment of generation offsets in the PM, which is to retain full generation offsets in the PM calculation and mitigate any associated risks with enhanced prudential monitoring processes.

3.1 Key stakeholder benefits

The benefits of the proposed changes to the treatment of offsets in the PM calculation are:

- Equitable credit support requirements for market participants.

- Efficient use of market participant collateral.

- Contribution to the efficient operation of electricity services and reduced costs to end use customers.

- Prudential risk to remain consistent with the Prudential Standard.

3.2 The current Rule

The relevant Rule outlining the treatment of offsets in the PM is NER 3.3.8 (e), which states that:

In determining the prudential margin, *AEMO* must not take into account estimates of a *Market Participant's*:

(1) quantity and pattern of *trading amounts* where the estimate of the aggregate of all *trading amounts* for the period being assessed is a positive amount; and

(2) quantity and pattern of *reallocation amounts* where the estimate of the aggregate of all *reallocation amounts* for the period being assessed is a positive amount.

3.3 The current calculation

In the Credit Limit Procedure (CLP) the above Rule is interpreted in the PM calculation as:

Prudential Margin = Prudential Margin (energy) + Prudential Margin (reallocations)

Where Prudential Margin (energy) and Prudential Margin (reallocations) cannot be negative.

Under the current calculation, generation can reduce the amount of PM from load and credit reallocations can reduce the amount of PM from debit reallocations. However, having generation in excess of load or credit reallocations in excess of debit reallocations **cannot** reduce the PM overall.

3.4 The proposed draft Rule

AEMO proposes the following changes to NER 3.3.8 (e):

~~(e) In determining the prudential margin, *AEMO* must not take into account estimates of a *Market Participant's*:~~

> ~~(1) quantity and pattern of *trading amounts* where the estimate of the aggregate of all *trading amounts* for the period being assessed is a positive amount; and~~

> ~~(2) quantity and pattern of *reallocation amounts* where the estimate of the aggregate of all *reallocation amounts* for the period being assessed is a positive amount.~~

I.e., we propose to delete the above section.

3.5 The new calculation

In the CLP, the new Rule would be interpreted in the PM calculation as:

Prudential Margin = Prudential Margin (energy) + Prudential Margin (reallocations)

Where the Prudential Margin cannot be negative.

Under the proposed calculation, as previously, generation can reduce the amount of PM from load and credit reallocations can reduce the amount of PM from debit reallocations. Additionally, generation in excess of load or credit reallocations in excess of debit reallocations **can** reduce the PM overall. An additional condition is that the PM cannot be negative.

3.6 Project tasks and timetable

AEMO plans to submit the Rule Change Proposal to the AEMC in the first quarter of 2015. If the proposal is successful, implementation is expected in 2016.

3.7 Related projects

At the 28 May 2014 NEMW-CF, AEMO also discussed its intention to create tighter prudential monitoring processes around generation offsets in the prudential margin. These tighter processes will be based on the implementation of additional automated internal AEMO business alerts relating to changes in generation levels similar to those currently in place for reallocations.

4. RISKS / FINANCIALS

AEMO believes that if the proposed Rule change is implemented, the prudential risk will remain consistent with the Prudential Standard.

AEMO analysed the effect of including full offsets in the PM calculation for the "2014 summer" season. This showed:

- Approximately $11.8 million (1.3%) reduction in MCL requirements across the NEM.

- Aggregate saving of $200,000 to $500,000 per year for market participants (based on the cost of guarantees of 1.5% to 4%).[2]

If the Rule change is implemented, a system enhancement will be required. The system change will only impact the underlying PM calculation, with no changes to user interfaces.

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[2] Range from industry sources and the AEMC (2010) 'Review into the role of hedging contracts in the existing NEM prudential framework'

5. TIMING AND NEXT STEPS

AEMO asks the NEM Wholesale Consultative Forum to review and provide feedback via email (nemwcf@aemo.com.au) by 27 February 2015, on AEMO's draft Rule change proposal to allow the application of full offsets in the PM calculation.

ATTACHMENTS:
1. N/A