Australian Energy Market Commission

RULE CHANGE

# CONSULTATION PAPER

# National Electricity Amendment (New Prudential Standard and Framework in the NEM) Rule 2011

**Rule Proponent(s)**
Australian Energy Market Operator

20 October 2011

For and on behalf of the Australian Energy Market Commission

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**About the AEMC**

The Council of Australian Governments, through its Ministerial Council on Energy (MCE), established the Australian Energy Market Commission (AEMC) in July 2005. The AEMC has two principal functions. We make and amend the national electricity and gas rules, and we conduct independent reviews of the energy markets for the MCE.

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# 1 Introduction

On 27 July 2011, the Australian Energy Market Operator (AEMO, Proponent) submitted a Rule change request[1] to the Australian Energy Market Commission (AEMC or Commission) in relation to a new Prudential Standard and Framework in the National Electricity Market (NEM).

Presently, the National Electricity Rules (NER, Rules) require that AEMO must calculate the amount of Credit Support that must be posted by a retailer in the NEM with reference to the "reasonable worst case" of monies that could accrue as a result of the lag between energy consumption and energy settlement, or monies that could accrue during the time taken to suspend a retailer following the commencement of default. The reasonable worst case is defined as "a position that, while not being impossible, is to a probability level that the estimate would not be exceeded more than once in 48 months". AEMO consider that this definition is ambiguous. The Rule change request focusses on the establishment of a more transparent, predictable and understandable statistical Standard for protection from default in the NEM. AEMO label this the 'Prudential Standard'.

AEMO propose to adopt a calculation called the Probability of Loss Given Default [P(LGD)], and use this to define the Prudential Standard at 2% P(LGD). This would imply that the prudential arrangements would prevent any shortfall of monies collected by AEMO in 98 out of 100 instances of retailer default. In the remaining 2% of cases, generators would bear a shortfall incurred as a result of the default. Critically, the P(LGD) does not reflect the size of the potential losses that could occur in the 2% of cases. The magnitude of these actual losses would instead be left to generators, their insurers and financiers to estimate and manage as seems best to them.

AEMO also propose a suite of modifications to the processes (and corresponding Rule amendments) by which they calculate the retailer obligations, known as the Maximum Credit Limit (MCL) and Prudential Margin (PM). These changes include better reflecting seasonal variability and individual load profiles in calculating the obligations. AEMO also propose to remove provisions for the use of a Reduced MCL (RMCL) from the Rules.

AEMO's Rule change request follows its completion of a large body of work called the 'Energy Market Prudential Readiness Review' (Readiness Review)[2]. The final report from this Review contemplates a number of changes to the prudential arrangements in the NEM and is referenced throughout this consultation paper. Primarily, the Rule change request seeks to give effect to the first of the conclusions flowing from the Readiness Review; the implementation of a new Prudential Standard and Credit Limits Methodology for the NEM.

1 AEMO, National Electricity Rule Request - New Prudential Standard and Framework.

2 http://www.aemo.com.au/electricityops/prudential_review.html

This Consultation Paper has been prepared by the staff of the AEMC to facilitate public consultation on the Rule change proposal and does not represent the views of the AEMC or any individual Commissioner of the AEMC.

This paper:

- sets out a summary of, and a background to, the Rule change proposed by the Proponent;
- identifies a number of questions and issues to facilitate the consultation on this Rule change request; and
- outlines the process for making submissions.

# 2 Background

This section describes the architecture present to protect participants in the NEM, and ultimately consumers, from the financial and physical consequences of default. The aim of this Chapter is to provide a reasonably accessible treatment of the entirety of the topic, rather than heavy detail, so that respondents can assess the Rule change request with regard to the broader implications it will have in the wider potential reform of the prudential arrangements in the NEM. Readers already familiar with the detailed work of AEMO in carrying out its Readiness Review and of the Commission in its Review of the role of hedging contracts in the prudential arrangements (outlined in Chapter 4) will already be very familiar with architecture described below.

## 2.1 Terminology

In keeping with conventions used in previous papers on the topic of the prudential arrangements in the NEM, this paper will use the term 'retailer' to generally refer to parties that tend to owe monies to AEMO and/or generators on an ongoing basis, and thereby act to expose those counterparties to the immediate risk of loss in the event of default. 'Generator' will refer to parties that are owed money by AEMO and/or retailers. This is a generality because it is possible under the existing Prudential Framework for generators to owe monies to AEMO and/or have to post monies to cover a Prudential Margin (this can occur when the generator is party to a Settlement Re-allocation). This general terminology is intended for simplicity and is founded in the notion that the NEM has and will continue to feature a material delay between energy consumption and energy settlement[3].

This paper will also make use of convenient variables not defined in the Rules, but used in other recent papers on the topic to explain default risk in NEM.

## 2.2 Architecture of Default Management in the NEM

The Prudential Requirements in the NEM are set out in Rule 3.3 of the NER, and the Default Procedure is set out in clause 3.15.21. For a full treatment of the topic of default management the reader is referred to those parts of the Rules and the various associated procedural papers published by AEMO, such as the Credit Limits Methodology[4]. The AEMC's Review into the role of hedging contracts in the existing NEM prudential framework[5], hereafter the 'Hedging Review', completed in 2010 also provides an overview of the requirements.

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3 In a market where retailers instead pay 'up front', a reversal of risks could apply whereby generators might default and not deliver the energy they've already been paid for.

4 AEMO, Credit Limits Methodology, v8 - http://www.aemo.com.au/electricityops/0530-0022.pdf.

5 http://www.aemc.gov.au/Market-Reviews/Completed/Review-into-the-Role-of-Hedging-Contracts-in-the-Existing-NEM-Prudential-Framework.html

Retailers settle their accounts with AEMO approximately four weeks after the end of the week in which the electricity was supplied. This gives rise to credit risk, because if a retailer fails to pay for the energy consumed, a shortfall will arise between AEMO's incoming payments and outgoing payments to generators.

To address this risk, retailers are required to post Credit Support to AEMO when they are unable to meet the *acceptable credit criteria.*This criteria includes having a rating of A-1 or higher as rated by Standard and Poor's (Australia) or P-1 or higher as rated by Moodys Investor Service, for short term unsecured counterparty obligations. Such a strong rating doesn't usually apply to electricity retailers, and as such in practice, retailers typically need to post Credit Support. In addition to this requirement, retailers are required at all times to maintain a margin (called the Prudential Margin) between the amount they owe to AEMO and the total value of all Credit Support, cash deposits and other instruments (explained below) posted with AEMO.

The Rules require that the Credit Support is to take the form of a guarantee or bank letter of credit. In a circumstance in which the retailer fails to pay AEMO monies owed, the guarantee can be drawn down by AEMO to cover any shortfall arising from the failure to pay.

### 2.2.1 Default Process

From the moment that a retailer begins to default on its obligations to pay AEMO, a series of events are triggered:

- The retailer is issued with a Call Notice by AEMO and is given until 11.00 a.m. the following business day to respond;
- Failure to adequately address the Call Notice results in the issue of a Default Notice by AEMO. The retailer is given until 1.00 p.m. the following business day to respond;
- Failure to adequately address the Default Notice results in issuance of a Suspension notice. The retailer can be effectively suspended from the NEM within 12 hours of the issue of the Suspension Notice[6];
- Activation of the Retailer of Last Resort (ROLR) arrangements accompanies the suspension. The ROLR takes responsibility for the connection points for which the defaulting retailer was financially responsible at a time no later than the date of suspension[7];

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6 Following discussions with AEMO the AEMC estimates that suspension will typically take up to 12 hours, but the range could theoretically fall between 7 and 16 hours. This is an estimate only, and is not necessarily a precise indicator of the actual time AEMO may take to suspend a retailer following a decision being taken to do so in a specific circumstance.

7 The draft National Energy Retail Law (NERL), which aims to harmonise ROLR provisions across the regions contemplates this feature (clause 136(5)). The terms of the existing ROLR arrangements are negotiated and managed on a regional basis by the various jurisdictional regulators under guidelines developed by the Australian Energy Regulator (AER).

- AEMO draws upon the Credit Support and any security deposits provided by the defaulting party up to the amount required to pay for Outstandings up to the point of suspension; and finally

- To the extent these quantities are insufficient to cover the monies owed, any shortfall is spread on a pro-rata basis across all participating generation in the NEM.

Should a retailer default for some reason other than failure to meet a Call Notice, the process effectively starts from the issuance of a Default Notice in the process laid out above. Examples of these defaults include failure to pay a settlement amount when due, declaration of inability to pay by the retailer, or withdrawal of authorisation to continue business by a jurisdictional regulator. These arrangements are stipulated mainly in the Rules[8].

### 2.2.2 Maximum Credit Limit and Prudential Margin

The amount of Credit Support that must be posted by a retailer is calculated by AEMO and is given the label 'Maximum Credit Limit'. A retailer may post more Credit Support than the MCL if they wish, but the MCL is the minimum amount of bank guarantee that must be posted. The MCL is calculated with reference to the "reasonable worst case" of monies that could be expected to be owed over the effective 35-day settlement period and the 'Reaction Period'. The Reaction Period is the assumed amount of time required to physically suspend a retailer, and is set to be seven days, so the MCL is calculated to apply across the 'reasonable worst' 42 days that could be expected. The Prudential Margin is calculated under the same principles[9] but for a window of seven days, and is intended to reflect the reasonable worst case of monies that could accumulate during the Reaction Period. The reasonable worst case is described in the Rules as being "*a position that, while not being impossible, is to a probability level that the estimate would not be exceeded more than once in 48 months*". AEMO has adopted a policy whereby there will be a general review of the MCLs, including the values of the regional parameters used in the determinations, approximately every three months[10]. AEMO also conducts interim reviews in response to major events. A separate MCL and PM is calculated for each retailer.

### 2.2.3 Re-allocations

To alleviate the need to post large amounts of Credit Support and to avoid circular cash flows, retailers may enter into 're-allocation' arrangements with a counterparty and register these arrangements with AEMO. In the first instance this allows retailers and their contracted counterparties to forego the potential circular flow of cash resulting from a contract structured around the NEM outputs. For example, a contract for difference on spot price between a retailer and generator struck at $50/MWh could

8 Clause 3.15.21 of the NER encapsulates the complete Default Procedure.

9 There is a specific exception relating to netting effects described later

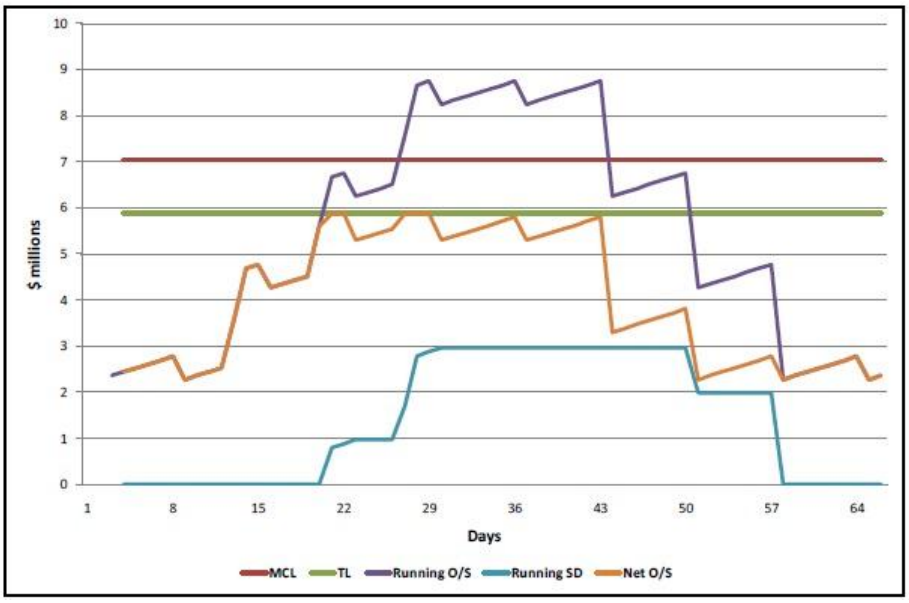
10 AEMO, Credit Limits Methodology, v8 - http://www.aemo.com.au/electricityops/0530-0022.pdf.

be registered with AEMO, so that any monies owing above $50 are simply netted off the amount paid to the generator. The retailer in turn would be charged only $50, and would enjoy a lower Credit Support obligation as a result of the re-allocation. This is because the reasonable worst case for the market's exposure to such a retailer might only be effectively $50/MWh by dint of the re-allocation arrangement. In this situation, the generator has accepted the residual risk of default by their retailer counterparty. Risk allocation within the architecture of default management is discussed further below.

### 2.2.4 Maintenance of the Prudential Margin

Retailers also may post security deposits (SDA) with AEMO into a security deposit fund in order to continue to maintain the required Prudential Margin between the amount they owe and the amount of Credit Support required. This option does not permit the retailer to avoid the provision of the MCL bank guarantee. The diagram below, taken from AEMO's Readiness Review[11] illustrates the ongoing effect of a hypothetical retailer paying its bills, accruing Outstandings owed to AEMO, and maintaining a Prudential Margin between the amount it owes and the amount of Credit Support required:

**Figure 2.1 Maintenance of the Prudential Margin**




As illustrated during days 25 through 43 in the diagram, the amount of money owing to AEMO can at times exceed the MCL. This has occurred on a number of occasions in the history of the NEM during periods of high spot prices. In these situations, the retailer must provide cash deposits or further reallocations to maintain the Prudential Margin between what it owes, and what it could end up owing in the reasonable worst

11 AEMO, Energy Market Prudential Readiness Review, Final Report to MCE - http://www.aemo.com.au/electricityops/0538-0006.pdf, p15

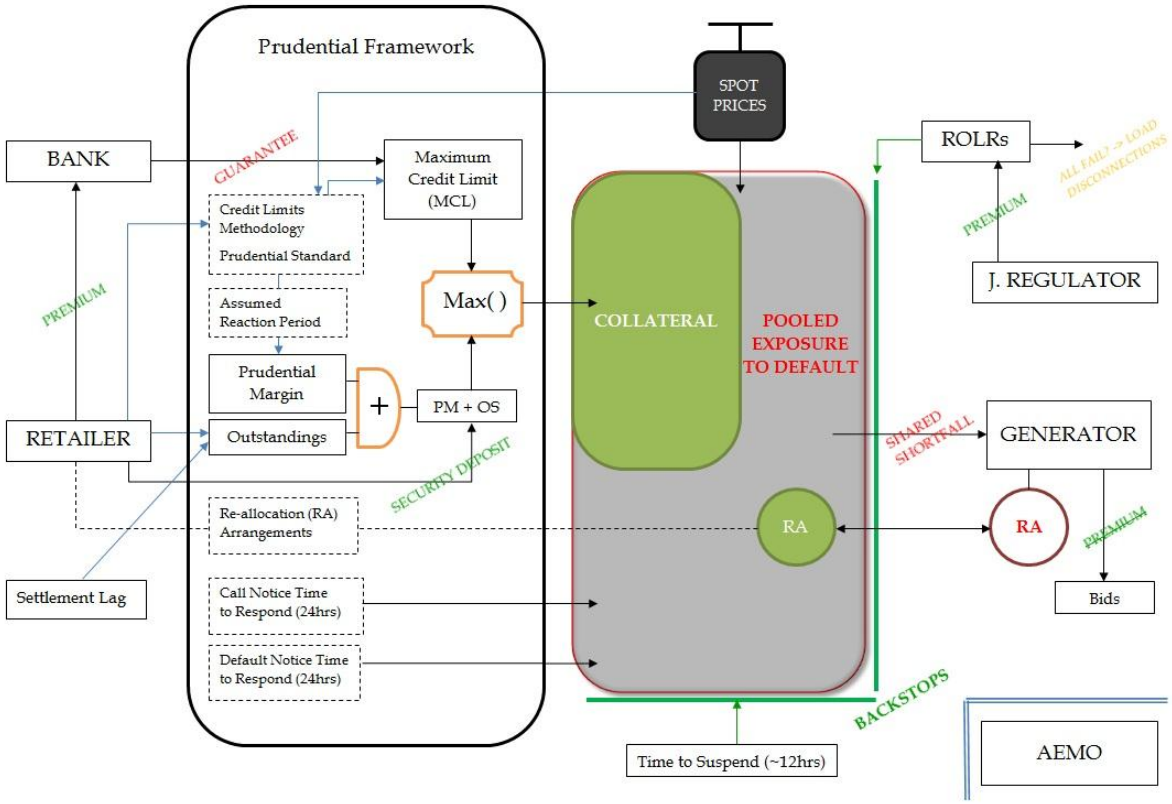
case over the reaction period of seven days. This overwrites the constraint to only provide the MCL (i.e. the retailer must provide more total credit than the MCL).

A converse situation can arise during periods of low price, whereby the amount of money owing to AEMO is significantly below the MCL. In this case the amount of credit headroom posted by the retailer to meet the MCL can be well in excess of the Prudential Margin required to protect the market over the reaction period under the reasonable worst case. The beginning and end periods in the figure above demonstrate this type of situation.

### 2.2.5 Complete Architecture for Default Management

Most of the features described above fall within what is loosely termed the 'Prudential Framework' of the NEM. This Framework sits inside the implied complete architecture for default management, which includes the process for participant suspension, ROLR provisions, load disconnection and the timing of settlements relative to consumption. The complete architecture of default management in the NEM and the allocation of risk posed to parties by defaulting retailers under the architecture is illustrated in the diagram below:

**Figure 2.2 Architecture for Default Management in the NEM**




The chief objective of the diagram is to illustrate the allocation of risk and risk-mitigating factors with regard to retailer default in the NEM. The diagram was

built by AEMC staff and makes several simplifications to the detail contained within the Rules and within the Credit Limits Methodology in the interest of lucidity[12].

In the diagram, spot prices, the four weeks of settlement lag, and the waiting periods between the issuance of notices tend to set the level of the 'Pooled Exposure to Default' of the generators. Mitigating the exposure are the combined effects of Collateral including security deposits[13], reallocations (which are a swap of risk from the pool to an individual generator), and the two 'Backstops' that firmly bound the exposure; comprising the ROLR provisions and AEMO's ability to quickly enact suspension. The key aspect of the architecture is the way in which it allocates risk amongst the parties. In the diagram, risk-taking measures are written in red. The risk-taking measures include:

- The risk taken by generators of shared shortfall flowing from the 'pooled exposure' when a retailer defaults ('Shared Shortfall');
- The risk taken by generators of direct shortfall flowing from a reallocation arrangement with a specific defaulting retailer ('RA'). This risk is matched by an equal and opposite risk mitigant within the pooled exposure;
- The risk taken by banks in providing a letter of credit or guarantee that must then be honoured in the event of retailer default;
- The risk taken by end customers that the ROLR provisions designed to ensure continuity of supply fail to work for some reason, resulting in disconnection of load as ultimately contemplated in the Rules[14].

Risk-mitigating or risk-transferring measures in the diagram are written in green. The measures include:

- The premium paid by retailers to banks in order to obtain the necessary guarantee required to meet the MCL;
- The security deposit paid by retailers to AEMO during periods of high price in order to maintain a Prudential Margin between what is owed and the further amount that could be accrued during seven more days of reasonable worst conditions;

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12 For example, the diagram omits the potential need for generators to post Credit Support if registered as a party to reallocation. The Default Notice arrangements are described in the Default Procedure section of the Rules and apply to all types of default, not just those caused by a failure to respond to a Call Notice. Also not shown is the automatic circumvention of the Call Notice process under defaults caused by external factors or by failure to pay at settlement, or the existing option for retailers to post a 'Reduced MCL'.

13 This paper will use the term 'Collateral' to refer to the sum value of all instruments posted to AEMO by the retailer in lieu of the risk it poses by it's potential default. The Collateral includes the value of all Credit Support and security deposits.

14 NER Clause 3.15.21(j). This risk is assigned a lighter shade of red in the diagram to indicate its residual nature, as the ROLR provisions are designed to be strong and reliable in the event of a single defaulting retailer.

- The resultant Collateral that stems from the above two items; which represents the higher of either the MCL, or a combination of guarantees and cash to maintain the Prudential Margin;

- The premium paid by consumers (via varying mechanisms under oversight of the jurisdictional regulators) to the various ROLRs to enter contractual agreements to take responsibility for the retail and supply of their electricity in the event of a retailer suspension, and the subsequent physical and financial assignment of those customers to that ROLR in the event of a suspension;

- The ability of AEMO to quickly physically remove a retailer from the NEM following a decision being taken to do so; and

- The premium included by generators in their dispatch offers to account for the residual risk posed by defaulting retailers allocated to them under the architecture[15].

AEMO have no commercial exposure to the impact of a defaulting retailer. This is represented in the diagram.

For a comprehensive exploration of the topic of risk allocation as it stands under the existing architecture for default protection in the NEM, the reader is referred to the work completed by the Competition Economists Group (CEG) in early 2010 for AEMO[16].

### 2.2.6 The Prudential Framework

The Prudential Framework is loosely defined in this paper as those components pertinent to the management of default risk that are controllable within AEMO's procedures and/or within Rule 3.3 'Prudential Requirements' of the Rules. .

#### Standard and Methodology

The key components of the Framework are the standard of Default Protection sought by the Rules and Procedures, and the means by which this standard is translated into obligations on retailers. Currently, there is no explicit 'Prudential Standard' in place as a defined term in the Rules (AEMO's Rule change request suggests the creation of one), but for the purposes of considering the status quo, the standard is effectively the language used in the Rules to define the 'reasonable worst case', which as quoted above is defined as a position that, while not being impossible, is to a probability level that the estimate would not be exceeded more than once in 48 months.

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15 This premium is 'struck out' in the diagram in order to indicate the policy objective that has been pursued in design, whereby the other mitigants and transfers present in the architecture should act to mitigate the need for generators to reflect the risk posed by defaulting retailers in their dispatch offers.

16 CEG, Assessing efficiency in settlement and prudential arrangements for energy markets, A report for AEMO January 2010 - http://www.aemo.com.au/electricityops/0539-0002.pdf

AEMO currently interpret this language in their Credit Limits Methodology in order to set the obligations placed on retailers. These obligations take the form of the MCL, and the PM. AEMO's current approach to interpreting the 'reasonable worst case' in calculating the MCL and PM is effectively laid out in detail in the latest Credit Limits Methodology[17]. A broad summary is provided here. Assuming away the impact of re-allocations and ignoring for simplicity GST and intra and inter-regional loss factor adjustments, the MCL to be posted by a retailer is given by the product of:

- The forecast volume of energy to be consumed by that retailer's customers over the Credit Period (42 days);
- The forecast average spot price that will apply over the Credit Period; and
- A 'Volatility Factor' (VF) that adjusts these forecast values upward to reflect the reasonable worst case.

The VF is calculated on a regional basis by AEMO by looking at the 'worst' rolling 42-day window of the past 12 months and comparing it to the average 42-day rolling window of the past 12 months. AEMO then total up the amount of money owed (price multiplied by volume) for each of these windows, and then calculates the VF for the region by dividing the maximum observed amount by the average observed amount. This results in a dimensionless scalar parameter greater than 1.0 that inflates the forecast accrual of the retailer over the Credit Period to that of the 'worst case' relatively observed in the past 12 months.

A retailer can opt under the existing Framework to obtain a Reduced MCL which is calculated with a Credit Period of 28 days instead of the usual 42.

AEMO's process for calculating the PM is almost identical to that used for the MCL, except that:

- The Credit Period is replaced with the Reaction Period, defined as seven days in the Rules; and
- Positive net reallocation amounts and trading amounts cannot act to reduce the PM[18].

### Assumed Reaction Period and Notice Triggers / Periods

The amount of time that it takes under the existing Prudential Framework to remove a defaulting retailer from the NEM forms an obvious and key input into the effective exposure of the NEM generators to default. Several components that dictate this time period are set by processes defined in the Rules. Prior to suspending a retailer for failure to post sufficient credit:

17 AEMO, Credit Limits Methodology, v8 - http://www.aemo.com.au/electricityops/0530-0022.pdf, p5

18 This in practice essentially means that re-allocations registered by a retailer can't act to reduce the PM, whereas they can in the case of the MCL calculation

- the Rules (clause 3.3.11) require issuance of, and allow until the next business day to respond to, a Call Notice, which is triggered whenever the Prudential Margin is breached[19]; and

- failing an adequate response to the Call Notice, the Rules (clause 3.15.21) then require issuance of, and allow until the next business day to respond to, a Default Notice.

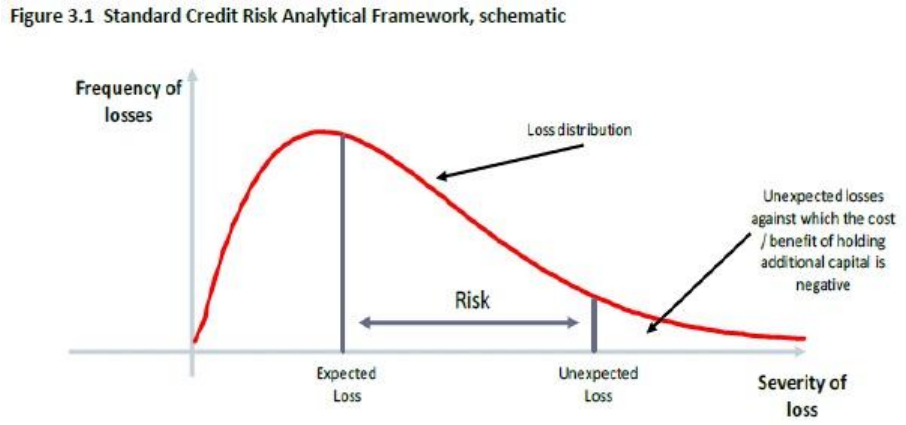
This procedural configuration acts to influence the pooled exposure to default.

The MCL and PM are calculated on an assumption that it will always take seven days to remove the defaulting party (this is defined in the Rules as the 'Reaction Period'). In reality, the true time taken varies depending on the time of week / year the default event occurs. For example, a defaulting retailer issued with a Call Notice on a Monday morning could be removed from the NEM on Wednesday (2 x 24 hour response time + 12 hour suspension time) under the existing procedural configuration.

## 2.3 The Prudential Standard and Exposure to Default

AEMO's Rule change request, discussed in more depth in Chapter 4, most fundamentally addresses the desire to clarify the prudential standard of the NEM. This standard was explored in depth by Seed Advisory and Taylor Fry in a report commissioned by AEMO[20] (Seed) and is summarised by AEMO in their Rule change request. Seed characterise the risk posed by default in the NEM with reference to a typical loss distribution under a standard credit risk analytical framework. The loss distribution is a quantitative representation or estimate of the spread of possible outcomes for the risk-taker (i.e. generator). The diagram below is taken from the Seed report (p21) and illustrates the principle of a loss distribution:

**Figure 2.3**




19 This is in fact detected under the Rules as a breach of the 'Trading Limit', which is a proxy variable defined by MCL, PM and Outstandings.

20 Seed Advisory and Taylor Fry, The Prudential Standard in the National Electricity Market - Final Report, 4 August 2010 - http://www.aemo.com.au/electricityops/0539-0003.pdf

The diagram illustrates the spread of severity of loss that risk-taking parties can expect when a debtor defaults. The curve indicates that most default events will feature moderate losses. By contrast the risk takers can expect a lower number of very small losses, and a diminishing frequency of higher losses. The distribution is however 'skewed' or 'long tailed', and this gives rise to the threat of very infrequent but potentially catastrophic losses at the far right-hand side. Seed characterise the loss distribution in the NEM as a 'Loss Given Default' (LGD), defined as "*The difference between the total prudential security held, including bank guarantees and cash lodged with AEMO and held in Secure Deposit Accounts (SDAs), and Combined Total Outstandings*"[21]. Seed use the term 'Combined Total Outstandings' (CTO) to describe the amount of debt incurred but not paid by a defaulting retailer, being the sum of all current outstandings incurred, and the prospective outstandings over the Reaction Period. In this way, the difference between the amount of 'prudential security' (labelled 'Collateral' in this paper) and the CTO represents the loss to generators on the condition of retailer default, or 'Loss Given Default'. The Loss Given Default does not measure the probabilistic amount that generators will expect to lose over the long run, only the amount they will lose *when a default event occurs*.

In order to quantify the amount lost over the long run, given a particular distribution of Loss Given Default, the generator would also require an estimate of the probability that these default events will occur in the first place. Seed characterise this quantity as the Probability of Default (PD): "*The likelihood that a Market Participant will fail, which includes failure outside the NEM (including bankruptcy and administration) and defaults in the NEM...*"[22]. In their Rule change request, AEMO draw these concepts together, and following from the conclusions put forward by Seed, argue that formulating a probability estimate of the size of a loss is not tractable in the NEM: "*due to the characteristics of the NEM and the statistical distribution of potential losses, unexpected losses cannot be statistically derived, and it is not practical to set a prudential standard for the NEM related to the size of a potential loss*"[23]. This is effectively an argument rejecting the feasibility of quantifying LGD itself under the architecture for protection from default.

This conclusion leads AEMO in their Final Report on the Readiness Review and subsequent Rule change request to propose the implementation of a frequency-based Prudential Standard, defined as the probability of Loss Give Default (labelled hereafter P(LGD)): "*This measure represents the probability that the amount of collateral held by AEMO would be insufficient to cover a Participant's total liabilities through the seven day Reaction Period when a participant is suspended from trading...*"[24]. Importantly, this statistic is a measure of the likelihood of there being at least some non-zero shortfall in the event of a default, it is not a measure of the magnitude of that shortfall (LGD), or the likelihood of default actually occurring (PD). It could be concluded that these variables would be

21 Seed Advisory and Taylor Fry, The Prudential Standard in the National Electricity Market - Final Report, 4 August 2010 - http://www.aemo.com.au/electricityops/0539-0003.pdf, p25

22 Seed Advisory and Taylor Fry, The Prudential Standard in the National Electricity Market - Final Report, 4 August 2010 - http://www.aemo.com.au/electricityops/0539-0003.pdf, p26

23 AEMO, National Electricity Rule Request - New Prudential Standard and Framework, p10

24 AEMO, Energy Market Prudential Readiness Review, Final Report to MCE - http://www.aemo.com.au/electricityops/0538-0006.pdf, p26

instead implicitly left to the risk-takers to manage under the conditions of protection from default that emerge from the pursuit of the frequency-based standard over the long-term.

It is worth observing that like the P(LGD), the existing definition of *reasonable worst case* which would '"not be exceeded more than once in 48 months" also is a form of frequency-based standard, though it is more qualitative in nature, and potentially requires more interpretation in its practical implementation. This is a core motivation for the Rule change request and is discussed in more detail later in the paper.

## 2.4 Key Consequences of Architecture

The architecture of protection from default in the NEM gives rise to some interesting consequences with regard to the pursuit and achievement of a Standard.

### 2.4.1 Long-term Achievement of a Standard

The fact that the MCL and PM are calculated quarterly, coupled with the Max() effect illustrated in Figure 2.2 means that there will be:

- times when the Collateral posted by the retailer is much larger than necessary; and

- countering times of severe spot prices where the MCL is redundant[25] and Credit Support must be augmented with significant cash deposits. During these periods there can exist a risk of very large losses given default.

These periods of varying severity of exposure to default will act to counter each other so that a prudential standard is accomplished over the long-run. This is analogous to the pursuit and achievement of a NEM reliability standard in the form of the target Unserved Energy (USE) currently in place in the NEM. While the USE standard of .002% is accomplished over the long run, there may be specific short periods where the actual or forecast amount of USE is significantly higher than this, with prolonged balancing periods of zero unserved energy.

### 2.4.2 Trade-off between MCL and PM

It is clear that, when striving to attain a statistical standard such as P(LGD), the architecture would give rise to a trade-off between the level of MCL and the level of PM. For example, a high MCL would, all else equal, require a lower PM in order to attain a certain P(LGD), and vice-versa. In principle either variable could be set to zero, with the other left to rise to satisfy the Standard. The more heavily weighted the MCL, the more the achievement of the Standard will be realised only over the long-run, as

25 in so far as guarantees are interchangeable with cash deposits in terms of value. Recall that the MCL must be matched by Credit Support in the form of guarantees, not cash or any other instrument. The possibility of permitting different forms of collateral to be posted to meet the MCL is contemplated in the conclusions of the Readiness Review.

the credit posted ceases to reflect the real week-ahead risks posed by a defaulter on a day by day basis. Conversely, higher weighting of the PM would lead to the Standard being realised more consistently over any given segments of time, but only if a more frequent form of rolling calculation of the PM were adopted (e.g. weekly), and this would come at the cost of additional overhead faced by retailers in meeting a regularly changing collateral requirement.

### 2.4.3 Reaction Period

The real time taken to complete the process of Call Notice, Default Notice, Suspension Notice and suspension itself will usually be different to the 'assumed' Reaction Period hard-coded in the Rules. As per the previous example, a retailer could be suspended following progressive failures to post collateral during a working week in the space of perhaps a few days rather than the seven that are assumed in calculating the MCL and the PM. This could, all else equal, create a mismatch between the standard pursued by a given paired setting of MCL and PM, and the actual standard achieved over the long term.

# 3 Recap of Recent Papers on Prudential Framework

This Chapter provides an overview of recent papers that relate to the topic of the prudential regime in the NEM.

## 3.1 AEMO Readiness Review

AEMO's Rule change request follows its completion of the large body of work called the 'Energy Market Prudential Readiness Review' as described earlier. The Review commenced following a request from the MCE received on 22 May 2010[26]. The request itself was foreshadowed during 2009 and early 2010, allowing AEMO to begin work in preparation for the Review. This included the formation of the Settlement and Prudential Reference Group (SPRG) and commissioning of the Competition Economics Group (CEG) to provide economic advice. CEG submitted their report to AEMO in January 2010[27].

AEMO commissioned Seed Advisory and Taylor Fry (actuaries) to provide advice regarding a potential Prudential Standard[28] and published two consultation papers along with this advice on 4 August 2010, one each for gas[29] and electricity[30]. A draft report was published on 12 October 2011[31] and subsequently submitted to the MCE. The final report was made public on 27 April 2011[32].

## 3.2 AEMC Hedging Review

During 2009 and early 2010 the AEMC carried out a Review of the role of hedging contracts in the existing NEM Prudential Framework[33] (Hedging Review). This Review was initiated following the conclusion of a Rule change request relating to the application of Futures Offset Arrangements and modification of the MCL calculation methodology, and was conducted in parallel with AEMO's work. The Review featured

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26 Ministerial Council on Energy – Business Readiness Assessment & Terms of Reference (http://www.aemo.com.au/electricityops/0539-0001.pdf)

27 CEG, Assessing efficiency in settlement and prudential arrangements for energy markets, A report for AEMO January 2010 - http://www.aemo.com.au/electricityops/0539-0002.pdf

28 Seed Advisory and Taylor Fry, The Prudential Standard in the National Electricity Market - Final Report, 4 August 2010 - http://www.aemo.com.au/electricityops/0539-0003.pdf

29 AEMO, Gas Prudential and Settlement Framework (http://www.aemo.com.au/electricityops/0538-0002.pdf)

30 AEMO, NEM Prudential and Settlement Framework (http://www.aemo.com.au/electricityops/0538-0001.pdf)

31 AEMO, Energy Market Prudential Readiness Review - Draft Report (http://www.aemo.com.au/electricityops/0538-0003.pdf)

32 AEMO, Energy Market Prudential Readiness Review - Final Report to the MCE (http://www.aemo.com.au/electricityops/0538-0006.pdf)

33 http://www.aemc.gov.au/Market-Reviews/Completed/Review-into-the-Role-of-Hedging-Contracts-in-the-Existing-NEM-Prudential-Framework.html

procurement of risk assessment advice from PricewaterhouseCoopers (PwC). As AEMO's Readiness Review and subsequent Rule change request makes reference to the work completed by the AEMC in mid 2010, the Hedging Review itself is not recounted in depth here but some of its key recommendations are referred to.

The following sections draw out some highlights directly relevant to the Rule change request from the work completed during the two Reviews, but do not constitute an exhaustive summary of all the work completed.

## 3.3 CEG Advice

In their report[34], CEG draw several insightful conclusions regarding the pursuit of economic efficiency in the NEM settlement and prudential arrangements. These conclusions are particularly relevant in terms of the AEMC's role in processing any Rule change request arising from the Readiness Review, given its requirement to consider economic efficiency as laid out in the National Electricity Objective (NEO) described in Chapter 5. Some particularly useful excerpts from CEG's report are repeated here:

> "3. It is ... relevant to ask what the efficiency rationale is for the prudential system. In contrast to what may be intuitive, we conclude that the efficiency rationale for the prudential system is not to make sure generators have a high degree of certainty that they will be paid by retailers. Rather, we conclude that this is a side effect of an attempt to achieve the primary efficiency rationale – which is to give retailers the appropriate incentive to manage risks and, importantly, to ensure that retailers do not have an artificial incentive to take on too much risk."
>
> "7. ... .Under the current prudential regime a retailer taking on a particularly high risk hedging strategy is likely to have to pay more for a bank to guarantee its pool liabilities. A retailer will have less ability to shift risks onto third parties and, therefore, will be less likely to incur an inefficient level of those risks in the first place."
>
> "11. Any assessment of potential improvements in economic efficiency must examine:
>
> (a) Whether it improves (worsens) the incentives for retailers to take on too much risk? If it does, what are the likely net present value of benefits (costs) associated with retailers' response (difficult to measure).
>
> (b) The impact on the costs of administering the regime (largely the costs of evaluating and monitoring retailers' risks)."

34 CEG, Assessing efficiency in settlement and prudential arrangements for energy markets, A report for AEMO January 2010 - http://www.aemo.com.au/electricityops/0539-0002.pdf

> "12. If two regimes give retailers the same incentives to manage their risk profile, then the one that gives rise to the lowest administration costs will be the most efficient. Given that the costs of a prudential regime primarily relate to the costs incurred in evaluating and monitoring risk, the best prudential regime will generally be one that allocates the role of evaluating and monitoring risk to a party with the lowest costs/strongest incentive to do so."
>
> "13. It will also be generally true that, once a prudential standard is set, economic efficiency will be promoted if retailers have flexibility in the methods that they can use to meet the required prudential standards so they can select the method that lowers their costs (provided that this does not compromise meeting the selected prudential standard)."

CEG allude to the motivation for a prudential regime again in other parts of the paper:

> "40. ... Absent any prudential requirements then retailers would have an incentive to have low levels of capital (or insurance) such that in the event that the retailer became insolvent the losses would be borne, at least in part, by their major creditors (the generators).
>
> 41. Retailers would also have an incentive to take on riskier strategies because instead of bearing all of any increase in risk they would be able to pass at least some of the increased risk onto the generators."

This point is well expressed by an example[35], and argues that, absent some form of administered prudential regime, a spot pool market may not incentivise a retailer to take on an efficient level of risk (when compared to, say a bilateral contracts market). This means that some (but not necessarily all) economically efficient actions that would reduce risk may be lost, while some economically inefficient actions that increase risk may be adopted, because the benefit / cost of these actions would be spread over the whole pool rather than being enjoyed / borne completely by the retailer. A conclusion from this point could be that the prudential regime in the NEM should compel retailers to behave in a way that would reflect their decisions in an environment where this incentive bias was not present.

> "106. An efficient settlement and prudential regime is one that minimises the sum of administration costs and the price paid for bearing risk. The selection of the most economically efficient settlement/prudential arrangements boils down to finding the set of arrangements that minimises the sum of:
>
> (a) The administration costs incurred or paid for by NEM participants ; plus

35 CEG, Assessing efficiency in settlement and prudential arrangements for energy markets, A report for AEMO January 2010 - http://www.aemo.com.au/electricityops/0539-0002.pdf, page 11

(b) The cost of bearing risk – whether that risk is borne by a NEM participant directly or paid to a third party by a NEM participant."

"160. ... Economic efficiency will be promoted with all parties face price signals that accurately convey to them the costs of all of their actions. In the case of retailers, this means that they should be required to bear the risks that their business strategy exposes them to. Ideally, retailers should have the flexibility of doing this in a range of ways so that they can select the least cost method for them."

AEMO refer explicitly to the last reference in their Rule change request, and the SPRG have adopted key elements of CEG's advice in the formulation of a Decision Making Framework, as laid out on their website[36].

## 3.4 Seed Advice

In mid 2010 Seed Advisory and Taylor Fry completed a detailed quantitative analysis of the application of a Prudential Standard focussing particularly on the use of P(LGD), and associated changes to the Credit Limits Methodology. The content of AEMO's Readiness Review and Rule change request draws heavily on this work. Some of Seed's key conclusions include:

"As a result of our review of the performance of the current prudential arrangements, we recommend that the Prudential Standard is amended to expressly adopt a probability that a loss given default would occur on no more than 2 percent of days where a Market Participant is unable to provide the cash or other securities required to keep its Total Outstandings within its Trading Limit. This measure has the advantage of mapping onto Australian Energy Market Operator's (AEMO) daily process for assessing participant risk and is readily measured and monitored."

"A target for the probability of a loss given default of 2 percent or less represents an achievable improvement in the performance of the current prudential arrangements. Measured as an average of the National Electricity Market (NEM) regions' performance, the current prudential arrangements result in a probability of a loss given default of around 4 percent measured over the 10 years to the beginning of 2010."

"The probability of the risk of a loss given default can be furthered (sic) reduced to a target of 1.5 percent or less. The cost of this improvement would be an increase in the level of the Prudential Requirements, compared with maintaining the target performance for the probability of a loss given default at 2 percent."

"Historically, Market Participants have been exposed to a small number of very large potential loss given default events."

36 http://www.aemo.com.au/electricityops/prudential_review.html

## 3.5 Envisaged Reforms to Prudential Framework

AEMO conducted two rounds of consultation as part of the Readiness Review. Combining the responses to the consultations and the advice provided by CEG and Seed with their own analysis, AEMO identified the following potential reforms to the prudential arrangements in the NEM, of which the first (item (a)) constitutes the subject of the Rule change request:

> "In conjunction with the reference group, AEMO identified the following issues with current arrangements:
>
> (a) The NEM Prudential Standard is not clearly articulated, and would need to be clarified as a firm reference point for future enhancements of the regime.
>
> (b) Current arrangements are capital intensive. This can have an impact on investment and competition across the various energy markets.
>
> (c) Options for satisfying the specified collateral obligations are limited. This is particularly an issue on electricity, where collateral obligations are large.
>
> (d) The NEM makes provision for Generators to be short-paid in the event that insufficient collateral is available to cover a default. Those short-payments are currently required to be managed by individual generation businesses, but there could be merit in providing more centralised support for their management.
>
> ...
>
> **1. Implementation of a new prudential standard and Credit Limit Methodology for the NEM:**
>
> AEMO proposes to submit a Rule change to the AEMC to adopt a NEM prudential standard of 2% probability of "loss-given-default"...
>
> In parallel with promotion of the revised prudential standard, AEMO will modify its procedures to replace the current obligation for new entrants to lodge $100,000 collateral with a mechanism that better matches obligations to the risk presented to the market.
>
> **2. Increasing the options available to participants in meeting their prudential obligations:**
>
> ...
>
> **a) Alternative forms of collateral in the NEM:** AEMO will seek to establish a mechanism for the lodgement of cash as an alternative to bank guarantees. A key consideration is to ensure that any proposal adequately manages the risk of clawback through changes to the Rules... .

**b) Integration of the NEM with contract markets:** Integration is enhanced by the use of "reallocation" mechanisms. A new Swap and Option reallocation mechanism has been developed, and will be launched subject to AEMO being granted an exemption by ASIC from holding a clearing and settlement facility licence... .

**c) Single Guarantee for Related Entities:** Participant organisations with multiple related entities would benefit from an ability to net their prudential obligations across those entities, and cover the residual prudential obligation with a single guarantee. AEMO proposes to collaborate with interested parties to develop a workable arrangement to achieve this, most likely through the use of cross-guarantees between the related entities. The arrangement will be limited to use within a single market such as the NEM, or one of the gas markets.

**d) Management of payment shortfalls to NEM Generators:** In the unlikely event that the collateral held by AEMO is insufficient to cover the outstanding trading amounts of a suspended Retailer; the Rules make provision for Generators to be short paid. The actuarial analysis shows that, in the extreme, these short payments could be substantial. Subject to continued interest from Generators, AEMO will investigate with Generators, whether operational measures can be taken to mitigate the impact of such events and so reduce the risk of a systemic failure being triggered.

**e) Futures Offset Arrangements:** ... the AEMC recommended that AEMO model the merits of the AEMC's proposed Futures Offset Arrangement, following consolidation of AEMO's findings on the prudential standard ... AEMO proposes to carry out that analysis when the prudential standard and associated arrangements are well progressed through the Rule change process, noting that they will not become stable until that time.

**3. Investigation of alternative arrangements for NEM prudentials and settlements:**

In addition to exploring improvements to the current NEM prudential framework, AEMO intends to consider whether alternative arrangements could be developed. The identification of alternative arrangements is still in its infancy, and there is no guarantee of identifying material improvements to the status quo, but options for consideration might include elements such as increased pooling of credit risk, potentially in combination with an insurance mechanism.

**4. Further examine a package of measures designed to deliver a shortened NEM settlement cycle:**

Shortening the NEM settlement cycle from four weeks in arrears to approximately one week in arrears was considered in some detail in the review. The analysis indicated that prudential risks are likely to be reduced

materially through such a change, however the early payment would give rise to a transfer of wealth from Retailers to Generators. The cost of this wealth transfer would, at least initially, outweigh the benefits of lower prudential obligations for some Retailers. There is contention over whether this transfer would be sustained or temporary, as the savings seen by Generators are passed back through competition. Generators and some small Retailers support a shorter NEM settlement cycle, while other Retailers oppose it (AEMO Energy Market Prudential Readiness Review, April 2011, Page 8 of 100). AEMO intends to further consider this matter once the above work program is in hand. Two other matters that will be considered in conjunction are:

- Changing the nominal NEM settlement day from a Friday to a Wednesday to help minimise the occurrence of difficulties due to administrative failure; and

- Providing the option for participants to undertake that they will respond to any "call notices" they receive from AEMO by the next day rather than the next business day, which could provide the basis for reducing the amount of collateral that they need to lodge."

AEMO identify that the establishment of a clear Prudential Standard is optimal prior to the implementation of any further reform "*AEMO considers that establishing a clear prudential standard and framework is paramount and should be pursued before further efficiency gains are sought. This would ensure future changes are based on a solid and well understood foundation*"[37]. Consequently, it is the establishment of this Standard that forms the topic of the Rule change request.

37 AEMO, National Electricity Rule Request - New Prudential Standard and Framework, pages 1 and 2

# 4 Details of the Rule Change Request

The details of the Request are laid out in Section 6.1 of the Rule Proponent's Rule change request. This section provides a summary of the changes proposed.

The proponent's Rule change request includes a proposed Rule which is available electronically from the AEMC website.

## 4.1 Prudential Standard - Probability of Loss Given Default

As already discussed, the Rule Proponent proposes the introduction of a Prudential Standard in the form of a target Probability of Loss Given Default. The proposed Rule would delete the existing clause 3.3.8 and the principles for determining the MCL and PM in schedule 3.3. These are proposed to be replaced with a new clause 3.3.8 that would:

- Delete references to "reasonable worst case"; and
- Replace "reasonable worst case" with a new definition for the prudential standard, defining it as a 2% probability of a Market Participant's MCL being exceeded by its accrued trading amounts (outstandings) at the end of the reaction period following a Market Participant exceeding its 'Outstandings Limit' and failing to rectify this breach on any day.

AEMO propose the application of a 2% P(LGD) as the Prudential Standard in the NEM. This recommendation follows observations as laid out above by Seed that such a value would yield similar levels of Collateral to be posted as to what is posted currently, assuming certain procedural reforms (discussed below) are also adopted.

## 4.2 Accompanying Framework and Procedural Changes

AEMO proposes a number of accompanying changes to both the Rules and Procedures (Credit Limits Methodology).

### 4.2.1 Rule Changes

AEMO proposes that the new version of clause 3.3.8 should:

- Establish an objective for the credit limit procedures to calculate the prudential settings to ensure the prudential standard is met, the "credit limit procedures objective";
- Introduce the variable 'Outstandings Limit' (OSL), defined as the estimate of the maximum value that a Market Participant's outstandings can reach over the payment period if the Market Participant has lodged credit support equal to the MCL;

- Establish the MCL as the sum of the OSL and PM, and clarify that while these are independent settings, they are calculated simultaneously to achieve the prudential standard;

- Define the term 'prudential settings' to include the collection of variables MCL, OSL, and PM;

- Remove the reduced MCL (RMCL) concept.

### 4.2.2 Procedural Changes

AEMO has laid out its proposed procedural changes in the first attachment to the Rule change request, available on the AEMC website. The AEMC does not have a role in the development of these Procedures, which are instead established in consultation between AEMO and participants. The AEMC does however have remit to include guiding principles within the Rules which can relate to how AEMO develops its Procedures. AEMO intends to consult on the suite of detailed changes to the Credit Limits Methodology following publication of the Commission's draft Determination in relation to the Rule change request[38]. Some key changes are already contemplated however:

- The MCL becomes the sum of the OSL and PM, calculated as this simple summation rather than being derived using the extensive formula used at present. The complexity of the MCL calculation would be transferred to the derivation of the OSL;

- Accounting in the calculation of MCL and PM for the seasonal variability in the P(LGD);

- Reflection of the relationship between a retailer's load factor and its P(LGD);

- Calculation of the average forecast price over a season using four seasons of past data. Currently, approximately 12 months of data is used;

- Different volatility factors applied to the calculation of the MCL and PM (currently a single volatility factor is used), and a longer reference period for derivation of volatility factors (currently 12 months are used, intention is to increase to 10 years); and

- Adjustment of historic data to account for any increases in the market price cap for the period for which the MCL, outstandings limit (OSL) and PM ("prudential settings") are being determined.

38 AEMO, National Electricity Rule Request - New Prudential Standard and Framework, p19

## 4.3 Likely impacts

A qualitative assessment of the impact on the level of collateral that would be required to be posted under the proposed new framework is outlined here. Compared to the current arrangements, likely impacts on participants may be:

- Seed and AEMO conclude that broadly, the total amount of collateral posted across the NEM retailers need not change by much in order to realise a 2% P(LGD) Standard; "*Based on Seed Advisory and Taylor Fry's analysis, the proposed prudential standard could be achieved without increasing the NEM's average prudential requirements (that is, the overall amount of credit support required from retailers) by changing the methodology used to calculate the MCL and PM*"[39];

- Retailers with a relatively high concentration of 'peak demand' consumers may see an increase in the level of collateral required, due to the reflection of the higher intensity of high-price volumes and corresponding higher level of risk these volumes pose;

- Retailers and/or customers with a strong demand-management capability or other ability to reduce consumption during periods of high prices may see a decrease in the level of collateral required;

- Retailers currently making use of the reduced MCL provisions would no longer have that option; and

- The impact of moving to longer reference periods for the calculation of average forecast prices and volatility factors would be expected to 'stabilise' the level of collateral required, so that a single season of high prices or high volatility would result in a smaller change to the MCL and PM values than what would occur under the existing methodology.

## 4.4 Observations

There may be a need to consider the degree to which the Standard defined as proposed using P(LGD) can or should act as a stand-alone measure of protection from default, and whether the Standard should be made more inclusive of other factors.

Specifically, to the extent that the protection from default can change in response to a change in the Reaction Period, this could potentially create complexity when considering further reform to the Prudential Framework. For example, following implementation of the Rule as proposed, if the Reaction Period were to then be changed from seven days to a smaller number, this would in the first instance change the observed P(LGD) during the Reaction Period (holding constant all other variables such as collateral, load, and price). Consider a Reaction Period of x days, then define the event of a Loss Given Default on one or more of those x days as the union:

39 AEMO, National Electricity Rule Request - New Prudential Standard and Framework, p11

$$LGD_1 \cup LGD_2 \cup \ldots \cup LGD_x$$

Where $LGD_k$ is the event of Loss Given Default on day k. It follows, holding all other variables constant, that for Reaction Periods of a and b:

$$P(LGD)_b \geq P(LGD)_a \text{ where } b > a > 0$$

As such, under the proposed Framework, a change in the Reaction Period would mandate a change to the PM and/or OSL to continue to meet a target of 2% P(LGD). However, the degree of protection from default will have changed even though the Prudential Standard itself will have remained constant[40]. This feature of the proposed Prudential Framework may be acceptable to participants, and this observation is not necessarily detrimental to the potential adoption of the P(LGD) as the Prudential Standard.

The Proponent's proposed definition of *Reaction Period* may tie the 'assumed Reaction Period' as it is described in Figure 2.2 (currently seven days) to the actual physical time that elapses between the start of the business day in which a retailer's PM is breached and the time of suspension. An alternative could be to define the *Reaction Period* as: "*The Reaction Period is seven days. This is the assumed number of days from the day that a Market Participant's outstandings exceeds its trading limit to when the Market Participant is suspended from trading under clause 3.15.21(c)) if the exceedance is not rectified.*"

40 E.g. a 3-day exposure to 2% P(LGD) presents a lower expectation of loss than a 7-day exposure to 2% P(LGD). This could be simply characterised as a reduction in the LGD by virtue of the shorter exposure window.

# 5 Assessment Framework

The Commission's assessment of this Rule change request must consider whether the proposed Rule promotes the NEO as set out under section 7 of the National Electricity Law (NEL):

> "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."

The aspects of the NEO which are relevant to this Rule change are predominantly price and security of supply; because a sound prudential regime in the NEM will, all else equal, encourage efficient investment in generation and retail business, leading to lower prices in the long term, and heightened reliability of supply of electricity.

Having regard to these aspects of the NEO, the Commission will, in assessing the proposed Rule's contribution to the NEO, consider the degree to which:

- the Rule better encourages retailers to take on an efficient level of risk, or at least to take on a level of risk that is not excessive;
- participants agree that the P(LGD) is a good statistic to use in pursuing a Prudential Standard, and to use as a basis for further reform of the Prudential regime more generally;
- the Rule minimises the administrative costs of the prudential regime;
- the Rule maximises flexibility for retailers and other parties to respond to the prudential regime;
- the Rule improves the perceived transparency and predictability of the prudential regime.

# 6 Issues for Consultation

The questions outlined below are provided for guidance. Respondents are encouraged to answer the questions and also to provide comment on any other aspect of the Rule change request or this paper. In drafting responses respondents are encouraged to consider the Assessment Framework the Commission intends to employ as outlined in Chapter 5.

**Question 1 Platform for Reform of Prudential Framework in the NEM**

**Does the existing architecture for protection from default in the NEM (as described in Chapter 2) constitute a sound platform from which meaningful reform to the Prudential Framework can be built? Does it remain an optimal architecture given the wider potential reforms contemplated in AEMO's Prudential Readiness Review? If not, what reforms should instead be considered prior to the adoption of the changes proposed by Proponent?**

**Question 2 Ambiguity of the existing Prudential Standard**

**Is the existing language of *"reasonable worst case"* ambiguous, and if so, should the ambiguity be removed from the Rules? Should the language in the Rules be replaced with a statistical measure that AEMO must use in developing their Procedures under consultation?**

**Over what timeframe should a Prudential Standard be upheld? (i.e. is it preferable to continue to seek to achieve the standard over the long-run course of several years, like the USE standard set by the Reliability Panel, or should the standard be upheld over short or even very short time frames?).**

**Question 3 Probability of Loss Given Default**

**Does the 'frequency-based' statistic described in AEMO's Proposal and the Readiness Review - the Probability of Loss Given Default - constitute a transparent, understandable statistic? Would its use improve the ability of risk-taking parties to manage their risk compared to the existing descriptive standard of *"reasonable worst case"* and/or the ability of AEMO to develop a more accessible, predictable Credit Limits Methodology? Is P(LGD) sufficiently separable as a Standard for protection from default from other variables that act to influence that protection, such as the actual and assumed Reaction Period?**

**Question 4 Additional Changes to Framework**

**Do the proposed accompanying changes to the Rules and potential changes to the Procedures[41] best complement the introduction of the P(LGD)? Do these changes help to further the accomplishment of the NEO? These changes include:**

- **the introduction of the Outstandings Limit (OSL). This will replace calculation of the MCL, which will now float as the simple summation of the two calculated variables [OSL + PM];**
- **an iterative statistical approach to calculation of OSL and PM, using VF percentiles;**
- **a review of the application of load profiles to individual participants in calculation of OSL and PM;**
- **the introduction of seasonal adjustments in calculation of OSL and PM;**
- **the removal of the option for a Reduced MCL.**

**What guiding principles for the construction of AEMO's Procedures, if any, should be built into the Rules beyond or instead of those proposed by AEMO?**

**Question 5 Proposed Standard**

**In the context of the complete proposal, is a setting of 2% P(LGD) optimal with regard to maximising the achievement of the NEO? Would such a value adequately incentivise retailers to take on an appropriate level of risk? What value could be used instead, and how/why would such a different value better meet the NEO compared to the proposed setting?**

41 **The Commission will not have oversight of the development of detailed Procedures, but the Rules (both existing and as proposed) set the terms under which the Procedures must be developed.**

# 7 Lodging a Submission

The Commission has published a notice under section 95 of the NEL for this Rule change proposal inviting written submission. Submissions are to be lodged online or by mail by 6 January 2011 in accordance with the following requirements.

Submissions should be prepared in accordance with the Commission's Guidelines for making written submissions on Rule change proposals.[42] The Commission publishes all submissions on its website subject to a claim of confidentiality.

All enquiries on this project should be addressed to Paul Bell on (02) 8296 7800.

## 7.1 Lodging a submission electronically

Electronic submissions must be lodged online via the Commission's website, www.aemc.gov.au, using the "lodge a submission" function and selecting the project reference code ["ERC0133"]. The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated.

Upon receipt of the electronic submission, the Commission will issue a confirmation email. If this confirmation email is not received within 3 business days, it is the submitter's responsibility to ensure the submission has been delivered successfully.

## 7.2 Lodging a submission by mail

The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated. The submission should be sent by mail to:

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

Or by Fax to (02) 8296 7899.

The envelope must be clearly marked with the project reference code: ERC0133.

Except in circumstances where the submission has been received electronically, upon receipt of the hardcopy submission the Commission will issue a confirmation letter.

If this confirmation letter is not received within 3 business days, it is the submitter's responsibility to ensure successful delivery of the submission has occurred.

42 This guideline is available on the Commission's website.

## Abbreviations

| | |
|---|---|
| AEMC | Australian Energy Market Commission |
| AEMO | Australian Energy Market Operator |
| AER | Australian Energy Regulator |
| CEG | Competition Economists Group |
| Commission | See AEMC |
| CTO | Combined Total Outstandings |
| LGD | Loss Given Default |
| MCL | Maximum Credit Limit |
| NEL | National Electricity Law |
| NEM | National Electricity Market |
| NEO | National Electricity Objective |
| NER | National Electricity Rules |
| NERL | National Energy Retail Law |
| OSL | Outstandings Limit |
| P(LGD) | Probability of Loss Given Default |
| PD | Probability of Default |
| PM | Prudential Margin |
| RMCL | Reduced MCL |
| ROLR | Retailer of Last Resort |
| SDA | Secure Deposit Accounts |
| SPRG | Settlement and Prudential Reference Group |
| USE | Unserved Energy |
| VF | Volatility Factor |