

Australian Energy Market Commission

FINAL REPORT

Review into the role of hedging contracts in the existing NEM prudential framework

Commissioners

Pierce
Henderson
Spalding

30 June 2010

REVIEW

Inquiries

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

E: aemc@aemc.gov.au

T: (02) 8296 7800

F: (02) 8296 7899

Citation

AEMC 2010, *Review into the role of hedging contracts in the existing NEM prudential framework*, Final Report, 30 June 2010, Sydney

About the AEMC

The Council of Australian Governments, through its Ministerial Council on Energy, established the Australian Energy Market Commission (AEMC) in July 2005 to be the Rule maker for national energy markets. The AEMC is currently responsible for Rules and policy advice covering the National Electricity Market and elements of the natural gas markets. It is a statutory authority. Our key responsibilities are to consider Rule change proposals, conduct energy market reviews and provide policy advice to the Ministerial Council as requested, or on AEMC initiative.

This work is copyright. The Copyright Act 1968 permits fair dealing for study, research, news reporting, criticism and review. Selected passages, tables or diagrams may be reproduced for such purposes provided acknowledgement of the source is included.

Contents

Contents	iii
Abbreviations	iv
Summary	vi
Purpose of the Review.....	vi
Assessment framework for the Review	vii
Summary of the Commission final recommendations	vii
1 Introduction	1
1.1 This Final Report.....	1
1.2 Structure of the Final Report.....	1
1.3 The Review	2
1.4 Prior work on integration of futures contracts in the NEM prudential framework	4
1.5 Timetable for the Review	4
1.6 The Commission’s approach to the Review	5
2 Prudential requirements in the energy market.....	11
2.1 Overview of prudential requirements in the energy markets	11
2.2 Existing NEM prudential framework.....	12
2.3 Electricity financial markets and offset arrangements	21
3 Assessment criteria and recommendations on threshold issues for offset arrangements.....	41
3.1 Assessment criteria for offset arrangements	41
3.2 Recent considerations on energy market prudential frameworks and derivative market reform	49
3.3 The Commission’s final recommendations on threshold issues for the Review	52
4 Final recommendations on reallocation offset arrangements and internal netting of load and generation	63
4.1 The Commission’s final recommendations on reallocation offset arrangements.....	64
4.2 Other considerations on reallocation offset arrangements and conclusions	72
4.3 Internal netting of generation and load of gentailers and risk to the NEM	83
5 Final recommendations on futures offset arrangements	87
5.1 The Commission’s final recommendations on futures offset arrangements	89
5.2 Other considerations on futures offset arrangements and the Commission’s conclusions.....	128
6 Final recommendations on MCL methodology	141
6.1 Terms of reference.....	141
6.2 Analysis on MCL methodology	143
6.3 The Commission’s draft recommendations	153
6.4 Submissions on the Commission’s draft recommendations	153
6.5 Commission’s final recommendations	154
Appendix A.....	155
Appendix B.....	157

Abbreviations

AAR	Allens Arthur Robinson
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AFMA	Australian Financial Markets Association
APC	Administered Price Cap
ASIC	Australian Securities and Investments Commission
ASX	Australian Securities Exchange
CA	Corporations Act 2001 (Cth)
CFD	Contract for Difference
Commission	see AEMC
CPRS	Carbon Pollution Reduction Scheme
CPT	Cumulative Price Threshold
Credit Amounts	Generation Sales and reallocation credit
Debit Amounts	Energy Purchases and reallocation debit
DNSP	Distribution Network Service Provider
Ex Ante Reallocation	A reallocation transaction that occurs in a trading interval that takes place at a time after the reallocation request is made
Ex Post Reallocation	A reallocation transaction that occurs in a trading interval that takes place at a time before the reallocation request is made
FOA	Futures Offset Arrangement
GST	Goods and Services Tax
Market Participant	A person who is registered by <i>NEMMCO</i> as a <i>Market Generator</i> , <i>Market Customer</i> or <i>Market Network Service Provider</i> under Chapter 2 of the Rules
MCE	Ministerial Council on Energy
MCL	Maximum Credit Limit
NEM	National Electricity Market
NEMMCO	National Electricity Market Management Company (now AEMO)
NEO	National Electricity Objective
NEL	National Electricity Law
NER	National Electricity Rules

OTC	Over the Counter
Participant	See Market Participants
PM	Prudential Margin
Procedure	NEMMCO's prudential procedures, reallocation procedures, or any procedures given effect by the Rules
Prospective Reallocation	see Ex Ante Reallocation
PwC	PricewaterhouseCoopers
RA	Reallocation Offset Arrangement
Reaction Period	The period of time it takes to remove a Market Participant from the NEM; defined as 7 days
Reallocation Timetable	Timetable for reallocation requests as published by AEMO
Reasonable Worst Case	A position that, whilst not being impossible, is to a probability level that the estimate would not be exceeded more than once in 48 months.
RET	Renewable Energy Target
Review	Review into the Role of Hedging Contracts in the Existing NEM Prudential Framework
RMCL	Reduced MCL provided under clause S3.3.1(b)(iii) of the Rules
RRP	Regional Reference Price
Rules	National Electricity Rules
SDA	Security Deposit Amount
SFE	Sydney Futures Exchange
SFECC	SFE Clearing Corporation
SFECP	SFE Clearing Participants
Spot Price	See RRP
TNSP	Transmission Network Service Provider
Trading Limit (TL)	The difference between the MCL and the PM
VF	Volatility Factor
VMP	Variation margin payment

Summary

The Australian Energy Market Commission (the Commission) initiated this review into the role of hedging contracts in the National Electricity Market (NEM) prudential framework (the Review) in January 2009. In this Review, the Commission provides advice to the Ministerial Council on Energy (MCE) on ways in which NEM participants' futures and other types of contracts can be integrated into the NEM prudential framework with the objective of enhancing the operation and efficiency of that regime.

The Australian Energy Market Operator (AEMO) settles in excess of \$10bn of spot market transactions annually. AEMO's settlement role is to receive payment from retailers and to distribute those funds to generators.

The prudential framework is designed to maintain confidence in the settlement process by minimising the prospect of a shortfall in payments to generators. The core of the NEM prudential regime is the requirement for retailers to provide credit support to AEMO of an amount that is sufficient to meet their expected gross energy take from the pool over the credit period (the Maximum Credit Limit). AEMO typically holds around \$1.5bn to \$3.5bn in bank guarantees.

In addition to providing credit support to AEMO, NEM participants enter into over-the-counter (OTC) and futures contracts (hedge contracts) to manage the risk from operating in the NEM. The actual wholesale cost of energy to the participants is dependent on their hedging arrangements. The NEM prudential framework can therefore result in credit support requirements that may not be necessary and may result in duplication of costs.

The NEM settlement arrangements have been modified to incorporate reallocation offset arrangements to take some hedging contracts into account. A reallocation is an arrangement between two Market Participants and AEMO that allows an off-market financial commitment, such as a OTC hedge contract between participants, to be netted off against pool settlements. This permits some relief in terms of the level of credit support required and avoids circular cash flows between the Market Participants and AEMO.

Stakeholders have expressed concern that the take up of reallocation offset arrangements has been low. Whilst the percentage of energy reallocated in the NEM has increased, it is less than 9% of total energy. Stakeholders have also expressed concern on the lack of an effective mechanism to integrate futures contracts into the existing NEM prudential framework.

Purpose of the Review

There are two key aspects to the Review, which include:

- investigating ways in which NEM participants' futures and other types of contracts can be integrated into the NEM prudential framework with the objective of enhancing the operation and efficiency of that regime; and

- clarifying the “reasonable worst case” performance target for the Maximum Credit Limit (MCL) and investigating the feasibility of incorporating futures prices into the MCL methodology.

This required the Commission to examine:

- the existing and proposed reallocation offset arrangements to facilitate the offsetting of NEM credit support requirements based on OTC contracts;
- options for futures offset arrangements to facilitate the offsetting of NEM credit support requirements based on futures contracts; and
- the MCL methodology to clarify the performance target and options to improve the effectiveness and efficiency in the calculation of the Maximum Credit Limit.

The Commission’s conclusions and recommendations are detailed in this report for consideration by the MCE.

Assessment framework for the Review

The Commission’s recommendations have been prepared taking into account the Commission’s terms of reference for this Review and principles of good regulatory practice, which include that the options for enhancement of the operation and efficiency of the NEM prudential framework:

- promote the National Electricity Objective (NEO);
- have regard to relevant MCE statements of policy principles; and
- are consistent with the assessment criteria established for this Review following stakeholder consultation, which are:
 - prudential quality of the NEM;
 - cost of capital to trade in the NEM wholesale market; and
 - operational effectiveness.

Summary of the Commission final recommendations

In summary, the Commission’s recommendations are as follows:

Reasonable worst case scenario and alternative MCL methodologies

The Commission considers that the analysis undertaken on the MCL methodology is inconclusive, therefore the Commission is not making any recommendations on the interpretation of the “reasonable worst case” scenario or on an alternative MCL methodology.

However, the work undertaken as part of this Review has provided some options that require further investigation. The Commission recommends that AEMO consider developing these options further as part of its review of the NEM prudential framework and propose Rule changes if required.

Reallocation arrangements

Reallocation arrangements enable (or in the case of swap reallocations are intended to enable) reduction in credit support requirements and avoid circular cash flows where OTC contracts are in place.

The Commission considers that the existing reallocation arrangements and the proposed swap and options reallocation arrangements contribute to the NEO and should be continued, with some enhancements.

Swap and options reallocation offset arrangements are awaiting a decision by the Australian Securities and Investment Commission on an application by AEMO for an exemption from the requirement to hold a clearing and settlement facility licence.

In addition, in relation to internal load and generation offsets by vertically integrated Market Participants, the Commission recommends a Rule change that would require a Market Participant to provide a prudential margin where load is offset internally.

Recommendations on reallocation arrangements and internal offsets, which include changes to the Rules and to AEMO's procedures, may be proceeded with immediately.

In addition, the Commission considers that the recommendation relevant to futures offset arrangements, which permits call notices by AEMO to be delayed by one hour, should also be implemented with the reallocation Rule changes. This would assist Market Participants to utilise margins arising under futures contracts to meet their margin payments to AEMO, even in the absence of futures offset arrangements.

Futures offset arrangements

Futures offset arrangements (FOAs) are intended to enable reduction in credit support requirements where futures contracts are in place.

The Commission considers that futures offset arrangements (FOAs) have the potential to contribute to the NEO when compared to the existing prudential framework and should be considered for implementation in the NEM.

The Commission's recommendations on FOAs in this report are appropriate if FOAs were to be integrated into the NEM prudential framework as it exists at present.

However, in light of a broader review of the NEM prudential framework by AEMO, on which it is required to submit a report to the MCE by November 2010, the Commission recommends that prior to implementing the Commission's recommendations on FOAs, AEMO should:

- establish a prudential margin for the NEM prudential regime that meets the reasonable worst case performance target (or other appropriately established performance target) for trading amounts over the reaction period;
- re-assess the benefits and the prudential quality of the NEM under FOAs against any changes to the MCL methodology arising from AEMO's review of the prudential framework; and
- if still appropriate, integrate FOAs in the NEM prudential framework in accordance with the Commission's recommendations, with necessary amendments following AEMO's review, through a Rule change proposal from AEMO to the Commission.

The reasons for recommending a review of FOAs by AEMO are as follows:

- the prudential quality of the FOAs has been compared against the existing reduced Maximum Credit Limit (RMCL). Some stakeholders have raised concerns that the RMCL may not achieve adequate credit support in the NEM. In addition, stakeholders have expressed concerns that the security held by AEMO for energy taken from the pool while a defaulting party is being removed from the NEM may also not be sufficient; and
- the benefits of FOAs appear to be largely realised under the existing RMCL. The benefits arise in periods following high price events in the NEM because the current method for calculating the credit support requirements over a future period uses a 12 month historical average price.

A change to the method of calculating MCL may impact on the benchmark for the prudential quality and the benefits available under FOAs, therefore it is appropriate that the FOAs be re-assessed against AEMO's recommendations on the NEM prudential framework prior to implementation.

The Commission considers that its recommendations on futures offset arrangements, in the context of the existing prudential standard, are likely to reduce the cost of participation in the NEM wholesale market whilst maintaining the confidence of Market Participants in settlement of electricity transactions in the spot market. Reduced costs support efficient prices to consumers and therefore the draft recommendations are likely to contribute to the achievement of the NEO.

This page has been intentionally left blank

1 Introduction

1.1 This Final Report

The Final Report presents the final findings and recommendations of the Australian Energy Market Commission (the Commission) resulting from the Review into the role of hedging contracts in the existing National Electricity Market (NEM) prudential framework.

The Final Report provides advice to the Ministerial Council on Energy (MCE) on ways in which NEM participants' futures and other types of contracts can be integrated into the NEM prudential framework with the objective of enhancing the operation and efficiency of that regime.

The Final Report is based on:

- analysis undertaken by the Commission and its advisers during the course of this Review;
- evidence provided by stakeholder submissions and input by stakeholders to this Review and prior Rule change consultation processes; and
- input from the Working Group established by the Commission to provide expert advice relating to this Review.

This Final Report is for Stage 1 of this Review.

1.2 Structure of the Final Report

The Final Report sets out the Commission's findings and final recommendations, together with supporting reasoning, for the relevant matters that were in the scope of this Review.

This chapter provides the background and context for the Review, including the Commission's approach and assessment framework. It outlines the stakeholder consultation conducted on this Review, the analysis undertaken and the other related work that has been undertaken.

Chapter 2 outlines the prudential requirements in the energy market generally and in the NEM. It details the NEM prudential framework and the daily monitoring and supervision processes. A conceptual representation is provided of the reallocation offset arrangements that are currently available in the NEM together with the impact such arrangements have on the prudential quality of the NEM and costs to the Market Participants. In addition, this chapter outlines the Swap and Option offset arrangements which are awaiting implementation subject to licensing considerations by the Australian Securities and Investments Commission (ASIC) and a conceptual representation of a futures offset arrangement (FOA).

Chapter 3 outlines the assessment criteria for offset arrangements, the threshold issues for this Review and the Commission’s conclusions on those issues.

Chapter 4 provides the Commission’s recommendations and reasoning that are specific to reallocation offset arrangements and internal netting of load and generation.

Chapter 5 provides the Commission’s recommendations and reasoning that are specific to FOAs. FOAs are currently not available in the NEM and the Commission’s recommendations seek to integrate futures contracts into the existing NEM prudential framework.

Chapter 6 relates to the methodology for the determination of the Maximum Credit Limit (MCL). In particular, this chapter considers the interpretation of the ‘reasonable worst case’ performance target as set out in the National Electricity Rules (Rules), and alternative options for the determination of the MCL, including considerations on the use of futures contract prices.

1.3 The Review

On 22 January 2009, the Commission initiated the Review into the role of hedging contracts in the NEM prudential framework under section 45 of the National Electricity Law (NEL)¹.

This Review was undertaken to inform the Commission’s recommendations, where appropriate, to the MCE on ways in which NEM participants’ futures and other types of contracts can be integrated into the NEM prudential framework with the objective of enhancing the operation and efficiency of that regime.

There are two key elements to the Review, which include:

- investigating ways in which NEM participants’ futures and other types of contracts can be integrated into the NEM prudential framework with the objective of enhancing the operation and efficiency of that regime; and
- clarifying the “reasonable worst case” performance target for the MCL and investigating the feasibility of incorporating futures prices into the MCL methodology.

The Terms of Reference for the Review were published on 22 January 2009 and are provided in Appendix A.

¹ Under section 45 of the NEL, the Commission may conduct a review into:

- the operation and effectiveness of the Rules; or
- any matter relating to the Rules.

The scope for this Review includes:

- investigating the feasibility of developing a mechanism to offset the prudential requirement of a NEM market participant using its contract position;
- investigating the feasibility of incorporating futures prices in the MCL methodology;
- investigating and developing any other appropriate proposals that may enable NEM participants' contract positions to be taken into account so as to enhance the NEM prudential framework;
- as appropriate, analysis of the potential design, and statistical or other suitable analysis to confirm the costs and benefits, of any such proposals;
- as appropriate, determining the final design of any such proposals (this includes, but is not limited to, appropriate information, reporting and data requirements); and
- as appropriate, development of proposed Rules to implement these arrangements.

The scope of the Review is to seek to identify solutions within the context of the Rules framework.

The existing NEM prudential regime aims to maintain confidence in the financial settlement of spot electricity transactions in the NEM. The Rules contain provisions designed to achieve a level of prudential quality in the NEM that ensures that generators do not factor credit risk into their bids to the Australian Energy Market Operator (AEMO). In doing so, the existing framework provides incentives for Market Participants to manage risk.

This review does not seek to change the existing NEM prudential framework but to integrate futures and other types of contracts within that framework without materially reducing the prudential quality.

Under the NEM prudential regime, Market Participants are required to lodge credit support (in the form of a bank guarantee) with AEMO of not less than their MCL.

In recognition of the hedging contracts entered into by market participants, the Rules and Procedures provide for reallocation arrangements whereby two NEM participants (typically, but not necessarily, a generator and a retailer) can register an energy or dollar reallocation with AEMO. These reallocation arrangements were introduced to minimise the settlement risk of circular cash flows, and to reduce the prudential support requirements from NEM participants.

AEMO has also developed Procedures for the reallocation of swaps and options but these are not yet in operation.

1.4 Prior work on integration of futures contracts in the NEM prudential framework

The reallocation arrangements were amended in 2007 to make a provision for the registration of a Reallocator. It was envisaged that this would allow non-market participants to register as reallocating agents and utilise futures contracts under reallocation arrangements.

NEMMCO and the Australian Securities Exchange (ASX) also considered a framework to accommodate futures contracts in the NEM prudential framework under existing Rules. However, this work was discontinued in January 2008.

Following the discontinuation of the NEMMCO/ASX work, Australian Power & Gas, Infratil Energy Australia and Momentum Energy (Proponents) jointly proposed a Futures Offset Arrangements (FOA) Rule change. This Rule change proposed a mechanism to offset the prudential requirement of a NEM participant using its futures contract margin payments.

In addition, the FOA Rule change proposed to revise the MCL methodology. Rather than the MCL methodology using a backward looking price observation as a basis for estimating future pool prices, the Proponents proposed that the MCL methodology would utilise Sydney Futures Exchange (SFE) electricity futures prices as the key inputs of the model. This would represent a risk adjusted forward looking market consensus view of future pool price outcomes.

On 22 January 2009, the Commission made a final Rule determination in relation to the FOA Rule change proposal in which it decided not to make a Rule or a preferred Rule. This decision was confirmed in the Commission's final Rule determination on 16 April 2009.

The Commission noted, however, that elements of the Rule change proposal had merit which warranted further review. The Commission therefore initiated this Review under section 45 of the NEL.

1.5 Timetable for the Review

This Review will be conducted in two stages. Stage 1 of the Review involved analysis and stakeholder consultations leading to the preparation of the Stage 1 Final Report that sets out the Commission's final recommendations to the MCE. The Commission provides this Stage 1 Final Report to the MCE for its consideration.

Stage 2 of the Review is subject to the MCE's response to the Commission's recommendations. In stage 2, where appropriate, the Commission would draft Rules to support its recommendations in Stage 1. The stakeholders will be given the opportunity to comment on any draft Rules prior to making of the final Rules.

The table below outlines the timeline for stage 1 of the Review.

Milestone	Timing
Framework and Issues Paper	26 March 2009
Submissions on Framework and Issues Paper close	24 April 2009
Framework and Issues Public Forum	16 April 2009
Publication of draft risk assessment report for PricewaterhouseCoopers (PwC) for public consultation	14 October 2009
Submission close on PwC's draft risk assessment report	4 November 2009
Stage 1 Draft Report	19 March 2010
Public Forum on Draft Report	12 April 2010
Stage 1 Final Report	30 June 2010

1.6 The Commission's approach to the Review

The Commission's approach to the Review was to focus on the analysis of the NEM prudential framework and on options to integrate futures and other type of contracts into the regime. The analysis also included considerations of alternative methodologies for the determination of the MCL.

In the first phase of Stage 1, a Framework and Issues Paper was published to identify issues and options that were relevant for this Review and to facilitate consultation and the establishment of a framework for the assessment of those issues and options.

The second phase involved further clarification of issues and the development of options, in particular draft models for FOA in consultation with the Working Group, for risk assessment by consultants. This work also included consideration of matters related to the existing Energy and Dollar reallocation arrangements and the proposed Swap and Option reallocation arrangements. A detailed brief was prepared and PricewaterhouseCoopers (PwC) was engaged to undertake a risk assessment and make recommendations to enhance the existing and proposed arrangements. The draft PwC report was published on 14 October 2009 for public consultation. Submissions on PwC's draft risk assessment report and PwC's final risk assessment report were published on AEMC's website.

In the third phase the Commission determined the options for integrating the NEM participants' futures and other types of contracts into the NEM prudential framework with the objective of enhancing the effectiveness of that framework. This included a consideration of issues identified in relation to existing reallocation arrangements for integrating Over the Counter (OTC) contracts under the reallocation provisions in the Rules. The Commission also obtained legal advice from

Allens Arthur Robinson (AAR) on specific legal issues identified as part of this Review to inform its decisions.

In the final phase the Commission published its Draft Report (draft recommendations) for further public consultation. The Commission has taken into account issues raised in the submissions and obtained further legal advice from Allens Arthur Robinson (AAR) on specific legal issues to inform its final recommendations.

The final recommendations were prepared taking into account the Commission's Terms of Reference and principles of good regulatory practice, which include that the options for enhancement of the operation and efficiency of the NEM prudential framework:

- promote the National Electricity Objective (NEO);
- have regard to relevant MCE statements of policy principles; and
- are consistent with the assessment criteria established for this Review, following stakeholder consultation.

The Review takes into account previous reviews and Rule changes in relation to the NEM prudential framework, outcomes of the consultation processes undertaken as part of this Review, advice from the Working Group and input from consultants.

1.6.1 National electricity objective

The NEO is set out in section 7 of the NEL and states that:

“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.”

1.6.2 MCE statements of policy principles

The Terms of Reference required the Commission to have regard to MCE statements of policy principles in conducting this Review. There are currently no MCE statements of policy principles relevant to this Review.

1.6.3 Assessment criteria

Consistent with the NEO, the following assessment criteria were established in consultation with stakeholders to undertake detailed assessment of options:

- prudential quality of the NEM;
- cost of capital to trade in the NEM wholesale market; and
- operational effectiveness.

The assessment criteria with respect to investigations into the role of hedging contracts in the existing NEM prudential framework, were to:

- improve (or at least maintain) the prudential quality of the NEM;
- reduce (or at least maintain) cost of capital to trade in the NEM wholesale market; and
- ensure that any arrangements recommended are operationally effective.

The assessment criteria with respect to review of the MCL methodology, were to:

- ensure that the prudential quality is effective; costs are efficient; and that any recommendations achieve operationally effective arrangements.

The overall cost of participation in the NEM is dependent upon an efficient prudential framework for the NEM. An efficient prudential setting would ensure that there is an appropriate balance between the cost of credit support provided by Market Participants and the wholesale electricity prices paid by them. If the prudential quality is perceived to be low, then it is likely that a default risk premium would be built into the spot market prices thus, increasing the wholesale costs to the Market Participants. If the prudential setting is too high, then the cost for bank credit support would be higher, and may offset any reduction in default risk premium in the wholesale prices.

It is also important that the costs of implementing and monitoring the prudential arrangements in the NEM remain efficient. The criteria of operational effectiveness ensure that these costs are taken into account in the design of the prudential framework.

This Review seeks to implement arrangements to offset (or reduce) the cost of capital to trade in the NEM wholesale market without reducing the prudential quality. In addition, the Review seeks to clarify the 'reasonable worst case' performance target for the MCL and consider alternative methodologies for the determination of the MCL.

The Market Participants' confidence in the settlement of spot electricity transactions is critical to the operation of the NEM and in setting the level of spot market price. Such confidence in the NEM would promote efficient investment in, and efficient operation and use of, electricity services for the long term interest of consumers of electricity, in accordance with the NEO.

The Commission considers that recommendations which meet the above assessment criteria would reduce the cost of participation in the NEM wholesale market whilst maintaining the confidence of Market Participants in the settlement of spot electricity transactions. This is likely to deliver lower prices to consumers and thereby contribute to the achievement of the NEO.

1.6.4 Other reviews and Rule changes

The Commission had regard to previous reviews and Rule changes. In particular, the Commission considered:

- the FOA Rule change proposal and Rule determination;² and
- the reallocation Rule change proposal and Rule determination.³

The Commission has been mindful of other current and proposed work in relation to the NEM prudential framework in making these recommendations, which include:

- the AEMO review of the adequacy and appropriateness of the settlement and prudential risk management arrangements used in the NEM and in the administered gas markets (Energy Market Prudential Readiness Review – AEMO Review); and
- MCE’s Financial Market Working Group consultations on options for reducing costs to NEM participants.⁴

1.6.5 Outcome of consultations

The Commission has consulted on a formal and informal basis with interested parties. To date the following public consultations have been undertaken as part of this Review:

- Publication a Framework and Issues Paper and public submissions on the Framework and Issues Paper;

² Rule Determination, National Electricity Amendment Rule (Futures Offset Arrangements (FOAs)) 2009, AEMC, <http://www.aemc.gov.au/Media/docs/Final%20Determination-dbe8229e-5e80-44a2-8d44-233356fd651b-0.pdf>, viewed 11 March 2010.

³ Rule Determination, National Electricity Amendment (Reallocations) Rule 2007, [http://www.aemc.gov.au/Media/docs/Rule%20Determination%20\(with%20amendment\)-acee0913-77b9-4002-ab92-b7b7677e6397-0.pdf](http://www.aemc.gov.au/Media/docs/Rule%20Determination%20(with%20amendment)-acee0913-77b9-4002-ab92-b7b7677e6397-0.pdf), viewed 11 March 2010.

⁴ Release of papers on Shorter NEM Settlement Cycle and a Survey of Second Tier Retailers, MCE, 17 July 2009. http://www.ret.gov.au/Documents/mce/_documents/2009%20Bulletins/Bulletin%20No.160-Shorter%20NEM%20Settlement%20Cycle.pdf
[http://www.ret.gov.au/Documents/mce/_documents/2009%20Bulletins/Survey%20of%20Second%20Tier%20Retailers%20Report%20\(June%202009\).pdf](http://www.ret.gov.au/Documents/mce/_documents/2009%20Bulletins/Survey%20of%20Second%20Tier%20Retailers%20Report%20(June%202009).pdf)

- Public Forum on the Framework and Issues Paper;
- Publication of a draft risk assessment report by PricewaterhouseCoopers (PwC) and public submissions on the PwC draft report;
- Publication of legal advice by Allens Arthur Robinson (AAR);
- Publication of the Commission's Draft Report to the MCE and public submissions on the Commission's draft report; and
- Public Forum on the Draft Report.

The Commission has taken into account the outcome of these consultation processes. In particular, the Commission has taken into account the submissions received from interested parties.

1.6.6 Advice from the Working Group

The Commission established a Working Group to provide the Commission with relevant expert advice and information in relation to this Review. Workshops were held with the Working Group.

In particular, the Working Group provided advice and input for the development of the:

- Framework and Issues Paper; and
- detailed Request for Proposal that formed the basis for the risk assessment assignment with PwC.

In addition, the Working Group received a presentation and commented on the draft risk assessment report by PwC.

1.6.7 PwC report on risk assessment

The Commission appointed PwC to undertake analysis and to make recommendations on:

- the risks associated with existing reallocation arrangements and options to enhance these arrangements;
- the risks associated with proposed FOA models (working examples) and options to enhance these arrangements; and
- options for the MCL methodology to improve its effectiveness and efficiency.

The Commission published the draft PwC report on risk assessment for consultation. The final PwC risk assessment report together with submissions on

the draft PwC risk assessment report were inputs to the Commission's draft and final reports.

1.6.8 AAR legal advice

The Commission engaged AAR to provide advice on the following legal issues identified as part of this Review:

- clawback risk in relation to amounts held in the Security Deposit Account (SDAs) by AEMO under current and proposed arrangements;
- risk of a reallocation being considered an uncommercial transaction; and
- surety of payment risk associated with the variation margins payments to AEMO under FOAs and risk mitigation options.

AAR's legal advice, which is referred to in the relevant sections of this Final Report, was an input to the Commission's draft and final reports.

2 Prudential requirements in the energy market

This chapter outlines the prudential requirements in the energy market. It details the NEM prudential framework and the daily monitoring and supervision processes. A conceptual representation of the reallocation offset arrangements that are currently available in the NEM together with their impact on the NEM and on Market Participants is provided. In addition, this chapter outlines the Swap and Option offset arrangements which are awaiting implementation and provides potential options for futures offset arrangements (FOAs).

2.1 Overview of prudential requirements in the energy markets

This Review was established to investigate the credit support requirements imposed on parties who participate in the NEM. Retailers in the NEM are normally net purchasers of wholesale electricity and are therefore required to provide credit support to AEMO under the Rules. In addition to the credit support obligations to AEMO, NEM participants enter into electricity hedge contracts such as OTC and futures contracts to manage their risk in the NEM and may be required to provide credit support to the counterparties to these contracts.

NEM participants also need to comply with the prudential requirements imposed by the infrastructure service providers such as Transmission Network Service Providers (TNSPs) and Distribution Network Service Providers (DNSPs).

Under clause 6A.28.1 of the Rules, a TNSP may require a Transmission Network User to establish prudential requirements for either or both connection services and transmission use of system services. These prudential requirements may take the form of, but need not be limited to, capital contributions, pre-payments or financial guarantees. A NEM retailer is an electricity distribution network user, and is therefore required to provide credit support to the relevant DNSP under clause 6.21 of the Rules. Clause 6.21.1(b) states that the prudential requirements are a matter for negotiation between the DNSP and the user, and the terms agreed must be set out in the connection agreement between the DNSP and user.

Most jurisdictions currently mandate some form of agreement between DNSPs and electricity retailers in relation to the provision of distribution services. These agreements are in the form of:

- a “Use of System Agreement” (UoS Agreement) - for NSW⁵, Victoria⁶, the ACT, Western Australia, Northern Territory and Tasmania; or
- a “Coordination Agreement” - for Queensland⁷ and South Australia⁸.

⁵ Department of Water and Energy (NSW), *Market Operations (Network Use of Systems) Rule No.2 of 2001*, http://www.dwe.nsw.gov.au/energy/electricity_market.shtml

⁶ Essential Services Commission, 2006, *Credit Support Arrangements – Final Decision*, <http://www.esc.vic.gov.au/public/Energy/Regulation+and+Compliance/Decisions+and+Determinations/DUos+Credit+Support+Arrangements/>

These agreements set out the credit support requirements in the relevant jurisdictions. Typically, under the UoS Agreement or Coordination Agreements:

- the amount of credit support is based on a user's estimated network distribution and transmission charges for 3 months (the billing period); and
- acceptable forms of credit support include a bank guarantee or letter of credit acceptable by the relevant TNSP or DNSP.

The MCE is currently in the final stages of consultation on a National Energy Customer Framework (NECF).⁹ This is likely to impact on the existing DNSP prudential requirements, although for many retailers it is likely that the effect of the proposed regime will be to decrease their credit support obligations in respect of distribution charges.

In addition to prudential requirements to AEMO, TNSPs and DNSPs in the NEM, dual fuel retailers who also retail gas are subject to credit support requirements in the wholesale gas market and in relation to gas transmission and distribution services.

2.2 Existing NEM prudential framework

The NEM is a gross pool, that is, all sales of electricity must occur through a central trading platform, the spot electricity market. AEMO acts as the principal in the settlement of transactions with Market Participants in the spot electricity market. Settlement occurs up to 5 weeks after the liability accrues, which results in large amounts outstanding and gives rise to the need for a carefully managed prudential framework.

AEMO's obligation to settle payments with creditor Market Participants in relation to a billing period is limited to the extent of funds received from debtor Market Participants in respect of that billing period (or obtained under credit support arrangements).

If a Market Participant does not satisfy the acceptable credit criteria as defined under clause 3.3.3 of the Rules (and none of the current Market Participants satisfies those criteria), then that Market Participant must provide AEMO with an unconditional guarantee in the form specified by AEMO from an acceptable credit support provider (typically a bank) for an amount that is greater than or equal to the Market Participant's MCL. AEMO may draw on the guarantee if payment by a Market Participant is not cleared in time to meet a settlement deadline.

⁷ Queensland Default Coordination Agreement (Annex C of the Electricity Industry Code), DME, 2008, http://www.dme.qld.gov.au/Energy/electricity_industry_code.cfm, viewed 10 March 2010.

⁸ ESCOSA, Co-ordination Agreement, http://www.escosa.sa.gov.au/library/030801-DraftCo-ordAgreeETSA_Retailers.pdf, viewed 25 February 2009.

⁹ Ministerial Council on Energy Communiqué, Melbourne, 11 June 2010, http://www.ret.gov.au/Documents/mce/_documents/2010%20bulletins/2010%2006%20MCE%20Communiqué%20FINAL.pdf, viewed 30 June 2010.

Any shortfall in AEMO's recovery from any Market Participant in relation to a billing period is shared proportionately by Market Participants (typically generators) who are due payments in that billing cycle, in accordance with the Rules (clauses 3.15.22 and 3.15.23).

To satisfy the acceptable credit criteria¹⁰, a Market Participant or a credit support provider must, amongst other things:

- a) be an entity under the prudential supervision of the Australian Prudential Regulation Authority (APRA) or a central borrowing authority of an Australian State or Territory; and
- b) have an acceptable credit rating that is either a rating of A-1 or higher for short term unsecured counterparty obligations of the entity, as rated by Standard and Poor's (Australia) Pty. Limited; or a rating of P-1 or higher for short term unsecured counterparty obligations of the entity, as rated by Moody's Investor Service Pty. Limited.

AEMO settles in excess of \$10bn worth of spot market transactions annually.¹¹ AEMO typically holds around \$1.5bn to \$3.5bn in bank guarantees.¹² State Treasury Corporations also guarantee the operation of some government-owned businesses in the NEM.

The Market Participants' confidence in the settlement of spot electricity transactions is critical to the operation of the NEM and in setting the level of spot market price (referred to as the Regional Reference Price or RRP). Market Participants' confidence in the NEM would promote efficient investment in, and efficient operation and use of, electricity services for the long term interest of consumers of electricity, in accordance with the NEO.

The Rules contain various provisions governing the prudential supervision of Market Participants, which are designed to ensure credit risk is not factored into the determination of the RRP.

2.2.1 Relevant components of the NEM prudential framework

The NEM's prudential requirements are described under clause 3.3 of the Rules.

¹⁰ Refer to clause 3.3.3 and 3.3.4 of the Rules.

¹¹ Presentation by Dr Brian Spalding, Chief Operating Officer: Experiences of the Australian Electricity Market under power disturbances and financial stress, slide 5 notes spot market settlement transactions in 2006/2007 were about \$AU11Bn.
http://www.theapex.org/Documents/Apex07/Sesion1/1-3-1_AS_Australian_Electricity_Market.ppt#453,5,NEM, viewed 22 February 2010.

¹² NEMMCO presentation, *Integration of Physical and Financial risk in Australia's National Electricity Market*, presentation slide number 7, Les Hosking, Managing Director and CEO.

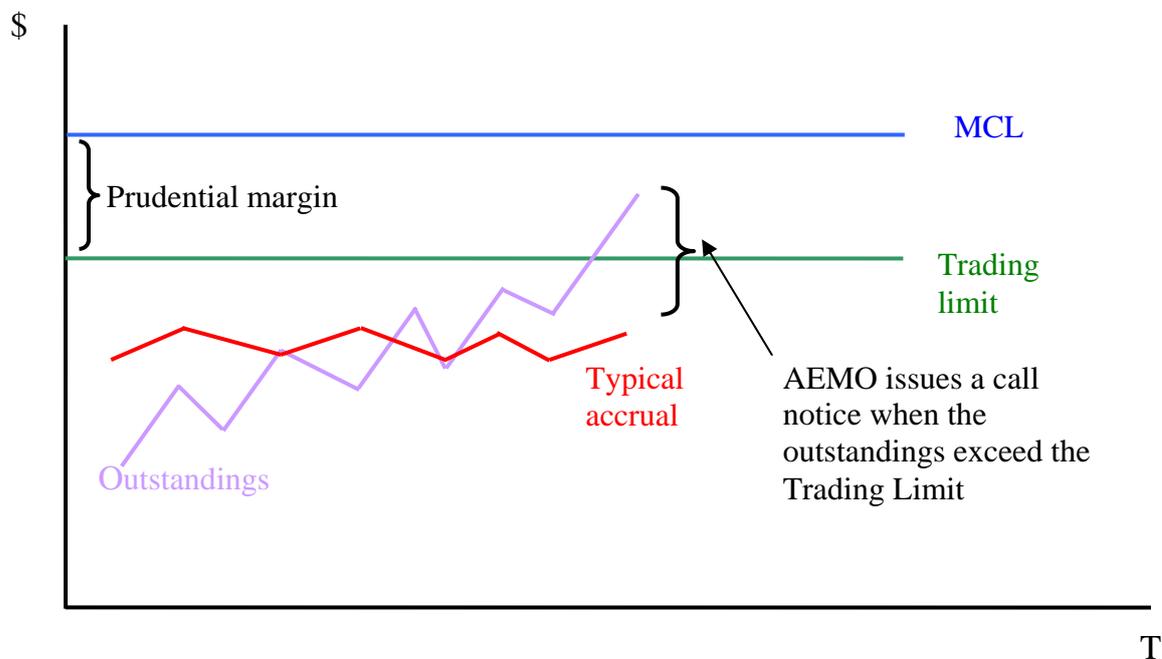
Relevant components of the existing NEM prudential framework are:

- the MCL;
- daily prudential monitoring;
- default and suspension; and
- settlement default.

Figure 2.1 below illustrates the elements of the existing NEM prudential framework.

The credit limits methodology and the NEM settlement and prudential supervision process used by AEMO are detailed in AEMO publications¹³ and summarised in the following sections.

Figure 2.1: Elements of NEM prudential framework



The Maximum Credit Limit (MCL), Prudential Margin (PM) and Trading Limit (TL)

The MCL is a “reasonable worst-case” estimate of the potential exposure based upon the aggregate payments (after reallocations) to be made by a Market Participant to AEMO over their credit period. 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.” Market Participants are

¹³ *Credits Limits Methodology*, AEMO, <http://www.aemo.com.au/electricityops/0530-0007.pdf>, and *NEM Settlement Prudential Supervision Process*, AEMO, <http://www.aemo.com.au/electricityops/0530-0009.pdf>, viewed 25 February 2010.

required to lodge credit support (typically in the form of bank guarantees) with AEMO and to ensure that the total amount is always no less than their MCL.

The credit period comprises the billing period of 7 days, the payment period of 28 days and the reaction period of 7 days. Thus the MCL represents the value of 42 days of energy purchases at the “reasonable worst case” level (subject to an option for Market Participants to have the calculation based on a notional payment period of 14 days).

The Prudential Margin (PM) is calculated on a similar basis to the MCL, but represents only the value of energy purchases during the 7 day reaction period (also part of the MCL calculation period). The reaction period represents the likely exposure to a defaulting Market Participant during the period before it can be suspended from the NEM and any customers transferred to another Market Participant.

A Market Participant's Trading Limit (TL) is the value of the credit support held by AEMO for that Market Participant, less its PM. The purpose of the TL is to minimise the risk that a Market Participant incurs liability to AEMO in excess of the amount of security AEMO holds for that Market Participant.

The TL acts as a cap on the amount owing by a Market Participant to AEMO. Market Participants are required to monitor their amount owing and to provide additional security to AEMO immediately if a breach of the TL occurs.

Under clause 3.3.8 of the Rules, AEMO is required to determine a MCL and PM for each Market Participant, including those registered as Generators and Market Network Service Providers (MNSPs).

Clause 3.3.8(e) of the Rules requires that the MCL and PM for each Market Participant be reviewed annually. 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 3 months. AEMO also conducts interim reviews in response to major events.

AEMO's Credit Limits Methodology¹⁴ describes how AEMO calculates MCLs and PMs, in accordance with the requirements and principles set out in Clause 3.3.8 and Schedule 3.3 of the Rules.

In summary, the MCL is based on:

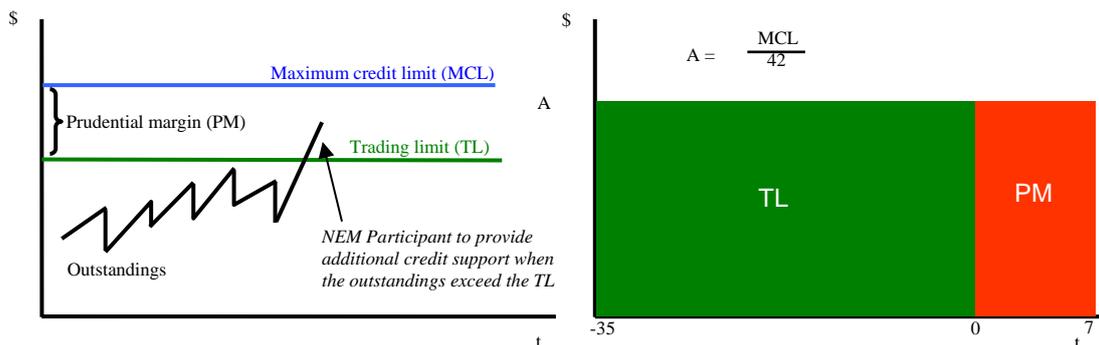
- an estimate of expected electricity price (PR) for each region which is determined as the average spot price over the previous 12 month period in that region;
- estimated average daily load or generation (E) for each Market Participant within each region;

¹⁴ *Credits Limits Methodology*, AEMO, <http://www.aemo.com.au/electricityops/0530-0007.pdf>, viewed 25 February 2010

- a volatility factor (VF) derived from the distribution of electricity prices that acts as a scaling factor to derive the reasonable worst case value from the historical average value¹⁵; and
- additional scaling factors that adjust for average loss factor and Goods and Services Tax (GST).

A minimum MCL is usually applied to new retailers. Figure 2.2 presents two different representations of the MCL, PM and the TL in absolute dollar terms.¹⁶

Figure 2.2 - Conceptual representation of MCL, PM and TL



The graph on the left shows the monetary value of MCL, TL and PM against the amount of a Participant’s outstanding market purchases over time. The graph on the right shows a different representation of the MCL, as daily average amounts over the billing and collection periods (TL) and the reaction period (PM). The combined area under the graph shown as TL and PM is the MCL which is posted as a bank guarantee, subject to offset arrangements, at the start of a quarter. The second representation is used later in the report to illustrate the effect of offset arrangements and changes in NEM risk coverage.

Under clause 3.3.6(b) of the Rules, “where a credit support otherwise ceases to be current or valid, whether by reason of the Credit Support Provider ceasing to meet the acceptable credit criteria or any other reason, the Market Participant must procure the replacement of that credit support so as to comply with its obligation to maintain aggregate undrawn current and valid credit support of not less than the current maximum credit limit for that Market Participant. The Market Participant must procure that the replacement credit support is issued to AEMO within 24 hours after the Market Participant first becomes aware that the credit support has ceased to be current or valid (whether by reason of the Market Participant’s own knowledge or a notification by AEMO).”

This Review examines options to enhance the existing MCL methodology, and this is discussed further in Chapter 6 of this Final Report.

¹⁵ The calculation of volatility factor also takes into account load volatility.

¹⁶ These graphs are based on load only and do not take into account generation or reallocations. Further, for the purpose of this and later illustrations, it is assumed that the Market Participant has provided credit support equal to its MCL.

Reduced MCL (RMCL)

The RMCL provisions were introduced in February 2004, when the then National Electricity Code was amended. The RMCL provision provides relief to Market Participants by reducing the amount of bank guarantees required for credit support. It is an accepted and widely used option by NEM participants.

Under S3.3.1(b) (6) (iii) of Schedule 3.3 of the Rules a Market Participant may request AEMO to determine its MCL on a payment period of 14 days instead of the 28 days under the standard MCL. The payment of bills still occurs on a 28 days payment period and only the MCL is calculated on the shorter 14-day period. The effect of this provision is that a Market Participant's MCL is reduced by 33%.

The PM for the Market Participant is maintained at the full estimated liability that a Market Participant would accrue over a 7 day reaction period. The PM therefore remains at the same level as would have applied under the standard MCL provisions. The effect of this is that the TL of the Market Participant under RMCL is reduced by 40% compared to the standard MCL, and the Market Participant can expect more frequent occasions where their TL is insufficient to cover their outstandings.

Under RMCL, the NEM participants need to manage their outstandings more actively and "top up" any shortfalls in bank guarantee through security deposits or other forms of security. AEMO also needs to ensure the daily monitoring regime for NEM prudential requirements is effective, to ensure that the prudential quality of the NEM is maintained. There is no other security held against a Market Participant to guarantee the "top up". If a retailer operating with a RMCL defaults, that is, it does not make the payments into the SDA when the trading limit is breached, and is unable to respond to subsequent Notices issued by AEMO pursuant to the Rules, then the PM has to be relied upon to meet the cost of that retailer's energy purchases during the time it takes to remove it from the market (the reaction period).

In 2003, NEMMCO (now AEMO) proposed to the National Electricity Code Administrator (NECA) that it consider amending the National Electricity Code to incorporate the RMCL provisions. NECA recommended that NEMMCO's proposal be adopted and the changes were subsequently authorised by the Australian Competition and Consumer Commission (ACCC) in 2004.

NEMMCO's report¹⁷ to NECA outlined the features of the new RMCL provisions. The report noted that the RMCL option would require active management of the level of outstandings by both the Market Participants and NEMMCO for a higher proportion of the time. The Market Participants would need to be prepared to provide more cash (security deposits) to NEMMCO over those limited periods when prices are higher than average.

With respect to credit support risk, the report argued that under the new arrangement, the prudential risk to the Market as a whole is reduced because the

¹⁷ Optional Reduction of Maximum Credit Limit, National Electricity Market Management Company, 7 May 2003.

limit of credit extended to each Market Participant taking up the RMCL option is less. This is reflected in the total outstandings of the overall market being less, with the balance being held in cleared funds by NEMMCO and available for payment to generators if a default occurs. The benefits of this reduced risk, according to the report, are passed to the RMCL Market Participants by reductions in the levels of financial guarantees that are provided to NEMMCO.

The report also noted that in the event of a default a call notice would be issued and/or the Market Participant's MCL would be reviewed on the next business day effectively cancelling the options of the RMCL. It stated that the headroom between the RMCL and the reduced trading limit under RMCL is maintained at the equivalent of 7 days of trading (prudential margin).

The report provided an assessment showing that an RMCL, combined with the active management of outstandings and extended credit provided a more efficient (relative amount by which credit support is under-utilised) and effective (relative amount by which credit support covers outstandings on average) outcome than the standard MCL.

In summary, the RMCL provisions in the Rules are based on:

- replacing part of the bank guarantee under the standard MCL with a reduced bank guarantee and cash payments into the SDA;
- reducing the extended credit (reduced trading limit), and active management of total outstandings through offsetting by cash payments into the SDA when trading limit is (or is likely to be) exceeded; and
- retaining the prudential margin to provide protection in the event of a retailer default.

There is no other security for the cash payments (surety of payment).

Figure 2.3 provides a conceptual representation on RMCL.

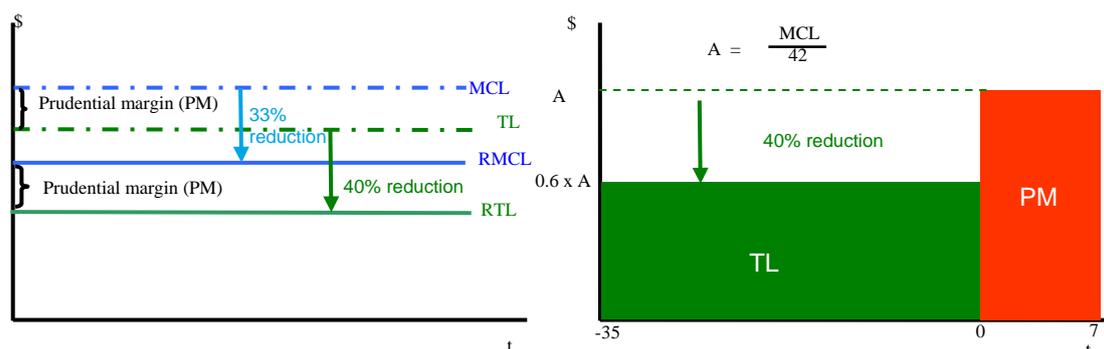
The RMCL is a well-established feature of the NEM and is available to all Market Participants on request.

AEMO has advised that 72% of the energy traded through the NEM is covered by RMCL provisions.

The Commission has adopted the RMCL as the benchmark to test the prudential quality of the NEM, in particular for FOAs.

The benefit of FOAs, in terms of reduced bank guarantee requirements, is dependent on whether it is assessed against the standard MCL or the RMCL. The Commission has supplemented PwC's work with an assessment of the benefits for a retailer who may be operating under RMCL arrangements.

Figure 2.3 - Conceptual representation of RMCL, PM and TL



Daily prudential monitoring

AEMO monitors the total outstandings (the value of electricity consumed but not yet paid for) or the financial liability of all NEM participants to AEMO on a daily (business day) basis. NEM participants can also monitor their own outstandings using the AEMO facility called the Prudential Dashboard.

If the outstandings exceed the TL, then a call notice may be issued. A call notice will usually be issued before 12 noon (Sydney time) on any business day.¹⁸

AEMO calculates the call amount in accordance with clause 3.3.11(a)(2) of the Rules. The call amount is equal to the higher of the difference between a Market Participant's outstandings and its typical accrual, and the difference between a Market Participant's outstandings and its trading limit.

The typical accrual is defined in clause 3.3.12 of the Rules. It is an amount determined by AEMO that is broadly equal to the level of outstandings that the NEM Participant would have reached if spot prices, ancillary service prices and consumption had been at average levels. Details of how a Market Participant's typical accrual is calculated are set out in AEMO's Credits Limits Methodology.

When a call notice is issued, the NEM participant is required under clause 3.3.13 of the Rules, by 11 am (Sydney time) on the next business day to:

- agree with AEMO an increase in the MCL by an amount not less than a call amount specified in the notice, and to provide required additional credit support to AEMO;
- where the MCL is not increased, pay AEMO a security deposit of the call amount; or

¹⁸ The Commission understands that AEMO has established a further, informal step in the daily monitoring process in addition to the formal procedure described in this section. Under this additional step, AEMO advises NEM Participants at about 8.30 am if their outstandings from the previous day exceeded their TL. This then provides those NEM Participants with the opportunity to pay a security deposit (or register a RA or provide a bank guarantee) equal to the difference by 10.30 am, and thereby avoid the need for a call notice to be issued.

- arrange, together with another NEM participant and in accordance with AEMO's procedures, for a credit ex-post reallocation to be submitted and accepted by AEMO for an amount of at least the call amount; or
- provide a combination of the above to the value of the call amount.

Default and suspension

If a NEM participant fails to respond as required to a call notice then a default event (as defined by the Rules) would have occurred and AEMO may issue a default notice requiring rectification within a set deadline (typically 1 pm Sydney time on the next day).

Some default events can lead to a default notice being served without a call notice being issued. Examples of these events are: failure to settle at the appointed time; the appointment of an administrator; or failure to provide credit support required to be supplied under the Rules by the appointed time on the due date.

If AEMO is not satisfied that the default event has been rectified within the prescribed time, AEMO may issue a suspension notice under clause 3.15.1(c) of the Rules: "if the default event is not remedied by 1.00 pm (Sydney time) the next day following the date of issue of the default notice or any later deadline agreed to in writing by AEMO, or if AEMO receives notice from the defaulting Market Participant that it is not likely to remedy the default, then AEMO may issue a "suspension notice" under which AEMO notifies the defaulting Market Participant of the date and time from which it is suspended from trading, and the extent of that suspension."

Settlement default

If a NEM participant has defaulted on a settlement payment then the potential consequences are:

- initially a draw down on the bank guarantee until this is exhausted in order to make good the defaulted settlement payment; and/or
- issue Default Notice to the NEM participant; and/or
- short payment to Generators in proportion to the amounts owed to each for energy and reallocation.

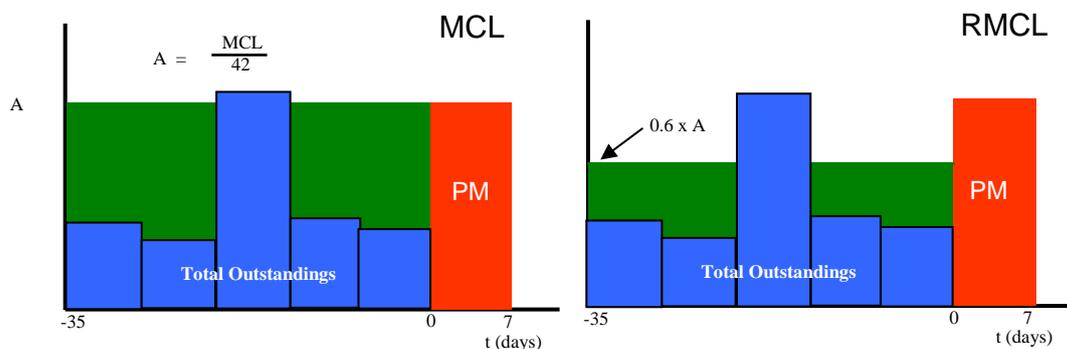
In the case of a default event, AEMO is entitled to call upon the credit support provided by a NEM participant. In such an event, AEMO would determine a call amount that represents the amount of any money actually or contingently owed by the NEM participant to AEMO pursuant to the Rules.

Clause 3.15.22 of the Rules details the manner in which settlements will be handled for a billing period in which there is a shortage of funds due to a default of a NEM participant where the shortfall cannot be made up through calling upon any remaining credit support. Clause 3.15.22(c) essentially specifies that any such

shortfall would be shared out in proportion to the amounts owing to each NEM participant.

Figure 2.4 illustrates the effect of operating under the standard MCL and RMCL

Figure 2.4 - Conceptual representation of MCL and RMCL



The area in green represents a Market Participants TL and the area in blue represents the participants outstandings over the 35-day trading period, assumed for the purpose of this illustration to be constant over each week. When the outstandings (area in blue) over the period exceed the TL (area in green), the Market Participant would be required to provide additional security under the prudential supervision process. Under a RMCL arrangement, this is likely to occur more frequently and for larger amounts.

2.3 Electricity financial markets¹⁹ and offset arrangements

Spot price volatility in the NEM can cause significant price risk to physical Market Participants. While generators face a risk of low prices impacting on earnings, retailers face a complementary risk that prices may rise to levels they cannot pass on to their customers. A common method by which market participants manage their exposure to price volatility is to enter into financial contracts that mitigate the impact of adverse price movements for the electricity they intend to produce or buy in the future.

Financial markets offer contractual instruments to manage forward price risk in wholesale electricity markets. A variety of instruments are utilised by Market Participants, including swaps, options, caps and floors. While these “derivative” contracts provide a means of managing exposure to future prices, they do not give rise to the physical delivery of electricity.

¹⁹ Information in this section is sourced largely from AER’s *State of the energy market 2009 report*, Chapter 3, <http://www.aer.gov.au/content/index.phtml/itemId/732297>, viewed 28 January 2010.

The participants in electricity derivatives markets include generators, retailers, financial intermediaries and speculators such as hedge funds. Brokers facilitate many transactions between contracting participants.

In Australia, two distinct electricity financial markets have emerged to support the wholesale electricity market:

- Over-the-counter (OTC) markets, comprising direct transactions between two counterparties, often with the assistance of a broker; and
- the exchange-traded market on the Sydney Futures Exchange (SFE).

2.3.1 Aggregate trading volumes

The following table, sourced from the Australian Energy Regulator (AER)'s *“State of the energy market 2009”* report shows the aggregate volume of electricity derivatives traded in OTC markets and on the SFE, and compares these volumes with underlying demand for electricity in the NEM. The data is a simple aggregation of Australian Financial Markets Association (AFMA) data on OTC volumes and d-cyphaTrade data on exchange trades. The AER notes that the results must be interpreted with some caution, given the AFMA data are based on a voluntary survey and are not subject to independent verification, and thus could omit transactions between survey non-participants (although AFMA considers the survey captures most OTC activity).

Table 2.1: Volumes traded in OTC markets and the SFE

	OTC (TWH)	OTC (% OF NEM DEMAND)	SFE (TWH)	SFE (% OF NEM DEMAND)	TOTAL (% OF NEM DEMAND)
2001–02	168	96	0	0	96
2002–03	235	131	7	4	135
2003–04	219	118	29	16	134
2004–05	199	106	24	13	118
2005–06	177	92	55	28	120
2006–07	337	174	243	124	298
2007–08	304	156	241	123	279
2008–09	208	105	301	153	258

Source: AER's State of the energy market 2009

The table shows a strong growth in the exchange traded volumes, whilst there has been a decline in the volumes traded through the OTC markets in recent years. The AER report provides the following reasons for the relatively strong growth in exchange traded volumes:

- amendments to the Corporations Act and the introduction of international hedge accounting standards to strengthen disclosure obligations for electricity derivatives contracts might have raised confidence in exchange based trading;
- redesign of the product offerings by d-cyphaTrade, in conjunction with the SFE, in 2002 to tailor them more closely to market requirements which have encouraged greater depth in the market, including the entry of financial intermediaries; and
- some trading parties seeking to minimise mark-to-market OTC credit exposures, an issue that became more acute in the difficult economic conditions in 2008–09, where a perception of increased financial risk for energy market participants might have accelerated the shift from OTC to SFE trading.

2.3.2 Over-the-counter (OTC) markets

OTC markets allow Market Participants to enter into confidential contracts to manage risk. Many OTC contracts are bilateral arrangements between generators and retailers, which face opposing risks in the physical spot market. Other OTC contracts are arranged with the assistance of brokers that post bid (buy) and ask (sell) prices on behalf of their clients. In 2008–09, around 62% of OTC contracts were arranged through a broker. Financial intermediaries and speculators add market depth and liquidity by quoting bid and ask prices, taking trading positions and taking on market risk to facilitate transactions.

Most OTC transactions are documented under the International Swaps and Derivatives Association (ISDA) master agreement, which provides a template of standard terms and conditions, including terms of credit, default provisions and settlement arrangements. While the template creates considerable standardisation in OTC contracts, the terms may be modified by market participants to suit their particular needs. This means that OTC products can provide flexible solutions through a variety of structures.

In general, however, the bilateral nature of OTC markets tends to make volume and price activity less transparent than in the exchange-traded market.

2.3.3 Exchange-traded futures

Derivative products such as electricity futures and options are traded on registered exchanges. In Australia, electricity futures products developed by d-cyphaTrade are traded on the SFE. Participants (licensed brokers) buy and sell contracts on behalf of clients that include generators, retailers, speculators such as hedge funds, and banks and other financial intermediaries.

There are a number of differences between OTC trading and exchange trading on the SFE:

- exchange-traded derivatives are highly standardised in terms of contract size, minimum allowable price fluctuations, maturity dates and load profiles. The product range in OTC markets tends to be more diverse and includes 'sculpted' products;
- exchange trades are multilateral and publicly reported, giving rise to greater market transparency and price discovery than in the OTC market; and
- unlike OTC transactions, exchange-traded derivatives are settled through a centralised clearing house, which is the central counterparty to transactions and applies daily mark-to-market cash margining to manage credit default risk. Exchange clearing houses, such as the SFE Clearing Corporation (SFE CC), are regulated and are subject to prudential requirements to mitigate credit default risks. This offers an alternative to OTC trading, where trading parties rely on the credit worthiness of electricity market counterparties.

Electricity financial markets are subject to a regulatory framework under the Corporations Act 2001 (Cth) and the Australian Securities and Investments Commission Act 2001 (Cth). The Australian Securities and Investments Commission (ASIC) is the principal regulatory agency.

Market participants must also comply with standards issued by the Australian Accounting Standards Board (AASB). In particular, AASB 139 requires companies' hedging arrangements to pass an effectiveness test to qualify for hedge accounting. The standards also outline financial reporting obligations such as mark-to-market valuation of derivative portfolios, and they require financial derivative revaluations to be benchmarked against observable market prices and adjusted for embedded credit default risk.

Further regulatory overlays in electricity derivative markets include the following:

- The Corporations Act requires OTC market participants to have an Australian Financial Services licence or exemption; and
- Exchange based transactions are subject to the operating rules of the SFE.

The Sydney Futures Exchange (SFE)

SFE Corporation Limited provides exchange-traded and over-the-counter financial services to institutions throughout the Asia-Pacific region and globally through its operating subsidiaries Sydney Futures Exchange Limited, SFE Clearing Corporation (SFECC) Pty Ltd and Austraclear Limited. In July 2006 SFE Corporation Limited merged with the Australian Stock Exchange Limited.²⁰

The SFE:

- offers a futures trading facility to the public;

²⁰ ASX website, <http://www.asx.com.au/about/sfe/index.htm>, viewed 28 January 2010.

- acts as the first line of supervision on behalf of the corporate regulator ASIC; and
- provides price and data dissemination to end users.²¹

d-cyphaTrade ASX Australian Electricity Futures and Options are standardised and centrally cleared financial contracts. They are structured as cash-settled Contracts For Difference (CFDs) against the New South Wales, Victorian, Queensland and South Australian regional reference nodes in the NEM.²²

The SFECC and SFE Clearing Participants (SFECP)

The SFECC provides a central counter-party (CCP) clearing service for all futures and options contracts traded at the SFE by SFECPs. In buying or selling contracts, SFECPs may be trading on their own account or on behalf of their customers (such as NEM participants).

Central to CCP clearing is the process of “novation”, which involves the SFECC interposing itself between SFECPs who buy and sell futures contracts and becoming the central counterparty or principal to all trades.

Through the novation process the SFECC is liable to perform against all contracts to which it is a party and effectively “guarantees” the performance of SFECPs. Novation and thus the clearing guarantee becomes effective on registration of the contract between buyers and sellers.

Although clients of an SFECP do not obtain the direct benefit of the SFECC’s clearing guarantee, the risk to those clients of an SFECP default is mitigated by measures which the SFECC uses to manage risk exposures, including but not limited to:

- the margining process where the SFECC collects various margins from SFECPs. The collection of these margins prevents SFECPs from accumulating large unpaid losses. The large unpaid losses (especially when there is an extreme price movement) could potentially impact on the financial position of other market users; and
- setting up a Clearing Guarantee Fund for use in the event of default of one or more SFECPs. The adequacy of the Clearing Guarantee Fund is regularly assessed by comparing it with the SFECPs’ potential loss exposures as determined by an approved stress testing process.

Through the margining process, when the price of a futures contract increases relative to its last price, a margin payment is collected from the party who holds a

²¹ ASX, A brief overview of Sydney Futures Exchange, http://www.asx.com.au/resources/education/audio_visual/futures/module003.htm, viewed 22 February 2010

²² ASX website, <http://www.asx.com.au/products/futures/electricity/australian/index.htm>, viewed 22 February 2010.

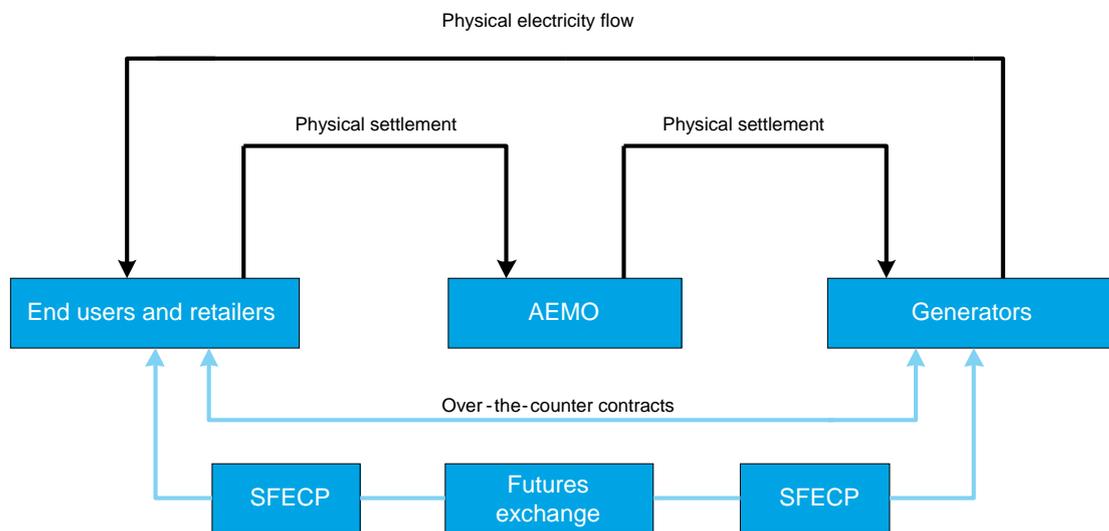
short position in the futures contract (through its SFECF). In addition, a margin payment is paid to the party, through its SFECF, who holds a long position.

Similarly, the reverse payments would apply if the price of the futures contract decreases relative to the last price.

2.3.4 Relationship of financial markets with the NEM

Figure 2.5 illustrates the relationship between the financial markets and the physical trading of electricity in the NEM. Trading and settlement in the NEM occur independently of financial market activity, although a generator’s position in the financial market can affect its bidding behaviour in the NEM. Similarly, a retailer’s position to the financial market may affect the pricing and availability of supply contracts offered to customers.

Figure 2.5 - Relationship between financial markets and the NEM



Source: AER’s State of the energy market 2009

The OTC and futures markets have prudential management arrangements separate to that of the NEM. Both markets enable the Market Participants to reduce their individual NEM risk but there has been an absence of mechanisms (except for reallocations) to reflect this reduction in risk in the amount of credit support that Market Participants need to provide to AEMO where the risk is assessed as the gross NEM exposure to the participant.

This could result in unnecessary additional credit support requirements and costs to the Market Participants.

Prudential frameworks for the NEM and the SFE

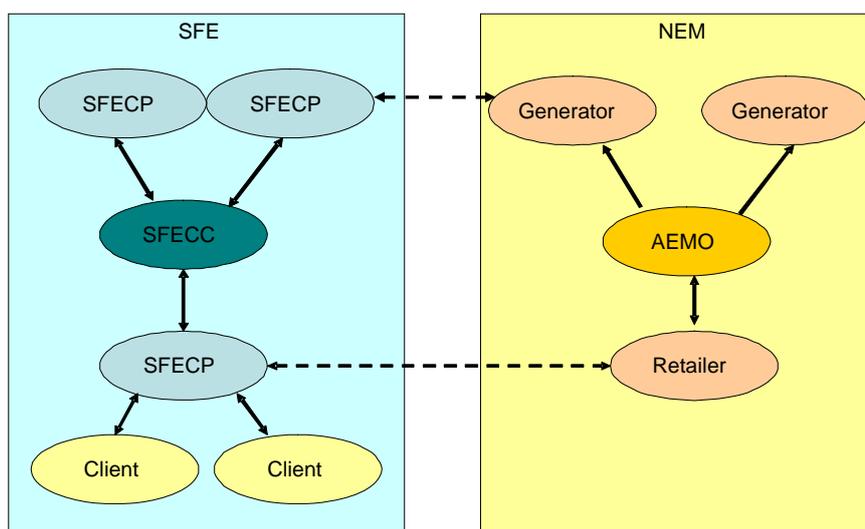
As illustrated in figure 3.2, the prudential framework for the NEM wholesale market is operated and supervised independently of the financial markets. Both the SFE and

the NEM have well defined prudential regimes that are considered to be appropriate for each market.

The SFE and the NEM are governed by two separate sets of Rules and prudential frameworks. There is no direct link between the two 'exchanges' although participants in one may also participate in the other.

A key consideration in the assessment of FOAs is to ensure that the interface between the NEM and financial markets do not result in a reduction to the prudential quality of the NEM. It is not appropriate to rely on arrangements and supervision processes in the financial markets that are independent of the NEM as the basis for reducing prudential requirements in the NEM. Any such processes would need to be integrated into the NEM. The fact that the SFECC 'guarantees' the payment of net futures margins to the holders of the futures contracts (SFECF) cannot be taken as a 'guarantee' that a retailer (client of SFECF) will make a variation margin payment to AEMO.

Figure 2.6 - The SFE and the NEM



SFE processes and prudential requirements

In order to register a FOA with AEMO, an electricity retailer (Client) would enter into long (bought) positions with an SFECF under electricity futures contracts (Contracts). As a full SFE participant, the SFECF must comply with both the SFE Operating Rules (SFEOR) and the SFE Clearing Corporation Clearing Rules (SFECC), together "the SFE Rules".

Under the SFE Rules, upon registration of a Contract with SFE Clearing Corporation Pty Limited (SFECC) that Contract becomes a contract between the SFECF and SFECC. No other person (including the Client) has any rights or obligations under that Contract. SFECC as a market operator is not obliged to recognise the interest of anyone other than the SFECF who may be taken to be a party to the Contract with SFECC.

As a result, any rights and obligations of the Client in relation to the Contract are solely contractual rights and obligations as against the SFIECP who entered into that Contract on behalf of the Client. Those contractual rights and obligations are partly mandated by the SFE Rules, but may also include other terms and conditions imposed by the SFIECP or negotiated between the SFIECP and the Client. Any rights which the SFIECP has to payment of 'positive margins' from SFECC do not belong to the Client.

Under the SFE Rules, a client clearing account (CCA) is established for each SFIECP, being the account for all money and other property owing to or from the SFIECP in respect of Contracts entered into for Clients.

SFECC administers the CCA of each SFIECP on an omnibus basis and payments to or from the CCA are net payments in respect of all Contracts entered into by the SFIECP from time to time. This is likely to include non-FOA contracts and contracts entered into on behalf of multiple other clients of the SFIECP. Net payments to the SFIECP will only become referable to particular Contracts registered in the FOA once those payments have been received by the SFIECP and paid into the client segregated account (CSA) by the SFIECP.

As a result, references to 'positive margins' for the purposes of the FOA can only mean the right of the Client, as a contractual right against the SFIECP, to be allocated (out of any net payment received by the SFIECP into its CCA) a positive amount in respect of a particular Contract registered in the FOA. If the only contracts entered into by the Client are bought Contracts participating in the FOA, then payments by SFECC to the SFIECP in relation to those Contracts should, in aggregate, always equal the 'positive margin' contemplated under the FOA model, except in circumstances where the SFIECP has defaulted and SFECC exercises its rights over the CCA. However, the net payment received from SFECC will always be affected by the net position resulting from the contracts of other clients of the SFIECP which are accounted for under the same CCA.

The SFE margining process and prudential requirements can be summarised as follows:

- The SFECC distributes the amounts collected from all SFIECPs. Each SFIECP receives that net amount based on all its Client positions;
- The amount available for distribution to individual Clients of a SFIECP is dependent upon the net amounts received from the SFECC and the payments received from its other Clients in respect of their positions; and
- The SFIECP would net off all the positions of a specific Client, such as a retailer with a FOA, and deduct any fees and charges before making margin payments to that Client.

The SFE Rules require the SFIECP to close out all futures positions held on account of a Client if that Client fails to pay a margin call. Margin calls may be in relation to the initial margins which may be determined by the exchange from time to time or for variation margins. The SFIECP or the Client may terminate the contracts by providing a notice in writing.

In addition, a Client may have futures positions with a number of SFECs which may impact on the Client's net cash position from all SFECs. Therefore, it is not possible to determine with certainty that a Client's obligations to AEMO under a FOA will always be backed by margin payments from SFECs.

2.3.5 Offset arrangements in the NEM

In recognition of the financial hedging contracts entered into by Market Participants, the Rules were amended to permit AEMO to develop procedures to enable Market Participants to offset the credit support requirements in the NEM. This would ensure that Market Participants' costs of participating in the NEM wholesale market are reduced, whilst maintaining the prudential quality of the NEM, thereby increasing the efficiency of the NEM prudential framework. Effective prudential offset arrangements in the NEM would also ensure there was an alternative to bank guarantees.

The Rules provide for reallocation arrangements whereby two NEM participants (typically, but not necessarily, a generator and a retailer) can register an energy or dollar reallocation with AEMO. These reallocation arrangements were introduced to minimise the prudential support requirements from NEM participants and to minimise the settlement risk of circular cash flows. These arrangements are in operation.

AEMO has also developed procedures for the reallocation of swaps and options reallocation arrangements but these are not yet in operation, pending consideration of licensing matters by ASIC.

The reallocation arrangements were amended in 2007 to make a provision for the registration of a Reallocator. It was envisaged that this would allow non-Market Participants, such as SFEC to register as a Reallocator and utilise futures contracts under reallocation arrangements. NEMMCO and the Australian Securities Exchange (ASX) also considered procedures to accommodate futures contracts in the NEM prudential framework under existing Rules; however, this work was discontinued in January 2008.

Figure 2.7 - Conceptual representation of offset arrangements.

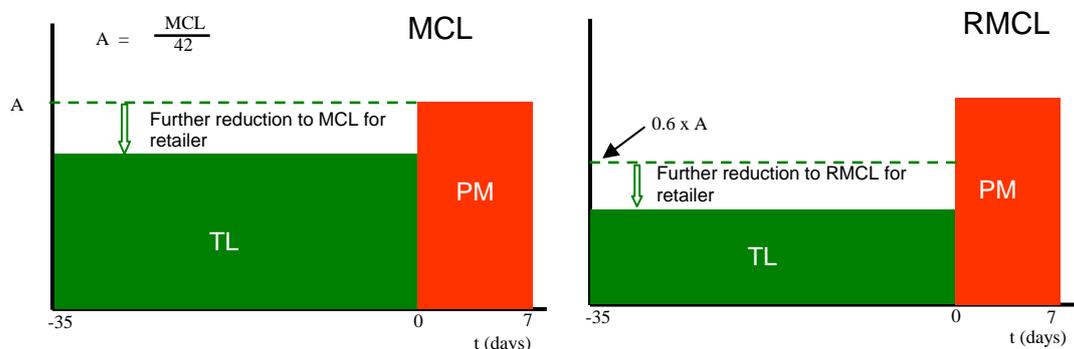


Figure 2.7 illustrates how offset arrangements can further reduce credit support requirements for Market Participants under the MCL and RMCL regimes.

Offset arrangements result in a reduction in the level of bank guarantees required by AEMO and as a result a reduction in costs to Market Participants. However, a reduction in bank guarantees held by AEMO could result in a reduction in the prudential quality of the NEM unless the reduction is matched by arrangements that are at least equivalent.

The following sections provide more detail on the current energy and dollar reallocation arrangements (RA) and the proposed swap and options reallocations arrangements. In addition, a conceptual representation of possible futures offset arrangements (FOA) is also provided. An important aspect to note in considering offset arrangements is that:

- under reallocation arrangements, the NEM liability to generators is reduced by the value of the reallocation arrangements; and
- under futures offset arrangements, the liability of the NEM remains unchanged, with 'margin payments' into a security deposit account (SDA) expected to offset any difference between the level of bank guarantee provided and the Market Participants' liability in the NEM.

2.3.6 Reallocation Arrangements (RA)

The gross pool nature of the NEM, in conjunction with the hedging contracts, gives rise to circular cash flows. Circular cash flow is the situation where, for the same day, the retailer pays AEMO for energy consumed; AEMO pays the generator for energy generated; and the generator and retailer exchange cash representing the settlement obligations under hedging contracts (often referred to as difference payments). The retailer's MCL is based on the estimated (reasonable worst case) gross pool liability whereas its actual liability taking into account, for example, swap contracts with generators would be based on the strike prices of those contracts.

A RA is a Rules-supported financial arrangement between two Market Participants and AEMO. The objective of the RA is to provide credit support relief to a Market Participant who has an existing hedge contract in place, and allows the off-market financial commitment, such as a hedge contract between participants, to be netted against pool settlement. The RAs also minimise settlement risks relating to the pool and contract settlements in the NEM.

Market Participants enter into a RA by submitting a reallocation request to AEMO. A RA is jointly requested by two parties, usually a retailer and a generator.

A reallocation transaction is defined in clause 3.15.11(a) of the Rules as follows:

“A reallocation transaction is a transaction undertaken with the consent of two Market Participants and AEMO under which AEMO credits one Market Participant with a positive trading amount in respect of a trading interval, in consideration of a matching negative trading amount debited to the other Market Participant in respect of the same trading interval.”

Clause 3.15.11(c) permits AEMO to specify the permitted types of reallocation transactions. It states that “Reallocation transactions may be of any type permitted in the reallocation procedures.”

A reallocation request is an instruction lodged with AEMO to initiate a reallocation transaction, and according to clause 3.15.11(d) must:

- (a) contain the information required by the reallocation Procedures; and
- (b) be lodged with AEMO in accordance with the reallocation Procedures and the timetable for reallocation requests as published by AEMO from time to time (the reallocation timetable).

Reallocation requests may be submitted either before a specified trading interval has occurred (referred to as a “prospective reallocation” or “ex-ante reallocation”) or after the specified trading interval has occurred (referred to as “ex-post reallocation”).

Prospective reallocations that are submitted according to the ex-ante timetable may be included in the determination of a Market Participant’s MCL. This enables reallocations to be used to reduce a Market Participant’s credit support requirements under the Rules.

AEMO, as required under clause 3.15.11A(a) of the Rules, has developed the following Reallocation Procedures:

- Reallocation Procedure: Energy And Dollar Offset Reallocations²³; and
- Reallocation Procedure: Swap & Option Offset Reallocations²⁴.

The energy and dollar RAs are in place. The utilisation rate of the RA has been relatively low. At the end of 2008, the reallocated energy amount represented approximately 9% of the total NEM traded volume.²⁵

AEMO is understood to manage load profile risk of reallocations by requiring that the parties to a RA submit half-hourly load profiles for the energy quantities to be covered by the RA. AEMO compares the load profile of the energy under reallocation to the Market Participant’s actual load profile to ensure that they can be accommodated. If this is not the case then AEMO would not allow MCL relief in order to ensure that load profile risk is adequately mitigated.²⁶

²³ *Reallocation Procedure: Energy and Dollar Offset Reallocations*, AEMO
<http://www.aemo.com.au/electricityops/0500-0010.pdf>, viewed 25 February 2010

²⁴ *Reallocation Procedure: Swap & Option Offset Reallocations*, AEMO,
<http://www.aemo.com.au/electricityops/500-0105.pdf>, viewed 25 February 2010

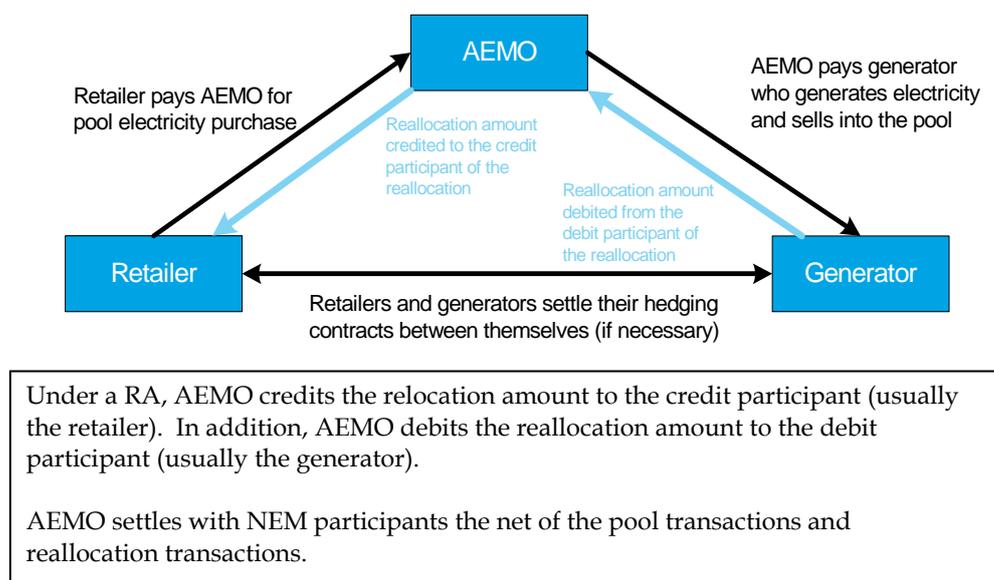
²⁵ NEMMCO Presentation, *Integration of Physical and Financial risk in Australia’s National Electricity Market*, presentation slide number 11, Les Hosking, Managing Director and CEO.

²⁶ PricewaterhouseCoopers report on the Review into the role of hedging contracts in the existing NEM prudential framework, February 2010, (PwC final report), section 3.2.6.

A RA cannot be terminated unilaterally by a retailer or a generator. AEMO may, in certain circumstances, terminate a RA to mitigate risk to the NEM.

Figure 2.8 illustrates the NEM transactions taking into account RAs.

Figure 2.8: Spot market and reallocation transactions in the NEM



An important feature of RAs is that AEMO has discretion to continue to enforce their terms following a default by the retailer up to the point where its suspension from the market is completed. This means that the NEM liability remains capped regardless of the movement in the spot price over the entire credit period, including the reaction period. Since the parties to a reallocation arrangement are also Market Participants (in the NEM), AEMO is able to monitor the settlement position of both parties at any given point in time.

Energy And Dollar Offset Reallocations

On 14 December 2007, NEMMCO published a reallocation procedure for energy and dollar offset reallocations.²⁷

Under this procedure, Market Participants are permitted to submit reallocation requests either before a specified trading interval has occurred (“prospective reallocation” or “ex-ante reallocation”) or after the specified trading interval has occurred (“ex-post reallocation”).

²⁷ *Reallocation Procedure: Energy and Dollar Offset Reallocations*, AEMO <http://www.aemo.com.au/electricityops/0500-0010.pdf>, viewed 25 February 2010.

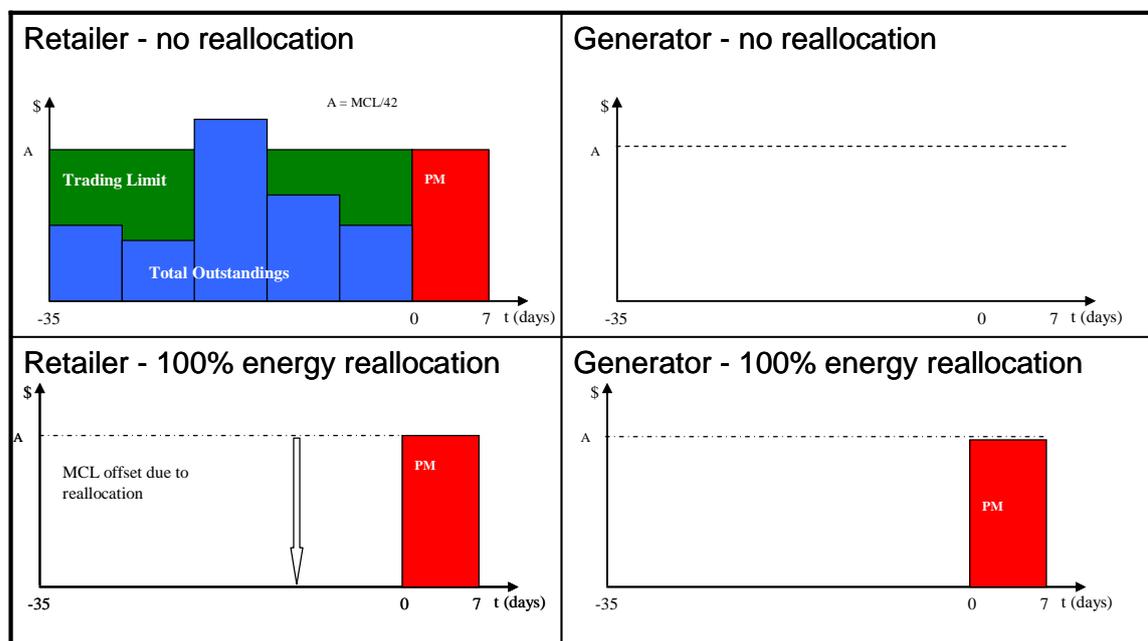
The procedure permits two types of reallocation transactions:

- Energy Offset: also referred to as MWh or quantity-based, specifies a half-hourly energy profile, and uses the half-hourly regional reference price for the nominated region to determine a trading amount for each trading interval. This is mainly used as a prospective reallocation, where there is an underlying contract which is specified as an energy quantity;
- Dollar offset: this reallocation specifies a dollar amount (usually a single value) which is used directly to determine the trading amount. This is used primarily as an ex-post reallocation for the management of outstandings.

MCL relief is available under ex-ante RAs. Under the energy reallocation, a retailer's outstandings in the NEM would be reduced (credit to retailer) to reflect the energy under the RA. At the same time the revenue owed to the generator would be reduced (debit to generator) by the same amount. The retailer and generator settle for the energy under the RAs bilaterally, outside the NEM.

Figure 2.9 provides a conceptual illustration of changes in NEM liability and credit support levels under an energy RA. Note that this figure is with reference to the standard MCL and is for illustration purposes only. The impact of GST, loss factors and inter-regional adjustment has been ignored.

Figure 2.9 - Illustration of energy reallocation



Ignoring GST and loss factor effects, the retailer's TL for the volume of energy under reallocation is offset to zero. The retailer's outstandings for that energy and NEM liability to the generator is also zero. This amount of energy is settled outside the NEM. The retailer's PM remains unchanged because in the event of retailer default AEMO may need to terminate the RA.

Under normal circumstances a generator would be a recipient of payment from AEMO and would have a zero MCL. However a generator that enters into a RA faces the possibility that the debit amounts under the RA may exceed the credit amounts due for electricity generated (if, for example the generator's bidding pattern or physical constraints result in it not being dispatched). Therefore, a PM equivalent to 7-days of estimated outstandings (derived from energy under RA) is maintained against the generator who is a party to the RA. The application of the MCL formula may also require a generator to provide bank guarantees to AEMO.

In practice, generators do not reallocate all their capacity and have credit from their non-reallocated capacity such that their MCL remains at zero.

Swap & Option Offset Reallocations

On 20 November 2007, NEMMCO published a procedure for swap and option reallocations. This procedure has not yet been activated, pending licensing considerations. AEMO has applied to ASIC for exemption from requirement to hold a clearing and settlement facility licence under the Corporations Act.

As in the case of energy and dollar offset reallocation, the procedure for swap and option reallocations also permits reallocation requests to be submitted as either an ex-post reallocation or ex-ante reallocation. For MCL relief, the RA would need to be ex-ante.

This procedure permits three types of reallocation transactions:

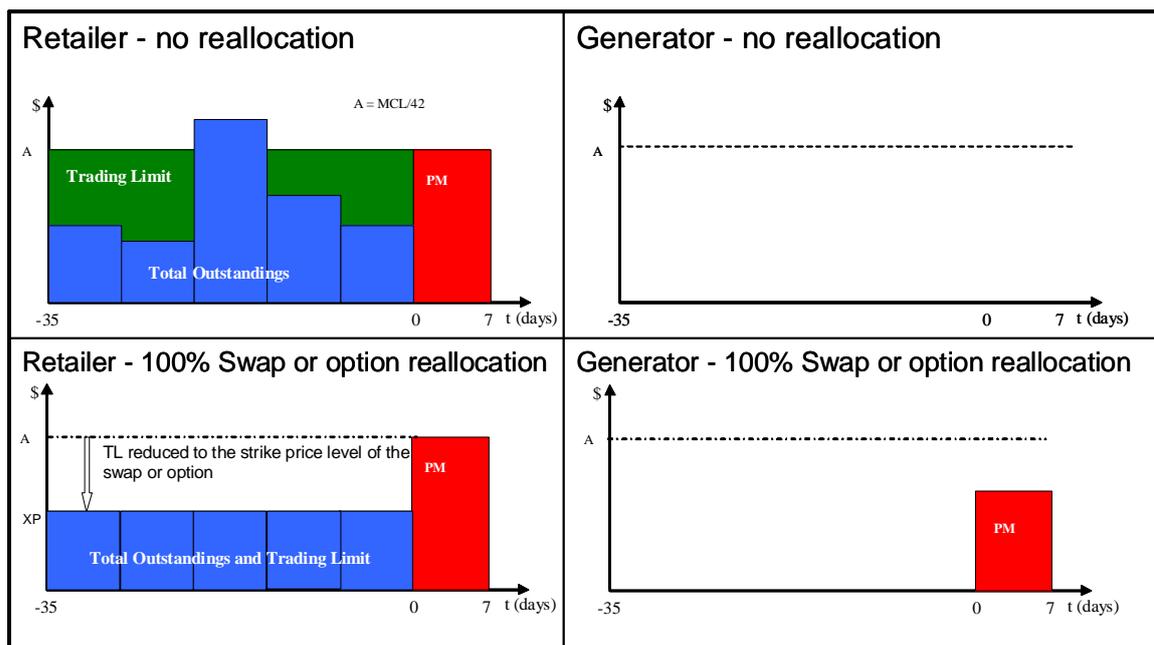
- Swap offset: this reallocation specifies a half-hourly energy profile and a strike price, and uses the half-hourly regional reference price for the nominated region to determine a trading amount for each trading interval. This allows a hedge contract based on a swap to be represented as a reallocation;
- Cap offset: this reallocation specifies a half-hourly energy profile and a strike price, and calculates a non-zero trading amount when the half-hourly regional reference price for the nominated region exceeds the strike price. This allows a hedge contract based on a cap to be represented as a reallocation;
- Floor offset: this reallocation specifies a half-hourly energy profile and a strike price, and calculates a non-zero trading amount when the half-hourly regional reference price for the nominated region is less than the strike price. This allows a hedge contract based on a floor to be represented as a reallocation.

As in the case of the energy and dollar offset reallocations, there are two parties to the RA, normally a retailer and a generator. AEMO credits the credit participant with a positive reallocation amount in respect of a trading interval, in consideration of a matching negative reallocation amount debited to the debit participant in respect of the same trading interval. The credit and debit amounts payable to reallocation participants are calculated in accordance with AEMO's procedure.

AEMO compares the load profile of the energy under the RAs to the retailer's actual load profile to ensure that they can be accommodated. If this is not the case then AEMO would not allow MCL relief.

Figure 2.10 provides an illustration of the changes to NEM liability and credit support requirements for a Swap RA. This figure is with reference to the standard MCL and is for illustration purposes only. It does not include the effect of GST, loss factors and inter-regional effects.

Figure 2.10 - Illustration of a swap reallocation



Ignoring GST and loss factor effects, the retailer's TL is set at the strike price (XP) of the swap contract for the volume of energy under reallocation. The retailer's outstandings for that energy, its TL and the NEM liability to generators are based on the strike price.

The generator to a swap RA agrees to accept the strike price for the energy it supplies on behalf of the retailer. Hence, the generator's revenue from AEMO is fixed at the strike price of its contract with the retailer. AEMO also maintains a minimum PM equivalent to 7-days of estimated outstandings net of the strike price against the generator who is a party to a RA. The application of the MCL formula may also require a generator to provide bank guarantees to AEMO.

In the event that a generator is not able to meet its obligations under the RA with physical generation, it would be required to meet its obligations financially, as it would under its swap contract with the retailer. The generator may have to provide cash or bank guarantees to maintain its PM.

A swap RA has advantages over an energy reallocation because the generator is guaranteed the payment of the strike price, for which the retailer provides a bank guarantee to AEMO, through the NEM settlement process.

Reallocation arrangements and Traders

The description of RAs above has been based on the assumption that the parties to a reallocation arrangement are a retailer and a generator who trade physical energy through the NEM, and AEMO.

Under the Rules, a retailer's counter party to OTC contracts can be a Trader who does not bid energy into the spot market but only provides a financial hedge. The Reallocator category under clause 2.5B of the Rules provides for a Trader to be registered by AEMO for the purpose of participating in reallocation transactions.

The operation of the RAs with a Trader as the counter-party will be similar to that for ex-ante energy and swap reallocations described above, however since the Trader may not have revenue owed to it by AEMO it may need to provide bank guarantees to meet its obligations for TL and PM. The debit amounts that AEMO requires from the Trader will need to be funded by cash or guarantees, in addition to the PM.

The Trader may provide such service to the retailer who is a party to an OTC contract for a fee to reflect the costs of the NEM obligations it assumes.

2.3.7 Futures offset arrangements (FOA)

This Review examines options for integrating futures contracts into the NEM prudential framework with the objective of enhancing the operation and efficiency of that regime.

This could be achieved through the introduction of FOAs in the NEM prudential regime. A FOA would be a commitment entered into with AEMO to direct positive cash flows associated with a futures position (cash flow generated by the SFECC's margining process) to AEMO. The cash flows directed to AEMO would be held in a special purpose Security Deposit Account (SDA) by AEMO.

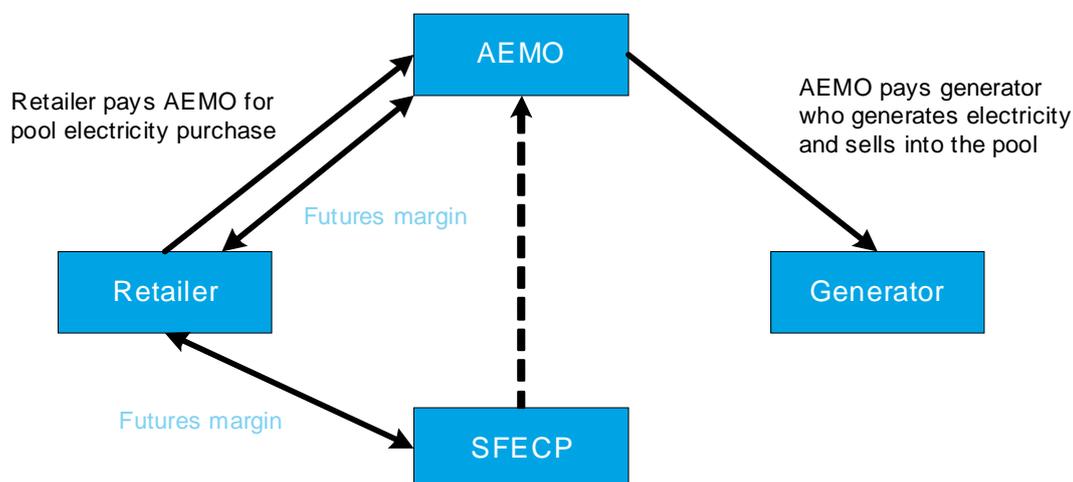
The retailer would provide a bank guarantee to AEMO up to the level equivalent to the futures price at which the FOA was initiated (known as the Futures Lodgement Price, or FLP) and beyond which cash payment obligations to AEMO would arise under the FOA.

FOAs may be implemented in a number of ways:

- NEMMCO and ASX considered an option whereby a retailer, a SFECP and AEMO would become parties to the FOA under the Rules and the SFECP would make margin payments to AEMO;
- d-cyphaTrade proposed an initial FOA model similar to that of the NEMMCO/ASX proposal but the arrangements would be given effect through a contract; and
- d-cyphaTrade later revised its proposal whereby a retailer would forward the margin payments received from the SFECP to AEMO under the Rules, with obligations on the SFECP to provide certain information.

These options were examined as part of a Rule change proposal²⁸ to the Commission and were published as part of the Framework and Issues Paper²⁹ for this Review. Figure 2.11 shows possible representations of the above FOA models.

Figure 2.11: Representation of possible FOA models



Reallocator category under the Rules and application to FOAs

The Reallocator category of the Rules (clause 2.5B) allows non market participants, such as SFIECPs, to register as Market Participants with AEMO. This could, in conjunction with appropriate procedures for a FOA, enable futures contracts to be utilised as a basis for offset arrangements.

For example, procedures similar to those for swap RAs could be implemented, where AEMO would debit the net difference between the retailer’s bank guarantee (based on the FLP), and its outstandings against the SFIECP, which would be funded by the futures margins payments, paid by the SFIECP into AEMO’s SDA. The SFIECP may need to provide security to AEMO (such as the PM provided by the generator under Swap RAs).

There has been little interest from Market Participants in utilising the Reallocator category, and procedures for such arrangements have not been developed. There may be a number of reasons for this. Doubts have been expressed as to whether margins from futures contracts would be sufficient to meet the margin requirements in the NEM. Concerns have also been expressed about the risk of clawback of

²⁸ Rule change proposal – Futures Offset Arrangements, AEMC, 16 April 2009, <http://www.aemc.gov.au/Electricity/Rule-changes/Completed/Futures-Offset-Arrangements.html>

²⁹ Review into the role of hedging contracts in the existing NEM prudential framework, Framework and Issues Paper, AEMC, 26 March 2009, <http://www.aemc.gov.au/Market-Reviews/Open/Review-into-the-Role-of-Hedging-Contracts-in-the-Existing-NEM-Prudential-Framework.html>

amounts held by AEMO as security deposits and about termination risk and surety of payment.

The SFECs are also understood to be reluctant to be bound by NEM Rules and take on the obligations. Participation in such arrangements in the NEM would depend on SFECs assessment of the risk and value to be derived from such participation.

Considerations on FOA models

As part of its considerations on FOAs, the Working Group established by the Commission to advise this Review developed two working examples of FOA models for risk assessment. Both models were based on a 'retailer-only' model and have the following key elements:

- the FOA would be based on base load futures contracts and be region specific;
- the retailer would unilaterally register the arrangement with AEMO;
- the retailer would provide a confirmation to AEMO that there is an underlying futures contract that forms the basis of the FOA;
- the retailer would undertake not to terminate or deal in the underlying futures contract during the term of the FOA, or if it does wish to terminate the arrangement it would provide 10 days prior notice to AEMO;
- the SFEC would confirm that a futures contract is in place. The SFEC would agree that the futures margins arising from that contract will be held in a client segregated account, that those margins would not be netted off against the retailer's other contracts, and that the SFEC will keep AEMO updated if and when the futures contract is closed (the SFEC's obligations are to be given effect through an addendum to the futures contract). There would be no firm commitment by the SFEC not to terminate the underlying futures contract that forms the basis of the FOA or provide any advance notice of such termination;
- the retailer would provide a bank guarantee based on the futures lodgement price (FLP) and benefit from a reduction to its MCL ; and
- the retailer would undertake to pay or direct the SFEC to pay positive margins arising under the futures contract to AEMO, to be held in a SDA.

The timing of NEM prudential supervision processes with respect to default and suspension process would remain the same as the current processes, except that in the event of default by a Market Participant to make margin payments to AEMO, the call notice would be issued at 1.00 pm instead of 12.00 pm as is the case at present. This was considered necessary to allow for the payment of margins from the SFEC to the Market Participant and to address any issues that may arise in the margining process.

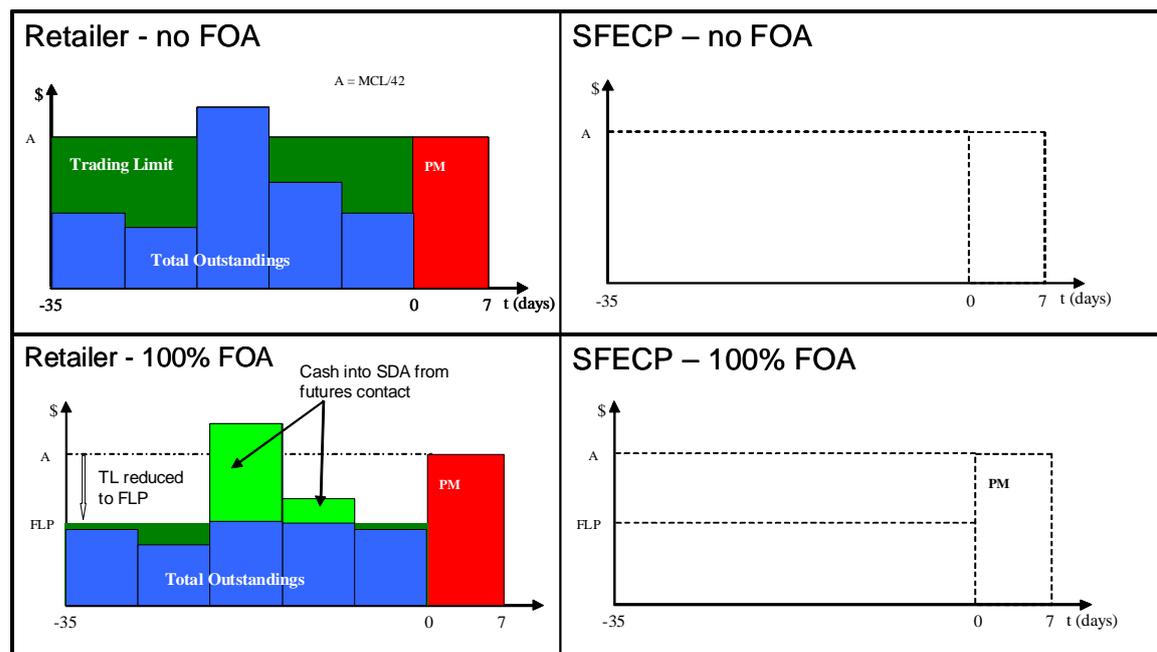
The difference between working example model 1 and model 2 are as follows:

- Under FOA Model 1, AEMO would retain the margins paid into the SDA until the expiry of the FOA.
- Under model 2, if the futures prices fall, AEMO would return the margins to the Market Participant provided that the total security held by AEMO would still be sufficient to cover the retailer's total outstandings (that is, the Market Participant's total outstandings is less than its TL).

Under both models, the value accumulating in the SDA would be used as security only and not used for settlement, unless the retailer directs AEMO and AEMO agrees to do so. Any additional funds held in the SDA, when the period to which they apply has passed, would be used as agreed with the retailer or returned to the retailer.

Figure 2.12 provides a conceptual representation of the FOA with reference to standard MCL. The effects of loss factors and GST have been ignored.

Figure 2.12: Conceptual representation of FOA



Under the FOA models developed by the Working Group, the SFECF would not have any financial obligation to AEMO. The retailer's outstandings in the NEM (liability) would continue to be calculated based on the spot price (that is, the FOA would not result in a reduction in NEM liability). The expectation is that the bank guarantee based on the FLP plus the margin payments into the SDA arising from movements in futures prices would be sufficient to meet the retailer's outstandings in respect of the energy covered by the FOA.

PwC was provided with the working examples of the FOA models for risk assessment. PwC's final report on risk assessment is available on the Commission's website.³⁰ Since the RMCL provisions, which are available to retailers on request and provide the lowest level of prudential cover in the NEM, the risk assessment of FOA models and benefits of the FOA have been assessed with reference to RMCL.

Chapter 5 provides the Commission's final recommendations and reasoning on FOAs based on input from PwC, the Working Group and stakeholder submissions, legal advice from AAR and the Commission's own assessment.

Appendix B provides an amended version of the working example FOA model 2 that reflects amendments proposed by PwC and the Commission.

³⁰ PricewaterhouseCoopers report on the Review into the role of hedging contracts in the existing NEM prudential framework, February 2010, (PwC final report).

3 Assessment criteria and recommendations on threshold issues for offset arrangements

One of the aims under the Terms of Reference for this Review is to investigate ways in which NEM participants' futures and other types of contracts can be integrated into the NEM prudential framework with the objective of enhancing the operation and efficiency of that regime.

This chapter outlines the assessment criteria for offset arrangements, the threshold issues for this Review and the Commission's conclusions on those issues.

The threshold issues for this Review include:

- clawback risk in relation to security deposit accounts (SDAs) held by AEMO under different types of offset arrangements; and
- financial market licensing issues that may arise with respect to AEMO's operation of offset arrangements.

In light of submissions on recent considerations on energy market prudential frameworks and derivative market reform overseas, the Commission has included a section clarifying the objectives and the relevance of these considerations to this Review.

In making the final recommendations, the Commission has taken into account:

- the risk assessment report by PwC;
- input from the Working Group established to advise this Review;
- stakeholder submissions to this Review and to previous consultations on these matters;
- legal advice from AAR; and
- its own assessment of issues.

3.1 Assessment criteria for offset arrangements

The Commission has taken into account the NEO and the assessment criteria established for the Review in consultation with stakeholders in making its recommendations.

The NEO is set out in section 7 of the NEL and states that:

“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 current NEM prudential framework provides a level of confidence to Market Participants in the settlement of spot electricity transactions which is critical to the operation of the NEM and in setting the level of spot market price. Reducing the costs of security whilst ensuring that such confidence in the NEM is not diminished would promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity, and therefore contribute to the NEO.

The current prudential regime is based on the MCL which is the reasonable worst case estimate of trading amounts over the credit period. Except for the decision on whether a Market Participant provides credit support (that is, whether it meets acceptable credit criteria), the NEM prudential framework does not require AEMO to differentiate between the levels of risk (credit rating) of different Market Participants. The MCL is established for all participants on the same basis and likewise the availability of the RMCL and offset arrangements is not dependent on participants’ risk rating. Market Participants’ credit quality and the effectiveness of their risk management practices are not material considerations under the current NEM prudential framework; they are largely matters for their credit providers such as banks. It is arguable that an objective for the NEM prudential framework is to provide an incentive for retailers to operate effective risk management systems, but considerations such as these are beyond the terms of reference for this Review.

The terms of reference (TOR) for the Commission’s Review seeks to integrate hedging contracts (where they are used for risk management outside the NEM) into the existing NEM prudential framework. The TOR also includes the interpretation of the ‘reasonable worst case’ performance target for the Maximum Credit Limit (MCL) under the Rules and considerations on alternative MCL methodologies to meet that target.

The Commission’s Review does not include investigations into the fundamental underpinning or the adequacy and appropriateness of the existing NEM prudential framework. As outlined in the Draft Report, the Review is to seek to identify solutions within the context of the (existing) Rules framework.³¹

The Commission considers that arrangements that meet the following assessment criteria, developed in consultation with stakeholders, will contribute to the NEO because they would reduce costs to participants without materially impacting on the prudential quality of the NEM:

- improve (or at least maintain) the prudential quality of the NEM;
- reduce (or at least maintain) the cost of capital to trade in the NEM wholesale market; and
- operational effectiveness of arrangements.

The following sections provide the reasons for the Commission’s view.

³¹ Commission’s Draft Report, March 2010, p. 3.

3.1.1 Prudential quality of the NEM

The Commission's assessment of the impact of offset arrangements on the prudential quality of the NEM takes into account the following:

- the quantum of potential reduction in the bank guarantee;
- the quantum and quality of the security that replaces that bank guarantee, including considerations on clawback risk;
- measures to mitigate risk, including any additional PM held by AEMO; and
- the likelihood that a default event would lead to a NEM settlement deficit.

As outlined, the benchmark for prudential quality for FOAs in particular, is the RMCL which is available to all Market Participants. In the Draft Report, the prudential quality of the NEM under options for FOA was also compared to the prudential quality of a base load swap and option offset reallocation. However it should be noted that the reallocation arrangements and FOAs are different types of offset mechanisms that are not directly comparable.

Clause 3.3.8(b) of the Rules requires the MCL to be determined on the basis of a reasonable worst case estimate of the aggregate payments for trading amounts (after reallocation) to be made by a Market Participant over a period of up to the credit period³². Clause 3.3.8(c) of the Rules requires the PM to be determined on the basis of a reasonable worst case estimate of the aggregate of the expected trading amount and reallocation amount owed by a Market Participant in respect of the reaction period.

The current AEMO procedures apply a similar methodology for the determination of the MCL and the PM, in which the reasonable worst case estimates of the respective amounts are calculated as the product of the historical average value and a volatility factor. In determining the volatility factor AEMO does not discriminate between the credit and reaction periods, and employs a single calculation based upon historical 42-day average prices. That is, the PM is based on estimated payment amounts over 7 days times a volatility factor derived from historical 42-day average prices.

AEMO notes that a number of scenarios can be easily identified where the (current) prudential margin would be inadequate to cover the period taken to suspend a participant.³³ It also notes that it is more difficult to determine if these scenarios are reasonable worst case.

The Commission is therefore concerned that the PM, as determined at present, may not represent a reasonable worst case estimate of the expected trading amount over the reaction period.

³² Credit period is typically 42 days, including a billing period (7 days), payment period (28 days) and reaction period (7 days).

³³ AEMO submission on PwC's draft report on the Review into the role of hedging contracts in the existing NEM prudential framework (PwC draft report), 6 November 2009, p.9.

The work undertaken by PwC provided useful insight into the possible interpretation of the reasonable worst case performance target and options for the determination of the MCL. However, the options put forward by PwC require further analysis and testing and the Commission formed the view that it could not make firm recommendations on the interpretation of the reasonable worst case or an appropriate MCL methodology.

The Commission, for the purpose of the Draft Report therefore examined offset arrangements against the existing prudential framework when assessing the impact on the prudential quality of the NEM. The offset arrangements were examined in terms of the:

- amount by which the MCL (bank guarantee) is reduced;
- impact, if any, on the reaction period; and
- the nature of risks under different arrangements and the quality and amount of alternative security provided under each arrangement.

The Commission also indicated that the benchmark for the test for prudential quality was the RMCL and that if this was changed, as a result of the prudential review underway by AEMO, then the basis for assessing prudential quality would also change.

As a result of this assessment, the Commission identified surety of margin payment under a FOA as a key concern and recommended a number of risk mitigation measures.

In submissions to the Draft Report stakeholders expressed a strong view that mitigation measures proposed by the Commission are not adequate and consider that FOAs replace secure credit with unsecure credit. Stakeholders are concerned that the additional PM proposed for FOAs has not been tested for adequacy.

These comments have required a review of the Commission's assessment of FOAs against the RMCL. It would appear that the concerns raised by stakeholders with respect to secure credit being replaced by unsecure credit would apply equally to RMCL, where the trading limit (and secure credit) is reduced by 40% and the reduction is unsecured. FOAs are based on the same concept as the RMCL where the trading limit is reduced to the equivalent of FLP. FOAs may result in a further reduction in credit support compared to RMCL but the unsecured payment streams are potentially more regular and smooth the total outstandings.

A review of AEMO's (NEMMCO at the time) submission (refer section 2.2.1) to support the introduction of RMCL provisions in 2003 reveals the rationale for the RMCL. The focus in that submission, on the balance between the credit extended to Market Participants and the limit placed on their total outstandings, contrasts with the Commission's focus in its Draft Report on replacing the security foregone with an equivalent security.

As detailed in section 2.2.1, the RMCL provisions are based on:

- reducing the amount of credit extended to a Market Participant by reducing its trading limit;

- reducing the Market Participant's outstandings in the NEM by offsetting the total outstandings by cash payments into the SDA when its trading limit is exceeded;
- requiring the Market Participant to manage its outstandings on a regular basis to remain below its trading limit;
- requiring AEMO to monitor and intervene within 24 hours if a Market Participant breaches its trading limit; and
- relying on the prudential margin to 'cover' the outstandings over the reaction period in the event of a retailer default.

As detailed in Chapter 5, the rationale for the RMCL can be applied to FOAs on the same basis.

The Commission notes that stakeholders have raised concerns in relation to the appropriateness of the RMCL, and the adequacy of the PM to meet trading amounts over the reaction period under the existing prudential framework. The Commission's terms of reference did not include the review of the existing prudential framework, however analysis of the 'reasonable worst case scenario' performance target for the MCL did lead to consideration of the adequacy of the existing PM provisions. Due to the work being inconclusive, the Commission did not make any recommendations on these matters. The Commission has not assessed the appropriateness of the RMCL provisions and does not have a view on this matter.

The Commission notes that AEMO is currently undertaking a broader review of the NEM prudential framework that is likely to examine these matters. The Commission also recognises that any changes to the prudential framework would necessitate a re-assessment of the role of offset arrangements within that framework.

For the purposes of this Review the Commission has:

- used the RMCL as the benchmark (in terms of both rationale and impact on prudential quality) for assessing the prudential quality of the NEM under FOAs, and in light of the above concerns by stakeholders has made recommendations to reflect the fact that AEMO's review of the NEM prudential framework may result in changes to the existing arrangements; and
- assessed the prudential quality of reallocation arrangements against the design principles of those arrangements. It should be noted that energy reallocation arrangements preceded RMCL and were therefore developed against the benchmark of the standard MCL.

More detail on the application of the test for prudential quality is provided in the following chapters.

RMCL and the level of security and outstandings

As described in Chapter 2, offset arrangements result in a reduction in the level of bank guarantees held by AEMO. Unless the reduction is complemented by

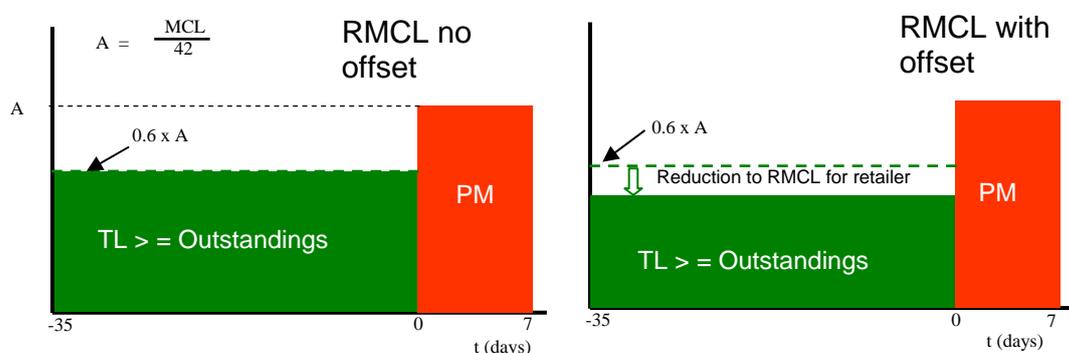
arrangements that are at least equivalent, including changes to level of outstandings, then there will be a reduction in the prudential quality of the NEM.

Figure 3.1 illustrates this in the case of a Swap RA or a FOA when compared to RMCL. The unshaded area under the graph is the amount by which the RMCL would be reduced (potential reduction in prudential quality).

PwC acknowledges this potential incremental exposure in the case of a FOA in its report:

“This incremental exposure to the NEM spot pool is capped at the difference between the security provided to support the FOA (both FLP bank guarantee and SDA cash) on the day prior to failure and the RMCL, as the RMCL is the lowest level of exposure allowed under the current market operation.”³⁴

Figure 3.1 - Reduction in RMCL under offset arrangements.



In accordance with the rationale for the RMCL, not only is the security reduced but the outstandings of the Market Participant is also reduced through cash deposits into the SDA.

In the event that a Market Participant defaults (either without or with offsets), the suspension process would commence in 24 hours, with the outstandings over the reaction period covered by the PM.

Impact on reaction period arising from default under offset arrangements

Offset arrangements could impact on the 7-day reaction time allowed for under the current prudential framework.

PwC indicates that in certain default scenarios there is one day’s additional risk for RAs and FOAs.

Under two party failure scenarios where a RA is in place (default of a generator leading to a default and suspension of a retailer), PwC comments as follows:

³⁴ PwC final report, February 2010, p.50.

“In the event that the retailer is unable to provide the required additional security within 24 hours of the call, they may be suspended from the market. It is therefore possible, in the rare event that the generator’s PM has been consumed at the point where the default occurs, that the retailer may have consumed load from the market for up to one day without the full MCL in place prior to default. This represents an additional one day’s credit risk compared to the situation where a reallocation agreement was not in place.”³⁵

With respect to FOAs, PwC finds as follows:

“On the assumption that there is no information disparity between the SFECPC’s client and AEMO regarding the FOA position, it is not expected there would be any incremental risk to AEMO other than the one-day risk associated with the time between a call for additional security and the failure of a retailer to provide the additional security on the next AEMO business day where the retailer has only provided credit support up to the level of the FLP + previous days SDA payments prior to the commencement of suspension proceedings.”³⁶

In its submission on PwC’s draft report on risk assessment, AEMO notes that various sections of the PwC report refers to time taken or additional risk posed by the various reallocation or FOA arrangement failures. AEMO performed a review on this area and believes that the analysis is not consistent with the timeframes in the Rules. AEMO presents the analysis in its submission and concludes that there is no incremental risk over an unallocated retailer in this respect.³⁷

In its final report, PwC responds to this matter raised by AEMO and agrees with AEMO’s assessment of the time taken to remove a party from the NEM. PwC clarifies that the period of additional risk it has identified is the period prior to the commencement of suspension procedures where the retailer is taking electricity from the NEM prior to providing additional security.³⁸

Therefore, the Commission considers that offset arrangements do not result in an extension to the reaction period.

3.1.2 Cost of participation in the NEM wholesale market

The Commission’s assessment of the cost of participation in the NEM wholesale market under offset arrangements takes into account, to the extent possible, the following:

- reduction in the prudential support costs;
- change in cash management costs of participating in the NEM wholesale market, such as margin calls and counter-party guarantees;
- change in operating costs, including any fees imposed by relevant service providers;

³⁵ PwC final report, February 2010, p18.

³⁶ PwC final report, February 2010, p.48.

³⁷ AEMO submission on PwC draft report, 6 November 2009, p. 3 and p. 15

³⁸ PwC final report, February 2010, section 7.2.1, p.99.

- opportunity costs for NEM Market Participants; and
- potential cost reduction in costs due to increased diversity of prudential support instruments.

PwC provides an assessment on the reduction in the amount of bank guarantees and the cost of such guarantees when assessing the reduction in costs to Market Participants under offset arrangements.³⁹ The PwC assessment has been undertaken against the standard MCL.

Since the RMCL provisions are understood to be used widely, the Commission has supplemented PwC's analysis with its own assessment where a Market Participant is operating under RMCL. This would ensure the assessment reflects the different levels of credit support requirements that apply in the NEM.

Reduction in the level of bank guarantees required in the NEM and the costs associated with them are the most tangible benefit that has been identified.

The Commission notes that in addition to the reduction in the cost of bank guarantees, offset arrangements provide retailers with alternative forms of security that would compete with the current forms of security, potentially improving the efficiency in the provision of credit support.⁴⁰

Offset arrangements also reduce the need for short term cash or security requirements (in the case of RAs) and provide a source of funds (in the case of FOAs) that may be required in the NEM at times of high prices. This would reduce the cost of providing such cash or security and prevent potential financial stress on participants.

From the NEM perspective, offset arrangements can reduce the risk of default by Market Participants at times of high spot prices by either capping the NEM liability (RAs) or ensuring financial support for margin calls (FOAs).

The question of whether FOAs add to costs to the NEM or the participants as a result of transferring risk between participants or increasing NEM risk has been addressed by ensuring that the prudential quality under the current framework is not materially reduced.

3.1.3 Operational effectiveness

In order to assess whether an arrangement is operationally effective, the Commission has considered whether:

- the arrangement fits well into the existing NEM prudential framework and the extent of any costs of implementing and administering the option;

³⁹ PwC final report, February 2010, p.93.

⁴⁰ dcyphaTrade in its submission on PwC draft report of 4 November 2009 states that introduction of FOAs would introduce competitive pressure between OTC and futures contracts as hedge options to reduce MCL costs and improve the efficiency of MCL offset arrangements.

- the option is transparent and enforceable;
- the option can be understood by stakeholders; and
- information is adequate to implement the option.

The Commission has sought to ensure that arrangements are feasible and do not materially increase costs to AEMO or to Market Participants.

3.2 Recent considerations on energy market prudential frameworks and derivative market reform

Stakeholders' submissions to the Commission's Draft Report have noted wider considerations on energy market prudential frameworks and derivative market reform overseas and have indicated that the Commission's Review should take into account these developments. This section outlines the matters raised and the Commission's conclusions in relation to those matters.

3.2.1 Stakeholder submissions

seed/Taylor Fry (sTF) consider that the practical effects of the introduction of the FOA should be clearly understood before implementation of the recommendations of the Draft Report and that the AEMC should give detailed consideration to the issues arising from the potential failure of a retailer using FOAs.

sTF refers to considerations by the US Federal Energy Regulatory Commission (FERC) and market participants in the USA in relation to energy market prudential frameworks in the USA. It notes that in the US, where a number of the wholesale electricity markets similar to the NEM have experienced significant participant failures, a significantly greater focus on the robustness of the prudential regime in light of such failures is emerging. The extent of unsecured credit, the length of billing and settlement periods, and the nature of security and legal arrangements related to reallocations required to ensure that the market's position is protected in the event of default are all currently under discussion by FERC.

Further, sTF notes that until recently prudential requirements for market participants in the wholesale market have been considered in light of the desirability of encouraging maximum possible participation to increase competition. It advises that FERC is reconsidering its stance in light of equity issues involved where, in the event of material market failure, the costs are socialised across the market participants, as is the case in the NEM.⁴¹

AEMO considers that testing of (FOA) proposals against the NEO will clearly be a necessary step if it is to be incorporated in the Rules. According to AEMO, considerations should include matters beyond transaction costs and financial savings

⁴¹ seed/Taylor Fry submission on the Commission's Draft Report, 30 April 2010, p. 2,3.

and encompass the broader issues of market efficiency. Transfers of wealth would need to be identified and assessed appropriately.⁴²

d-cyphaTrade states that as PwC reported, futures reduce credit risk while ex-ante reallocations transfer credit risk to other risky off market reallocation OTC deals between NEM participants. It considers that:

- increased utilisation of centrally cleared electricity futures by NEM participants, encouraged by increased FOA uptake would lead to NEM-wide credit risk reduction efficiencies;
- increased use of futures rather than OTC hedging mitigates risk of a generator outage and/or contract default triggering a domino-style credit default collapse by NEM participants.

Further, d-cyphaTrade states that the formula (MCL formula for FOAs) defies best practice derivative risk management principles and regulatory reform initiatives borne from the obvious and catastrophic failure of the OTC market during the Global Financial Crises (GFC) of 2008 - 2009 and the US and European OTC energy market credit default implosion of the early 90's. Specifically, according to d-cyphaTrade, the formula deters trading on centrally cleared and regulated exchanges and 'rewards' trading (and position taking) in competing OTC markets, in direct contrast to OTC regulatory reform being progressed internationally.⁴³

3.2.2 The Commission's considerations

The Commission notes the considerations by FERC on equity issues, the balance between secured and unsecured credit, and billing and settlements periods, with the objective of improving the energy market prudential framework in the US.

The Commission also notes the initiatives in relation to derivative market regulatory reform internationally, in particular in the US. There are concerns that the lack of transparency in OTC derivative markets combined with insufficient regulatory policing powers in these markets posed risks to the stability of the US financial system.⁴⁴ The US government is pursuing reforms in the OTC derivative markets through the *Over-the-Counter Derivatives Markets Act* and other financial market regulatory measures. The European Commission is also due to propose draft law by mid-2010.

The thrust of the US legislation is towards central clearing and supervision in relation to specified OTC derivatives. Central clearing that involves the substitution of a regulated clearing house between counter-parties transfers the credit exposure of the counter parties from each other to the clearing house and is considered to reduce risk on both sides of a derivative contract and make markets more stable.

⁴² AEMO submission on the Commission's Draft Report, 30 April 2010, p. 3.

⁴³ d-cyphaTrade submission on the Commission's Draft Report, 29 April 2010, item 4.

⁴⁴ Secretary Timothy F. Geithner before the House Financial Services and Agriculture Committees Joint Committee Hearing on Regulation of OTC derivatives, Press Room, US Department of Treasury, July 2009.

The Commission notes that AEMO is currently undertaking a broader review of the prudential framework including considerations on shortened settlement cycle. Any change to the existing prudential framework, including changes to the benchmark prudential quality of the NEM (taken to be the RMCL), would require a review of offset arrangements that are part of that framework.

Investigations into the adequacy or the appropriateness of the existing NEM prudential framework is out of scope for the Commission's review. The terms of reference (TOR) for the Commission's Review seeks to integrate hedging contracts (where they are used for risk management outside the NEM) into the existing NEM prudential framework. The TOR also includes the interpretation of the 'reasonable worst case' performance target for the Maximum Credit Limit (MCL) under the Rules and considerations on alternative MCL methodologies. The Commission established assessment criteria in consultation with stakeholders to test offset arrangements.

The Commission considers that arrangements that meet the assessment criteria will contribute to the NEO, because they would reduce costs to participants without reducing the existing prudential quality.

The Commission's work on the MCL methodology was inconclusive and the Commission recommends that AEMO continue with this work as part of its review. The Commission has made recommendations for integrating hedging contracts into the existing NEM prudential framework.

The Commission notes that under offset arrangements credit support, normally provided through an unconditional bank guarantee, is replaced by alternative arrangements:

- under ex-ante reallocation offset arrangements credit support is transferred, in part (swaps) or in full (energy), from the retail participant (security in the form of bank guarantees held by AEMO) to the counter-party to the reallocation transaction (generator in particular) where the revenue owed to the generator or in some circumstances a bank guarantee is used to offset the reduction in retailer's credit support; and
- under FOAs, the credit risk in the NEM spot market is managed by:
 - security (bank guarantees) held by AEMO based on the futures market's expectation of electricity prices (settlement prices published on the SFE) at the time the FOA is registered and reasonable worst case estimate of trading amounts over the reaction period; and
 - cash deposits into a security deposit account (SDA) equivalent to the futures margins under a retailer's futures contracts position, with a spot price floor to limit the amount of credit extended to participants.

The Commission has taken the different types of hedge contracts that underpin offset arrangements into account when assessing the arrangements against the assessment criteria established for this Review. Risk assessment by consultants PricewaterhouseCoopers (PwC) in relation to different offset arrangements and legal

advice from Allens Arthur Robinson (AAR) have informed the Commission's recommendations.

The Commission notes that AEMO is undertaking a broader review of the NEM prudential framework that may examine the issues outlined above. AEMO's review could result in changes to the existing NEM prudential framework which could affect the Commission's recommendations.

3.3 The Commission's final recommendations on threshold issues for the Review

This section sets out the Commission's recommendations and reasoning relating to the threshold issues of:

- risk of clawback of amounts held by security deposits in the event of a participant failure; and
- financial market licensing issues in relation to existing RAs, proposed swap and options RAs and FOAs.

3.3.1 Security deposit accounts and clawback risk

This section relates to potential risk of clawback, by a liquidator of a failed retailer, of amounts held by AEMO in a Security Deposit Account (SDA) at the time of the retailer's default, and risks associated with the provision of SDA amounts being found to be an unfair preference under the *Corporations Act 2001 (Cth)* (CA). The clawback risk has been examined under current SDA arrangements and SDA arrangements proposed for the FOAs. Consideration is given to the materiality of the risk and to possible mitigation measures.

Final recommendation

Based on the original and supplementary advice from AAR, the Commission is of the view that existing and proposed reallocation offset arrangements do not have a high risk of clawback of security deposits. Clawback risk under current arrangements is significantly mitigated by the Rules and AEMO's processes in relation to the operation of SDAs.

The arrangements for FOAs may be implemented in the same manner as that for existing RAs by ensuring the SDA is to be used as security, defining the administration of funds in the SDA in the Rules and ensuring that AEMO has unilateral control of those funds.

The Commission recommends that the enabling provisions of FOAs in the Rules should define AEMO's obligations in relation to the return of funds in the SDA following decline in futures prices and following expiry or termination of a FOA. The Rules and procedures would also clarify that the funds in the SDA would be held as security, and that application of the funds in the SDA would be in accordance with the existing and amended provisions in the Rules, at the discretion of AEMO.

Reasoning for final recommendation

In the Draft Report, the Commission noted concerns by stakeholders that amounts held by AEMO in SDA, and applied against amounts owing following a default event, may be subject to clawback in the event of a retailer failure and liquidation.⁴⁵ The Commission understands that clawback risk arises when a transaction is considered an unfair preference under the *Corporations Act 2001 (Cth)* (CA).

The Commission's draft recommendations were based on assessment by PwC and advice from AAR which is outlined below. Also outlined below are further concerns raised by stakeholders, supplementary advice from AAR and the Commission's conclusions.

PwC has found that the amounts held in the SDA are greater for retailers operating under RMCL than for those operating under standard MCL. RAs result in a reduction in amounts held in SDA. PwC notes that there is potential for a significant increase in the quantum of funds in SDA with the introduction of FOAs.⁴⁶ PwC also provided a practitioner's view that where AEMO has unilateral control over the SDA, clawback risk would be mitigated. PwC has indicated that the existing provisions under the Rules provide AEMO with unilateral control over the funds. PwC proposes that the return of funds in the SDA arising from a FOA be at the discretion of AEMO where AEMO would not be expected to release any funds in the SDA which are required to cover outstandings and expected price movements.⁴⁷

Unfair preferences and available defences

According to advice from AAR, in order for a transaction to be an unfair preference it must meet all of the following criteria:

- a) the transaction must be between a company and an unsecured creditor in respect of an unsecured debt;
- b) it must be entered into at a time when the company is insolvent (or an act is done for the purpose of giving effect to the transaction at such a time, or the company becomes insolvent as a result of the transaction) and within 6 months prior to the commencement of the winding up; and
- c) it must result in the unsecured creditor receiving from the company in respect of that unsecured debt more than it would have received if the transaction were set aside and the creditor were to prove in the winding up of the company.⁴⁸

AAR also advises that even if a transaction is an unfair preference, a Court may not make an order voiding the transaction if one of the positive defences set out in CA

⁴⁵ AEMO submission on PwC draft report, 6 November 2009, section 1.8 , p.7, and NGF submission on PwC draft report, 5 November 2009, p.3.

⁴⁶ PwC final report, February 2010, sections 3.3.1, p. 25 and 4.4.4 p. 52

⁴⁷ *ibid*, sections 3.3.2, p.26 and section 4.2, p. 33

⁴⁸ CA, section 588FA(1)

s.588FG(2) can be established. The defences under that section generally rely on the counterparty to the transaction (for present purposes, AEMO) having received the benefit in good faith at a time when it did not suspect, and a reasonable person in its circumstances would not have suspected, that the company was insolvent.

Existing SDA provisions under the Rules

Clause 3.3.8A of the Rules contemplates the payment of funds into an SDA by a Market Participant:

3.3.8A Security Deposits

At any time, a Market Participant may provide a security deposit to AEMO to secure payment of any amount which may become payable in respect of a billing period.

This section considers whether payments into an SDA satisfy the criteria set out above for unfair preferences.

AAR advises that to meet the first criterion for unfair preferences, an SDA payment would need to have been made by a Market Participant to discharge an existing unsecured debt. However, AAR notes that, as set out in clause 3.3.8A, funds are paid into the SDA by a Market Participant in respect of amounts 'which may become payable' as opposed to amounts already due and payable.

AAR also notes the paper published by AEMO entitled Security Deposit Arrangements (version 9, October 2009) which states at section 1.2 that:

"GST implications have meant that Security Deposit Amounts should be distinguished from early payment or partial satisfaction of settlement statements. Rather, the monies represent a deposit to AEMO to secure payments of future Settlement statements."⁴⁹

The paper states that if deposits into the SDA were deemed to be early payments of a final statement settlement amount, then AEMO's GST liability in relation to those supplies would be triggered even if a final statement had not yet been issued. On this basis, AEMO concludes in the paper that deposits into the SDA (including the payments of call amounts under clause 3.3.13 of the Rules):

"... are held as security for the performance of an obligation of Market Participants. That obligation is payment to AEMO of amounts owing for the supply of electricity and other services as set out in the final statements.

The security deposit becomes consideration for a supply only at the point it is offset by AEMO against amounts owing under a final statement (unless it is forfeited at an earlier point). At the point it is offset, it will form part of the consideration for the taxable supply of electricity by AEMO. Up until that point, it will not be consideration for any supply by

⁴⁹ Security Deposit Arrangements, Version 9, AEMO, 8 October 2009, <http://www.aemo.com.au/electricityops/0530-0002.pdf>, viewed 25 February 2010.

*AEMO. AEMO does not make a separate supply (financial or otherwise) related to receiving the security deposit from the Market Participant.*⁵⁰

For these reasons, AAR advises that it appears clear that payments by Market Participants into the SDA are received by AEMO as security for future payments due to AEMO and not in respect of pre-existing unsecured debts owing by the Market Participant. Therefore, the deposit of those payments would not meet the first requirement for an unfair preference as set out above, that is payments into the SDA do not represent a transaction between the Market Participant and AEMO in respect of an unsecured debt.

According to AAR the second unfair preference criterion would only be met if a payment into an SDA is made when the Market Participant is actually insolvent, or it becomes insolvent as a result of the payment. If AEMO determines that a Market Participant is likely to be insolvent (unable to pay its debts as and when they fall due) at any given time, funds received into the SDA after that time may be at risk. AAR considers that this risk will be minimised by the prudential and credit support obligations on Market Participants and the provisions of the Rules that require AEMO to undertake prudential monitoring daily, provided that AEMO maintains a high level of enforcement in respect of those requirements.

AAR advises that the third criterion for an unfair preference is also unlikely to be met. Once funds are deposited by a Market Participant in the SDA, AEMO must deal with the money in the account in accordance with the Rules, which explicitly allow AEMO to set-off money held in the SDA against debts owed to it by a Market Participant. On the liquidation of an insolvent Market Participant, the mandatory insolvency set-off provisions of section 553C of the CA would have applied to net out the obligations between AEMO and the Market Participant. Hence the original set-off will not result in AEMO receiving more than it would have received if AEMO had proved in the Market Participant's liquidation.

Accordingly, AAR believes that under the existing arrangements contemplated by the Rules, there is no material risk that payments made by a Market Participant into an SDA could be clawed back by a liquidator of that Market Participant as unfair preferences provided they are made in the normal course of market operations as contemplated by the Rules.

SDA contemplated for FOAs

In AAR's view, there is no material difference in clawback risk under the proposed FOAs compared with existing SDA arrangements. Funds would still be paid into SDA as a security deposit, not in payment of any pre-existing unsecured debt owed by the Market Participant to AEMO. AAR's analysis on existing SDA provisions above will apply to the proposed FOA model.

The NGF and its advisors expressed the concern that margin payments under a FOA may be susceptible to legal challenge.⁵¹ The Advisors were concerned that there is a

⁵⁰ Security Deposit Arrangements, Version 9, AEMO, 8 October 2009, <http://www.aemo.com.au/electricityops/0530-0002.pdf>, viewed 25 February 2010.

risk that the SFE clearers may be able to make some residual claim over positive margins paid into an AEMO SDA in the event of default of a retailer. Under the FOA model proposed, the margin payments would be made by the retailer to AEMO from margins distributed by the SFECs and from its own sources as security.

However, AAR advises that once margin payments have been made into the SDA, they will belong to AEMO absolutely and the SFEC will have no claim against these funds (at best it would have a contractual claim against the Market Participant). In this regard AAR considers that, provided the operation of the SDAs under the FOA model is substantially the same as under the existing arrangements, the proposed arrangements are unlikely to result in funds held in the SDA being deemed to be held by AEMO on trust for the Market Participant (or any other party). Clause 3.3.13A of the Rules sets out how AEMO may apply funds received into an SDA. Once deposited, the Market Participant has no control over the use of those funds by AEMO. It may request that AEMO apply the funds in a certain manner (clause 3.3.13A(b)(1)), but AEMO is under no obligation to agree to such a request, and would presumably only do so if satisfied that it retains sufficient alternative security (or funds remaining in the SDA) to meet the prudential requirements. It is only on the Market Participant ceasing to be a Market Participant – and then only if AEMO is satisfied that there will be no future liability of the Market Participant to AEMO – that the Rules require AEMO to refund to the Market Participant any credit balance in the SDA. In that respect, the Market Participant will be a creditor of AEMO for that amount, rather than a beneficiary having a claim against trust funds.

To ensure appropriate risk mitigation, the Commission therefore considers that SDA for FOAs must be established and administered in accordance with the existing SDA provisions under the Rules. The SDA funds should generally be under AEMO's, rather than the retailer's control and direction, albeit that in certain circumstances the Rules may oblige AEMO to apply those funds in certain ways (including potential refunds to the Market Participant).

Consistent with this, the Commission recommends that the Rules define the provisions for the return of funds to a Market Participant following a futures price reduction (discussed in section 5.1.7). This Rule provision will set out the circumstances under which AEMO may return funds in the SDA. All other SDA provisions for FOA would be the same as under existing arrangements.

Stakeholder submissions on the Draft Report

AEMO considers that AAR's conclusion that there does not appear to be a material risk of clawback rests, in part, on an assumption that an existing unsecured debt is not incurred until a statement is issued. AEMO states that the supply of electricity is instantaneous and payment for supply can only ever be made in arrears, and that it is arguable that the debt in respect of the supply of electricity, for the purposes of unfair preference law, arises once supply is made and not when invoiced.

⁵¹ NGF submission on PwC draft report, 5 November 2009, p.3.

AEMO also refers to provisions in the Rules that make it clear that security deposits can be applied by AEMO to outstanding amounts and for electricity supplied before the security deposit is provided.⁵²

International Power (IP) reiterates AEMO's concerns. It also adds that it may be difficult for AEMO to establish that it should not have known or suspected that a retailer was insolvent where monies are paid into a SDA under a FOA, as opposed to payments into SDA in other circumstances. IP considers that payments would be required when spot prices are high and if spot prices remained high for extended periods, AEMO may reasonably expect that a retailer would be at risk of falling into financial distress, particularly if FOAs and reallocation were to become a norm. In that case AEMO would know whether, after taking FOAs and reallocations into account, the retailer had residual exposure to spot prices.⁵³

Supplementary advice from AAR

Following submissions from a number of stakeholders, some of which raised questions about the matters addressed in AAR's original advice, the Commission asked AAR to review its advice in relation to the characterisation of security deposit accounts as security for debts in the NEM (specifically whether they may secure a previously unsecured debt) and the implications for AAR's advice on clawback risks.

AAR supplementary advice is reproduced in full below.

"Relevant submissions

The submissions of AEMO and International Power noted that it is arguable that a debt in relation to the supply of electricity arises when it is supplied, not when it is invoiced. Those submissions also point to provisions that would allow AEMO to apply a security deposit to amounts relating to electricity supplied in a period before the deposit was provided. AEMO indicates that this creates doubt about our advice that the giving of a security deposit does not meet the [first] criterion for an unfair preference under the CA.

Summary response to submissions

In our opinion, the better view is that a debt in relation to the supply of electricity pursuant to the provisions of the NER does not arise until AEMO has issued a Market Participant with a final statement pursuant to NER 3.15.15.

While we agree that the NER imposes no restriction on AEMO applying a security deposit to amounts relating to electricity supplied before the deposit was provided, the purpose of the security deposit, as set out in NER 3.3.8A, explicitly contemplates such funds being used solely to secure payment of amounts that will become payable after the deposit is made. We assume that the SDAs should normally operate, in accordance with the maximum credit limit and prudential margin provisions of the NER, so as to minimise the likelihood that payments out of an SDA would be made

⁵² AEMO submission on the Commission's Draft Report, 30 April 2010, p. 3.

⁵³ International Power submission on the Commission's Draft Report, 6 May 2010, item 9.3.4, p.5.

to satisfy a debt owing in respect of supplies made prior to the relevant Market Participant depositing the relevant funds into the SDA.

It seems to us that AEMO could as a matter of practice, within the NER, operate the SDAs and accept payments into the SDAs only for the purpose of securing future supply to the relevant Market Participant.

Detailed analysis of these issues is set out below.

AEMO and International Power submissions - application of security deposits against debt for prior electricity supply

AEMO and International Power made the following substantive submissions on this subject in response to the draft Review report :

- AAR's conclusion that there does not appear to be a material risk of clawback rests, in part, on an assumption that an existing unsecured debt is not incurred until a statement is issued.
- The question of when a taxable supply occurs is not the same as the question of when a debt is incurred for the purposes of unfair preferences law.
- It is at least arguable that the debt in respect of the supply of electricity, for the purposes of unfair preference law, arises once the supply is made and not when it is invoiced.
- Rule 3.3.13A(a) and Rule 3.3.13A(e) make it clear that security deposits can be applied against outstanding amounts and for electricity supplied before the security deposit is provided although not yet billed.
- If a debtor/creditor relationship and an unsecured debt can exist before a final statement is issued (or arises because of earlier unpaid amounts), the first requirement for an unfair preference can be met where a security deposit is paid between the supply of electricity and the final statement or when other amounts are outstanding.
- Where monies are paid into an SDA under a FOA, as opposed to payments into an SDA in other circumstances, it may be more difficult for AEMO to establish that it should not have suspected that the retailer making the deposit was insolvent at the time.

We respond to those points as follows:

- (a) The word 'debt' is not defined in the CA. The case law shows that there is no hard and fast rule of what constitutes a debt and the meaning of the word varies according to the type of transaction in question and the context in which it is used. For some purposes, 'debt' has been construed narrowly, referring only to money demands, fixed, liquidated and payable at the material date. For other purposes, 'debt' has been given a wider construction, including all sums which a person is legally liable to pay, whether such sums have actually become payable or not.

- (b) We are not aware of any case that has squarely considered what constitutes an unsecured 'debt' for the purposes of the unfair preference provisions of the CA.
- (c) While we agree with the submission that it may be arguable that a debt arises for the purposes of the unfair preference provisions on the making of a supply to a Market Participant, we believe that the better view in light of the provisions of the NER is that such a debt only arises once a final statement has been issued by AEMO to the Market Participant.
- (d) The provisions of the NER require Market Participants to make payment to AEMO in respect of the net 'settlement amount' calculated by AEMO in accordance with NER 3.15.12 on the 20th business day after the end of each 7 day billing period or within 2 business days after receiving a final statement from AEMO, whichever is later .
- (e) NER 3.15.13 provides that 'where the settlement amount for a Market Participant is negative the absolute value of the settlement amount is an amount payable by the Market Participant to AEMO pursuant to clause 3.15.15'. Clause 3.15.15 requires AEMO to issue final statements to Market Participants stating the amounts payable by the Market Participant to AEMO in respect of the relevant billing period no later than 18 business days after the end of each billing period.
- (f) Thus, arguably, until AEMO has issued a final statement to a Market Participant that Market Participant is under no obligation to make payment of any amount to AEMO and there is no 'debt' for the purposes of the unfair preference provisions of the CA.
- (g) We agree that on any construction of the term 'debt' for the purposes of the unfair preference provisions of the CA, a literal reading of NER 3.3.13A(a) and (e) allows AEMO to apply amounts held in an SDA in satisfaction of debts owing by a Market Participant under a previously issued final statement.
- (h) However, such an application of SDA funds will only be at risk of being an unfair preference if there were insufficient funds already held in the Market Participant's SDA prior to the relevant final statement being issued to satisfy that payment. The maximum credit limit and prudential margin provisions of the NER should operate to ensure that that situation is unlikely to arise.
- (i) As stated in paragraph 1.1 of this advice, the relevant section of the NER that deals with payments into an SDA by a Market Participant contemplates that those payments will only be used to 'secure payment of any amount which may become payable in respect of a billing period'.
- (j) In the unlikely event that an SDA should have an insufficient balance to secure amounts already payable by a Market Participant and AEMO were to apply newly deposited funds in satisfaction of debts already payable by the Market Participant as at the date of the deposit, we agree that such a transaction could be construed as a payment in respect of an unsecured debt owed by the Market Participant.

- (k) In this event, we note that the risk of clawback would only arise if the other criteria for an unfair preference payment are met (as discussed above), and if no defence is available to AEMO.
- (l) We do not agree with International Power's submission that the deposit of funds into an SDA under a FOA gives rise to any implication of insolvency such that it would be more difficult for AEMO to establish that it should not have known or suspected that the retailer making the deposit was insolvent at the time. In our view, the deposit of funds into an SDA under a FOA says nothing about a retailer's ability to pay its debts as and when they fall due."

Summary of the Commission's conclusions

Based on AAR's original and supplementary advice, the Commission is of the view that there does not appear to be a high risk that a liquidator of an insolvent retailer would successfully be able to clawback any funds paid into an SDA under the existing SDA provisions in the Rules on the basis that payment of those funds was an unfair preference or created a trust in favour of the retailer.

For these reasons, the Commission recommends that existing and proposed reallocation offset arrangements continue to be supported on the basis that there is not a high risk of clawback to the NEM.

The arrangements for FOAs may be implemented in the same manner as that for existing RAs by ensuring the SDA is to be used as security, defining the administration of funds in the SDA in the Rules and ensuring that AEMO has unilateral control of those funds.

The Commission further recommends that the enabling provisions of FOAs in the Rules define the provisions in relation to the return of funds in the SDA arising under a FOA by AEMO, following futures price reduction or termination of a FOA. The Rules and procedures would also clarify that the funds in the SDA would be a security, and that application of the funds in the SDA will be in accordance with the existing and amended provisions in the Rules and will be at the discretion of AEMO.

Subject to these amendments, the Commission is satisfied that a FOA would not give rise to a high risk of clawback.

3.3.2 Licensing considerations

This section relates to *Corporations Act 2001 (Cth)* licensing considerations when giving effect to offset arrangements, including RAs and FOAs.

Final Recommendation

The Commission notes that ASIC is currently considering an application by AEMO for an exemption from the requirements to hold a clearing and settlement facility licence for the swaps and options RAs. The implementation of the Procedures for swaps and options RAs is on hold pending the outcome of this application.

The Commission considers that licensing matters should be resolved as part of ASIC's consideration process.

Reasoning for final recommendation

PwC advises that there have been concerns expressed by various entities over swap and option reallocations which put into question whether or not AEMO may need to acquire a clearing and settlement facility licence and comply with certain requirements under the *Corporations Act 2001 (Cth)*.⁵⁴ Licensing considerations may also be relevant to other RAs and the FOA models or in the manner in which they are implemented.

PwC notes that AEMO will manage the payments owed to and from AEMO by the parties to the swap and option reallocation and the terms of the actual underlying OTC agreement remain unaffected by these payments. The OTC agreement will be settled (or discharged) by agreement between the counterparties in a process that occurs between the parties outside of the reallocation process.

AEMO has applied to ASIC for an exemption from the requirement to hold a licence for the purposes of swap and options RAs. This matter is currently being considered by ASIC.

PwC advises that pending the ASIC review of swap and option reallocations, the Rules may need to be reconsidered if reallocations of swaps and options is to proceed (Rule 3.15.1 Settlements management) and AEMO does not receive an ASIC clearing and settlements facility exemption or choose to be bound by clearing and settlement licence requirements.

PwC suggests that the Commission consider modifying clause 3.15.1 of the Rules (related to AEMO's settlement functions) to minimise the role of AEMO in the settlement of reallocations (Energy, Dollar and Swaps and Options) and reflecting the settlement risk it is willing to take.⁵⁵

Clause 3.15.1 of the Rules state that:

"3.15.1 Settlements management by AEMO

(a) AEMO must facilitate the billing and settlement of payments due in respect of transactions under this Chapter 3, including:

- (1) spot market transactions;*
- (2) reallocation transactions; and*
- (3) ancillary services transactions under clause 3.15.6A."*

The Commission considers that the Rules appropriately require AEMO to take into account the existence of hedging contracts in the determination of a Market Participant's MCL, to establish procedures to adequately manage the risk that may arise from a reduction in the MCL (reallocation transactions) and to reflect the

⁵⁴ PwC final report, February 2010, p.28

⁵⁵ *ibid*, p.29.

arrangements (RAs) in the billing and settlement process. The Rules do not contemplate that AEMO take on the role of operating a clearing and settlement facility for financial products. However, it is possible that AEMO's procedures for offset arrangements, developed for the specific purpose of providing MCL relief where hedging contracts exist, may be incidentally caught under the clearing and settlement facility licensing requirements in the *Corporations Act 2001 (Cth)*.

The Commission considers that assessment of whether the offset arrangements, given effect under the Rules and AEMO's procedures constitute a financial product is a matter for AEMO and ASIC.

In its submission on the Commission's Draft Report, AEMO agrees with the Commission's conclusions. However, AEMO advises that it is aware that ASIC is taking into account the AEMC's independent review of reallocation mechanisms in reaching its decision. AEMO considers that the AEMC's review and findings reached are therefore relevant.⁵⁶

PwC finds that RAs, in particular swap and option RAs, pose no incremental risk to the NEM (compared to no reallocations). The only scenario where the risk of NEM spot market shortfall is increased, as a result of the use of RAs, is if the failure of a generator leads directly to the failure of a retailer, where insufficient PM is held by AEMO for both the retailer and the generator to cover the retailer offtake. PwC notes that given the series of failures required for this to occur, the possibility of this occurrence is assessed as very low. PwC finds that in the circumstances of a retailer default, the obligation of a generator to maintain the RA until the retailer is terminated from the market and the additional prudential margin held from the generator may reduce the risk of a NEM spot price shortfall.⁵⁷

The Commission considers that the energy and dollar RAs currently available to NEM Participants can enhance the prudential quality of the NEM and that swap and option RAs, implemented in accordance with the NEM Rules and procedures could further improve the prudential quality of the NEM.

The Commission notes that the Rules and procedures to give effect to FOAs will be developed in accordance with the recommendations of this Review.

⁵⁶ AEMO submission on the Commission's Draft Report, 30 April 2010, item 7, p.7.

⁵⁷ PwC final report, February 2010, p.28.

4 Final recommendations on reallocation offset arrangements and internal netting of load and generation

This chapter outlines the Commission's recommendations and reasoning that are specific to reallocation offset arrangements and internal netting of load and generation. Energy and dollar RAs are currently operational. AEMO has developed procedures for swaps and options RAs which are awaiting consideration of licensing matters by ASIC.

PwC notes that:

"RAs perform a valuable function in the market by reducing the requirement for capital to be held inefficiently in bank guarantees with AEMO when a risk transfer occurs from AEMO to market participants for physical delivery oriented contracts."

PwC finds that there is no incremental risk under reallocation arrangements (RAs). On this basis, PwC recommends that RAs should continue to be supported by AEMO as a means to minimise the prudential support burden for NEM participants.⁵⁸

In submissions on the Commission's Draft Report, the ERAA, Integral Energy, and the NGF support the Commission's recommendations on the continuation of reallocations arrangements. While no stakeholder submissions raised any objections, there were however, proposals for enhancements.

Summary of the Commission's final recommendations on reallocation offset arrangements

The Commission:

- supports a continuation of the existing RAs and the implementation of the swap and options RAs with some enhancements.
- recommends a Rule change to ensure that an appropriate PM is maintained where gentailers internally offset load and generation.

It should be noted that the Rules on the initial reallocation transactions preceded the introduction of the RMCL provisions. The design of the reallocation transactions and transfer of credit risk is generally with reference to the standard MCL.

Reallocation transactions are therefore not directly comparable to RMCL or FOAs. The reallocation transactions, except under the 'two party' default risk, provide a better prudential quality than the RMCL. The introduction of RMCL has resulted in some inconsistencies with respect to the design of the reallocation arrangements. Recommendations on RAs are to ensure that the integrity of the design is maintained rather than to address prudential quality issues with reference to RMCL.

⁵⁸ PwC final report, February 2010, p.29.

The final recommendations on reallocation arrangements and internal netting of load and generation and the reasoning are detailed in the following sections:

- Commission’s recommendations on reallocation offset arrangements;
- other considerations on reallocation offset arrangements and the Commission’s conclusions; and
- internal netting of load and generation.

4.1 The Commission’s final recommendations on reallocation offset arrangements

This section sets out the Commission’s final recommendations and reasoning relating to existing RAs, and the proposed swap and options RAs.

4.1.1 Contractual basis for offset arrangements

This section sets out the Commission’s final recommendations and reasoning regarding concerns that the Rules or AEMO procedures do not explicitly require the existence of hedging contracts that underpin reallocation offset arrangements. Reallocation offset arrangements are designed to provide MCL relief where hedging contracts are in place. The absence of hedging contracts could impact on AEMO’s functions and the assumptions underpinning offset arrangements and would undermine the intent of the offset arrangements in the NEM prudential regime.

Final recommendation

The Commission recommends that the Rules be amended to require that:

- ex-ante reallocation offset arrangements may only be registered where underlying contractual arrangements exist and that such contract(s) must remain in place for the term of the offset arrangement;
- underlying contractual arrangements may cover a broad spectrum of arrangements between consenting Market Participants who are parties to the reallocation transaction.

In addition, the Commission recommends that AEMO amend its procedures for ex-ante reallocation offset arrangements to require a confirmation by the parties to the offset arrangements that a contractual arrangement underpins their request.

In making these recommendations, the Commission does not intend that AEMO be required to make any enquiry into the terms of the underlying contracts.

Reasoning for final recommendation

Some stakeholders have noted that there does not appear to be an explicit requirement under the Rules that requires Market Participants to confirm that an underlying contract exists prior to registering an offset arrangement. AEMO's procedures for offset arrangements also do not explicitly require such confirmation.

In the absence of an underlying contract between the parties to an offset arrangement there is concern that AEMO could, in effect, assume the role of clearing and settling a financial contract rather than, as intended, reflecting an existing hedge contract in the determination of the MCL and in the NEM settlement process.

RAs were introduced to provide Market Participants with MCL relief where hedging contracts exist and to avoid the circular cash flows by bundling cash flows arising from their financial contracts with the cash flows arising from their spot market activity. Previous consultations on RAs recognise this objective:

"In the NEM, a settlement reallocation is a Rules-supported voluntary risk management tool between NEMMCO (now AEMO) and a pair of market participants. Settlement reallocation is a mechanism by which market participants can bundle cash flows arising from their bilateral hedge transactions with the cash flows arising from their spot market activity, for the purpose of settlement. In this way, it allows for 'netting' between the spot and hedge markets, and is particularly effective at times of extremely high electricity prices."⁵⁹

A review of the Rules and AEMO's procedures for reallocation offset arrangements show that they reflect the above intent. Clause 3.15.11A(a) of the Rules requires AEMO to develop and publish procedures to enable Market Participants to create and record reallocation requests and reallocation transactions, "in respect of electricity transactions other than those conducted through the market".

AEMO's procedures for reallocations also envisage an underlying contract:

- Energy and Dollar Offset Reallocations (see section 2: 1. Energy Offset...."where there is an underlying contract which is specified as an energy quantity").⁶⁰
- Swap & Option Offset Reallocations (see section 2: 1. Swap Offset....."this allows a hedge contract based on swap to be represented as reallocation").⁶¹

In light of the intent of offset arrangements, and the significant impact the absence of an underlying contract could have on AEMO's functions and the risk to the NEM, the Commission as part of its Draft Report considered it important that there is an explicit requirement under the Rules that offset arrangements must be underpinned

⁵⁹ AEMC Rule Determination: National Electricity Amendment (Reallocations) Rule 2007, 15 Feb 2007, p.5, <http://www.aemc.gov.au/Media/docs/Final%20Rule%20Determination-171f2bc0-14b5-4b84-a40d-8cb816e7269c-0.PDF>.

⁶⁰ *Reallocation Procedure: Energy and Dollar Offset Reallocations*, updated 13 November 2009, AEMO, <http://www.aemo.com.au/electricityops/0500-0010.pdf>, p.5, viewed 25 February 2010.

⁶¹ *Reallocation Procedure: Swap and Option Offset Reallocations*, updated 19 November 2009, AEMO, <http://www.aemo.com.au/electricityops/0500-0011.pdf>, p.5, viewed 25 February 2010.

by underlying contracts. The Commission considered that an obligation in the Rules to this effect would allow the AER to monitor and enforce compliance with this obligation.

In its Draft Report, the Commission recommended that:

- offset arrangements may only be registered where an underlying contract (or contracts) exists and that such contract(s) must remain in place for the term of the offset arrangement;
- the offset arrangements reflect the terms of the underlying contract;
- parties to the offset arrangements must comply with the terms of the arrangements; and
- the MCE consider making this obligation a civil penalty provision.

The Commission also recommended that AEMO amend its procedures to require a confirmation by a retailer and the SFECF that an offset arrangement is underpinned by an underlying contract prior to registering an offset arrangement. There should also be a requirement that AEMO be advised immediately of termination of the underlying contract.

Stakeholder submissions on the Draft Report

Stakeholders have advised that ex-post dollar reallocation and some ex-ante reallocations are not underpinned by contracts, and where they are, they may not be International Swaps and Derivatives Association (ISDA) hedge contracts.

The ERAA notes that contracts are currently not required between parties that engage in offset arrangements, such as ex-post dollar reallocations and ex-ante energy reallocations, such as those between different entities within the same business group.

According to ERAA, the Commission has not made a case for why contracts for these types of reallocations, in particular, are necessary. Until such a case is set out, the ERAA does not support the recommendation of the proposal to apply the new civil penalty provision.⁶²

AEMO does not have a concern with the recommendation, provided it is achieved through a checkbox during the reallocation process. AEMO would be concerned if it was required to view or audit contracts. AEMO also notes that several existing contracts (eg ex-post dollar offsets) may not directly reflect the underlying contract so the confirmation may not be relevant. AEMO also recommends that the Commission consider offset arrangements where there is a common owner and where the contract may be an overarching covenant or similar instrument as

⁶² ERAA submission on the Commission's Draft Report, 30 April 2010, item 3.2.2.

opposed to a hedge. AEMO seeks clarification on the instruments that should apply to each type of offset.⁶³

The Commission's consideration of matters raised in submissions

The Commission's draft recommendations related to offset arrangements designed to provide MCL relief, that is, ex-ante reallocation transactions, including the proposed swap and option reallocation offset arrangements.

Reallocation arrangements were initially implemented to avoid circular cash flows and to reduce prudential costs where hedge contracts exist. The Rules and procedures (as noted in the Draft Report), imply that ex-ante reallocations are underpinned by contracts outside the NEM but this is not an explicit requirement in the Rules. Clause 3.15.11 of Rules requires a reallocation transaction to be undertaken 'with the consent of two Market Participants and AEMO'.

Under the Rules Market Participants can, and do use ex-ante reallocations instead of hedge contracts to avoid the circular cash flows and reduce credit support requirements.

As noted in the Commission's Draft Report, the potential for reallocation transactions to be used as a substitute for hedge contracts identified the following two concerns:

- AEMO's original role was to reflect hedge contracts entered into by participants to manage risk in the NEM settlement and MCL processes. In the absence of hedge contracts AEMO's role becomes unclear, potentially resulting in ASIC licensing issues; and
- In the event that AEMO terminates a reallocation, the parties to the reallocation will be 'caught out' without a hedge. At times of high spot prices this could increase risk to participants and the NEM.

As noted in section 3.3.2, licensing issues in relation to reallocation transactions, if relevant, should be addressed by ASIC and AEMO.

The risk issues are discussed below.

Risk to retailer and the NEM from a termination of a reallocation by AEMO

In the event a party to a reallocation defaults, the Rules provide that AEMO may deregister the reallocation. The deregistration of a reallocation, following default by a generator, would not only require a retailer to reinstate its credit support to the pre-reallocation level, but the retailer could also be exposed to high spot prices without a hedge contract in place.

⁶³ AEMO submission on the Commission's Draft Report, 30 April 2010, p.4.

However, it is also possible that the retailer would have the same issues even if the hedge was in place because the generator who does not meet its obligations to AEMO may also default on its obligations under the hedge.

This issue is however of concern, if AEMO were to prematurely exercise its discretion. The presence of a hedge, whilst not preventing the retailer from having to reinstate credit support, would protect it from high spot prices in the NEM (assuming the generator does not fail) and reduce risk to the NEM from a retailer default.

PwC notes this risk in its final report and refers to an AEMO Information Paper that states that “if a participant defaults, both parties will be bound to the ex ante reallocation until suspension. In this way total outstandings will be covered by the current credit support. The NEM will not be faced with a shortfall.”⁶⁴

Potential reliance on NEM prudential framework to manage counter-party risk

The second issue is that, by substituting hedge contracts with reallocations through AEMO, participants may rely entirely on the NEM prudential framework to manage counter-party default risk. That is, retailers may not assess counter-party risk with the same rigour as they would when entering into bi-lateral contracts or not have the benefit of standard ISDA contracts.

As discussed above failure to do so could have significant impact on businesses in the event of a default. Prudent retailers are therefore likely to ensure that appropriate risk assessment and mitigation is undertaken even where reallocations are used to substitute hedge contracts. In addition, AEMO would maintain credit support to manage NEM risk.

PwC advises that retailers are aware of generator default risk and indicated that retailers maintained funds to cover this contingency.⁶⁵ Stakeholders (Origin Energy and Loy Yang Marketing Management Company (LYMMCO)) also noted that parties assess default risk and ensure that their risk management processes are adequate.⁶⁶

Therefore, absence of ISDA contracts (as basis for ex-ante reallocation transactions) is unlikely to result in material risk to the NEM.

However, the Commission considers that it is desirable that reallocation transaction be underpinned by contractual arrangements for the following reasons:

- to reflect the original intent of reallocation arrangements which is to avoid circular cash flows and to provide MCL relief where hedge contracts exist; and

⁶⁴ PwC final report, February 2010, p.18.

⁶⁵ PwC final report, February 2010, section 3.2.3.

⁶⁶ Origin Energy (p.3) and LYMMCO submissions on the Commission’s Draft Report, 30 April 2010.

- to ensure that Market Participants undertake prudent counter-party risk assessment when entering into ex-ante reallocation transactions.

In recognition of the fact that different entities within the same business group may not enter into ISDA contracts and that ex post reallocations are advised in real time, the Commission has amended its recommendation as follows:

- that ex-ante reallocation arrangements be underpinned by contractual arrangements; and
- that such arrangements may cover a broad spectrum of arrangements between consenting Market Participants who are parties to the reallocation.

Any licensing issues arising from reallocation offset arrangements, or the manner in which they are transacted is a matter for ASIC and AEMO.

4.1.2 Reallocation offset arrangements and RMCL

This section outlines the Commission's final recommendations and reasoning on whether the MCL relief available under RAs should be cumulative with the existing option of a reduced MCL (RMCL).

Final Recommendation

The Commission recommends that a Rule change be made to clarify that RMCL provisions should not apply in conjunction with RAs.

The Commission recommends that AEMO amend its procedures appropriately to reflect this requirement.

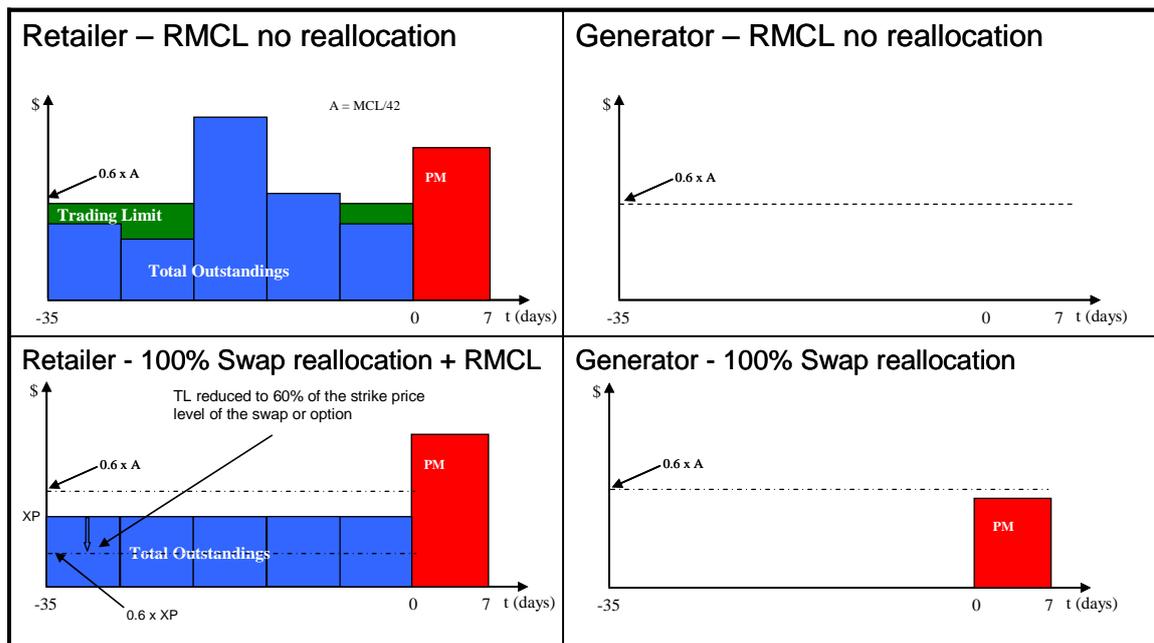
Reasoning for final recommendation

In the Draft Report, the Commission noted that the RAs, in particular Swap reallocations, based on the current procedures would work in conjunction with RMCL. This results in a further reduction in the TL below the strike price and will increase the likelihood of a retailer having to make margin payments into AEMO's SDA.

The consequence of RAs operating in conjunction with the RMCL is that there would always be a requirement for cash to be paid into the SDA. Figure 4.1 demonstrates the effect for a swap reallocation.

Figure 4.1 shows that the retailer's outstandings are determined at the strike price of the swap (XP), yet due to the RA operating in conjunction with RMCL, the retailer's trading limit is reduced by 40% (to $0.6 \times XP$). The credit and debits against the retailer and generator respectively, continue to be with reference to the strike price of the swap (XP) leaving a shortfall ($XP - 0.6XP$) in prudential requirements. This would need to be met by cash payments into the SDA held by AEMO.

Figure 4.1 – Swap reallocation in conjunction with RMCL



It is not appropriate to reduce the prudential requirements to less than the known liability of AEMO to its debtors.

Similarly, energy reallocations when used in conjunction with RMCL will reduce the value of security held against the generator counter-party to a reallocation and impact on NEM risk.

In its submission to the Draft Report, AEMO proposes that the Commission consider that the option of RMCL should not be available to swaps reallocations.⁶⁷

Based on the above assessment and the proposal by AEMO, the Commission recommends that the Rules be amended to clarify that energy that is subject to RAs must not also have the benefit of the RMCL. The Commission recommends that AEMO amend its procedures appropriately to reflect this requirement.

4.1.3 Load profile risk in relation to load under offset arrangements

This section relates to the potential for Market Participants to register reallocation offset arrangements with load profiles that are different from their expected load profile, the associated risks and the processes to manage those risks.

⁶⁷ AEMO submission on the Commission’s Draft Report, 30 April 2010, item 17, p.10.

Final Recommendation

The Commission recommends that AEMO amend the Credits Limits Methodology to set out the procedures it would apply to adjust the reduction to the MCL under RAs to mitigate the load profile risks when assessing requests to register reallocation transactions.

Reasoning for final recommendation

PwC examined the processes for the management of load profile risks for reallocation arrangements as requested by the AEMC. PwC reports that:

“AEMO have advised that they do not believe that there is any opportunity for gaming of the system by participants in their use of peak and off peak volumes for ex ante reallocations. When requesting a reallocation, the parties must provide details of the reallocation profiled on a half hourly basis for the NEM trading periods. AEMO has advised PwC that it splits the profile provided between the peak and off peak periods and matches the peak and off peak profile against the participant’s historic load. In the case the load profile does not match the actual load forecast AEMO has the right to not consider the reallocation when calculating the MCL relief for the RA. It should be noted that the AEMO processes are such that a retailer may submit a number of reallocation arrangements with different profiles but they must aggregate to the retailer’s load profile to be accepted for MCL relief. It should also be noted that AEMO’s daily monitoring process should detect any significant differences between the accepted reallocation profile and the actual off take of the retailer and AEMO then has the right to make security deposit calls on the retailer or recalculate the MCL of the retailer to ensure that the prudential quality of the NEM spot pool is maintained if there has been a significant change to the load profile.

In reviewing the reallocation rules and procedures we have not found any provisions that explain the profiling processes other than a comment in the Reallocation Information Paper and Examples which states “NEMMCO can only allow an MCL credit where there is a regular pattern of reallocation credit that can be reconciled to a fixed percentage of the participant’s physical market exposure.”⁶⁸

PwC recommends that “clarification of details of the processes used by AEMO to assess and manage profiled reallocations may be beneficial in providing comfort to market participants on the protection of the prudential regime.”⁶⁹

ERAA concurs with PwC’s recommendation that the risk of a mismatch of peak/off-peak load profile in reallocation and actual consumption on retailer’s potential exposure to shortfall in credit cover should be mitigated by clarification of AEMO’s processes that assess and manage profiled reallocations.⁷⁰

⁶⁸ PwC final report, February 2010, p.23.

⁶⁹ *ibid*, p.29.

⁷⁰ ERAA submission on PwC draft report, 5 November 2009.

It would appear that AEMO has adequate procedures in place to ensure that MCL reductions are only permitted where the load profile for RAs, in aggregate, can accommodate the load profile of the Market Participant's forecast load profile.

However, AEMO agrees that changes could be made to the MCL process to consider issues associated with varying load shapes and hedging instruments.⁷¹ In its submission on the Draft Report, AEMO agrees that there is a need to address load profile risk and proposes to amend its Credit Limits Methodology.⁷²

To ensure that load profile risks are mitigated, the Commission recommends that AEMO amend the Credit Limits Methodology to set out procedures that it would use to adjust the reduction to the MCL under RAs and FOAs to mitigate the profile risks.

As discussed in section 4.2.1, the Commission considers that it is unnecessary to place a cap on the level of offset arrangements entered into by generators because of the requirement on generators to provide security up to its MCL and to maintain a PM for the generation that is subject to RAs.

4.2 Other considerations on reallocation offset arrangements and conclusions

This section sets out other considerations in relation to offset arrangements and the Commission's conclusions. The Commission has concluded that no changes are required in relation to these matters.

4.2.1 Volume of energy under offset arrangements

Some stakeholders have expressed concerns that risk to the NEM may increase if Market Participants' ability to register RAs is not capped at their estimated load. This section considers the risk to the NEM arising from Market Participants registering RAs where the load under these arrangements is more than a Market Participant's estimated load.

Commission's conclusions

The Commission considers that the Rules and procedures for RAs adequately mitigate the risk of a Market Participant registering more than their estimated loads under offset arrangements and as such there is no need to establish a precondition that the energy subject to offset arrangements should not exceed the estimated NEM load.

The Commission considers that the aggregate MCL relief available to a retailer under RAs does not need to be capped at its average load.

⁷¹ AEMO submission on PWC draft report, 6 November 2009, section 1.9, p. 7.

⁷² AEMO submission on the Commission's Draft Report, 30 April 2010, p.6.

Reasoning for the conclusions

Based on assessment by PwC in relation to FOAs, the Commission in its Draft Report concluded that there was not a need to cap the amount of offset arrangements (RAs and FOAs). However, based on the assessment, the Commission recommended that the reduction to the MCL be capped to a Market Participant's average load.

PwC notes that a number of stakeholders had raised the issue relating to the proportion of a retailer's load that could be covered by FOAs and whether a precondition for registration should be that the load under a FOA or combination of FOAs and RAs should not exceed the retailer's estimated NEM load.⁷³

PwC does not believe that there are any risks associated with a retailer lodging FOAs at a greater level than their average load as this will require the retailer to provide additional security over and above that required to meet the estimated load from AEMO, and there is no additional MCL relief above the estimated load⁷⁴. Under a FOA, the retailer would be required to provide a bank guarantee for the additional load at the FLP and make margin payments for that load. Under RAs the parties would provide appropriate security for load under the arrangements and would be debited and credited with amounts in excess of that security.

PwC advises that the level of MCL relief provided to the retailer by AEMO should be capped at its average load.⁷⁵ That is, where a retailer registers a FOA (or a combination of FOA and RA) in excess of its average load, then the excess amount should not accrue a MCL reduction.

In its submission on the Draft Report, AEMO agrees with the Commission's recommendation not to limit offset arrangements to average load. AEMO however, considers that under reallocations there is no incremental risk by permitting MCL relief beyond average load. AEMO has provided an assessment to support its view.

AEMO's assessment shows that permitting a retailer's MCL to be reduced to zero under reallocations (noting that a negative MCL is not possible) does not increase risk to the NEM. This is achieved by a retailer building up sufficient reallocation credits to achieve MCL that is equal to zero. The retailer's credits are offset by the equivalent debits held as security against the counter-party to the reallocation (usually a generator).⁷⁶

Figure 4.2 demonstrates the effect of offsetting credits and debits against a retailer and a generator.

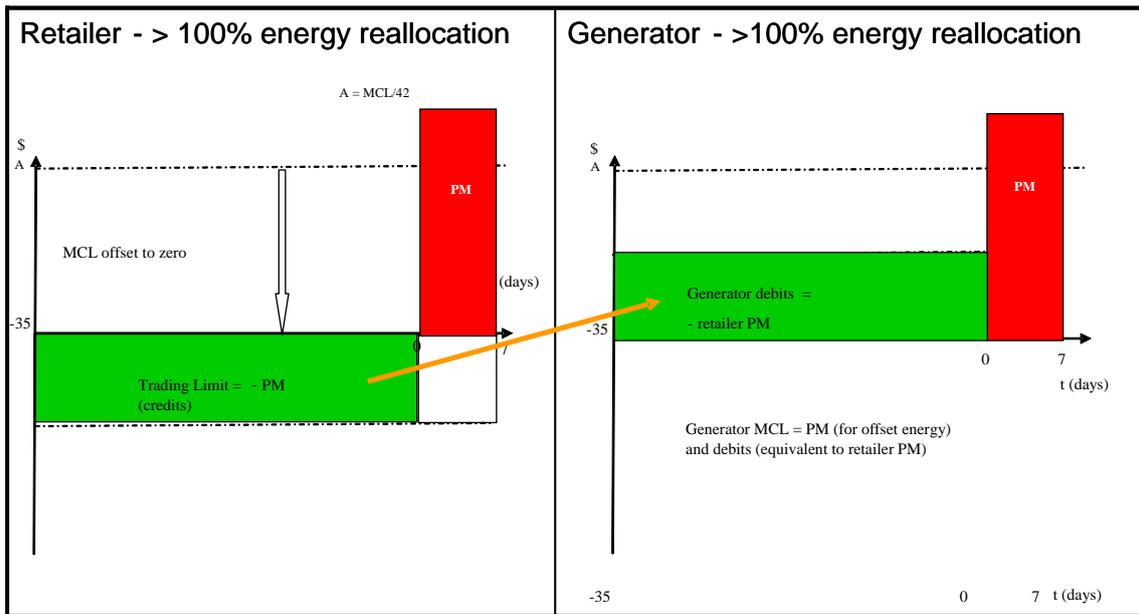
⁷³ PwC final report, February 2010, section 4.5.3, p.53.

⁷⁴ *ibid.*

⁷⁵ *ibid.*

⁷⁶ AEMO submission on the Commission's Draft Report, p.5.

Figure 4.2 – Security under > 100% energy reallocation



It is important to note, however, that the generator’s MCL must be maintained as above and not be reduced by the RMCL provisions of the Rules, as this would reduce the prudential quality of the NEM. This is addressed in section 4.1.3.

The Commission therefore concludes that MCL reduction under RAs does not need to be capped to average load.

4.2.2 Reallocation arrangements and clawback risk

This section outlines the Commission’s conclusions and reasoning on concerns that reallocation arrangements may be considered an uncommercial transaction and may result in clawback risk to the NEM.

Commission’s conclusions

Based on advice from AAR, the Commission considers that it is unlikely that RAs would be found to be uncommercial transactions. In the unlikely event that a RA is found to be part of an underlying uncommercial transaction between two Market Participants, it is likely that AEMO would be able to rely on the *Corporations Act 2001 (Cth)* defence.

Reasoning for the conclusions

PwC notes an issue in its report which relates to the potential clawback for an uncommercial RA transaction and the extent the NEM may be exposed to clawback

risk.⁷⁷ There is some concern that if a RA is considered an uncommercial transaction then a liquidator may have rights to (or claw back) the amounts treated as credits and debits under a RA. The Commission understands that AEMO has also previously considered the risk that RAs may be unfair preferences.

AAR advises that pursuant to CA s.588FB(1), a transaction of a company is an uncommercial transaction if:

"... it may be expected that a reasonable person in the company's circumstances would not have entered into the transaction ...".

According to AAR, where a Court considers that no benefit or advantage was obtained by the company from the transaction or if the transaction caused some detriment to the company that cannot be explained by normal commercial practice, the Court may declare, on the application of the company's liquidator, that the transaction is an uncommercial transaction. The Court may also take into account other relevant factors in considering whether a transaction is uncommercial.

RAs provide MCL relief to Market Participants where there is an underlying contract between two Market Participants.

AAR states that whether a RA initiated by two Market Participants to reallocate their obligations to AEMO is uncommercial will depend on the circumstances of the Market Participants involved and any underlying relationship between those Market Participants. The structure of RAs under the NER does not require AEMO to inquire into the underlying arrangement between the two Market Participants associated with the reallocation.

AAR notes that the RAs serve the primary purpose of allowing Market Participants to net their financial obligations to AEMO so as to offset their prudential requirements. For AEMO, the RAs are a zero-sum transaction in that, when the first Market Participant's account is credited with the specified trading amount, the second Market Participant's account is debited by an identical trading amount. AAR considers that it is highly unlikely that the netting performed as a result of the RA as between each Market Participant and AEMO would be found to be uncommercial.

However, AAR also notes the possibility that an underlying arrangement between two Market Participants pursuant to which those Market Participants initiate a RA could be found to be uncommercial. In that circumstance, there is a chance that the RA will, as a whole, be considered by a Court to be the relevant 'transaction' for the purposes of the uncommercial transaction provisions of the CA and orders may be sought that could affect AEMO.

AAR considers that this is unlikely, but should it occur, AEMO would need to look to the positive defence available to parties to an uncommercial transaction.

AAR advises that even if a liquidator of a Market Participant were able to successfully establish that a particular RA is an uncommercial transaction and

⁷⁷ PwC final report, February 2010, section 3.3.2, p. 26.

therefore voidable by the Court, section 588FG(2) of the CA establishes a positive defence that should be available to AEMO.

That section provides that a Court is not able to make any order pursuant to a liquidator's application under the clawback provisions that would materially prejudice a right or interest of a person, if it is proved that:

- a) the person became a party to a transaction in good faith;
- b) at that time the person had no reasonable grounds, and a reasonable person in the person's circumstances would have had no such grounds, for suspecting that the company was insolvent or would become insolvent; and
- c) the person provided valuable consideration or changed his, her or its position in reliance on the transaction.

According to AAR in the normal course, and assuming that AEMO maintains the level of its prudential monitoring of Market Participants, it would be expected that AEMO would be able to establish this positive defence in respect of a RA.

AAR notes that the risk of reallocation transactions being deemed to be unfair preferences was recognised by AEMO in its document – Reallocation Information Paper and Examples, 2009, version 2.1 – where it states [at section 3.6]:

“The risks from insolvency relate to unfair preference payments. These are payments made by an insolvent company to a creditor in the period of 6 months prior to the date of commencement of winding up the company and have the effect of preferring that creditor to other creditors. AEMO has the view that the risks arising from insolvency of either of the Market Participants are the same for ex post reallocations as they are for ex ante. The risks from insolvency are considered to be small for transactions completed prior to winding up of an insolvent participant, because AEMO would be able to demonstrate that it made the transaction in good faith, for valuable consideration and without notice of the insolvency being declared.

The same insolvency risk considerations apply to all of AEMO's settlement transactions.”⁷⁸

AAR agrees with this analysis and does not consider there to be any material difference in the clawback risk as between the different types of RAs contemplated by the Rules. AAR also considers that the risk of clawback is further mitigated by the current provisions allowing AEMO to deregister any reallocations associated with future trading intervals where a default event occurs in relation to either Market Participant.

The Commission therefore considers that it is unlikely that RAs would be found to be uncommercial. In the unlikely event that the underlying transaction between two Market Participants is found to be uncommercial, and the reallocation transaction is taken as part of that transaction and therefore is also held to be uncommercial,

⁷⁸ Reallocation Information Paper and Examples, AEMO, <http://www.aemo.com.au/electricityops/0500-0012.pdf>, viewed 25 February 2010.

AEMO should be able to rely on CA defence. In order to rely on this defence, it is important that AEMO maintain a high level of enforcement in respect of prudential requirements.

4.2.3 Termination risk to the NEM under reallocations

This section sets out the Commission's conclusions and reasoning regarding the risk to the NEM arising from the termination of reallocation arrangements, risk mitigation measures and the impact this would have on the prudential quality of the NEM.

Commission's conclusions

The Commission considers that the termination risk under RAs, existing and proposed, is currently not material and is effectively mitigated, and does not require any amendments to the Rules or AEMO's procedures.

Reasoning for the conclusions

PwC's risk assessment on RAs finds that under single party default scenarios there is no additional risk to the NEM spot pool as a result of the introduction of RAs.⁷⁹ In the event of a retailer default, the retailer's outstandings is capped at a level for which AEMO holds security. The generator backs the retailer's outstandings in excess of the security held. In the event of a generator default, AEMO would require the retailer to provide security to the level prior to reallocation (that is, unwind the reduction to the security). AEMO also holds a PM against the generator for risk mitigation.

Under single party default scenarios, reallocations not only maintain the prudential quality of the NEM but in the Commission's view improve that prudential quality compared to arrangements without reallocations. This is because the liability of the NEM to generators is reduced where a RA is in place.

Under energy reallocation, the volume of energy that is subject to the reallocation is in effect settled bi-laterally between a generator and a retailer outside the NEM settlement process. The NEM therefore is not exposed to the default risk with respect to that volume of energy.

Similarly, under a swap reallocation, the price for the energy that is subject to that reallocation is capped at the strike price provided as part of the RA. The retailer is in effect billed for the energy at the strike price and the generator accepts and is paid at the strike price.

Regardless of the movement in the spot price, the NEM liability is capped at a amount for which AEMO holds security. Further, since a RA cannot be unilaterally terminated by either a retailer or generator the protection against spot price

⁷⁹ PwC final report, February 2010, p.29.

excursions continues during the reaction period, and the NEM's exposure is fully covered. In the absence of a RA, the NEM would be protected to the extent of the PM where the default arises through a breach of the TL.

The benefit of swap and options reallocation over an energy reallocation is that the generator which becomes a party to a swap RA is 'guaranteed' the payment of the strike price through the NEM. In the case of energy reallocation, the generator settles the energy directly with the retailer and would need to obtain appropriate security from the retailer directly.

PwC notes that where a termination event by a generator results in a call for additional credit support from a retailer and the retailer fails to provide this additional support, then the NEM spot pool is potentially exposed to an additional day's electricity load of that retailer, if both the retailer's and generator's prudential margin have been consumed ("two-party failure"). PwC states that while a precise evaluation of the likelihood of this event is difficult, the probability of this scenario occurring appears to be low from historical record. PwC's evaluation of the load risk over this period and the median MCL shows the MCL covers the additional exposure at the 98th percentile level.

PwC recommends that on balance, there is no major need to change the current reallocation lodgement and MCL process. However, if the AEMC is concerned regarding the mitigation of the potential one day termination risk in the event of a two party failure event where both prudential margins have been exhausted, the best way to address this is by adding an additional day to the 7 day prudential margin.⁸⁰

ERAA agrees with PwC's assessment of the low risk to the NEM prudential quality of an involuntary de-registration of a RA by AEMO.⁸¹ AEMO is of the view that the two party failure event identified by PwC is a rare and unlikely event and is not a reasonable worst case scenario.⁸²

PwC and AEMO differ in their assessment of whether there is an additional period of risk under offset arrangements. PwC believes that there is additional day's risk, whilst AEMO believes that this does not arise under its current processes.

The Commission believes that there is a second aspect of the prudential quality that needs to be considered under a two party failure scenario, which is the comparative reduction in prudential quality compared to MCL/RMCL when a reallocation is in place. The NEM could have a shortfall of up to the reduction in the amount of the bank guarantee under a reallocation arrangement. This risk is mitigated by AEMO holding an additional prudential margin against the generator.

Further, for this risk to be realised there would need to be default by the generator (physical failure and financial default) and the retailer. Both parties are Market Participants where AEMO monitors their position, and allocates credit or debit

⁸⁰ PwC final report, February 2010, p.29.

⁸¹ ERAA submission on PWC draft report, 5 November 2009.

⁸² AEMO submission on PWC draft report, 6 November 2009, section 1.5 p. 5.

reallocation amounts to each participant on a daily basis. This would ensure that AEMO is aware of each party's position relative to its TL and is in a position to respond in a timely manner. PwC notes that given the two party nature of the default event it is reasonable to assess the probability of generator default resulting in retailer default and a resultant shortfall in the NEM pool as a low probability event.⁸³

There has been some concern that a generator which reallocates a significant portion of its output may contribute to increased risk to the NEM. The reallocation procedures require a generators to provide security up to their MCL and to maintain a PM if they are party to a RA. This should be sufficient to limit incentives for over reallocation, because if the generator does not generate sufficient energy, it would need to fund its obligations under the reallocation from other sources, including cash payments.

AEMO, in its submission on the Commission's Draft Report agrees that termination risk under RAs is not material, and is effectively mitigated. AEMO also agrees with the Commission's view in its Draft Report that the two-party failure risk is not material.⁸⁴

The following matters have informed the Commission's view on termination risk to the NEM from a two party default under RAs:

- risk assessment by PwC which suggests that the probability of two-party failure is low;
- risk mitigation measures, including the fact that AEMO maintains a prudential margin against the generators in addition to that provided by retailers;
- effectiveness of AEMO's settlement and prudential supervision process in light of the parties to the RA being registered Market Participants; and
- submissions on the Commission's Draft Report.

Based on the above, the Commission is of the view that the two-party failure risk to the NEM is not material at this time, and that current risk mitigation measures are adequate. However, the Commission notes that the impact of a two-party failure in the NEM can have significant consequences and is of the view that monitoring and management of such risk should be part of ongoing considerations on broader energy market risk.

4.2.4 Termination risk to retailers under reallocations

This section outlines the Commission's conclusions and reasoning on AEMO's discretion and processes for termination of reallocation arrangements, and risks to retailers and the NEM from such termination.

⁸³ PwC final report, February 2010, p.21.

⁸⁴ AEMO submission on Draft Report, p.7.

Commission's conclusions

The Commission notes that the Rules provide AEMO discretion for the processes it adopts for de-registration of RAs. Whilst there is benefit in defining the processes, it may constrain AEMO's discretion to suit the unique circumstances of default.

The Commission is satisfied that retailers are aware the risk of termination of RAs and undertake appropriate counter-party risk assessment when registering FOAs and make contingency arrangements to manage this risk.

Reasoning for the conclusions

In its Draft Report, the Commission recommended that AEMO, in consultation with stakeholders, consider changes to the procedures for the registration of RAs to seek agreement from parties to a RA to notify a counter-party in the event a call notice is issued to a party (early warning). This recommendation was based on submissions on PwC's draft risk assessment report.

ERAA, in its submission on PwC's draft risk assessment report, agrees with PwC's assessment of the low risk to the NEM prudential quality of an involuntary de-registration of a RA by AEMO. However, it notes that the ability for AEMO to terminate RAs is a potentially disruptive process for the retailers.

ERAA states that the report suggests that a RA could be terminated if a retailer breaches its prudential requirements. It states that it is unclear if a RA could be terminated if the retailer is compliant with the underlying OTC and reallocation conditions. ERAA is concerned that any potential remedy for breaches of the prudential arrangement could be jeopardised by the potential termination of a RA, compounding the task of securing the additional credit cover or security deposit.⁸⁵

PwC notes that the difficulty of even a prudent retailer securing bank guarantee within 24 hours should not be understated, much less several retailers if the generator has multiple RAs. In its consultation with stakeholders, PwC found that a number of retailers were aware of the risk of generator default (or generator requirement to terminate the RA) and they maintained funds to cover this contingency.⁸⁶

ERAA believes that it is appropriate for AEMO to define a transparent RA termination process that can effectively deal with the knock-on effect of generator default to restore an appropriate level of retailer's net credit cover within a reasonable period of time without increasing NEM's exposure to possible credit risk.

ERAA suggests that such a measure could encourage up-take of RAs as a reliable alternative for efficient credit support for both generators and retailers.

⁸⁵ ERAA submission on PwC's draft report, 5 November 2009.

⁸⁶ PwC final report, February 2010, section 3.2.3, p. 21.

NGF indicates that existing RAs appear adequate; but it believes that exploration of AEMO's termination right appears warranted.⁸⁷

Clause 3.15.11(f) of the Rules sets out the conditions under which AEMO may de-register a RA.

After a reallocation request has been registered in respect of two Market Participants, AEMO may deregister the reallocation request if:

- (1) the prudential requirements are not satisfied by either of those Market Participants;*
- (2) either of the Market Participants fails to comply with any conditions imposed by AEMO in respect of the reallocation request at the time it was registered;*
- (3) both Market Participants notify AEMO in accordance with the reallocation procedures that they require the reallocation request to be terminated; or*
- (4) a default event occurs in respect of either of the Market Participants and AEMO exercises its powers under paragraph (l).*

This clause provides AEMO with discretion in terms of de-registering a RA in the circumstances outlined above. AEMO's procedures restate the provisions in the Rules with respect to de-registration of RAs.

The prudential framework comprises a number of elements, including the offset arrangements, which are described in chapter 2. Retailers may provide security that is a combination of bank guarantees, cash deposits into the SDA and RAs. A retailer may 'default' with respect to any of these arrangements and thereby trigger AEMO to de-register the RAs under the Rules.

It may be beneficial to the NEM for RAs to be maintained, provided parties to it meet their obligations, where other provisions of prudential requirements have been breached and are being resolved between the retailer and AEMO. Further, in the event of a generator default under a RA, adequate notice for the re-statement of a retailer's security may reduce risk to the NEM from a consequent retailer default. Provision of early warnings may however be constrained for confidentiality reasons.

The Commission understands that AEMO has exercised the discretion under the Rules on a case-by-case basis to address the unique circumstances of default.

The Commission notes that clarity around the manner in which AEMO may exercise its discretion under clause 3.15.11(f) of the Rules, or early warning of potential security needs, can be of benefit to Market Participants. The Commission also notes that the circumstances under which AEMO may need to exercise its discretion may be unique and, therefore, defining a process for the termination of RAs may be difficult.

⁸⁷ NGF submission on PwC draft report, 5 November 2009, p.2

However, it may be possible for AEMO to outline the principles that it may apply when exercising its discretion in its procedures. The counter-parties to RAs may also be notified if a call notice is issued to one of them. Early warning of this nature however, may be limited by confidentiality requirements.

In formulating its draft recommendations, the Commission considered that ERAA's concerns in relation to the time required to reinstate a bank guarantee following the default of a generator may be addressed by providing early advice to retailers when a call notice is issued to generators. This could be achieved by amending the reallocation procedures to include an agreement that information on the issuing of a call notice to one Market Participant who is a party to a RA would be shared with the other Market Participant. This would require consultation with Market Participants and consideration on any limitations.

Another option to deal with this matter would be to allow additional time for retailers to reinstate a bank guarantee in the event of a generator default. The fact that a retailer would accrue outstandings over the extended time period could increase the risk to the NEM in the event of default. This could be managed by extending the reaction period under the MCL. The Commission considered that it is not appropriate to mandate a requirement for an extended time period for providing additional security in the event of a generator default under RAs, without reflecting the increased risk to the NEM in the prudential framework.

In its Draft Report the Commission therefore recommended that AEMO, in consultation with stakeholders, consider amending the procedures for the registration of RAs to seek agreement from parties to the arrangements to notify the other party in the event a call notice is issued to a party.

Stakeholder submissions on the Draft Report

AEMO considers that disclosure of such information diminishes confidentiality and should the Commission proceed with the recommendation it should be a requirement under the Rules and apply to disclosure to parties at risk.⁸⁸

NGF, LYMMCO and Origin Energy appreciate the intent but indicate that confidentiality and competition issues outweigh benefits. Origin and LYMMCO advise that parties when entering transactions take into account counter-party default risk.⁸⁹

The Commission's considerations of matters raised in submissions

The Commission considered two options to address the issue raised by the ERAA in relation to the short timeframe for retailers to re-instate security in the event of generator default. The first involved extending the time to provide security, which would extend the reaction period and hence require a higher prudential margin. The

⁸⁸ AEMO submission on Commission's Draft Report, 30 April 2010, p.8.

⁸⁹ Origin Energy (p.2), LYMMCO submission on Commission's Draft Report, 30 April 2010.

second involved consideration by AEMO of the potential to provide early advice in the event a generator was issued a call notice.

In the light of advice from PwC and submissions by stakeholders, the Commission is satisfied that retailers are aware of the risk of termination of RAs. The Commission is satisfied that retailers undertake appropriate counter-party risk assessment when registering reallocation transactions and make contingency arrangements to manage this risk.

4.3 Internal netting of generation and load of gentailers and risk to the NEM

For vertically integrated companies with both generation and retail operations, the MCL is determined based on the expected generation into, and consumption from, the NEM in each region and then summed and an inter-regional adjustment factor applied. This section examines the implications of such internal netting of load and generation of vertically integrated entities.

Final recommendation

To improve the consistency with reallocation arrangements and effectiveness of risk management, the Commission recommends that:

- a Rule change be made to specify that AEMO must determine the PM of a gentailer based on the gentailer's estimated load; and
- AEMO review its procedures on load profiling to ensure that MCL reduction for gentailers reflects the risk of any mismatch between the load profiles of a gentailer's estimated load and generation.

The Commission proposes to amend S3.3.2 (1) of the Rules relating to the principles for the determination of the prudential margin, by substituting "*if the aggregate of all*" with "*if any*".

Reasoning for final recommendation

PwC notes that for vertically integrated companies with both generation and retail operations, a net MCL is calculated based on the expected generation into, and consumption from, the NEM in each region and then summed and an inter-regional adjustment factor applied.⁹⁰

d-cyphaTrade contends that this inbuilt MCL concession for vertically integrated retailers seems to automatically create the effect of reallocation without the reallocation being officially registered with AEMO and without being subject to the normal prudential safeguards. This creates a significant competitive advantage for

⁹⁰ PwC final report, February 2010, section 2.1, p.9.

vertically integrated retailers over independent retailers without generation assets. Unlike registered reallocations, this MCL concession takes into account expected average (aggregated) generation during the MCL period rather than insisting on precisely matching a specific half hour of generation volume to the same specific half hour of demand volume. This creates obvious and extreme risks to the NEM prudential framework.

Furthermore, d-cyphaTrade states that the MCL methodology seems to automatically provide inter-regional offsets (albeit with an adjustment factor) exclusively to vertically integrated retailers where their expected generation in one region is allowed to offset their demand in another region. Proposed FOAs would not allow inter-regional MCL offsets and nor do registered reallocations, due to obvious and insurmountable transmission reliability risks as well as inter-regional price separation. The existing MCL methodology allows vertically integrated retailers to automatically circumvent these prudential safeguards.

Therefore, d-cyphaTrade believes that the existing MCL calculation competitively disadvantages independent (non-vertically integrated) market participants and also contravenes the spirit of the rules and safeguards regarding registered reallocations. The introduction of FOAs would address this competition issue by providing fairer access to MCL offsets to independent retailers.⁹¹

With respect to the inter-regional adjustment, it would appear that d-cyphaTrade is interpreting the inter-regional adjustment as operating to the (exclusive) benefit of vertically integrated retailers. The inter-regional adjustment actually has the effect of limiting the extent to which a Market Participant would benefit from having a net retail position in one region and net generation in another. Absent this adjustment, the MCL formula would give a positive MCL and a negative MCL in the respective regions, with the overall MCL netting to zero where the retail and generation positions are perfectly matched. With the adjustment, the positive MCL would remain unchanged while the magnitude of the negative MCL would be reduced (subject to a volatility factor), and overall this participant would have a substantial (positive) MCL.

A review of the MCL formula has, however, highlighted some issues with respect to the prudential quality and the effectiveness of the monitoring regime.

The internal netting of load and generation results in the MCL being determined based on the net position of the vertically integrated participant, not dissimilar for a RA between two unrelated parties, except for the treatment of loss factor and GST. However, the Commission notes that there are issues in the way the PM is determined. A vertically integrated retailer whose load is fully offset would not be required to provide a PM.

The provisions related to the determination of the PM were modified as part of the 2007 Reallocations Rule change.⁹² A review of the Rule change proposal and the

⁹¹ d-cyphaTrade submission on PwC's draft report, 4 November 2009, item 1, p.1.

⁹² National Electricity Amendment (Reallocations) Rule 2007, AEMC, 15 February 2007.

final Rule determination indicates that the Rules do not fully reflect the intent of the determination where internal offsets were concerned.

As part of the Reallocations Rule change proposal, AEMO had proposed that:

“To mitigate the risk of a generator reallocating or physically purchasing customer load to a significant proportion of its capacity, thereby presenting a settlement risk should its generation stop abruptly, it is proposed to ensure that the trading position of the generator maintains a prescribed buffer or ‘headroom’ from the zero credit position with the market. If the generator maintains this headroom after reallocation then, as is currently the case, no credit support would be required.

The Rules already have an implied concept of the “prudential margin” (without the term being formally defined), being the difference between the trading limit and credit support provided. It is proposed to apply this same margin (equivalent to seven days’ reasonable worst-case trading, ignoring all generation settlement credits) to the reasonable worst-case scenario for the generator. This will give NEMMCO seven days at reasonable worst-case prices with no generation credits to rectify any transgression of the prudential obligations before the market is exposed to the generator without the protection of credit support.”⁹³

In its final determination, the Commission had accepted AEMO’s proposed Rules in relation to the prudential requirements.⁹⁴ The Commission considers that the Rules should be amended to maintain a PM that reflects a gentailers load before offsets.

Further, it is not clear that AEMO’s monitoring process would monitor the position of the participant with respect to credits and debits in the same way as it would for two non-related parties who are parties to a reallocation arrangement. In order to manage load profiling risk it is important that the generation and load of a vertically integrated gentailer be tested for load profile in the same manner as for unrelated retailers and generators registering RAs.

AEMO, in submission on the Commission’s Draft Report, agrees with the Commission’s draft recommendations, and indicates that if the proposed changes are implemented, it intends to modify the calculation of the PMs in its MCL methodology.⁹⁵

To improve the consistency with RAs and the effectiveness of risk management, the Commission recommends that:

- the existing Rules be amended to specify that AEMO must determine the PM of a gentailer based on the gentailer’s estimated load; and

⁹³ Request for Amendment to National Electricity Rules: Reallocations, NEMMCO, 27 March 2006, p.9. <http://www.aemc.gov.au/Media/docs/NEMMCO%20Rule%20Change%20Proposal-5613a326-2bd6-4fc3-9b06-cac556673aea-0.pdf>, viewed 25 February 2010.

⁹⁴ Rule Determination, National Electricity Amendment (Reallocations) Rule 2007, 15 February 2007, section 3.3.3. [http://www.aemc.gov.au/Media/docs/Rule%20Determination%20\(with%20amendment\)-acee0913-77b9-4002-ab92-b7b7677e6397-0.pdf](http://www.aemc.gov.au/Media/docs/Rule%20Determination%20(with%20amendment)-acee0913-77b9-4002-ab92-b7b7677e6397-0.pdf), viewed 25 February 2010.

⁹⁵ AEMO submission on Commission’s Draft Report, item 19, p.11.

- AEMO review its procedures on load profiling to ensure that MCL reduction for gentailer reflects the risk of any mismatch between the load profiles of a gentailer's estimated load and generation.

5 Final recommendations on futures offset arrangements

This Chapter outlines the Commission's recommendations and reasoning that are specific to futures offset arrangements (FOAs). FOAs are currently not available in the NEM and the Commission's recommendations seek to integrate futures contracts into the existing NEM prudential framework.

In considering FOAs, the Commission is guided by the NEO, and the assessment criteria that have been established for the Review. The Commission has taken into account the risk assessment report by PwC, input from the Working Group established to advise this Review, stakeholder submissions to this Review and to previous consultations on these matters, legal advice from AAR and its own assessment of issues.

Following assessment of risk of FOA options, PwC recommended that working example model 2, provided in appendix B, is the appropriate model that should be adopted for FOAs in the NEM with some amendments. The Commission amended aspects of PwC's recommendations on FOAs in its Draft Report which was for public consultation.

In submissions on the Commission's Draft Report, the ERAA and Integral Energy support the development of FOAs, provided that the risk to the NEM is adequately managed. d-cyphaTrade is concerned that the Commission's recommendations significantly reduce the benefits of FOAs and place FOAs and independent retailers at a competitive disadvantage. The NGF, generators and Origin Energy are concerned that FOAs substitute secure credit with unsecure credit and therefore increases risk to the NEM. They do not support FOAs in the NEM.

The Commission's recommendations on FOAs take into account AEMO's broader review of the NEM prudential framework and stakeholder concerns that:

- benefits under FOAs are low or not available compared to the RMCL provisions of the Rules, and potentially transient due to the use of historical prices in the determination of MCL;
- the PM under the current MCL methodology may not reflect the reasonable worst case estimate of trading amounts over the reaction period; and
- the benchmark used for the assessment of prudential quality of FOAs (RMCL) is not appropriate for the NEM.

Summary of the Commission's final recommendations on futures offset arrangements

The Commission recommends that prior to implementing the Commission's recommendations (with the exception of the proposed changes to timing of call and default notices in section 5.1.9) on FOAs, AEMO should:

- establish a PM for the NEM prudential regime that meets the reasonable worst case performance target (or other appropriately established performance target) for trading amounts over the reaction period;
- re-assess the benefits and the prudential quality of the NEM under FOAs against any changes to the MCL methodology arising from AEMO's review of the prudential framework; and
- if still appropriate, integrate FOAs in the NEM prudential framework in accordance with the Commission's recommendations, with necessary amendments following AEMO's review, through a Rule change proposal from AEMO to the Commission.

The Commission considers that the FOA model proposed in this report would be appropriate if FOAs were to be integrated into the NEM prudential framework as it exists at present. The Commission is concerned, however, that the position may be substantially affected by AEMO's review. As AEMO is required to submit a report to the MCE on its review by November 2010, the Commission believes that it would be inappropriate to proceed with the implementation of FOAs at this time.

The Commission also notes that the proposed FOA model may require further amendments to address implementation issues.

The specific reasons for recommending a review of FOAs by AEMO are as follows:

- the prudential quality of the FOAs has been compared against the RMCL. Stakeholders have raised concerns that the RMCL may not achieve adequate credit support in the NEM. In addition, stakeholders have expressed concerns that the PM under current MCL methodology may not meet the trading amounts over the reaction period; and
- the benefits of FOAs appear to be largely realised under RMCL. The benefits arise in periods following high price events in the NEM because the current methodology uses a 12 month average historical price in the MCL calculations for future periods.

A change to the MCL methodology may impact on the benchmark for the prudential quality and the benefits available under FOAs. Therefore, it is appropriate that the FOAs be re-assessed against AEMO's recommendations on the NEM prudential framework prior to implementation.

The final recommendations and the reasoning are detailed in the following sections:

- the Commission's recommendations on futures offset arrangements; and
- other considerations on futures offset arrangements and the Commission's conclusions.

5.1 The Commission's final recommendations on futures offset arrangements

The following sections provide a background on work undertaken to integrate futures contracts into the NEM prudential regime, and outlines the Commission's final recommendations and reasoning in relation to FOAs.

All of these recommendations in relation to the implementation of FOAs (with the exception of the proposed changes to timing of call and default notices in section 5.1.8) are subject to the proviso that the Commission also recommends that they not be implemented prior to completion of AEMO's review of the NEM prudential framework, and that they be reviewed in the light of any changes recommended by AEMO.

Previous considerations on FOAs

In 2007 a Rule change on Reallocation Arrangements was implemented with a view to facilitate FOAs. However, FOAs have not been implemented in the NEM to date.

The 2007 Reallocations Rule enables a counter party to an electricity futures contract (such as a SFE Clearing Participant - SFCEP) to register as a Market Participant in the NEM. Once registered, the SFCEP would be required to comply with the NEM Rules and AEMO's procedures and may need to provide prudential support.

NEMMCO and ASX considered procedures to give effect to FOAs under the Rules, however this work was discontinued in January 2008. The absence of FOA procedures and reluctance by SFCEPs to be bound by the NEM Rules are seen as the main reasons for FOAs not being implemented.

FOAs and the current Review

In light of the issues identified in the various consultations since 2007, the Commission commenced this Review with a view to design arrangements to give effect to FOAs. The Working Group established by the Commission to advise this Review developed two working examples that were provided to consultants PwC for risk assessment. The working examples are summarised in chapter 2, and are available on the AEMC website for reference.⁹⁶

The working examples focused on a single party (retailer) FOA, given the reluctance of SFCEPs to be bound by the NEM Rules. The scope of PwC's assignment for this Review included a requirement to undertake analysis and make recommendations on the risk associated with the proposed FOA models and on ways to potentially enhance those arrangements.

⁹⁶ Working examples of FOA models; AEMC website, [http://www.aemc.gov.au/Media/docs/Futures%20Offset%20Arrangements%20\(FOA\)%20models%20for%20risk%20assessment-e7311aec-be66-4ca9-9306-e66664b0a156-0.PDF](http://www.aemc.gov.au/Media/docs/Futures%20Offset%20Arrangements%20(FOA)%20models%20for%20risk%20assessment-e7311aec-be66-4ca9-9306-e66664b0a156-0.PDF).

PwC undertook risk assessment on the working examples and made a number of recommendations. The Commission's assessment and stakeholders' response to PwC's assessment and recommendations are discussed in the following sections.

PwC's main recommendations are as follows:

- the FOA be based on the working example FOA model 2 (refer to Chapter 2 for description) which is more appropriate for the NEM;
- remove the requirements for a separate sub account with SFECs for futures contracts that are subject to FOAs;
- consider removing the requirement for SFECs to confirm that positive margins in relation to the futures contracts subject to FOAs would be payable without netting, but include a precondition for the registration of a FOA that the NEM participant give a commitment to pay the variation margin, as determined by AEMO, into the SDA;
- the bank guarantee for the FOA be based on the FLP for the trading period and a PM as per the current standard MCL;
- in light of an occasional disconnect between accumulating spot price and the futures prices, a floor of the accumulating spot price be incorporated in margin calculations;
- to reflect the difference in the NEM credit period (42 days) and the futures contract period (around 90 days), the margin calculation be prorated over the outstanding period;
- penalties be imposed on the retailer for breach of FOA conditions; and
- AEMO may not register a FOA in the event of a fundamental change to the market pricing or structure of a futures contract.

In summary, under this FOA model a retailer would register a FOA and provide a bank guarantee based on the FLP. The retailer would undertake to make variation margin payments as determined by AEMO relying on the margin payments from the SFEC. The SFEC would supply AEMO with identical information on the status of the futures position that it supplies to the retailer but will have no other obligation.

Based on inputs from the consultation process, the Commission amended PwC's recommendations for a FOA model in its Draft Report which was published for public consultation. Stakeholders' submissions on the Draft Report have restated previous concerns and raised additional matters in relation to the FOA model proposed.

These matters are discussed in more detail below together along with options to mitigate any risk.

5.1.1 Parties and design of a FOA

This section sets out the Commission's final recommendations in relation to parties to, and design of, a FOA.

Final recommendation

The Commission recommends that the Rules be amended to require that:

- FOAs be based on a Market Participant only model where the FOA is registered by a 'retailer';
- Market Participant undertakes to provide credit support (if it does not meet the credit criteria) based on the FLP, as determined by AEMO (section 5.1.3);
- Market Participant undertakes to make Variation Margin payments with reference to the FLP with a spot price floor, as determined by AEMO (section 5.1.7).
- explicitly require that FOAs must be underpinned by base load futures contracts (a net base load futures position) for the term of the FOA, and that this be a civil penalty provision;
- a Market Participant that is party to a FOA must comply with terms and conditions of a FOA and pay margins as determined by AEMO;
- the retailer and the SFECF agree and include a standard form contract addendum to the Clearing Agreement to meet the requirements specified in clause 1.2 of the proposed FOA model in Appendix B; and
- AEMO, in accordance with the Rules consultation procedures, to develop FOA procedures.

Reasoning for final recommendation

PwC recommend that working example model 2 (Appendix B) is the appropriate model that should be adopted for FOAs in the NEM, with some amendments. The Commission amended aspects of PwC's recommendations on FOAs in its Draft Report that it published for public consultation. The Commission's final recommendations on the level of credit support and variation margin payments are detailed below.

PwC examined the risk associated with the proposed parties to a FOA, and reviewed the single party FOA processes. PwC finds that the risks associated with not binding the SFECF can be managed through other processes.

PwC recommends that a NEM Participant wishing to have a FOA registered should be required to confirm that it has been established and resides within a structure that

requires the SFECF to provide identical information to both the Retailer and AEMO simultaneously.⁹⁷

It is important AEMO be advised of the existence, termination, or any other impediment as to the expectations on futures margins being available to the retailer.

As proposed for FOA Model 2, the Commission recommends that AEMO develop procedures, including an addendum to the retailers' futures contract with the SFECF that ensures this requirement is met. It would be necessary that the addendum be agreed by the retailer and the SFECF, in a side letter, as a precondition for the registration of a FOA.

The Commission considers that the requirement under the FOA model to share information in relation to the status of a FOA should be strengthened to ensure that information provided by the SFECF to the retailer is provided at the same time to AEMO.

The Commission recommends that AEMO develop FOA procedures, including an addendum to the retailer's futures contract with the SFECF, to ensure that requirements in relation to information sharing between the retailer, the SFECF and AEMO is met. It would be necessary that this addendum be agreed by both the retailer and the SFECF as a precondition for the registration of a FOA.

5.1.2 Contractual basis for offset arrangements

This section sets out the Commission's final recommendations and reasoning for the requirement that FOAs be underpinned by futures contracts, that is, a net futures position reflecting the energy under a FOA.

Final recommendation

The Commission recommends that the Rules be amended to require that:

- FOAs to be underpinned by base-load futures contracts (a net futures position) for the relevant NEM region and that such contract(s) must remain in place for the term of the FOA; and
- the MCE consider making this obligation a civil penalty provision.

In addition, the Commission recommends that AEMO ensure that its procedures for FOAs require a confirmation by the parties to the FOAs that a futures contract underpins their request.

In making these recommendations, the Commission does not intend that AEMO be required to make any enquiry into the terms of the underlying contracts.

⁹⁷ PwC final report, February 2010, p. 56.

Reasoning for final recommendation

FOAs are designed to provide MCL relief where futures contracts are in place. The absence of futures contracts would impact upon the assumptions underpinning offset arrangements and, as a result, upon the prudential quality of the NEM.

The flow of margin payments arising under the futures contract(s) is fundamental to FOA design and MCL relief. FOAs would not be possible if the underlying futures contracts are not in place. In light of the intent of FOAs, and the significant risk to the NEM that could arise in the absence of an underlying contract, it is important that there is an explicit requirement under the Rules that FOAs must be underpinned by underlying net futures contract position. An obligation in the Rules to this effect would allow the AER to monitor and enforce compliance with this obligation.

The Commission therefore recommends that the Rules be amended to require that:

- FOAs be underpinned by base-load futures contracts (a net futures position) for the relevant NEM region and that such contract(s) must remain in place for the term of the FOA; and
- the MCE consider making this obligation a civil penalty provision.

The Commission also recommends that AEMO ensure that its procedures require a confirmation by a retailer and the SFECF that a FOA is underpinned by an underlying futures contract prior to registering an offset arrangement. There should also be a requirement that AEMO be advised immediately of termination or sale of the underlying contract or other transactions that change the retailer's net position.

5.1.3 Futures offset arrangements and RMCL

This section outlines the Commission's recommendations and reasoning on whether the MCL relief available under FOAs should be cumulative with the existing option of a reduced MCL (RMCL).

Final recommendation

The Commission recommends that the option to request a reduction in MCL should not be available in respect of load that is subject to FOA. The MCL formula should therefore be amended to ensure that the credit support for load under a FOA is based on the FLP and the full payment period, together with a PM that reflects trading amounts over the reaction period.

Reasoning for final recommendation

PwC notes that the proposed FOA models require a bank guarantee to be held by AEMO and variation margins paid into an SDA account in the event that the previous days futures prices is greater than the FLP. When a retailer requests a RMCL a shorter 14 day payment period is used rather than the usual 28 day cycle. There is no obligation for a retailer operating under a RMCL to settle their account

on the shorter settlement cycle though the lower trading limit requires more active management of outstandings, generally though the payment of funds into the SDA account. PwC states that should a FOA be accepted where a retailer has a RMCL in place and the MCL for the FOA calculated on the basis of 14 days rather than 28 days a disjoin between the payment period and the calculation period is more likely to result in shortfalls in the variation margin payments to AEMO.

PwC recommends that RMCLs and FOAs should not apply to the same volumes. In the case where a retailer has requested a RMCL the MCL component for the FOA should be calculated based on a bank guarantee for the 35 day outstandings period at the level of the FLP.⁹⁸

AEMO in its submission to the Draft Report supports the Commission's recommendation that FOAs should not be registered in conjunction with RMCL. However, AEMO considers that there is an inconsistency in the formulation of the MCL for FOAs, and proposed an amendment. This amendment, related to the additional PM proposed by the Commission in its Draft Report, is not relevant as the Commission has removed the requirement for the additional PM (refer section 5.2.1).

The Commission therefore recommends that the formula in the FOA model be revised from one of a reduction to the MCL to one based on the FLP for integration into AEMO's MCL methodology without it operating in conjunction with the RMCL. The MCL for load subject to FOA would be as follows:

$MCL_{foa} = E2 \times FLP \times 35 \times LF \times (GST + 1) + E2 \times PR \times VF \times Trp \times LF \times (GST + 1)$,
where:

MCL_{foa} = MCL for load subject to FOA,

FLP = Futures lodgement price,

E2 = Energy under FOA,

PR, VF, LF, Trp = Price, volatility factor, loss factor and reaction period as defined under current Credit Limits Methodology.

This recommendation would be implemented through amendments to AEMO's procedures for the calculation of the MCL (and PM) and AEMO's procedures for a FOA.

5.1.4 Termination risk to the NEM under futures offset arrangements

This section outlines the Commission's recommendations and reasoning regarding risks to the NEM arising from a failure by a retailer to meet the Variation Margin Payments (VMPs) due to AEMO under FOAs as and when it becomes due, that is, FOA termination risk.

⁹⁸ PwC final report, February 2010, p.55.

Final recommendation

The Commission recommends that AEMO, as part of its review of the NEM prudential framework, establish a PM that meets the reasonable worst case performance target (or other appropriately established performance target) for trading amounts over the reaction period prior to implementing a FOA.

The Commission considers that an appropriate PM will effectively mitigate termination risk and therefore has removed the additional requirement for a power of attorney recommended in its Draft Report.

Reasoning for final recommendation

In its Draft Report, the Commission was concerned that:

- the PM under the current NEM prudential framework may not reflect the reasonable worst case trading amounts over the reaction period; and
- the FOA design did not provide adequate surety of VMPs.

Based on these concerns the Commission considered that there was an increased likelihood of shortfall in the NEM and recommended the following measures:

- AEMO to obtain an irrevocable power of attorney in relation to all payments which the retailer is entitled to receive from a CSA in respect of futures contracts underlying a FOA; and
- AEMO's procedures for FOA require a retailer who registers a FOA to provide an additional PM equivalent to 7 days of the difference between the price used for the calculation of the standard MCL and the FLP.

Following submissions from stakeholders, the Commission has reviewed its assessment of termination risk with reference to RMCL and has revised its recommendations. The Commission's considerations in its Draft Report focused on reduction in the credit support compared to RMCL and the quality of arrangements replacing that reduction.

Considerations in relation to RMCL, as discussed in the following sections, not only take account of the reduction in credit support but also the amount of credit extended, the prudential monitoring processes, and treat the adequacy or otherwise of the PM as a separate matter.

PwC's assessment of termination risk and stakeholders comments

PwC states that the review indicates that there is not a significant termination risk that needs addressing, however, if the AEMC is concerned with the mitigation of this termination risk a simple approach might be to add risk coverage equivalent to an additional day of prudential margin (i.e. an 8 day rather than a 7 day prudential

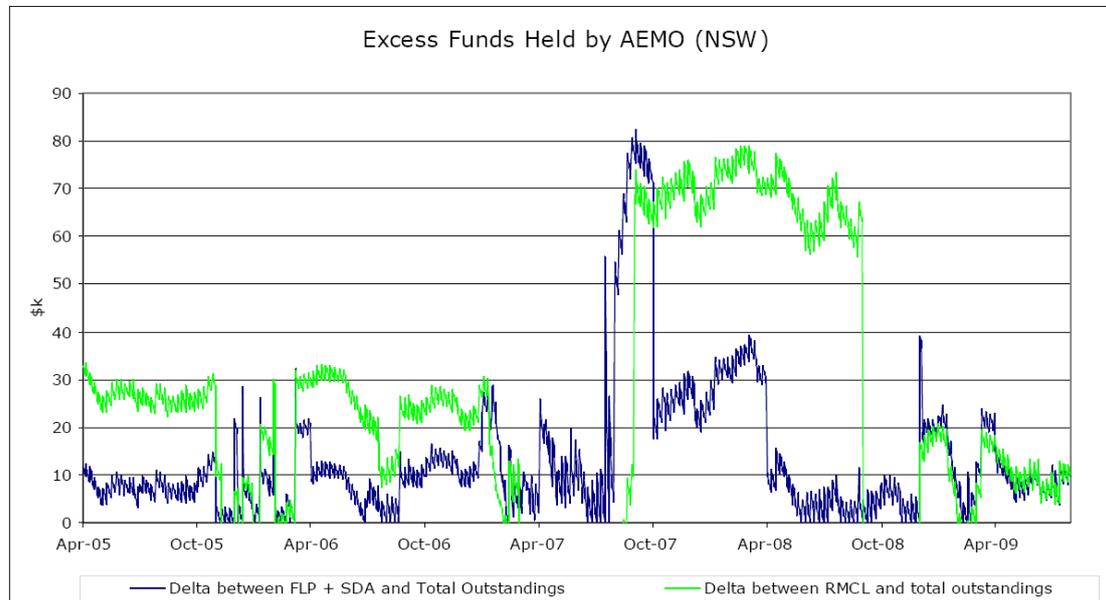
margin period) to the MCL period for NEM Participants with a FOA for the volume subject to FOA.⁹⁹

PwC’s risk assessment on FOAs finds that in the event of termination of a FOA, as a result of the termination of the underlying futures agreement by the SFECF, or as a result of the failure of a retailer to deposit to AEMO the required variation margin payments, the NEM spot market may be exposed to the difference between the FLP + SDA and the spot market price for one business day.¹⁰⁰

In response to stakeholder comments provided below, PwC, in its final report, provided further analysis that led to its conclusions. PwC compares the amounts held by AEMO as bank guarantee and in the SDA under a FOA to the actual outstandings. PwC concludes that in “vast majority of days the FLP and SDA account contain sufficient funds over and above that required to meet existing and accruing outstandings of a retailer.”¹⁰¹ Figure 5.1 below provides this comparison for NSW. Similar figures for other states are available in PwC’s report on risk assessment. This analysis is based on the VMPs being paid into the SDA as and when they become due and on the PM being sufficient to meet reasonable worst case trading amounts over the reaction period.

On the basis of this analysis, PwC concludes that there is an inefficiency built into the current MCL/RMCL processes requiring significant additional security to be posted by the retailer where this is not reflected by movements in the actual market price.¹⁰²

Figure 5.1: Comparison of funds held by AEMO against outstandings



Source: PwC report

⁹⁹ PwC final report, February 2010, p.55.

¹⁰⁰ *ibid*, p.55.

¹⁰¹ *ibid*, p.49.

¹⁰² *ibid*, p.45.

PwC acknowledged that the incremental exposure to the NEM spot pool is capped at the difference between the security provided to support the FOA (both the FLP bank guarantee and SDA cash) on the day prior to failure and the RMCL, as RMCL is the lowest level of exposure allowed under the current market operation.¹⁰³ That is the incremental exposure would be up to the difference between the security provided by a retailer (FLP credit support plus futures margins payments into the SDA) and the credit support under RMCL

AEMO is of the view that the termination risk of a FOA is still a key risk that requires more analysis. In particular the contract relationship proposed for the models offers little value to the NEM in terms of forward risk. The model proposes Rule obligations, audit arrangements and a two part contract (clearing participant to Retailer, Retailer to AEMO). None of these arrangements provides any certainty for forward risk coverage. AEMO notes that the report appears to suggest that these contractual arrangements provide additional protection when in fact they should be ignored for the analysis because the purpose of the prudential regime is to provide security for payment from the point of retailer failure and FOA termination, including when agreements are not met.¹⁰⁴

AEMO makes the following additional points in relation to PwC's assessment:

- it does not take into account the incremental risk of a retailer breaching its TL under a FOA; and
- it does not recognise the value of current levels of MCL in excess of the PM to the prudential framework and that a logical extension of PwC's premise would be to implement an optional MCL requiring retailers to provide credit support for the PM only and ensure that its outstandings are matched by any form of credit support every day.¹⁰⁵

AEMO also submits that it is not convinced that the current PM is robust enough to be relied on this way.¹⁰⁶ This would suggest that the current PM is not seen as being sufficient to meet a retailer's reasonable worst case trading amounts over a 7 day period.

NGF in its submission noted that its advisors have pointed out that the proposed solution of adding an additional day's MCL to the Prudential Margin is likely to be inadequate given that the likely loss in the event of a default is likely to coincide with high pool prices. Further, NGF is concerned that the currently secured credit support is to be replaced by an unsecured promise of future payments by FOA users which appears both commercially unsound and highly susceptible to legal challenge.¹⁰⁷

¹⁰³ PwC final report, February 2010, section 4.4.2, p.50.

¹⁰⁴ AEMO submission on PwC draft report, 6 November 2009, section 1.2, p. 3.

¹⁰⁵ *ibid*, section 1.4, p. 4.

¹⁰⁶ *ibid*, p.4.

¹⁰⁷ NGF submission on PwC draft report, 5 November 2009.

ERAA notes that the theoretical assessment of the model appears to support the adequacy of credit cover for historical monthly average prices; given that credit support cover is monitored on a daily basis and any remedy is required in one day. ERAA is concerned that the analysis may not have revealed sufficiently the level of adequacy in credit cover for smaller intervals of extreme price movements. ERAA considers that more needs to be done to fully test the risk of severe shortfall on extreme price events and the potential mechanism to manage any unintentional impact of price spikes on otherwise prudent credit management by retailers especially during the transition period.¹⁰⁸

In its final report, PwC confirmed that its analysis was undertaken on a daily basis.

The Commission's assessment of termination risk in its Draft Report

The Commission was not persuaded that PwC's conclusion that "in vast majority of days the FLP and SDA account contain sufficient funds over and above that required to meet existing and accruing outstandings of a retailer" is an appropriate basis for assessment of termination risk for the following reasons:

- it assumes that a retailer would make margin payments as and when required;
- the sufficiency of funds on vast majority of days is measured against retailers' outstandings and not against the reasonable worst case estimate of those outstandings;
- an assessment has not been made of the circumstances under which a default event is most likely to occur, nor whether the SDA would contain sufficient funds on such days; and
- it does not test the prudential quality of the FOA against the assessment criteria that the prudential quality of the NEM be maintained or improved.

PwC's analysis, assuming that a retailer would register a FOA where it would benefit from a reduction to its bank guarantee, shows that compared to RMCL:

- there is a reduction in the level of bank guarantee under a FOA; and
- there is an increase in the length of time that a retailer would operate near its trading limit and the frequency and quantum of VMPs.¹⁰⁹

Figure 5.2 for Queensland from the PwC report shows this effect. PwC also provides an analysis of NEM spot market prices over a 24 hour exposure period. Subject to

¹⁰⁸ ERAA submission on PwC draft report, 5 November 2009.

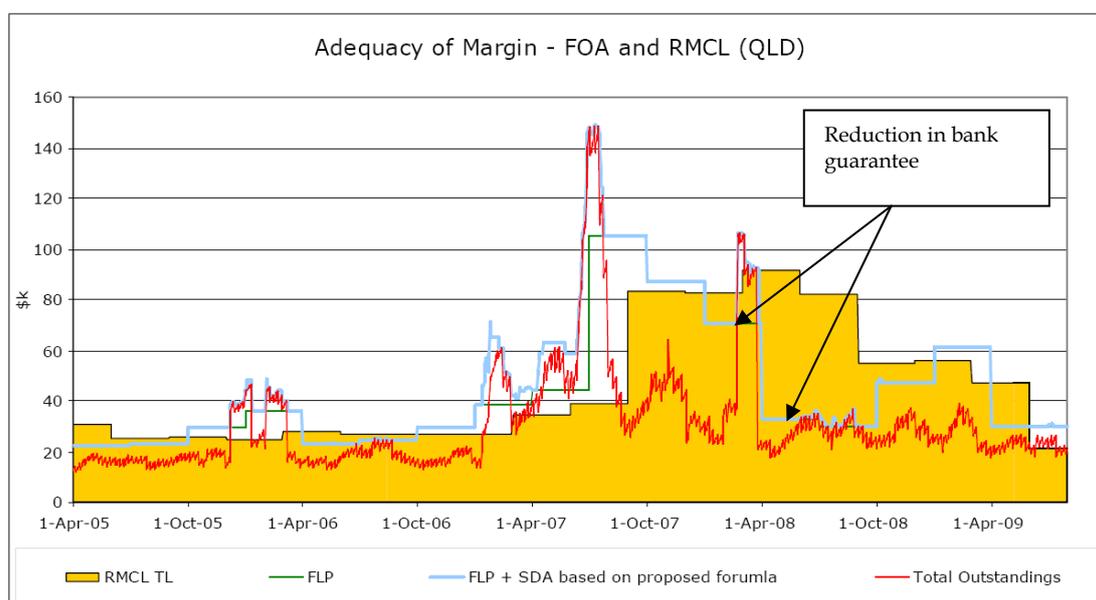
¹⁰⁹ Refer to figures 4.4.1i, 7.3.2v, 7.3.2w, and 7.3.2x of PwC final report, February 2010.

qualifications, the assessment highlights the potential funds at risk and shows that the exposure exceeds the coverage provided by the FLP.¹¹⁰

The Commission considered that there are a number of matters that need to be taken into account when assessing the prudential quality of a FOA:

- the level of bank guarantee held by AEMO under a FOA, compared to that under RMCL. As shown above it is expected to be lower, hence the prudential quality would potentially be reduced by this amount;
- the quantum and quality of commitment provided as replacement for the level of bank guarantee. As discussed above, under the proposed FOA, this is in the form of a commitment by a retailer to make margin payments as determined by AEMO. It is expected that these payments would be funded from margin payments under a futures contract, however for reasons cited above these margin payments cannot be taken to be guaranteed;
- the capacity and willingness of a retailer who is in financial difficulties, or fails, to continue to make VMP to AEMO to ensure its outstandings are matched by the amount of security held by AEMO (FLP + SDA); and
- the testing of the above against the assessment criteria that the prudential quality of the NEM be maintained or improved.

Figure 5.2 - Comparison of FLP + SDA and RMCL for Queensland



Source: PwC report

The April 2008 event above illustrates the incremental risk to the NEM and the impact on the prudential quality compared to the RMCL. This event follows a high

¹¹⁰ Refer to figure 4.4.2a, p. 49, PwC final report, February 2010.

price event of mid 2007. If the retailer failed to make VMP, then the prudential quality of the NEM would have been lower, compared to the RMCL, by the amount of the reduction in the MCL.

In the case of a Swap reallocation, the NEM liability would be capped at the level of bank guarantee held and, rather than having to rely on VMPs, AEMO's position would be based on credits and debits against two Market Participants under the NER as well as its own procedures and daily supervision processes.

The Commission considered that the incremental risk of default on VMPs is up to the amount of discount to the RMCL bank guarantee and this risk would be realised over the reaction period.

The Commission was not satisfied that the unilateral commitment by a retailer under the Rules and the terms of a FOA can be taken as being of an equivalent quality to the unconditional bank guarantee it replaces. Further, for reasons outlined above the Commission was concerned that margin payments arising from futures contracts will not always be sufficient to meet the VMPs to AEMO.

The Commission was not satisfied that the current PM would cover the reasonable worst case outstandings of a retailer over the reaction period. Given that it is determined as a 7 day average of the MCL, the Commission believed this is unlikely to be the case.

In the absence of surety of margin payment, and on the basis of the assessment criteria used, the Commission was not persuaded that the termination risk to the NEM under a FOA was not significant.

The Commission considered that FOA arrangements recommended by PwC needed to be strengthened if the prudential quality of the NEM is to be maintained.

Commission's considerations on the mitigation of termination risk in its Draft Report

In accordance with AAR's advice, the Commission proposed that, in order to reduce the non-payment risk to AEMO, AEMO or an officer of AEMO hold an irrevocable power of attorney from the retailer (as provided for under the *Powers of Attorney Act 2003 (NSW)* and equivalent legislation in other States).

The Commission noted that this mitigation measure, whilst providing access to margins held for the benefit of the retailer in the SFECF's Client Segregated Account (CSA), does not provide assurance that a retailer's VMP obligations under a FOA would be fully met because netting and cost deductions may reduce the retailer's entitlement to funds in the CSA.

In light of the issues associated with achieving surety of margin payments to AEMO, the Commission also recommended that the retailer who lodges a FOA must provide an additional prudential margin equivalent to that which would be held against the generator who is a party to a swap reallocation arrangement, except that the PM would be determined with reference to the FLP. The Commission stated that when

the MCL methodology is enhanced and the PM is determined to be sufficient for a reasonable worst case exposure over the reaction day period, this requirement may be reviewed.

The Commission noted the benefits of FOAs in terms of providing a source of funds (futures contract margins) to meet AEMO's margin calls which may otherwise be unfunded and enabling an alternative source of security for Market Participants.

Stakeholder submissions on the Commission's Draft Report

The following sections consider specific matters raised by stakeholders in relation to the termination risk of FOAs in submissions to the Commission's Draft Report.

NGF contends that the value proposition of the FOA is that a reduction in credit support would be made available to a participant that registered a FOA. This reduction, they state is justified on the basis that the participant will be obliged under the rules to pay margin payments similar to what it may receive in margin payments under a futures contract to the NEM pool. It notes that a Power of Attorney arrangement over a participant's futures clearing account is proposed as a means to attempt to secure futures margin cash flows from the participant to AEMO.

NGF states that it is not convinced that the proposed arrangement would provide adequate security because a:

- retailer is not limited by a Power of Attorney to remove funds;
- (SFE) participant's (client) segregated account is at risk of unrelated party default; and
- participants may not have net long futures positions and as a result not enough funds to meet the margin payments to AEMO.¹¹¹

Loy Yang Marketing Management Company (LYMMCO), Macquarie Generation (MG), International Power (IP), Origin Energy (OE) and seed/Taylor Fry (sTF) share the concerns raised by the NGF. In addition:

- LYMMCO considers that FOAs:
 - expose NEM participants to a range of Sydney Futures Exchange risks that are new to NEM participants and potentially unmanageable (despite the integrity of that exchange's prudential framework);
 - create additional exposure to the credit quality of those retailers carrying the highest levels of risk; and
 - do not have a demonstrated place in the NEM;¹¹²
- MG is concerned that:
 - there is potential for misuse of FOAs contracts;¹¹³

¹¹¹ NGF submission to Draft Report, 30 April 2010, p. 3.

¹¹² LYMMCO submission to Draft Report, 30 April 2010, pp. 2-3.

- sTF:
 - states that a retailer using a FOA pays no direct compensation to the affected generators (all generators in the NEM) for the reduction in security whereas under reallocations generally attract a fee;
 - notes AEMO's submission to the PwC report that other sources of funds are required to meet variation margin payments to AEMO (that is variation margin payments are not fully funded); and
 - that the additional prudential margin proposed by the Commission has not been tested for its performance in preventing loss in the event of default (and that comparison to reallocation arrangements is inappropriate);¹¹⁴

- IP:
 - is concerned that FOAs weaken the prudential standards and may impact on generator's creditworthiness, increase costs of financing and costs to consumers;
 - believes that a secondary financial market which acts independently of the physical should not be annexed to the NEM without consideration of the overall functionality of the NEM and its possible redesign;
 - believes there is a disconnect between the Commission's analysis and its recommendations (surety of payment risks);
 - states that the Commission should demonstrate that FOAs will reduce NEM wide credit support costs, rather than just costs of credit support to retailers, for example initial margin costs to generators should be included in such analysis;
 - has provided additional reasons for why positive variation margins arising under futures contracts will not end up in SDA;
 - retailer terminates underlying futures contracts;
 - SFECF terminates underlying futures contracts or its relationship with the retailer; and
 - SFECF breaches its obligation to pay margins into the CSA; and
 - does not consider it is appropriate to compare prudential quality of NEM under FOAs with that of Swap and Options reallocations as the latter have not been implemented and any comparison would be academic.¹¹⁵

¹¹³ MG submission to Draft Report, 2 May 2010, pp. 1-2.

¹¹⁴ sTF submission to Draft Report, 30 April 2010, pp. 3-4.

¹¹⁵ IP submission to Draft Report, 6 May 2010, pp. 1-6.

AEMO in its submission raises two key points:

- clarification of how the proposed Power of Attorney would work and its application in the different jurisdictions of the NEM, interaction of the power of attorney with the *Corporations Act 2001 (Cth)* provisions, and considerations on other forms of security that could be taken by AEMO; and
- the prudential margins has not been adequately quantified in order to make an assessment on whether FOA termination risk is mitigated.¹¹⁶

Commission's considerations on stakeholder submissions to its Draft Report

The main concerns in the above submissions can be summarised as follows:

- the replacement of secured credit with unsecured credit mainly due to lack of surety of payment potentially arising from:
 - insufficient futures contract margins to meet variation margin payments (VMPs) to AEMO;
 - retailer not making VMPs even where futures margins are adequate;
 - underlying futures contracts are terminated, hence eliminating the flow of futures margins;
- the additional prudential margin proposed for FOAs is not tested for adequacy; and
- power of attorney is not adequate to ensure AEMO has access to the futures margins in the Client Segregated Account with the SFECF.

The NGF and the generators express a strong view that mitigation measures proposed by the Commission are not adequate and consider that FOAs replace secure credit with unsecure credit. AEMO and seed/Taylor Fry are concerned the additional PM proposed for FOAs has not been tested for adequacy.

It would appear that the concerns raised by the NGF and generators with respect to secure credit being replaced by unsecure credit would apply equally to RMCL, where the trading limit is reduced by 40% and is totally unsecured. FOAs are similar to a RMCL and may result in further reduction in credit support.

The above considerations have required a review of the assessment of FOAs against the RMCL. A review of AEMO's (NEMMCO at the time) submission to support the introduction of RMCL provisions in 2003 reveals the rationale for the RMCL. The focus in that submission, on the balance between the credit extended to Market Participants and the limit placed on their total outstandings, contrasts with the Commission's focus in its Draft Report on replacing the security foregone with an equivalent security.

On that basis, concerns in relation to surety of payment risk and adequacy of the PM would be offset by considerations of the reduced level of outstandings permitted

¹¹⁶ AEMO submission to Draft Report, 30 April 2010, p. 9.

before cash payments to the SDA are required. The payment of variation margins into the SDA with AEMO when futures price exceeds the futures lodgement price (FLP) rather than when the TL is exceeded, would be an improvement on RMCL.

The following sections address specific matters raised in stakeholders' submissions in detail.

Secure credit vs. unsecure credit

As set out in section 2.2.1 of the draft report, RMCL permits a 33% reduction to the MCL on request. The PM is not reduced, therefore the effect of the 33% reduction in the MCL is a 40% reduction to the TL. There is no other obligation with respect to 'replacement' security on parties requesting the RMCL, other than an obligation to operate under a reduced TL, actively manage outstandings (both by Market Participants and AEMO) and make cash deposits into a SDA held by AEMO when the TL is likely to be exceeded.

If a retailer operating with a RMCL defaults, that is, it does not make the payments into the SDA when the TL is breached, then the PM is available to meet the retailer's outstandings over the reaction period.

The RMCL provisions of the Rules were proposed by NEMMCO in 2003 to the National Electricity Code Administrator (NECA) for consideration and were authorised by the Australian Competition and Consumer Commission (ACCC) in 2004.

NEMMCO's report to NECA outlined the features of the RMCL provisions.¹¹⁷ The report noted that the RMCL option requires active management of the level of outstandings by both the Market Participants and NEMMCO for a higher proportion of the time. The Market Participants must be prepared to provide more cash (security deposits) to NEMMCO over those limited periods when prices are higher than average.

With respect to credit support risk, the report noted that under the new RMCL arrangement, the prudential risk to the Market as a whole is reduced because the limit of credit extended to each Market Participant taking up the RMCL option is less. This is reflected in the total outstandings of the overall Market being less, with the balance being held in cleared funds by NEMMCO and available for payment to generators if a default occurs. The benefits of this reduced risk, according to the report, are passed to the RMCL Market Participants by reductions in the levels of financial guarantees that are provided to NEMMCO.

The report also noted that in the event of a default a call notice would be issued and/or the Market Participant's MCL would be reviewed on the next business day effectively cancelling the options of the RMCL. The headroom between the RMCL and the reduced trading limit under RMCL is maintained at the equivalent of 7 days

¹¹⁷ Optional Reduction of Maximum Credit Limit, NEMMCO, 7 May 2003.

of trading (PM). The RMCL arrangement therefore relies on the adequacy of the PM to ensure that the prudential quality of the NEM is maintained.

The report provided an assessment showing that a RMCL, combined with the active management of outstandings and extended credit provided a more efficient (relative amount by which credit support is under-utilised) and effective (relative amount by which credit support covers outstandings on average) outcome than the standard MCL.

In summary, the RMCL provisions in the Rules are based on:

- replacing part of the bank guarantee under the standard MCL with a reduced bank guarantee and cash payments into the SDA;
- reducing the extended credit (reduced trading limit), and total outstandings (offsetting by cash payments into the SDA when trading limit is exceeded); and
- a prudential margin in the event of a retailer default.

There is no other security for the cash payments (surety of payment issues discussed for FOAs).

Similarly under a FOA, recommended by the Commission:

- part of the credit support under the standard MCL is replaced with a reduced bank guarantee and cash payments into the SDA;
- the extended credit (trading limit) and total outstandings are reduced; and
- the prudential margin remains to meet trading amounts over the reaction period in the event of a retailer default.

In addition, for FOAs the Commission, in its Draft Report, recommended:

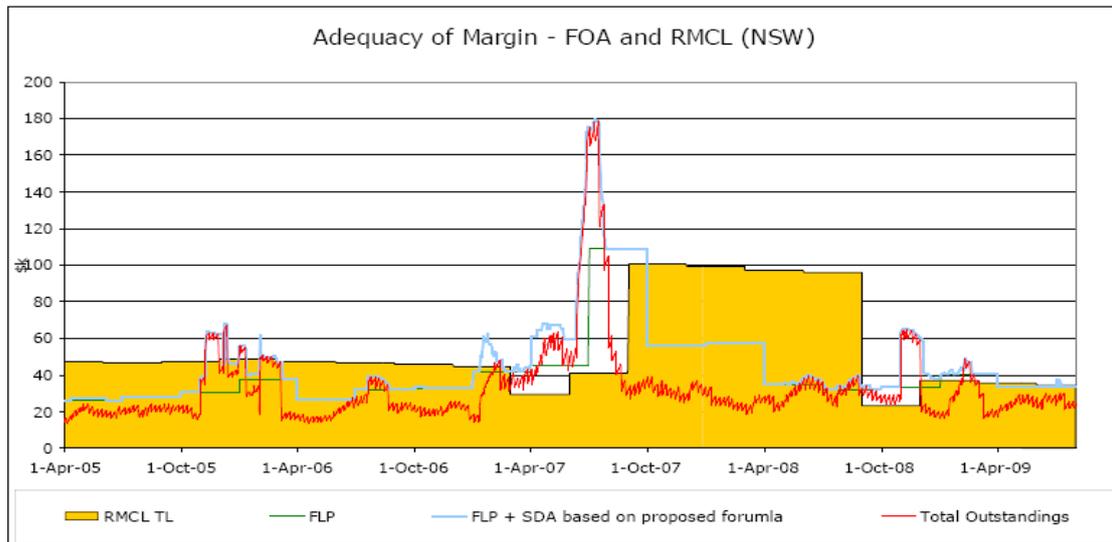
- an additional prudential margin (in addition to that which would apply under RMCL);
- variation margin payments based on the futures margins with a spot price floor (which requires margins to be paid when futures prices exceed the FLP, rather than when the trading limit is exceeded as is the case for FOA); and
- a power of attorney over amounts in the Client Segregated Account with the SFECF.

These additional measures were a result of the Commission's (and stakeholders') concerns that secured credit was being 'replaced' by unsecured credit. However, after reconsidering the benchmark for the prudential quality and the assumptions underpinning it, in particular the reduction in extended credit, the Commission considers that all of the additional measures recommended are not necessary to maintain the prudential quality at the level of the RMCL.

Prudential quality of NEM under FOA when compared to RMCL

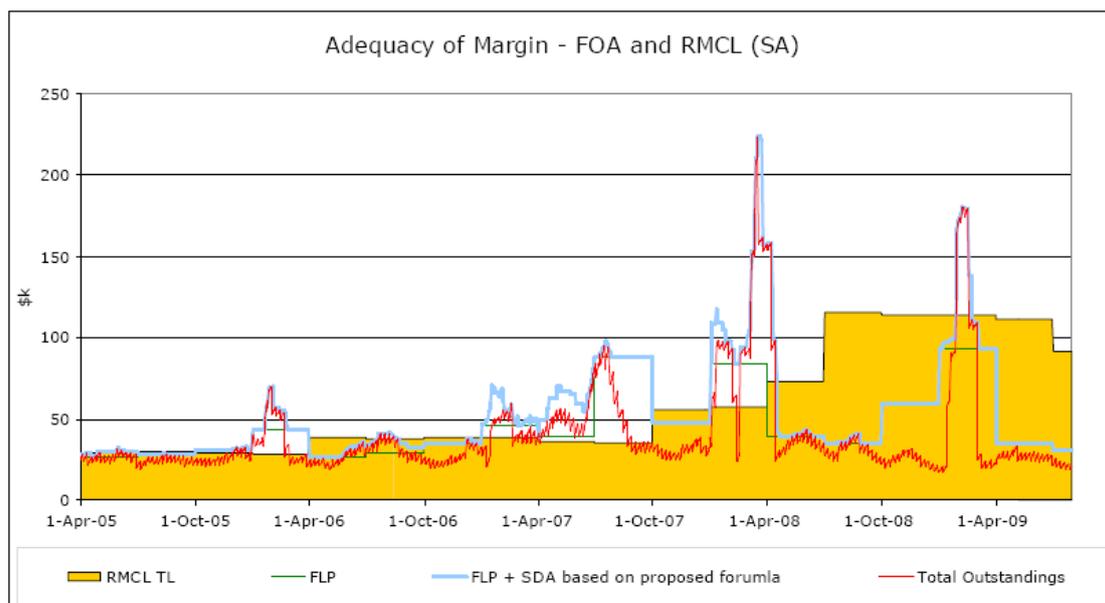
PwC compared the TL under RMCL with the combined TL and VMP requirements under the proposed VMP formula. The result for NSW from 2005 to 2009 is presented in Figure 5.3 below.

Figure 5.3 – Trading limits under RMCL and FOA (NSW)



The assessment for South Australia, which has had more frequent high price events is provided below.

Figure 5.4 – Comparative security under FOAs and RMCL (SA)



The FLP line corresponds to the TL under a FOA. The analysis for NSW shows that during the high price events (mid 2007 and November 2008) a FOA would have

provided better prudential cover than the TL under RMCL. The reduction in the credit support under a FOA occurred in periods following high spot price events in the NEM (October 2007 to October 2008) because of the use of historical prices in determination of the MCL.

The analysis for South Australia shows that the only time that a FOA would have resulted in a lower prudential quality compared to RMCL (considering the level of outstandings) was around March 2009. At other times the difference between the FOA and RMCL is marginal (if the effect in the MCL calculation arising from the use of historical prices is discounted). The figure also shows that the futures prices (FLP) is a better indicator of future spot prices (except for March 2009).

Similar assessment for other regions are available in the PwC final report in figures 7.3.2w to 7.3.2x.

The figures show that the benefits under a FOA are more significant when the current MCL methodology appears to overestimate the MCL/RMCL due to its historical basis for calculation (higher MCL following high spot prices). Refer to the 12 month period from October 2007 for NSW and October 2008 for South Australia.

Adequacy of prudential margins under FOAs

AEMO and seed/Taylor Fry consider that the Commission's recommendation on the additional PM needs to be tested for performance in preventing loss in the event of default.

The Commission considers that tests to establish a PM that would meet the 'reasonable worst case' trading amounts (or other appropriate target) over the reaction period would improve the prudential framework in the NEM. The Commission notes that some stakeholders have expressed concern that the current PM may not be adequate for the trading amounts accrued over the reaction period. The adequacy of the PM will have impact on the prudential quality of the NEM both under the current RMCL and the proposed FOA.

The Commission recommends that the adequacy of the existing prudential margin be assessed as part of AEMO's review of the existing NEM prudential framework and confirmed as adequate prior to the implementation of FOAs.

Power of attorney as a means to increase surety of payment

Stakeholders have raised concerns that the Power of Attorney proposed by the Commission would not mitigate FOA termination risk. d-cyphaTrade considers that the requirement of a Power of Authority appears to be a form of competitive discrimination against FOAs, when compared to reallocations.

The Commission was advised by AAR that the risk of non-payment or short-payment of amounts due to AEMO would be reduced if a power of attorney is complemented with AEMO obtaining a direction or charge over the amounts held in

the CSA by the SFIECP. The Commission was also advised that such an arrangement would be complex and could significantly diminish the value of FOAs.¹¹⁸ The Commission's draft recommendation for a power of attorney was intended to complement the other risk mitigation measures and was not a standalone measure.

The Commission considers that an adequate PM combined with an effective daily motoring regime means that the power of attorney is not necessary to meet the prudential quality benchmark as established by RMCL.

The Commission has therefore removed the recommendation requiring retailers to provide a power of attorney over amounts held in the Client Segregated Account with the SFIECPs.

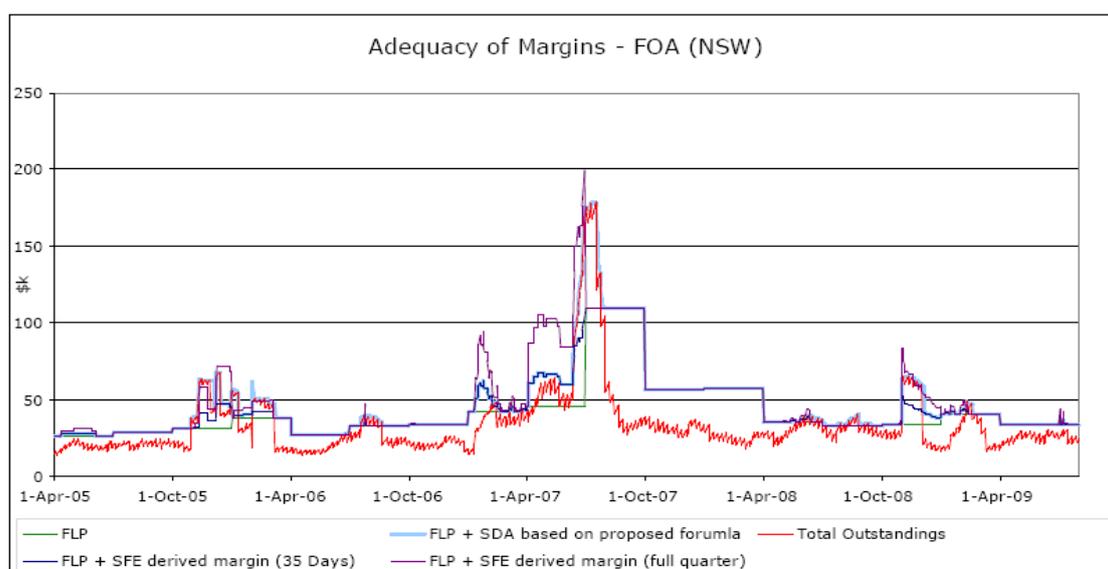
In addition to the mitigation measures described above, FOAs have certain advantages over a RMCL arrangement and can contribute to an improvement in the prudential quality of the NEM. These are discussed below.

Change to the variation margin formula means there is likely to be amounts in the SDA in excess of that required to meet outstandings

The Commission, in its Draft Report, recommended a change to the variation margin formula to 'capture' margins expected under the futures contracts earlier (futures market's anticipation of spot price movements) and in full (all margins arising under contracts subject to FOA).

Figure 5.5 shows that margins that would be payable to AEMO under the formula recommended by the Commission (purple line).

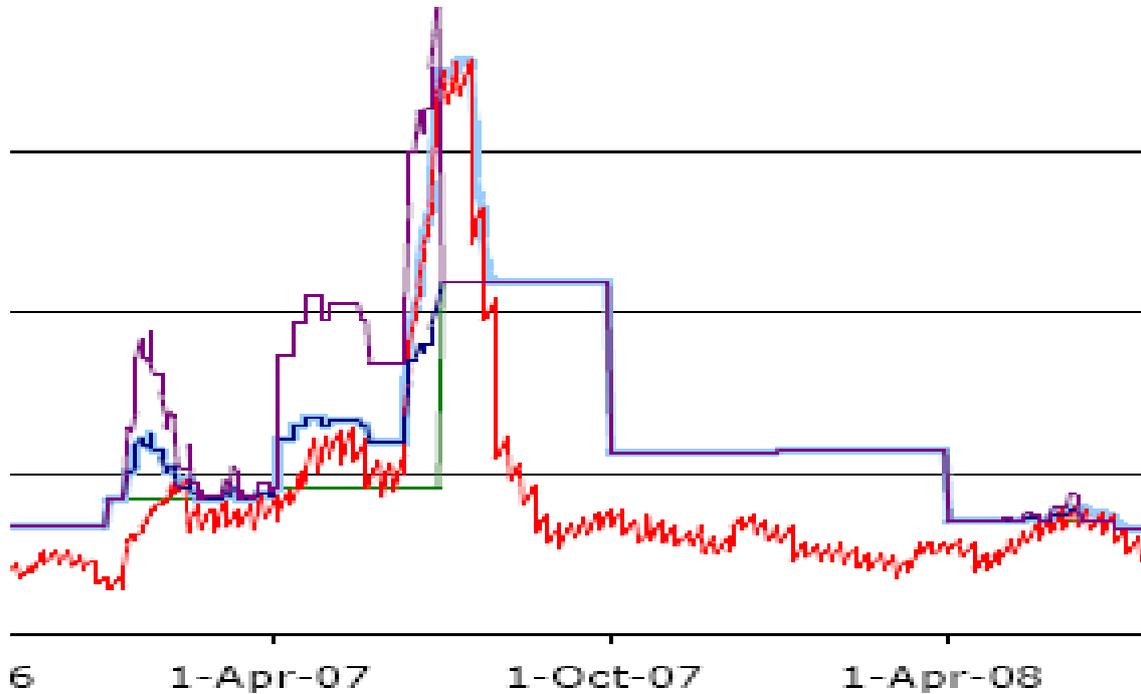
Figure 5.5: Variation margin payments in SDA with AEMO (NSW)



¹¹⁸ AAR legal advice, 2009, section 9.

The purple line in this figure represents, according to PwC, the funds received from the SFE CP for the futures positions which should be available to make variation margin payments to AEMO. The following figure shows the margin payments in more detail.

Figure 5.6 – Futures margin payment into SDA with AEMO

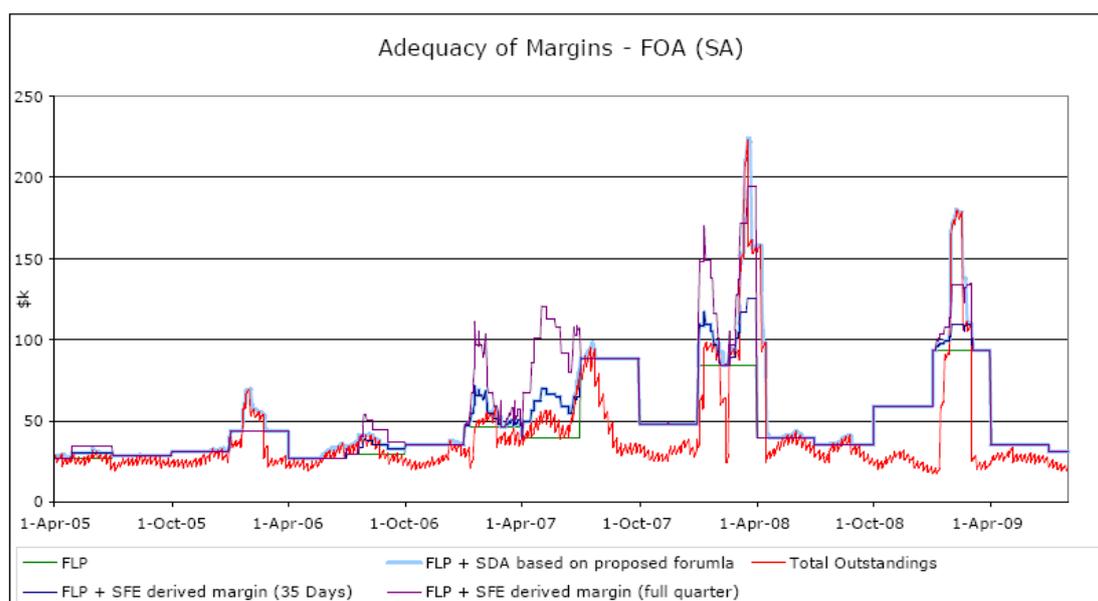


The figure shows that leading into the high price events of April 2007 and after April 2008, AEMO would have held amounts in the SDA in excess of retailers' outstandings. Further, these funds would have been paid into the SDA in 'anticipation of the high price event'. This would have resulted in an improvement in prudential quality compared to a RMCL.¹¹⁹

Figure 5.7 shows the same effect for South Australia.

¹¹⁹ Figures 7.3.2p and 7.3.2r of the PwC report shows this effect for Queensland and Victoria.

Figure 5.7: Variation margin payments in SDA with AEMO (SA)



FOAs are backed by variation margins from futures markets

There is no requirement that the SDA payments required under a RMCL be backed by a hedge or other arrangements (i.e. to provide surety of payment). It is likely that prudent retailers would manage NEM exposure adequately and would have hedge contracts in place or other source of funds to meet margin calls.

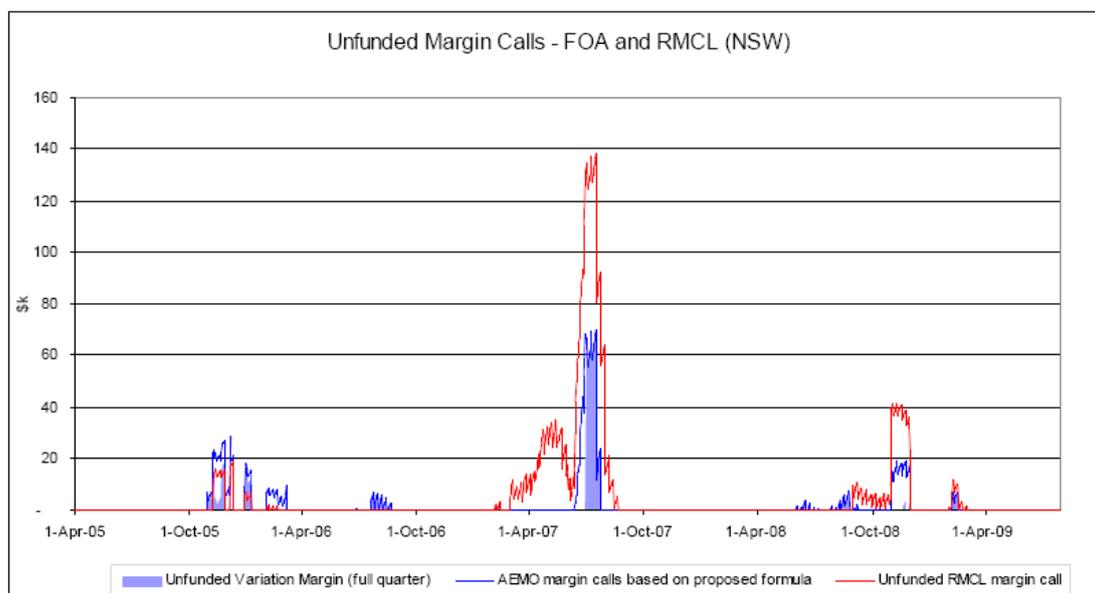
A FOA on the other hand is based on a futures contract being in place. The flow of margin payments under the futures contract is expected to fund VMPs to AEMO but they may not be fully funded or may be netted off against other futures contract positions.

PwC provided analysis that showed that there were some instances of unfunded VMPs and therefore some risk to the NEM spot pool. PwC also advised that to assess the increased risk these unfunded variations margins create, the frequency and magnitude of variation margins call should be compared to the risk currently accepted by the NEM spot pool with the lowest level of prudential support, the RMCL. Figure 5.8 provides the assessment of variation margin requirements under RMCL compared to futures margin shortfalls under a FOA for NSW.

A FOA reduces the amount and frequency of potential unfunded variation margin payments to AEMO. The extent to which this is unfunded under RMCL is not known. If retailers have futures contracts in place it would be the same, and if they are unhedged than the whole amount would be unfunded.

A FOA provides transparency in the funding of NEM margins and can contribute to reducing the risk to the NEM as compared a RMCL¹²⁰.

Figure 5.8 - Comparison of unfunded margins under FOA to margin requirements under RMCL



New SFE risks are potentially unmanageable and expose the NEM to retailers carrying the highest levels of risk

LYMMCO contends that FOAs expose NEM participants to a range of SFE risks that are new to NEM participants and potentially unmanageable and could create additional exposure to the credit quality of those retailers carrying the highest levels of risk.

Except for the decision on whether a Market Participant is to provide credit support or not (that is, whether it meets acceptable credit criteria), the NEM prudential framework does not differentiate between the level of risk (credit rating) of different Market Participants. The MCL is established for all participants and availability of the RMCL and offset arrangements are not based on participant risk.

The Commission has maintained this approach and has examined the potential to reduce costs to participants without materially reducing the prudential quality of the NEM. The analysis undertaken has examined FOAs against the RMCL.

¹²⁰ Figures 7.3.2y to 7.3.2aa provide this comparison for other regions with similar results.

Misuse of FOAs

Concerns have been raised that the FOAs may be misused, in particular by 'engineering' a low FLP to reduce the level of credit support.

As outlined in the FOA model, the FLP will be the settlement price published by the SFE on the day the FOA is published. The FLP is based on a transparent, centrally cleared and supervised futures market.

The FLP is the futures market's expectation on spot prices for the relevant quarter. An review of figures 4.4.1.i and 7.3.2.v to 7.3.2.x in the PwC final report shows that the FLP generally reflects the NEM outstandings with some exceptions.

The Commission has also recommended:

- preconditions on the level of open interest futures contracts for FOAs; and
- that AEMO should review futures prices against spot prices periodically to establish that there is no material divergence between the two when making decisions on whether or not to continue to accept FOAs in a region.

NEM wide costs instead of costs to retailers

Consistent with the development of reallocation arrangements that are in place and proposed, FOAs are designed to reduce costs to Market Participants where there is a hedge in place. It is not intended that FOAs replace or change the current hedging practices of participants.

The Commission notes that the availability of benefits under FOAs may increase the use of futures contracts for hedging. The extent to which this occurs would depend on the competitiveness of alternative hedge instruments, such as OTC contracts and the comparative cost of alternative security.

The introduction of FOAs would not compel generators to participate in the futures market. They can continue to offer bi-lateral arrangements.

The benefit of FOAs is that it can reduce prudential costs, increase competition in provision of security and potentially increase competition among hedge instruments.

Impact on generators' creditworthiness and costs

As discussed above, the Commission does not believe that the introduction of FOAs, in accordance with the Commission's recommendations, would result in a material reduction in the prudential quality of the NEM as such FOAs should not impact on the creditworthiness of generators.

5.1.5 Load profile risk for load under FOAs

This section relates to the fact that Market Participants will register FOAs based on base load futures contracts resulting in load profiles that are different from their expected load profile, the associated risks and the processes to manage those risks.

Final recommendation

The Commission recommends that AEMO amend the Credit Limits Methodology to set out the procedures it would apply to mitigate the load profile risks when assessing requests to register FOAs.

Reasoning for final recommendation

PwC examined the processes for the management of load profile risks for offset arrangements as requested by the AEMC.

In relation to load balancing risks for FOAs, PwC recommends that;

“load balancing risk is unique to a NEM participant and is appropriate to be handled through the AEMO MCL load assessment processes rather than through the use of a generic FOA discounting Beta factor. The risk can be best addressed by AEMO adjusting the unhedged volume in the calculation of the MCL.”¹²¹

The FOAs are to be based on base load futures contracts. AEMO would need to develop new processes to assess the base load profile for load under the FOA against that of the Market Participant’s forecast load profile. If the load profiles do not match, then AEMO’s processes would need to ensure that the reduction to the MCL is adjusted to reflect the risk associated with the profile of the remainder of the Market Participant’s forecast load. If the Market Participant’s estimated load profile matches that under the FOA, the Market Participant would benefit from the full reduction.

AEMO agrees that changes could be made to the MCL process to consider issues associated with varying load shapes and hedging instruments.¹²² In its submission on the Draft Report, AEMO agrees that there is a need to address load profile risk and proposes to amend its Credit Limits Methodology.¹²³

To ensure that load profile risks are mitigated, the Commission recommends that AEMO amend the Credits Limits Methodology to set out the procedures it would apply to mitigate the load profile risks when assessing requests to register FOAs.

¹²¹ PwC final report, February 2010, p.55.

¹²² AEMO submission on PWC draft report, 6 November 2009, section 1.9, p. 7.

¹²³ AEMO submission to Draft Report, 30 April 2010, Item 6, pp. 6-7.

5.1.6 FOAs and fundamental change to markets

This section relates to AEMO's obligations with respect to registering FOAs in the event of fundamental changes to markets.

Final recommendation

The Commission recommends that AEMO's initial procedures for FOAs require a baseline open interest level of over 1000 contracts for a spot month in a NEM region, as a precondition for registration of FOAs in respect of that region.

In addition, the Commission recommends that AEMO undertake a review of the relationship between futures prices and spot prices as part of the review of its MCL methodology to ensure the risk of divergence in spot and futures prices is not material.

Reasoning for final recommendation

PwC recommends that AEMC should consider including the right to terminate a FOA in the event a NEM participant has been found to have breached the conditions of the FOA in an audit or in the event of a fundamental change to the market pricing or structure of a futures contract.¹²⁴

With respect to FOA, this could include circumstances where there is no or limited trade in futures contracts. It is possible that the 'correlation' between futures prices and electricity spot prices may diverge materially making the premise that futures margin would support FOAs invalid.

In its Draft Report, the Commission therefore recommended an amendment to the Rules to include a provision that permits AEMO to not register offset arrangements in the NEM in the event of, in AEMO's reasonable opinion, a fundamental change to market circumstances that may have a material impact on the prudential quality in the NEM. The Commission suggested that AEMO provide advance notice, at the latest, at the time AEMO determines the MCL requirements for future periods.

In its submission to the Draft Report, AEMO reserved comment until the specific wording of the Rule is published for consultation. However, AEMO would like to ensure that any Rule contain clear set of guidelines for AEMO to exercise its discretion.

The Commission did not contemplate providing additional guidance for this discretion other than considerations on the impact on the prudential quality. The Commission noted that the absence of a futures market or sufficient liquidity in futures market, and the potential impact of a CPRS on the market, may be some reasons for the exercise of such discretion.

In light of AEMO's concerns, the Commission recommends that AEMO's initial procedures for a FOA require a region to have a baseline open interest level of over

¹²⁴ PwC final report, February 2010, p.85.

1000 contracts for a spot month, as a precondition for registration of FOAs (as suggested by PwC¹²⁵). In addition, the Commission recommends that AEMO undertake a review of the relationship between futures prices and spot prices as part of the review of its MCL methodology to ensure that the risk of divergence is not material.

The Commission considers that AEMO's consultation on the procedures for the offset arrangements would be an appropriate process to further define the guidelines.

5.1.7 Variation margin payments to meet retailers outstandings in the NEM

This section deals with the assessment of VMPs to meet the difference between a retailer's outstandings and the credit support provided, based on the FLP, for the volume of energy under a FOA.

Analysis is based on a base load futures contract for the relevant region. Noting that load profiling risks are addressed at the time the FOA is registered, all assessment that follows is based on base load futures price and the time-weighted RRP.

Final recommendation

The Commission recommends that the Variation Margin Payment (VMP) formula proposed by PwC be amended to that originally proposed by the Working Group, in light of advantages from that approach and to accommodate the spot price floor recommended by PwC as a separate adjustment.

The Commission recommends that the FOA model (FOA model 2 with amendments proposed by PwC) be further be amended to apply an additional test when returning the VMPs held in the SDA following a futures price fall, to ensure that a retailer's outstandings for energy under a FOA does not exceed the amounts held under the FLP credit support plus any balance remaining in the SDA (this test is to apply in addition to the test that the retailer's total outstandings is less than its TL).

Reasoning for final recommendation

The approach adopted by PwC for the assessment of systemic risk of the failure of futures prices to track spot prices was to back-test the relationship of spot and futures prices over time. This allowed for the actual relationship between the spot and futures prices to be tested and for actual stress test periods over time (such as July 2007) to be considered in the assessment.

PwC's review of historic spot and futures prices for each of the traded markets has not identified any systemic pricing risk in the difference between spot and futures

¹²⁵ PwC final report, February 2010, p.61 where PwC notes that a key determinant of a liquid futures market is the number of open interest contracts and suggests a threshold of 1000 contracts when using futures prices for MCL calculation.

pricing which could be addressed appropriately with a beta factor, as proposed in the working examples of the FOA models. PwC's review has, however, identified days where FLP MCL coverage and accumulated SDA funds will be less than the value of energy consumed under the FOA by the retailer.

PwC recommends that the risks associated with a mismatch between margins from futures positions and that required to meet NEM outstandings can be best addressed by placing a floor on the value of the SDA account equal to the accumulating spot price over the outstandings and accumulating outstandings period. This will ensure, at a minimum, that there are always sufficient funds in the SDA account to cover accumulating and existing outstandings of the retailer and help to protect the prudential quality of the NEM.¹²⁶

PwC also recommends a scaling factor be applied to adjust for the differences between MCL reduction periods and the futures contract periods.

AEMO notes that PwC addresses a risk that the futures price may not correlate to the spot price by introducing a floor in the VMP, through an accumulating spot price term in the formulation of the PwC Model. This has the effect of creating a cash flow in cases where the spot price has increased but the futures price is unchanged. AEMO is concerned that the alternative margin formula proposed by PwC lacks transparency with respect to the sources of cash for funding the VMP.¹²⁷

AEMO states that reviewing this approach, it would appear that scenarios can exist where the cash flow required under the VMP may exceed the funds provided by the futures margin payment. This suggests that the retailer would need to fund this independent of the FOA. Consequently this cash flow is no different to a voluntary SDA used to preserve the prudential margin, and is an unfunded cash flow.

AEMO further notes that the discounting of the margin payments (to 39%) based on the ratio proposed appears to mis-understand how the margin payments are generated. AEMO states that the underlying principle was that full margin payment would usually correlate to the change in NEM outstandings spot price on that day and hence should not be scaled.¹²⁸

In its final report, PwC has provided an analysis that compares the variation margin formula proposed by PwC to the original formula proposed by the Working Group. Figure 5.9 illustrates the comparison for NSW.

The graph for the period April 08 onwards has been magnified in figure 5.10 to show the comparison more clearly.

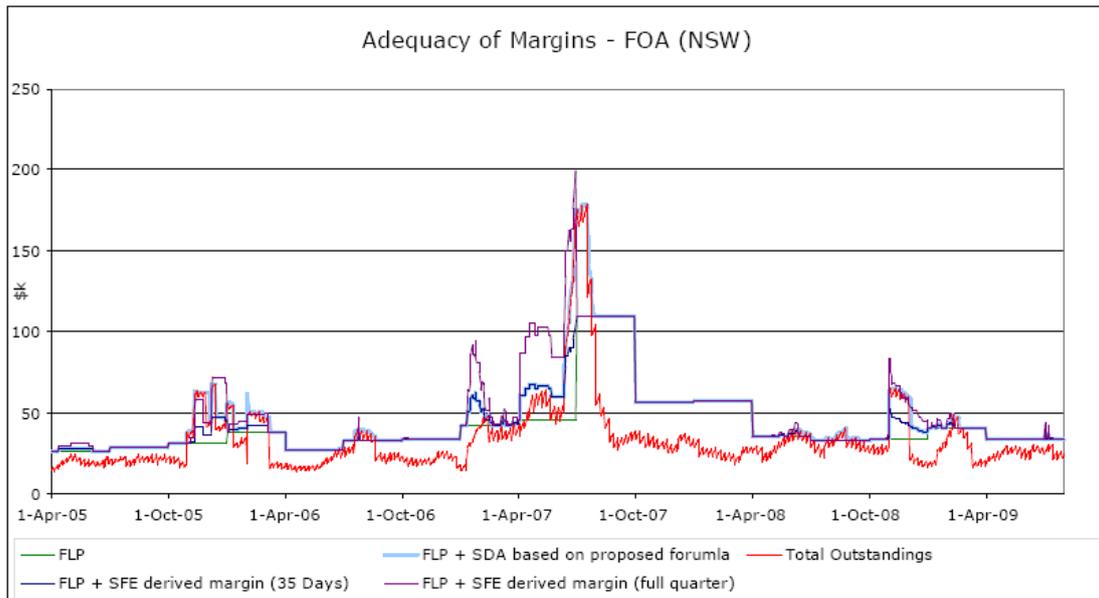
The pale blue line shows the variation margin amounts payable to AEMO under PwC's proposed margin formula. The purple line shows margin payments under the original formula proposed by the Working Group. The dark blue line shows the notional futures margin component under PwC's proposed formula.

¹²⁶ *ibid*, p.55.

¹²⁷ AEMO submission on PwC's draft report, 6 November 2009, section 4.3, p.20.

¹²⁸ AEMO submission on PwC's draft report, 6 November 2009, section 1.6, p.5

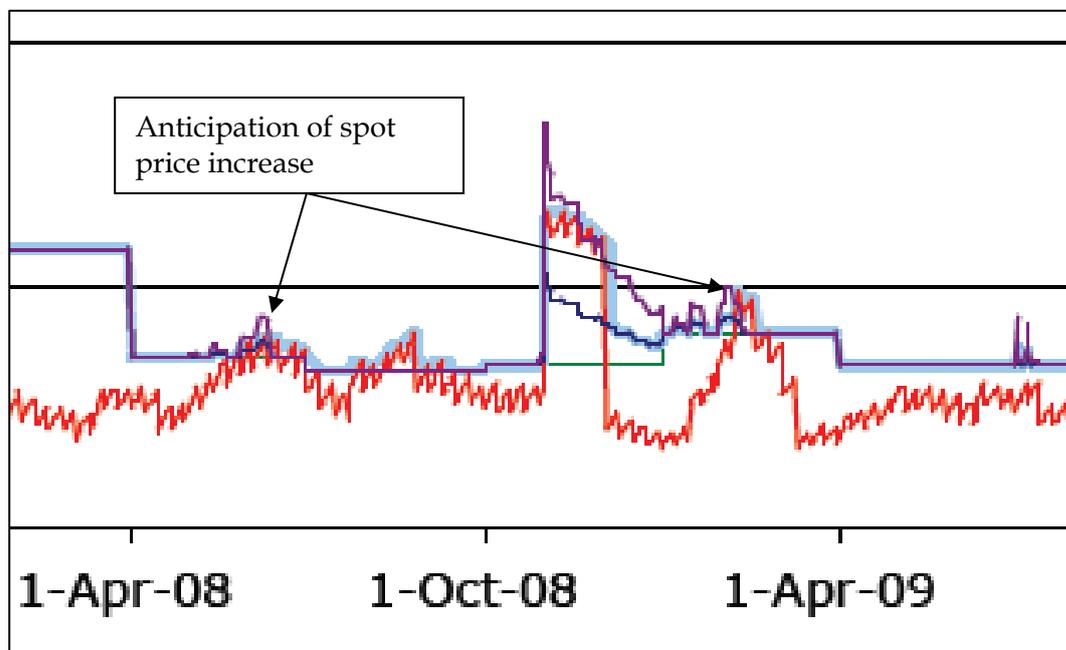
Figure 5.9 - Comparison of variation margin formulas for NSW.



Source: PwC final report

The graph shows that the original formula (purple line) approximates the margin payments required in the NEM. It also captures the futures market’s anticipation of spot price movements earlier, and could help mitigate termination risk.

Figure 5.10 - Comparison of PwC margin formula to original formula



PwC has provided additional analysis that shows the AEMO margin requirements based on the proposed formula and the 'unfunded' components. It shows that there are some instances where margins are 'unfunded' by futures margins.

Another factor that needs to be considered is that a FOA can be lodged up to 90 days prior to the start of the relevant calendar quarter to which the FOA applies. The application of the spot price floor (35 day accumulating spot price) for a period that is unrelated to the relevant quarter may also be problematic. Retailers who register a FOA would need to make variation margin payments based on spot prices for the prior quarter which could result in margin calls by AEMO that are not funded. If the spot price floor is not used in this lead up period, then PwC's margin formula would only capture 39% of the futures margins that would be required in expectation of increases in spot prices over the relevant quarter.

The adjustment for the MCL reduction periods and the futures contract periods, insofar as futures margins are concerned, does not appear to be necessary in light of PwC's assessment on the relationship between daily spot price movements and futures prices movements (about 1/90th of daily spot).¹²⁹ The price relationships appear to reflect the difference in NEM credit period and futures quarters. It is the manner in which the accumulating spot price is incorporated in the variation margin formula proposed by PwC that has resulted in the need for the adjustment.

The Commission sees merit in using the original variation margin formula proposed under working example FOA model 2, with a separate spot price floor for the following reasons:

- it is consistent with the design of a FOA where the futures contracts are expected to deliver sufficient margins to meet spot price movements, and the spot price floor should only apply occasionally when there is a disconnect between futures and spot prices;
- it ensures transparency as to the source of funds for VMP and could provide information on the liquidity of the futures market and signals for potential financial stress on retailers where futures margins fall well short of AEMO's requirements;
- captures the anticipatory element in futures prices which occurs only in circumstances where the futures market anticipates high spot prices, and could assist with the mitigation of termination risk;
- can be applied irrespective of when a FOA is lodged, as it would be based on the futures price expectations for the relevant FOA period and spot price floor in that period; and
- should not result in a significant burden on retailers in terms of sourcing cash to 'fund' the margin payments as the cash amounts should be available from their futures positions and would be returned to the retailer when futures price falls.

¹²⁹ PwC final report, February 2010 p. 34.

The Commission considers that the original formula proposed by the Working Group could be amended to include a spot price floor and achieve similar outcomes to that proposed by PwC.

AEMO supports a VMP recommended in the Draft Report that provides a spot price floor as a sensible approach. It notes an inconsistency with the policy intent and the derivation of the formula and recommends an amendment to the formula and definition. AEMO also supports the additional test prior to reset. AEMO observes that operational details would require refinement within the parameters intended by the framework for FOAs in the Commission's Draft Report.¹³⁰

The Commission has taken into account AEMO's comments and amended the VMP formula as follows:

$$\text{Variation Margin Payment [VMP]} = \text{Max}[(\text{DSPt} - \text{Max} [\text{FLP}, \text{DSPh}]) \times \text{FQ}, 0] + \mathbf{B}$$

Where:

DSPh = previous highest daily settlement price for futures contract since Effective Date during the NEM outstanding period, or, if it has been reset that rest value;

DSPt = official daily future contracts settlement price as the close of business immediately prior to the calculation day;

FQ = quantity of futures contracts x energy covered under each futures contract;
and

FLP = Futures Lodgement Price.

The first part of the formula is that proposed in the working example FOA model 2.

The second element (B, is the spot price floor to adjust for any shortfall) could be as follows:

$$\mathbf{B} = \text{Max}[\text{OSfoa}_t - ((\text{E2} \times \text{FLP} \times 35 \times \text{LF} \times (1+\text{GST}) + \text{SDAfoa})_t + \text{Max}[(\text{DSPt} - \text{Max} (\text{FLP}, \text{DSPh})) \times \text{FQ}, 0]), 0]$$

Where:

OSfoa_t = outstandings for energy under FOA immediately prior to calculation day,
and

E2 = Energy subject to FOA

FLP = Futures Lodgement Price

LF = loss factor

¹³⁰ AEMO submission to Draft Report, 30 April 2010, Item 16, p. 10.

SDA_{foa} = Accumulated margin payments into the SDA under the FOA at close of business immediately prior to calculation day

DSPh = previous highest daily settlement price for futures contract since Effective Date during the NEM outstanding period, or, if it has been reset, the reset value

DSPt = official daily futures contract settlement price as at close of business immediately prior to calculation day

FQ = Quantity of futures contracts x energy covered under each FOA futures contract

B would only commence from the start of the FOA period and will be zero when the outstandings for energy under the FOA is less than the FLP bank guarantee and the amounts in the SDA.

The Commission notes that the formula proposed by PwC ensures sufficient security for the NEM, however the original formula provides some additional advantages without any apparent disadvantages.

The Commission therefore recommends that the variation margin formula originally proposed for FOA model 2 be retained and extended to include the spot price floor in the manner described above.

The Commission also notes a further concern expressed by AEMO that the proposed FOA model provides the ability for the retailer to “reset” the price, and effectively retrieve excess margins payments.¹³¹ The provision in relation to the return of ‘excess’ margins following a futures price reduction could result in FOA margin payments being returned even though this would result in the outstandings for the energy under the FOA being greater than amounts held in as FLP credit support and FOA margin payments into the SDA. This is because the test for return of margins under the proposed FOA model is the retailer’s total trading limit against its total outstandings. This could reduce the prudential buffer held against the rest of a retailer’s portfolio.

To address this concern, the Commission recommends that an additional test be applied prior to the return of FOA margin payments in the SDA. This test would require that the amounts for FOA credit support including amounts in the SDA arising from VMPs, on the day prior to the calculation day, must be greater than or equal to the retailer’s outstandings for energy under a FOA.

It is possible that the spot price may lag a fall in futures prices and the return of margins paid to AEMO may become constrained by this test. The Commission recommends that, where a margin reset becomes available, that AEMO, as part of its FOA procedures, continue to apply this test until the reset amounts have been returned to the retailer.

The model has been appropriately amended to reflect this requirement.

¹³¹ AEMO submission on PwC’s draft report, 6 November 2009, section 9.2, p.45.

5.1.8 AEMO's ability to terminate FOA

This section outlines the Commission's recommendations and reasoning on AEMO's ability to terminate FOAs in the event a Market Participant does not meet the terms and conditions of the arrangements.

Final recommendation

The Commission recommends that Rules in relation to FOAs should provide AEMO with the discretion to terminate a FOA if a retailer breaches the terms of the FOA.

Reasoning for the final recommendation

PwC states that AEMO has the right to perform random audits on any contracts or future positions covered by the FOA. PwC has identified penalties that could be imposed on a NEM Participant who is found to have provided false information or failed to provide information on a timely basis.

PwC recommends that the AEMC should consider the inclusion of each of the following penalties in the event a NEM participant breaches the terms of the FOA:

- AEMO closing out all other FOA positions (and the requirement to provide additional security to the AEMO in line with the change in positions);
- A ban from registering any further FOA agreements for a specified period of time; and / or
- A fixed financial penalty for breach.¹³²

In its submission on the Commission's draft recommendation that AEMO should have the discretion to terminate a FOA in the event of a breach of the terms and conditions of the FOA, Macquarie Generation considers that there are inadequate penalties for failure to comply with terms and conditions of a FOA. Macquarie Generation believes that all FOA positions should be terminated in the event of a breach.¹³³

The Commission contemplates that the termination provisions for FOAs would be similar to those that apply for reallocation arrangements under clause 3.15.11(f) of the Rules. The Commission has therefore amended its recommendation to reflect this intent and to address the concerns above.

Failure to comply with the terms and conditions of a FOA would mean that the prudential requirements under the Rules (3.15.11(f)) are not satisfied. AEMO has discretion to take action under the Rules in such circumstances that could result in termination of all offset arrangements and initiation of default procedures.

¹³² PwC final report, February 2010, p.56.

¹³³ Macquarie Generation submission on the Commission's Draft Report, 2 May 2010, p. 2.

The Commission recommends that Rules in relation to FOAs provide AEMO with the discretion to terminate FOAs, and if required all offset arrangements, if a retailer breaches the terms and conditions of a FOA.

The Commission also recommends that it be a requirement in the Rules that offset arrangements be underpinned by hedge arrangements (refer to section 5.1.2) and that the MCE consider making this requirement a civil penalty provision. This would ensure that the AER can monitor and enforce compliance with this obligation.

The Commission considers that these measures should be sufficient to manage default risk and therefore does not propose any further penalties for failure.

5.1.9 Call notice and default notice under FOA

This section outlines the Commission's recommendations and reasoning on changes to the call and default notice times under the Rules.

Final recommendation

The Commission recommends that Rules be amended to permit AEMO to issue a call notice by 1.00 pm, and for that call notice for the purposes of issuing the default notice, to be taken as being issued on the same business day.

Reasoning for the final recommendation

Under clause 3.3.13(b) of the Rules, if a call notice is issued after 12.00 noon, that notice is deemed to have been given on the next business day. To accommodate possible delays under the SFE processes in relation to access to margins arising under futures contracts for the purposes of making VMPs to AEMO, the FOA procedures have been drafted to delay the issue of call notices to 1.00 pm (instead of 12 noon as is the case at present to meet the same business day requirement).

However in doing so, it is intended that the Market Participant will respond to call notices on the current timeline under clause 3.3.13 of the Rules. That is, by 11.00 am the next day, the participant would need to take action to rectify any breaches. The default process would commence after that time, if required.

This requirement is detailed in section 6.6.4 of the proposed FOA model in Appendix B.

If the Rules are not changed as requested above, then the response to the call notice would occur two days after the issue and would increase risk to the NEM.

The Commission therefore recommends that the Rules be amended to allow the issue of a call notice by 1.00 pm and for the rest of the default procedures to remain as per the current arrangements. The Commission also recommends that this changed timetable apply for the purposes of all call notices, not only to those relevant for VMPs under FOAs.

5.1.10 AEMO to make procedures for FOAs

This section outlines the Commission's recommendations and reasoning on the requirements for AEMO to establish procedures for the implementation of FOAs.

Final recommendation

The Commission recommends that the Rules require AEMO, in accordance with the Rules consultation procedures, to develop FOA procedures and the initial procedures be developed by a date set out in the Rules.

Reasoning for the final recommendation

The Commission considers that the provisions that relate to substantive rights and obligations and that have a material impact on the NEM and Market Participants should be made as Rules. The technical and operational detail, such as day-to-day operating procedures for offset arrangements, should be contained in AEMO's procedures.

This would allow maximum flexibility to AEMO and Market Participants in the design and implementation of procedures for offset arrangements whilst ensuring there is appropriate regulatory basis and oversight for the substantive provisions.

The recommendations on Rules and procedures in the Commission's Draft Report were provided on this basis. In relation to FOAs, the Commission proposed that the enabling provisions be made as Rules. The Rules would require AEMO to develop and publish FOA procedures, in accordance with the Rules consultation procedures, that reflect the recommendations of this Review and AEMO's operational considerations.

There have been no stakeholder objections to the above approach proposed in the Draft Report. The Commission therefore recommends that AEMO, in accordance with the Rules consultation procedures develop and implement procedures for FOAs that reflect the Commission's recommendations and the features of the proposed FOA model provided in appendix B subject to amendments following:

- AEMO's re-assessment of the FOA following its review of the prudential framework; and
- operational and implementation considerations as part of development of detailed Rules and procedures.

5.1.11 Timing of implementation of FOAs

This section outlines the Commission's recommendations and reasoning on the timing for the implementation of FOAs.

Final recommendations

The Commission recommends that the implementation of FOAs be delayed until AEMO has completed its review of the NEM prudential framework. Further, the Commission recommends that prior to implementing the Commission's recommendations on FOAs, AEMO should:

- establish a prudential margin for the NEM prudential regime that meets the reasonable worst case performance target (or other appropriately established performance target) for trading amounts over the reaction period;
- re-assess the benefits and the prudential quality of the NEM under FOAs against any changes to the MCL methodology arising from AEMO's review of the prudential framework; and
- if still appropriate, integrate FOAs in the NEM prudential framework in accordance with the Commission's recommendations with necessary amendments following AEMO's review, through a Rule change proposal from AEMO to the Commission.

The proposed delay would apply to all recommendations in this section 5.1 with the exception of the proposed changes to timing of call and default notices in section 5.1.9.

Reasoning for the final recommendations

The Commission's recommendation on the timing for the implementation of FOAs is based on the following concerns raised by stakeholders;

- current PM is not adequate to support FOAs;
- the benchmark used to test prudential quality of the NEM (RMCL) is not appropriate; and
- the benefits under FOAs may not justify the costs and complexity.

Stakeholder submissions on the Commission's Draft Report

The NGF considers that it is not clear that the FOA product would be attractive to retailers because the administrative overheads involved in the FOA are high relative to the credit support reduction available. NGF considers that FOAs will introduce additional risk to pool creditors, with marginal benefit to pool debtors, and hence will not enhance the NEO.¹³⁴

¹³⁴ NGF submission to Draft Report, 30 April 2010, p. 4.

LYMMCO considers that FOAs represent large administrative costs with a modest benefit in the reductions of credit support available, which is unlikely to be beneficial to retailers as was originally conceived.¹³⁵

sTF notes AEMC's conclusion that FOAs present only a marginal benefit to retailers depending on the quarters modelled when considered against the RMCL. It argues that if the reduction in the prudential quality of the NEM has the potential to be significant and the benefits to retailers small, then in their view, the proposal fails the NEO test.¹³⁶

Origin Energy considers that the complexity and associated costs may make the FOAs a less attractive offset options for retailers. If few retailers are likely to use the mechanism due to its limited benefits and added complexity, it becomes unclear whether the FOA proposal could ultimately deliver sufficient benefits to promote the NEO.¹³⁷

AEMO notes that the implementation and ongoing operation of the FOAs is complex. AEMO is concerned that in developing remedies to identified problems, there may be an increase in the complexity (of FOAs). It recommends that the Commission evaluate overall costs and benefits to confirm whether it meets the NEO.¹³⁸

Commission's considerations of issues raised in stakeholder submissions

The Commission notes that AEMO would need to make system changes to implement FOAs and that there will be ongoing administration costs associated with the daily margin calculations and monitoring processes.

There would also be administrative costs for participants who register FOAs and could include costs associated with making any unfunded margin payments (which could be more than under the RMCL), although analysis provided by PwC indicates that this should not occur often.

The benefits of FOAs include the reduction in costs of a bank guarantee, an alternative offset mechanism that competes with the existing forms of offsets and alternative forms of security, freeing up of collateral that may be required as security and transparent and forward looking basis for establishing the security requirements in the NEM.

The PwC report notes these and other benefits associated with FOAs.

¹³⁵ LYMMCO submission to Draft Report, 30 April 2010, p. 2.

¹³⁶ sTF submission to Draft Report, 30 April 2010, p. 2.

¹³⁷ OE submission to Draft Report, 30 April 2010, p. 2.

¹³⁸ AEMO submission to Draft Report, 30 April 2010, p. 1.

The Commission supplemented PwC's analysis by assessing the benefits of FOAs against the RMCL. The benefits are significantly lower than PwC's analysis which assessed benefits against the standard MCL.

Table 5.1 provides the Commission's analysis of the reduction in MCL under a FOA against the RMCL, based on actual market conditions in 2009.¹³⁹ The table shows the reduction in credit support, by region, over four quarters of 2009 based on a 25% take-up of the FOA model proposed in this Final Report. In NSW there would not have been any reduction to credit support requirements over four quarters of 2009. In Queensland, there would have been a benefit only in quarter 2 of 2009.

Security requirements would have been reduced by \$40-50M in South Australia (SA) and in Victoria. This is based on the view that retailers would not change the level of credit support every quarter, but base it on the maximum required over a 12 month period. Hence for SA, the credit support would have set at \$258M in aggregate.

Table 5.1 - Changes to credit support requirements

Reduction in RMCL with 25% of load under FOA (\$M)				
	Q1	Q2	Q3	Q4
NSW - 2009				
RMCL 100%	455	397	473	381
RMCL 75% + FOA 25%	455	397	473	381
Reduction in credit support	0	0	0	0
SA - 2009				
RMCL 100%	259	299	249	215
RMCL 75% + FOA 25%	251	258	219	193
Reduction in credit support	8	41	31	23
Qld - 2009				
RMCL 100%	509	414	181	175
RMCL 75% + FOA 25%	509	390	181	175
Reduction in credit support	0	23	0	0
Vic - 2009				
RMCL 100%	200	574	542	504
RMCL 75% + FOA 25%	200	522	489	454
Reduction in credit support	0	52	53	50

Based on a 2% - 4% range for cost of bank guarantees, the savings from reduction in cost of bank guarantees alone, would be around \$2M to \$4M for SA and Victoria combined.

The savings in costs of providing bank guarantees alone, is likely to outweigh the implementation and administration costs of FOAs. This benefit is based on the view

¹³⁹ Note that this is an indicative assessment only based on the PM under the current prudential framework, and does take into account the effect of loss factors, GST and inter-regional adjustments or any sunk costs such as initial margins or fees associated with futures contracts.

that the prudential quality of the NEM is not materially reduced under the FOA recommended by the Commission.

Issues with the above cost benefit analysis

The RMCL provisions of the Rules largely capture the MCL reduction benefits that would arise under FOAs, except in MCL periods following high spot prices. Any change to the current MCL methodology would significantly reduce the FOA benefits.

Analysis by PwC in figure 5.11 shows that the main benefits of reduction in the level of security under a FOA arise following a high price events in the NEM (refer to April 2008 and April 2009 periods for SA in figure 1 below). Since there were no high price events leading up to the four quarters of 2009 for NSW (2008 period in figure 5.3), there was no reduction in security requirements. The benefits under FOA arise because the current MCL methodology uses 12 months of historical prices which results in a higher level of MCL in forward MCL periods.

In the draft report, the Commission noted that PwC's analysis shows that:

- the current approach (MCL methodology) tends to lag NEM outstandings as it is based on historical price observations; and
- futures price based approach seems to anticipate spot price movements more effectively.

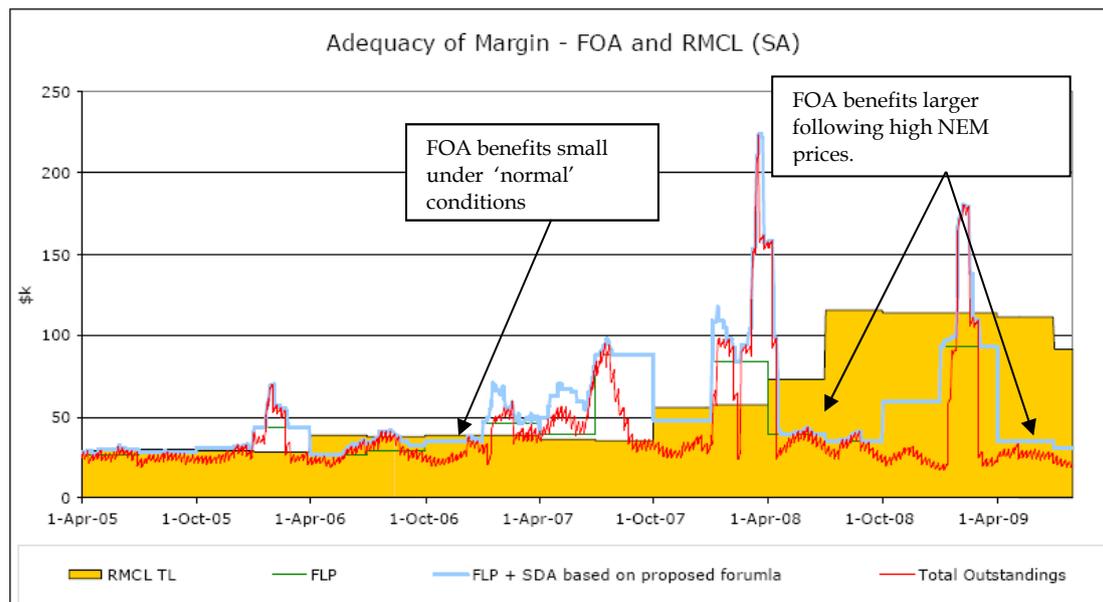
The Commission considered that the work undertaken on the MCL methodology was inconclusive and did not make firm recommendations on the MCL methodology. The Commission recommended that AEMO continue with the work on the MCL methodology as part of its review, and based on the work undertaken as part of this review the Commission, suggested that AEMO may consider rebalancing the PM and TL of the MCL.

AEMO is expected to report on its review of the prudential framework to the MCE by November 2010. The review may result in changes to the MCL methodology and could impact on whether FOAs remain beneficial.

The benefit in terms of the reduction in security requirements under FOAs is largely realised under the current RMCL provisions of the Rules. The FOA benefits arise mainly because of the MCL (and RMCL) outcomes following high price events in the NEM because the current MCL methodology is based on 12 months of historical prices.

The Commission considers a change to the MCL methodology that removes the impact of high historical spot prices on the 'forward' MCL periods, would mean that RMCL arrangements would capture the benefits that are currently available under FOAs.

Figure 5.11 – Benefits under FOA (SA)



The reasons for the recommendations to delay implementation of FOAs and to require AEMO to undertake further assessment are as follows:

- the prudential quality of the FOAs has been compared against the RMCL. Some stakeholders have raised concerns that the RMCL may not achieve adequate credit support in the NEM. In addition, stakeholders have expressed concerns that the PM under current MCL methodology may not be sufficient for the trading amounts expected to be accrued over the reaction period. The AEMO's review of the prudential framework would ensure that an appropriate PM is established for the reaction period; and
- the benefits of FOAs appear to be largely realised under RMCL. The benefits arise in periods following high price events in the NEM because the current methodology uses a 12 month average historical price in the MCL calculations for future periods. A change to the MCL methodology would impact on the benchmark for the prudential quality and the benefits available under FOAs, therefore it is appropriate that the FOAs be re-assessed against AEMO's recommendations on the NEM prudential framework prior to implementation. This would ensure that AEMO does not incur costs to implement arrangements which may have a short-term benefit.

5.2 Other considerations on futures offset arrangements and the Commission's conclusions

This section sets out other considerations in relation to FOAs and the Commission's conclusions. The Commission has concluded that no changes are required to the Rules or AEMO's procedures in relation to these matters.

5.2.1 Inefficiency of FOAs and competitive disadvantage of futures contracts and independent retailers

This section outlines the Commission's conclusions and reasoning regarding concerns that the Commission's recommendations on FOAs place a prohibitive inefficiency on FOAs and competitively disadvantage futures contracts and independent retailers (who are the predominant users of such contracts).

Commission's conclusions

The Commission considers that its recommendations on FOAs are in accordance with the assessment criteria for this Review and the NEO, and appropriately reflect the risks associated with FOAs.

Reasoning for the conclusions

d-cyphaTrade considers that the Commission's recommendations to manage risks under FOAs places a prohibitive inefficiency on FOAs compared to reallocations and places futures contracts and independent retailers at a competitive disadvantage. It provides an alternative MCL formula for consideration.¹⁴⁰

Costs of FOAs compared to reallocation arrangements

d-cyphaTrade contends that the MCL required for FOAs that is 92% more than that required in aggregate for ex-ante energy reallocations and 322% more than that required for internal offsets. d-cyphaTrade contends that this artificially limits the efficiency of FOAs and would result in unnecessarily high collateral requirements and working capital costs for independent retailers, resulting in reduced retail competition and artificially high electricity costs to retailers. d-cyphaTrade also points out that the Commission's recommendations on FOAs are not consistent with those of the independent expert appointed by the Commission to advise the Review.¹⁴¹

Reallocation arrangements and FOAs are different types of offset arrangements and not directly comparable. Further, a key issue with d-cyphaTrade's analysis on FOAs and reallocation arrangements is that it only considers the level of MCL provided under the different arrangements. The analysis does not adequately take into account all the features of the offset arrangement such as the:

- change to NEM liability;
- counter-party obligations; and
- daily supervision and monitoring process.

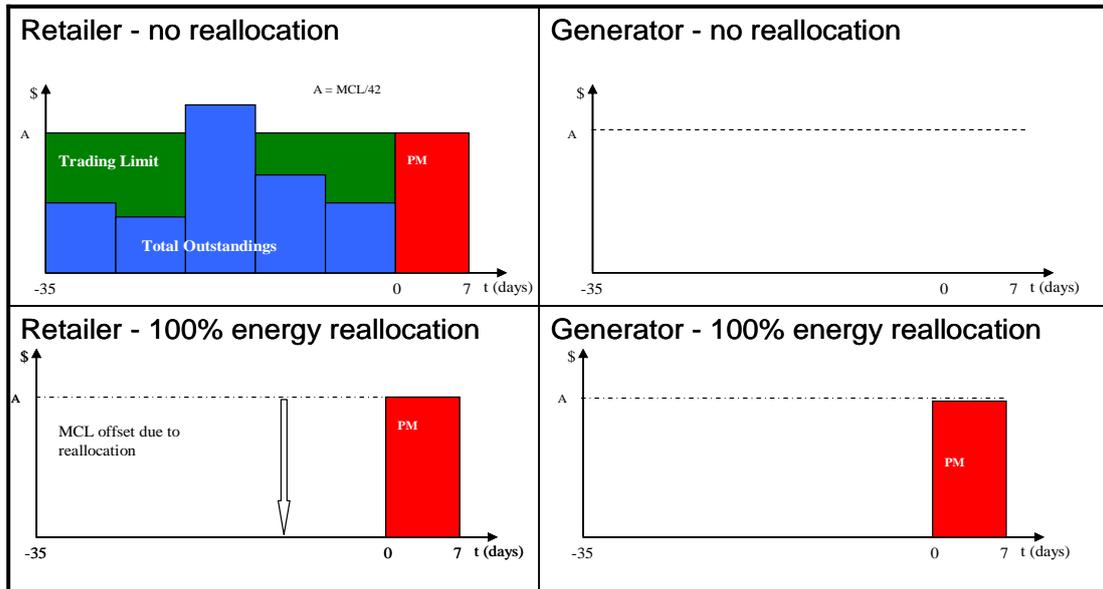
¹⁴⁰ d-cyphaTrade submission to Draft Report, 29 April 2010.

¹⁴¹ *ibid.*

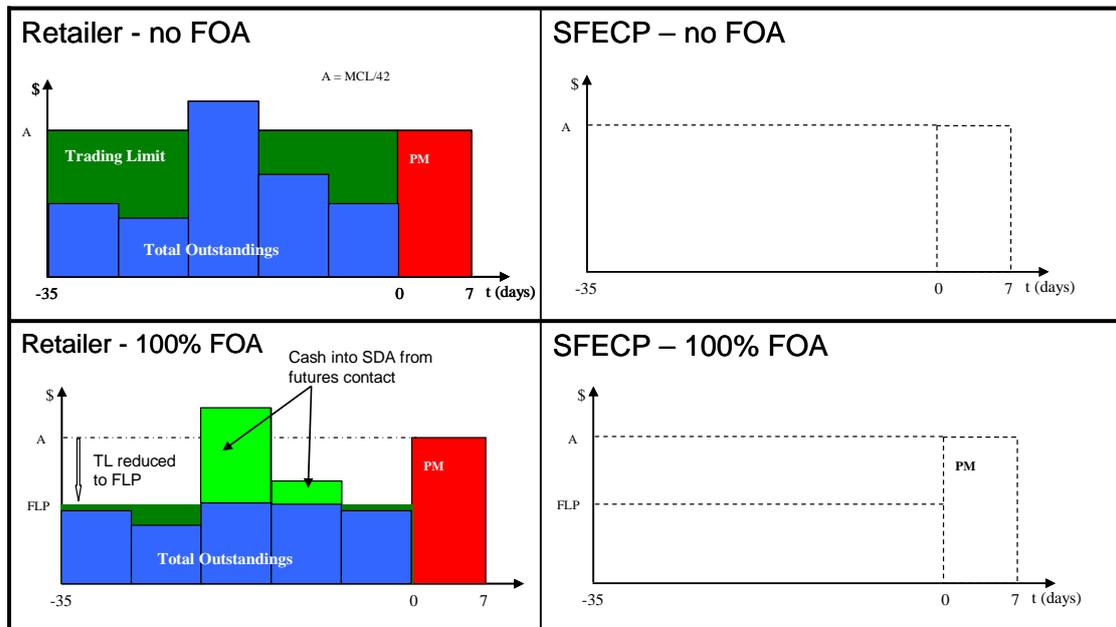
Figures 2.8 (energy reallocation), 2.9 (swap reallocation) and 2.11 (FOA) illustrate the arrangements in their entirety. The comparison of the energy reallocation is reproduced in figure 5.12 below.

Figure 5.12 – Comparison of energy reallocation to a FOA

Energy reallocation



FOA as proposed by the Commission



As shown in figure 5.12, under energy reallocation the value of energy under the reallocation arrangement is settled outside the NEM. AEMO credits the retailer with the value of the reallocation against its outstandings and debits the generator an equal amount against its revenue. The effect of this process is that a generator will not be paid by AEMO for the energy under reallocation and the retailer does not have to pay for that energy. Therefore, for the billing and collection period (7 + 28 days) the liability of the NEM is zero for the energy under the reallocation arrangement.

There is a risk to the NEM if a generator fails or defaults resulting in a retailer default. Under such circumstances, AEMO would utilise the PMs it holds (2 PMs).

On the other hand, under a FOA the NEM's liability to the generator and the retailer's outstandings are determined at the spot price. Under a FOA the NEM liability for the billing and collection period is covered by the trading limit (credit support based on the FLP) and the VMP arising from movements in futures prices beyond the FLP.

It is therefore appropriate that AEMO hold a higher MCL for FOAs, that is, 35 days at the market's expectation of electricity prices at the time a FOA is registered (based on initial futures price) and at least 7 days of prudential margin.

Under the procedures developed by AEMO for swap reallocation, the NEM's liability to the generator and the retailer's outstandings will be fixed at the swap strike price. The generator's obligation is backed by its generation into the pool and if not, by alternative security.

d-cyphaTrade also notes that under internal offsets, the MCL is much lower than that proposed for FOAs. Internal offsets are based on netting off a Market Participant's load against its physical generation, similar to energy offsets. AEMO estimates average daily generation as prescribed in section 11.2 of the Credit Limits Methodology.

The estimated generation for each Market Participant is a positive energy amount that represents the estimated value of average daily sent-out generation within a specific region. The average daily sent-out generation is estimated based on historical generation patterns.

The historical period is typically 12 months, however AEMO reviews the historical data to determine if there is a significant change in energy patterns.

Given that the internal offsets are based on the historical performance of generation plant, reviewed for significant change in energy patterns, the risks of internal offsets are different to FOAs.

It should be noted that the Commission has removed the requirement for an additional PM for FOAs but requires that AEMO establish an appropriate PM.

The Commission considers that a higher MCL is appropriate for a FOA in context of the differences between FOAs and reallocations.

MCL formula for FOAs is anti-competitive against futures markets and independent retailers

d-cyphaTrade contends that the MCL formula is anti-competitive against futures market and against independent retailers:

- by preventing futures market from competing equally against the ex ante reallocation derivative market or as a substitute to anti-competitive vertical integration (merging with a generator) through robotic imposition of additional penalty and cost on users of futures based offsets;
- requiring a Power of Attorney over a retailer's futures account also appears to be a form of competitive discrimination against FOAs because retailers with a reduced MCL arrangement, reallocated retailers and/or generators are not required to provide a similar Power of Attorney over their equivalent off-market (OTC) receivables.

d-cyphaTrade states that the MCL formula by requiring a higher MCL for FOAs than reallocations or internal offsets (currently zero for 100% offset) discriminates against independent retailers. It states that:

- base-load same region generators maintain their market power and price setting ability in the reallocation market without competition from the futures market resulting in higher cost to retailers and consumers; and
- generators maintain market power (and pricing control) in wider OTC hedge market as futures liquidity is crowded out by trading in reallocation derivatives.

The result, according to d-cyphaTrade, is that retailers and the wider NEM being commercially coaxed into holding more potentially toxic OTC credit default risk rather than centrally cleared and regulated hedge products.¹⁴²

The reason for the MCL being higher than for reallocations has been addressed above. The level of MCL for a FOA reflects the arrangements and the NEM liability it is designed to secure.

The power of attorney over amounts held in the CSA was proposed to reflect the fact that there is no independent counter-party to the FOA who would provide an undertaking to continue to meet obligations in the event of retailer default. The Commission has amended its approach following a reassessment of FOAs against the RMCL.

FOAs have been compared to RMCL and not to reallocations. If the Commission were to make the FOAs equivalent to base load swap reallocations, then FOAs would require the SFECs to become a party to a FOA and make margins payments to AEMO with appropriate credit support to back up its obligations. AEMO would need to debit SFECs with margins as described in section 2.3.7.

¹⁴² d-cyphaTrade submission on the Commission's Draft Report, 29 April 2010.

The Commission has removed the recommendation on the requirement for a power of attorney as it is not necessary to maintain the prudential quality of the NEM.

Alternative MCL Formula

d-cyphaTrade has proposed an alternative MCL formula and suggests that the Rules (clause 3.3.10) be amended such that AEMO holds 2 x PMs against the retailer.

The MCL formula for a FOA is proposed to be as follows:

$$\text{MCL} = \text{MAX} [[\text{FLP} \times \text{E2} \times 42 \text{ days} \times \text{LF} \times (\text{GST} + 1)] , \text{P} \times \text{VF} \times \text{E2} \times 2 \times \text{Trp} \times \text{LF} \times (\text{GST} + 1)]$$

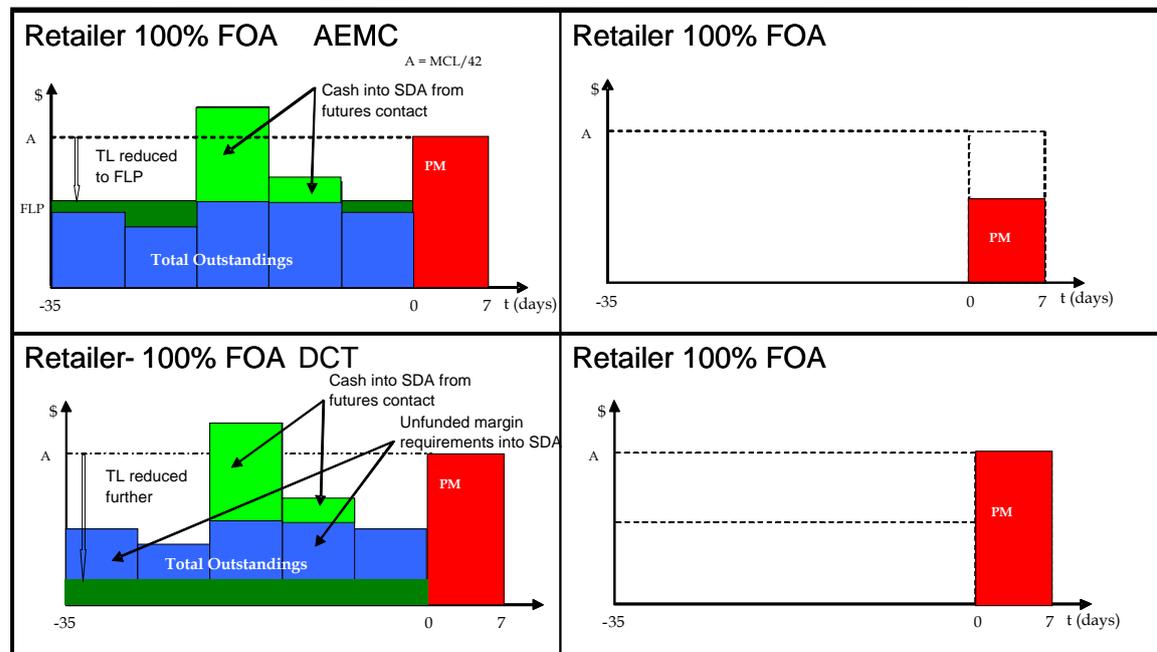
Where formula components are as defined in the AEMC draft report p.126 “MCL Calculation”. Hence Credit Support (i.e. MCL) under FOA = the maximum of:

- (a) the Futures Lodgement Price (FLP) across 42 days (i.e. not just 35 days); or
- (b) 2 times the Prudential Margin.

The formula proposed by d-cyphaTrade would increase the level of PM compared to that proposed by the Commission and the security available in the event of the default. As noted by d-cyphaTrade, this would require an amendment to the Trading Limit which has implications for retailers who register FOAs.

Figure 5.13 illustrates the differences.

Figure 5.13 - Impact of change of MCL to that proposed by d-cyphaTrade



Under the d-cyphaTrade proposal the overall level of MCL (and bank guarantee) would be reduced and the amount of PM is increased. This would result in a significantly lower trading limit for the retailer registering a FOA and the retailer would be required to make margin payments that are not funded by the margins arising under the futures contracts. The variation margin formula for a FOA would need to be amended to reflect the higher variation margin requirements into the SDA.

In addition, the trading limit under the d-cyphaTrade proposal would no longer reflect the futures market's expectation of the futures settlement (and NEM spot) prices for the relevant futures quarter.

The Commission acknowledges that the security available to the NEM would be higher in the event of the default.

The Commission is concerned that overall reduction on the level of credit support to below market price expectation on the basis of unfunded variation margin payments could result in retailer stress and increase the risk of default in the NEM. This arrangement substitutes the cost of credit support with the cost of providing cash and may not be of benefit to retailers.

The Commission has decided not to adopt the alternative formula recommended by d-cyphaTrade.

5.2.2 SFECs as parties to FOAs

The Commission examined the potential for the SFECs becoming party to FOAs under the reallocation category of the Rules or under alternative arrangements as a means to improving the prudential quality of the NEM. Such arrangements would make FOAs similar to swap reallocation arrangements and address surety of payment concerns of stakeholders.

Commission's conclusions

The Commission considers the SFECs are unlikely to become NEM participants and become parties to FOAs.

Reasoning for the conclusions

In its Draft Report, the Commission considered the option of SFECP becoming a party to FOAs to improve the prudential quality of FOAs.

The Commission noted that this option would be similar to the undertaking by the generator under a swap reallocation whereby the SFECP would:

- become a party to the FOA;
- agree to hold margins in a separate client sub account and not net off margins against a retailer's other positions;

- make margin payments as determined by AEMO; and
- undertake not to terminate the underlying futures contract without the agreement of AEMO.

This would mitigate the risk of a retailer not making VMPs as and when required, and would mitigate retailer default risk.

The existing Rules provide for a SFCEP to register in the NEM as a Market Participant and facilitate FOAs. Deliberations on appropriate procedures for such an arrangement have not been fruitful. Further, the Commission understands that SFCEPs are reluctant to be bound by the Rules.

As discussed above, with respect to margin payments to AEMO, the following matters need to be considered:

- the SFCEP has priority rights to net off amounts due to the retailer and it is unlikely to give away that right without charging a fee to reflect the costs of such commitment. This may require a guarantee from the retailer, reducing the benefit of a FOA. PwC notes that it may not be possible to obtain a confirmation from the SFCEP that the positive margins from the FOA futures contract will be payable without netting against all other positions held by the NEM participant in all circumstances¹⁴³;
- it appears that the futures margins that would be available to the retailer would not always match the amounts required under the VMP formula contemplated for a FOA because of netting and other costs, and the spot price floor to address the occasional disconnect between spot and futures prices. There will be circumstances where the amounts determined by AEMO would exceed the margins available to a retailer in which case the retailer could be required to 'top up' margins shortfalls; and
- the amounts held by the SFCEP on behalf of the retailer are in the retailer's beneficial interest and not for the SFCEP to deal with. This could be addressed by the retailers' providing a direction to the SFCEP.

The requirement that a SFCEP must not terminate a retailer's futures positions underpinning a FOA is unlikely to be workable. The SFEOR requires that the SFCEP close out all futures positions held on account of a client if that client fails to pay a margin call.

A SFCEP is likely to prefer retaining its option to close out futures positions in the event of a retailer failure. The SFE Rules provide the option for either party to close out a futures position by giving notice in writing.

The Commission therefore concluded that the commitments by a SFCEP as envisaged above are unlikely to be practical.

¹⁴³ PwC final report, February 2010, p. 53.

Stakeholder submissions on the Draft Report

AEMO supports the approach to have SFECs become a party to FOAs, as it believes that this represents a least risk model for the management of FOAs, noting that the reallocator role in the Rules was intended to facilitate this model. AEMO believes that the introduction of additional creditors (bound by the Rules) in the NEM can increase the value of security, and reduce the exposure of the NEM to the failure of debtors.¹⁴⁴

NGF considers that the existing framework explicitly contemplates financial intermediaries becoming parties to the pool to allow them to lodge reallocation transactions (via the reallocator category). NGF states that this facility was put in place to allow for innovative credit support arrangements to be developed off market and then used to offset pool credit support requirements.

NGF states that the failure of such arrangements to emerge to date has been used as evidence of some form of regulatory barrier. On the contrary, NGF's view is that the failure of futures backed reallocations to emerge is due to the significant risks (and costs) associated with this structure. NGF is concerned that the current FOA proposal will result in these costs and risks being forced onto NEM creditors without any due compensation.¹⁴⁵

Origin Energy considers that the proposed FOA appears to be overly complicated and is unnecessary given the existing NEM Participant reallocator category. Origin does not support FOAs.¹⁴⁶

The above comments by stakeholders are based on the view that any reduction in a retailer's credit support requirements should be replaced with an equivalent counterparty obligations, similar to those under reallocations. As discussed in the next section, the Commission also adopted this approach for evaluation of FOAs, but is now of the view that it is not appropriate.

seed/Taylor Fry consider that any proposal that the SFECs become a party to the FOAs is unlikely to succeed. They state that the proposal in its current form transfers security from the SFEC to the NEM, reducing the quantity and effectiveness of security held by the SFEC against its exposure to the default of its client, with no benefit to the SFEC.¹⁴⁷

International Power (IP) opposes moves to draw or integrate financial markets into the NEM environment. IP believes that a secondary financial market that acts independently of the physical (market) should not be annexed to the NEM without consideration of the overall functionality of the NEM, and its possible redesign.¹⁴⁸

¹⁴⁴ AEMO submission to the Commission's Draft Report, 30 April 2010, item 13, p. 8.

¹⁴⁵ NGF submission to the Commission's Draft Report, 30 April 2010, p. 5.

¹⁴⁶ Origin submission to the Commission's Draft Report, 30 April 2010, pp. 1-2.

¹⁴⁷ sTF submission to Draft Report, 30 April 2010, p. 4.

¹⁴⁸ IP submission to Draft Report, 6 May 2010, p. 2.

d-cyphaTrade provides a number of reasons why SFECs and banks are not likely to participate as Reallocators. d-cyphaTrade cites credit default risk and non-firmness of reallocations as the primary deterrents, including:

- AEMO (bank's counter party to reallocation) is not AAA- rated credit counter party;
- under Basel II, registered reallocations involve credit default risk (i.e. AEMO does not honour or terminates reallocation) that necessitates a credit default charge against the bank's balance sheet;
- option for AEMO to unilaterally terminate the reallocation could potentially create a large financial cost;
- where futures contracts reduce credit risk through process of daily mark-to-market margining, a reallocation merely transfers credit risk from AEMO to the bank reallocator and is a key inefficiency and deterrent to bank involvement; and
- requirement to be bound by additional regulatory framework (the NER) creates an administrative hurdle.¹⁴⁹

Commission's considerations on stakeholders' submissions

The Commission noted in its Draft Report that NEMMCO and ASX unsuccessfully considered options to implement options to integrate futures contracts into the NEM prudential framework. The Commission understands that NEMMCO/ASX considerations were based on arrangements under the reallocator provision in the Rules. AEMO subsequently provided a model for FOAs for consideration by the Commission as part of its FOA Rule change proposal that preceded this Review. The model was based on the SFECP becoming a party to a FOA, together with a retailer.

The Commission considers that the differences in the manner in which the NEM and the SFE operate and are regulated have made it difficult to design a FOA with the SFECP as a party. This view was shared by PwC and AAR.¹⁵⁰

As noted in sections 2.3.4 the NEM and the SFE operate independently of each other. They operate under separate Rules and prudential frameworks.

The two markets are also 'margined' and settled with different reference prices; the NEM against the spot prices and the futures market against the futures prices. PwC's work on spot and futures prices shows that there is a strong relationship between the two but there are occasions when the spot price and the futures price diverge and can result in differences.

The spot market is monitored daily and billed on weekly basis which is collected 28 days later (total exposure of up to 35 days). The futures market is 'margined' daily (daily payment of variation margins).

¹⁴⁹ d-cyphaTrade submission to Draft Report, 7 May 2010.

¹⁵⁰ Refer to the Commission's Draft Report and the reports by PwC and AAR.

Further, the NEM credit period is 42 days whereas the futures contracts cover a financial quarter. The futures 'contract term' is not firm and can be terminated at any time with notice.

Despite the strong relationships between spot and futures prices the differences in the manner in which the 'margining' and settlement operates in each market makes it impractical for SFECs to become participants in the NEM.

5.2.3 Volume of energy under FOAs

Some stakeholders have expressed concerns that the risk to the NEM may increase if Market Participants' ability to register offset arrangements is not capped at their estimated load. This section considers the risk to the NEM arising from Market Participants registering FOAs where the load under these arrangements is more than a Market Participant's estimated load.

Commission's conclusions

The Commission considers that the recommended Rules and procedures for FOAs adequately mitigate the risk of a Market Participant registering more than their estimated loads under FOAs and as such there is no need to establish a precondition that the energy that is subject to FOAs should not exceed the estimated NEM load.

Reasoning for the conclusions

PwC notes that a number of stakeholders have raised the issue relating to the proportion of a retailer's load that could be covered by FOAs and whether a precondition for registration should be that the load under a FOA or combination of FOAs and RAs does not exceed the retailer's estimated NEM load.¹⁵¹

PwC does not believe that there are any risks associated with a retailer lodging FOAs at a greater level than their average load as this will require the retailer to provide additional security over and above that required to meet the estimated load from AEMO, and there is no additional MCL relief above the estimated load.¹⁵² Under a FOA, the retailer would be required to provide a bank guarantee for the additional load at the FLP and make margin payments for that load.

PwC advises that the level of MCL relief provided to the retailer by AEMO should be capped at their average load.¹⁵³ That is, where a retailer registers a FOA in excess of its average load, then the excess amount should not accrue a MCL reduction.

¹⁵¹ PwC final report, February 2010, section 4.5.3, p.53.

¹⁵² *ibid.*

¹⁵³ *ibid.*

For FOAs it is recommended that the MCL for load under the FOA be based on the FLP rather than as a reduction to MCL.

The Commission considers that a cap on MCL reduction is therefore not necessary for FOAs.

5.2.4 PwC's other recommendations on FOAs

This section outlines the Commission's draft recommendations and reasoning on other matters raised by PwC in relation to FOAs.

Commission's conclusions

The Commission considers that the requirements for SFECs to maintain a separate client sub account for futures contracts subject to a FOA and for the SFECs to agree to not net off margins, is not likely to be workable as proposed by PwC.

Reasoning for the conclusions

PwC states that in practice the provisions in clause 5.1.2.3 (sole purpose futures clearing account) of the proposed FOA Model 2 would be very difficult to achieve. PwC indicates that in the case that its recommendations relating to the calculation of the variation margin are adopted than a sole purpose futures clearing account will not be necessary.

PwC recommends that the AEMC should consider the removal of clause 5.1.2.3 and the obligation of retailers to place funds into a separate sub-account with the SFEC.¹⁵⁴

The Commission considers that the working example FOA Model 2 should be amended to remove the requirements that the SFEC maintain a client-sub account for futures contracts that are subject to a FOA.

PwC notes that the preconditions for registration of the FOA include the requirement for a confirmation that the positive variation margins from the futures contract controlled by the SFEC, which underpins the risk coverage of the FOA, are payable without netting against other positions held by NEM Participants.

PwC recommends that the preconditions for registration of a FOA should include a commitment by the NEM participant to pay the variation margin as calculated by AEMO into the SDA. There is therefore no need to require a confirmation to AEMO of positive variation margins paid by the SFEC to the market participant, only that AEMO be supplied with identical information supplied to the retailer on changes to the status of the FOA futures position.¹⁵⁵

¹⁵⁴ PwC final report, February 2010, p.56

¹⁵⁵ *ibid*, p.56

The Commission considers that the proposed requirement under FOAs that SFECs not net off margins for a Client (retailer) is not likely to be practical and may result in additional costs to retailers.

6 Final recommendations on MCL methodology

6.1 Terms of reference

The terms of reference of this Review require investigations into the methodology for the determination of the MCL. In particular, the terms of reference require the Commission to investigate the feasibility of using futures prices in the MCL methodology.

The proponents of the FOA Rule change sought a modification to the MCL calculation methodology in the Rules.¹⁵⁶ Rather than the MCL methodology using historical pool price observations as the basis for future pool prices, it would utilise Sydney Futures Exchange (SFE) electricity futures prices as the key inputs of the model, representing a forward looking view of future risk-adjusted pool price outcomes.

AEMO's submission to the FOA Rule change proposal requested that the Commission clarify the performance target of "reasonable worst case" under the Rules. AEMO submitted that the definition of the "reasonable worst case" in the Rules is imprecise.¹⁵⁷

The Commission's view in the determination on the FOA Rule change proposal was that it considered that clarifying the performance target defined in the Rules was outside the scope of the Rule change proposal and should be only considered under a separate Rule change request. The Commission also stated that it would consider the merits of clarifying this target, as part of its review process, if it forms a relevant part of the scope of the review.¹⁵⁸

The Commission considered that since the interpretation of the "reasonable worst case" is fundamental to the determination of the MCL, that this Review should consider clarifying the performance target.

In summary, the Commission set out to:

- clarify the 'reasonable worst case' performance target for the MCL as set out in the Rules; and
- investigate alternative approaches to determining the MCL to meet the performance target, in particular the feasibility of incorporating futures prices in the MCL methodology.

¹⁵⁶ FOA Rule change proposal, joint submission by Australian Power & Gas, Infratil Energy Australia and Momentum Energy, 10 January 2008.

¹⁵⁷ AEMO's submission to first round consultation on Futures Offset Arrangement Rule Change Proposal, 14 March 2008, section 2.3, p.14.

¹⁵⁸ Rule Determination, National Electricity Amendment (Futures Offset Arrangements (FOAs)) Rule 2009, AEMC, p.42.

6.1.1 Meaning of “reasonable worst case” under the Rules

Clause 3.3.8(b) of the Rules requires the MCL to be determined on the basis of a reasonable worst case estimate of the aggregate payments for trading amounts (after reallocation) to be made by a Market Participant over a period of up to the credit period (42 days). Similarly, clause 3.3.8(c) of the Rules requires the PM to be determined on the basis of a reasonable worst case estimate of the aggregate of the expected trading amount and reallocation amount owing by a Market Participant in respect of the reaction period (7 days).

The “reasonable worst case” performance target is defined under Chapter 10 of the Rules 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”.

6.1.2 Current MCL methodology

The current AEMO procedures determine both MCL and PM on the basis of average historical pool prices over a 12 month period, adjusted by a volatility factor.

The volatility factor is used as a scaling factor to derive the reasonable worst case value from an historical average for each region. For a region where sufficient historical data is available, the volatility factor is calculated as a ratio of the highest value and the mean of the distribution of rolling 42-day average purchases (price times volume) for the previous 12 months. AEMO’s procedure for Credit Limits Methodology provides further details on the determination of volatility factor, MCL and PM.¹⁵⁹ Because it is calculated using the volatility factor based on 42-day data, the current PM may not reflect a reasonable worst case estimate of the expected trading amount over the 7-day reaction period. Chapter 2 provides more detail on the components of the MCL and the prudential supervision processes.

6.1.3 Reduced MCL (RMCL)

As described in Chapter 2, the Rules provide for the MCL determined as above to be reduced by basing the calculation on a notional reduction to the collection period from 28 days to 14 days (refer Schedule 3.3.1(b)(6)(iii)). Under an RMCL the PM is maintained at the levels determined as for standard MCL so (assuming the Market Participant provides credit support at a level equal to the RMCL) the TL is reduced by 40%. The RMCL is a feature of the NEM that has been widely utilised, and in conjunction with AEMO’s daily monitoring process, has worked effectively.

Any changes to the MCL methodology, including the interpretation of the reasonable worst case performance target would need to reconsider the appropriateness and relevance of the RMCL provisions.

The review of the RMCL methodology is, however, not part of the terms of reference of this Review.

¹⁵⁹ *Credit Limits Methodology*, AEMO, 27 May 2009, <http://www.aemo.com.au/electricityops/0530-0007.pdf>, viewed 16 February 2010.

6.2 Analysis on MCL methodology

PwC was engaged to undertake analysis to support recommendations on the interpretation and implementation of the “reasonable worst case” as defined in the Rules, and where appropriate to support changes to the current MCL methodology.

Consistent with the approach outlined in the Framework and Issues Paper for this Review, PwC was asked to advise on the following matters:

- assess and clarify the interpretation of the “reasonable worst case” performance target established by the Rules;
- specify how the interpretation can be given effect in practice; and
- develop a MCL methodology to establish an effective and efficient MCL

PwC was required to assess the impact on the NEM and the Market Participants of any alternative interpretation of the “reasonable worst case” performance target, in terms of effectiveness and efficiency, with reference to the current approach. In addition, the assignment required a comparison of alternative MCL methodologies to determine the approach that would best meet the “reasonable worst case” performance criteria. The options for consideration with respect to the estimation of the MCL included:

- using historical price as the basis for a MCL calculation, as per the current methodology;
- using futures prices in the calculations with or without a volatility factor;
- A “stress test” approach based of using the Cumulative Price Threshold (CPT) and Administered Price Cap (APC); or
- A hybrid approach using aspects of the different approaches.

Consistent with the NEO, the following assessment criteria were specified for the MCL methodology:

- MCL achieves an appropriate prudential quality for the NEM, meaning it is effective or sufficient to meet the performance target;
- cost to NEM participants is efficient, meaning the MCL does not require credit support that is significantly more than required to meet the performance target; and
- operational effectiveness, meaning that there is a degree of predictability in the calculation of the MCL so that Market Participants can estimate their credit support requirements in advance.

These criteria were established following consultation on the Framework and Issues Paper for this Review.

The MCL is intended to be a forward looking assessment of the NEM's reasonable worst case exposure to individual NEM participants. PwC took this into account in its assessment.

6.2.1 PwC's findings and recommendations

Reasonable worst case

PwC notes that:

"A key issue in the debate on what 'Reasonable Worst Case' actually means is that the definition is qualitative leaving the quantitative interpretation open to interpretation. Recognising this issue, an alternative way to look at the qualitative definition is to turn the definition into a statistical definition that can be used to obtain an MCL measure that has a high degree of effectiveness and efficiency.

To draw an analogy to the banking sector who reserve against a worst case scenario with a 95% to 99% level of confidence, based on APRA prudential and/or Basel II requirements. Trading desks traditionally operate at the lower to mid end of this range, while treasury activities are likely to be at the upper end. The 'reasonable worst case' scenario defined by the NEM rules identify a reasonable worst case scenario as a one in 48 month event (47/48) or a 98% level of confidence. This falls between the banking industries 95% to 99% confidence level. While risk can be measured at a consistent level across industries/markets the method of measuring risk is necessarily specific to the particular asset, portfolio or application."¹⁶⁰

PwC notes that NEM pricing is not characterised by normal or log normal distribution and suggests taking an approach that utilises historical information and creating a discrete pricing distribution based on all pricing points over a specified period of time and taking a percentile (98th), or actual pricing event, as the reasonable worst case scenario.

PwC refers to a number of ways in which the 98 percentile observation may be used in the determination of the MCL:

- with the current methodology using the rolling 42 days average of prices looking back over a specified time period, 12 months as in the current MCL, and identifying the highest price spike then scaling it down to derive the 98th percentile observation;¹⁶¹
- for the futures MCL methodology and the hybrid MCL methodology assessed by PwC, where volatility was developed using week to week futures price changes and capturing the 98 percentile relative to the 52 week average and multiplying by a time factor of the square root of 6;¹⁶² and

¹⁶⁰ PwC final report, February 2010, p. 57.

¹⁶¹ Ibid, p. 58.

¹⁶² Ibid, p. 63.

- in response to concerns by AEMO and the NGF that the period over which the 98th percentile observations are to be based may not include the high price outcomes observed in the NEM, PwC indicates that analysis for the 98th percentile observations has been carried out on a daily rolling 35 day basis.¹⁶³

PwC applies the different approaches to the determination of the volatility factor to a number of MCL methodologies and concludes that the 98th percentile approach provides MCL values of the same order of magnitude as the current MCL methodology.¹⁶⁴

PwC also presents an alternative MCL methodology that is based on a “stress test” approach. This approach involves estimating a “reasonable worst case” scenario as a single event, rather than as a probability of several events. In this case the “reasonable worst case” over the full 42-day credit period involves separate assessment of the exposures faced by the market during the 7-day reaction period and during the billing and payment periods (35 days). Based on a review of market experience over the past 60 months, a likely worst case one-week scenario is assessed as a CPT event followed by administered pricing for the remainder of the week. This event is then combined with estimated spot prices (derived from futures prices) during the remaining 35 days.

MCL methodology

PwC examined a number of options for the determination of the MCL and assessed their effectiveness and efficiency. The options examined are as follows and are detailed in its risk assessment report.¹⁶⁵

- Current MCL (Current MCL) - The current MCL process utilises historical information to provide credit cover for forward looking credit exposures. The calculation methodology uses an average of time-weighted prices for the past year and a volatility factor derived as the ratio of the peak to average value of a rolling 42-day average of daily outstandings as described above.
- Futures MCL (FUT MCL) - A forward looking MCL was developed using spot futures and applying a volatility factor derived from the spot futures. The base price used was the average of 5 spot futures settlement prices, 10 days and 40 days prior to the start of futures contract (financial quarter). The latter was to ensure adequate time for Market Participants to make arrangements for bank guarantees. The volatility factor was determined as the ratio of 98th percentile week to week price changes over 12 months of historical futures price data for futures price used in base price calculation and the 52 week average. To ensure consistency with the 42 day credit period for the determination of the MCL, this weekly average is multiplied by the time factor of the square root of 6.

¹⁶³ PwC final report, February 2010, section 7.2.1, item 1.10.1, p.101.

¹⁶⁴ Ibid, p.58.

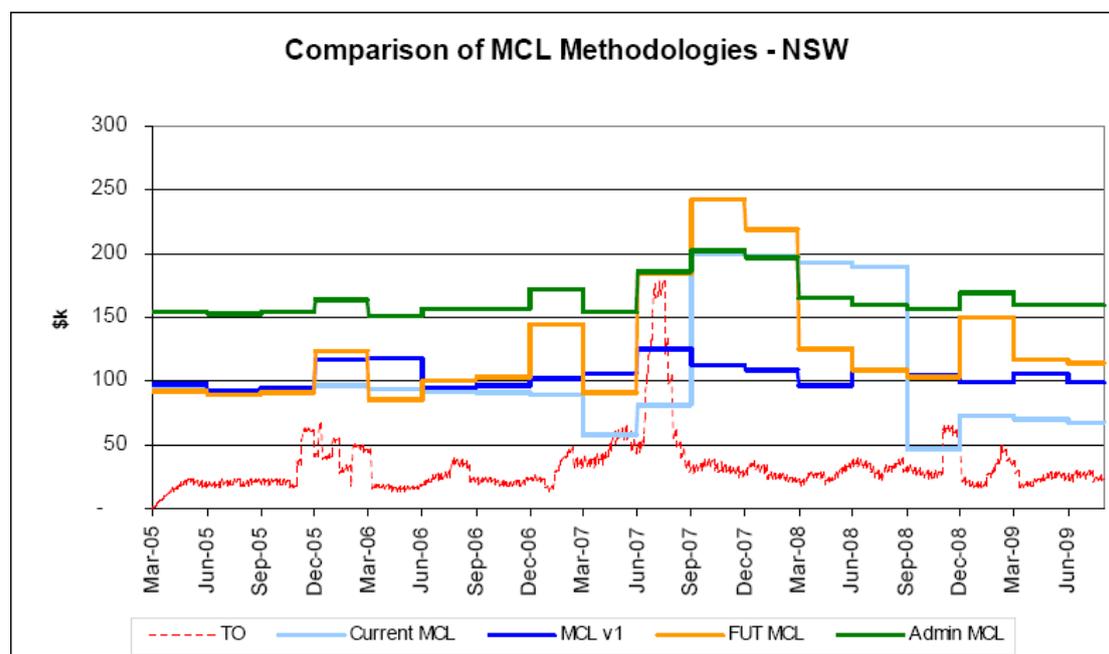
¹⁶⁵ Ibid, section 5, p. 57.

- Stress Test MCL (Admin MCL) – A stress test MCL was developed by using one week of one CPT event (7.5 hours) followed by 161.5 hours of APC. The remaining 35 days of the 42 days credit period was based on the spot futures price, as for the FUT MCL. No volatility factor was applied for the 28 day collection period. The volatility factor for the one week of accumulated billings was determined as for FUT MCL, but only for one week. This methodology was developed to recognise the respective risks of each part of the 42 day outstandings time period.
- Hybrid Model (MCL V1) – A model that incorporates spot and futures prices has been devised by utilising average spot prices for the 4-week outstandings period and one week of spot futures prices multiplied by the volatility factor (as in Admin MCL) for accumulating outstandings and the CPT for the one week reaction period (prudential margin).

An adapted current approach was examined but not pursued.

Figure 6.1 displays graphically the performance of each MCL methodology against the load weighted total outstandings for NSW. Similar assessment for other states is provided in the PwC report. Note the figure below shows the total MCL under different approaches with reference to the total outstandings. Whilst the MCL methodologies apply different approaches to the calculation of the TL and PM, this figure could mask the effectiveness of such approach.

Figure 6.1 - Comparison of MCL calculation methodologies for NSW



Source: PwC final report

PwC finds that the Futures Price MCL alternative displays a strong effectiveness at 98% coverage of all days during the 5-year time period while also having low ratio of outstandings to MCL, implying low efficiency and the highest cost. PwC advises that additional fine tuning of the futures methodology should provide sufficient

evidence for futures to be used as a more effective and efficient means to calculate MCL. This fine tuning could include moving the calculation period close to the start of the quarter and modifying the volatility factor.¹⁶⁶

PwC has recognised AEMO's concerns with respect to the timing of MCL calculations. It notes that currently AEMO establishes the MCL some 60 days prior to the start of the quarter. It is also noted that the current MCL periods are not aligned to financial quarters. PwC has found that the FUT MCL provides better results when the price observations close to the start of a futures quarter are used.¹⁶⁷ The adoption of FUT MCL would therefore require these operational considerations to be taken into account.

PwC points out that it should be recognised that there would be additional market efficiencies that could be realised by using futures for the MCL calculation, such as greater alignment of the physical and financial markets and the fostering of greater interest in short-term trade in the market to better facilitate load balancing risk.

PwC therefore recommends that for NEM regions with sufficient trading activity, currently (NSW, QLD and VIC), a forward looking approach using futures be strongly considered for implementation due to its modelled superior effectiveness. PwC recommends that further work be undertaken to create a formula that increases the efficiency without impairing the effectiveness. According to PwC, for regions with insufficient trading activity or no futures contract, the MCL calculation methodology should default to the current methodology until further assessment of historical MCL approaches proves more effective and efficient than the existing MCL calculation approach.¹⁶⁸

6.2.2 Stakeholders' views on PwC's assessment and recommendations

ERAA believes MCL proposals are insufficiently developed to be adopted at the moment. ERAA submits that:

- there seems to be benefits in moving to a more forward looking approach potentially using a futures price in some way; and
- further exploration and development of these options would be supported.¹⁶⁹

The ERAA submission also points out that in calculating the efficiency of the Stress Test Method, PwC has overlooked that a prudent retailer would/should be carrying sufficient cash (or callable lines) to meet an AEMO margin call should a stress event occur. Therefore, the ratio of Outstanding to MCL is not a relevant measure as it assumes that any cash not sitting with AEMO is free to be utilised elsewhere in the business (or re-distributed to shareholders). If liquid cash (or callable lines) is required to meet a stress test margin call at any time then it matters little whether

¹⁶⁶ PwC final report, February 2010, section 5.5, p. 75.

¹⁶⁷ Ibid, section 5.3.3, p. 62.

¹⁶⁸ Ibid, p.75.

¹⁶⁹ ERAA submission on PwC draft report, 5 November 2009.

this cash is with AEMO or in the bank (or whether the callable line is on-call or already committed to AEMO by way of bank guarantee).¹⁷⁰

In its final report, PwC agrees with ERAA that a prudent retailer should maintain sufficient cash or callable lines to meet an AEMO margin call should a stress event occur. It notes that AEMO is concerned that it has no recourse to funds which it does not hold in the event of a retailer failure event.¹⁷¹

NGF believes that more work is required in this area. It believes that the preliminary analysis put forward by PwC indicates that the existing mechanism is far from ideal, and an alternate approach – potentially based on a futures based forward pricing estimate – deserves further exploration. Some element of a stress test built into MCLs could also warrant further evaluation.

NGF states that to its credit, AEMC has identified that a lack of clarity in the rules definition of “reasonable worst case” is a serious problem in assessing the effectiveness and appropriateness of existing and proposed prudential arrangements. It believes that consideration should be given to clarifying the rules definition of the prudential standard the NEM aims to achieve.

In relation to the PwC report, NGF remains uncomfortable with the proposed 98th percentile interpretation of the current rules definition. In the language of its advisors, this would appear to ignore the “long tail” nature of the loss distribution. From an NGF point of view, it remains concerned that the 98 percentile (particularly if taken on a time basis and not on an outstandings basis), is likely to leave the NEM exposed to typical peak pricing periods that occur regularly and are a necessary and predictable feature of the energy only market, but whose frequency is likely to fall outside the 98th percentile definition.

NGF states that a clearer definition, or at least a more commonly accepted interpretation, of “reasonable worst case” is required to allow proper evaluation of the various MCL approaches, the FOA and any other aspects of the prudential regime. The NGF recommends that the AEMC should pursue such a common understanding.¹⁷²

AEMO submits that the work on MCL will require a rethink on approach, as the modelling does not consider the operational imperatives, some of which were discussed in the Working Group. Furthermore, AEMO believes that in order to incorporate one of the key findings regarding load variances, a new algorithm and/or a new approach to calculating MCLs will be required. It suggests that this could be progressed by either AEMO or AEMC, but in AEMO’s view, development in that area is likely to limit the opportunity for the use of just base load futures prices in MCL calculations. AEMO also notes that load volatility is an equally important issue which should also be investigated.

¹⁷⁰ ERAA submission on PwC draft report, 5 November 2009.

¹⁷¹ PwC final report, February 2010, p.105.

¹⁷² NGF submission on PwC draft report, 5 November 2009, p.4-5.

AEMO submits that a pivotal area within the Rules and hence the NEM prudential framework is the definition of “reasonable worst case”, and the PwC report carries out analysis of this concept.

AEMO notes that whilst the PwC draft report identifies out a logical/ statistical approach which is very helpful in the work around clarifying reasonable worst case, in AEMO’s view the reported methodology results shows that this methodology is not a way of interpreting reasonable worst case. For example, it states the 98% effectively means that any price in the NEM over \$300 is not in scope of the NEM prudential regime. From AEMO’s perspective this does not appear to be correct given the events of recent years. The impact of a NEM price of \$10,000 can be substantial and this statistical approach excludes these events.

In summary, AEMO states that given how difficult it is to distil a workable interpretation of the reasonable worst case in the context of NEM prudentials, it now appears increasingly important that this aspect of the AEMC’s Review be pursued through to a conclusion to ensure that a workable interpretation is achieved, even if clarification of the wording in the Rules is required in order to reach a final position. Otherwise, there is a risk that the Rules may lack sufficient clarity and transparency to be workable.¹⁷³

In its final report on risk assessment, in relation to the above matters raised by the NGF and AEMO, PwC:

- has provided a banking sector analogy to support its interpretation of 98th percentile observation as a reasonable worst case scenario (section 5.1);
- notes that analysis has been undertaken over a daily rolling 35 day basis not on a daily basis, therefore the 98th percentile will not exclude all prices above \$300 as per AEMO analysis. The periods excluded by the 98th percentile analysis are those with the greatest average prices over the 35 day rolling period (section 7.2.1, item 1.10.1);
- agrees with AEMO that an agreed and workable definition of reasonable worst case is required and that the scope of their report was limited to PwC providing its view and backing it statistically to the extent possible and therefore consultation on the next steps proposed by AEMO beyond the scope of the PwC review (section 7.2.1, item 1.10.1);
- agrees that the process would benefit from industry consultation to assess the preferences, risks and benefits of a change to the current MCL methodology. PwC states that it has developed a series of MCL calculation approaches and evaluated their effectiveness and efficiency against one another. PwC notes that no conclusive result of a superior MCL methodology prevailed and indicates that, in consultation with stakeholders, modification of the MCL approach using futures as a calculation base could achieve a more effective

¹⁷³ AEMO submission on PwC draft report, 6 November 2009.

and efficient MCL methodology (section 7.2.1, item 1.11.5, section 7.2.2, item 4.0); and

- agrees with the AEMO's submission that further work is needed in relation to the treatment of load profile and load volatility in the MCL calculation (section 7.2.1, items 7.2 and 7.3).¹⁷⁴

6.2.3 Commission's view on PwC's assessment of MCL methodology

The Commission notes that the work undertaken by PwC provides useful insight on both the interpretation of the reasonable worst case performance target and alternative MCL methodologies. The analogy of the banking sector for the interpretation of the reasonable worst case scenario as the 98th percentile observation has appeal in principle. In addition, PwC's work on MCL methodologies shows that use of futures prices, where there is sufficient depth and liquidity in the futures market, appears to anticipate spot price movements and could help to improve the effectiveness of MCL methodology. The current approach which is based on historical price outcomes tends to lag behind the spot price movements. Therefore, consideration of the use of futures prices has strong merit.

However, the Commission is mindful of the concerns raised by stakeholders in response to PwC's draft report on risk assessment; of the absence of analysis to demonstrate that risks in the NEM are comparable with risks in the banking sector; and of PwC's own conclusions that further work is required. As a result of these, and the Commission's own considerations, the Commission believes that further work is required before firm recommendations can be made on both:

- the interpretation of the reasonable worst case performance target; and
- the principles to be applied for the determination of the MCL or an appropriate MCL methodology.

The Commission considers that it is important that the "reasonable worst case" performance target be clarified as a matter of priority. Once this has been achieved, it would be possible for AEMO to establish an appropriate MCL methodology as part of its processes for reviewing the MCL methodology.

The Commission believes that there are a number of matters that need to be further investigated. These are discussed in the following sections.

Reasonable worst case performance target

The first consideration would be to establish the reasonable worst case performance target as suggested by AEMO and NGF (through its advisors). PwC provides a view on the interpretation based on the banking sector analogy and applies the interpretation in a number of different approaches. The Commission is not satisfied,

¹⁷⁴ PwC final report, February 2010, sections as referenced.

however, that the PwC work provides sufficient analysis of the impact of the proposed interpretation on the prudential quality of the NEM or on the costs to Market Participants. The effectiveness and efficiency of the different MCL approaches is therefore not assessed against an accepted target. A comprehensive analysis of the proposed performance target is needed before further work can usefully be undertaken on the assessment of different methodologies.

The Commission considers that in order to make a recommendation on the interpretation of the reasonable worst case scenario, it would need to:

- consistent with the Rules, form a view on the balance between the TL and PM under the MCL. The Rules require the MCL and the PM to be reasonable worst case estimates of trading amounts owing by a Market Participant in respect of the credit period and reaction period respectively;
- establish the manner in which the 98th percentile observation of expected price outcomes would be applied. Based on PwC's work, the options may include:
 - the MCL could be based on the 98th percentile price observation for average 42 day prices, with PM being the 7 day equivalent;
 - the TL could be based on the 98th percentile observation of 35 day average prices and the PM on 7 day average prices;
 - the PM could be determined as the 98th percentile estimate of 7 day average prices and the TL could be based on average prices.

Alternatively the TL could be based on average prices, and the PM on the stress test approach considered by PwC.¹⁷⁵

- test the impact of application of the reasonable worst case performance target in this manner on the prudential quality of the NEM and the costs to Market Participants and the NEM.
- further consultation on whether the effectiveness and efficiency achieved by the interpretation of "reasonable worst case" is acceptable in the NEM.

This would help establish an acceptable performance target for the reasonable worst case scenario and confirm if the proposed interpretation is acceptable in the NEM.

Assuming that the performance target can be confirmed then the next step would be to determine the approach that would best meet the performance target, that is, the best of the alternative MCL methodologies.

¹⁷⁵ Note the reference to TL in this section is the minimum trading limit. The TL is defined in the Rules as the difference between the credit support held by AEMO and the PM, therefore TL may be higher where a Market Participant has provided credit support in excess of the minimum requirements.

MCL methodology

PwC has indicated that the one way to incorporate their recommendation on the reasonable worst case target would be to determine the volatility factor used for MCL calculations as the ratio of the 98th percentile rolling average price observations for a period divided by the average for the period. Alternative stress test approaches have also been examined. This part of the investigation would test and refine the various approaches to establish which approach best meets the performance target.

PwC has undertaken such analysis and the results are summarised in figure 6.1. The various approaches are compared to the current MCL methodology and the NEM outstandings. The comparison however, is not against an agreed target, and therefore it is difficult to establish which approach is superior. Further, consideration also needs to be given to the manner in which the TL and PM is determined. The Commission also notes that the impact of load volatility on the MCL has not been examined, which is an important consideration in the determination of the MCL.

PwC's analysis shows that:

- the current approach tends to lag behind NEM outstandings as it is based on historical price observations; and
- futures price based approach seems to anticipate spot price movements more effectively, provided futures prices closer to the start of the futures quarter are used.

The latter approach is shown to result in a lower efficiency compared to the current approach. The options available to the Commission in relation to the MCL methodology are as follows:

- undertake further analysis and establish clarity around the reasonable worst case performance target as part of this Review. AEMO could then review current MCL methodology and establish an MCL methodology that best meets the performance target. This would also include considerations on the appropriate basis for the determination of the PM and TL taking into account the requirement under the Rules; or
- based on assessment to date, develop options for consideration by AEMO as part of its current review of the prudential framework, and conclude this Review by the Commission. If required, AEMO could propose changes to the Rules following its review.

The Commission notes that AEMO's current considerations on shortened settlement cycle would require clarification of the performance target, hence a separate review that runs in parallel with that work is not appropriate.

The Commission notes that the decisions on the MCL methodology could impact on the design of offset arrangements. It would also impact on the benefits that can be achieved under offset arrangements. In addition, the current RMCL provisions

would need to be reviewed for appropriateness and consistency in light of any alternative approaches to the determination of the MCL.

6.3 The Commission's draft recommendations

As part of its Draft report, the Commission proposed that AEMO continue with the work on MCL methodology as part of its review. When an agreed target has been established, AEMO could recommend Rule changes, if required, to give clarity to the performance target.

The Commission recommended that once the performance target for reasonable worst case has been established, AEMO should undertake a review and establish a MCL methodology that meets the performance target in the most effective and efficient manner. Consideration could include the use of historical prices, futures prices or other alternative methods.

The Commission also recommended that, subject to further analysis and consultation, the reasonable worst case scenario for the determination of the MCL be as follows:

- the PM be determined on the basis of the 98th percentile 7 day load weighted average price expectations over the future MCL period; and
- the minimum TL be determined on the basis of the load weighted average price expectation over the future MCL period.

Based on analysis, the Commission considered that an arrangement that approximates the reasonable worst case outstandings over the reaction period in conjunction with the average price expectations for the rest of the credit period when combined with AEMO's daily monitoring process could be considered as representing a reasonable worst case coverage for the credit period as required by the Rules.

The Commission noted that the above proposals need to be assessed for the impact they would have on the prudential quality of the NEM and the costs to Market Participants.

6.4 Submissions on the Commission's draft recommendations

AEMO advises that it has commenced its investigation of 'reasonable worst case' as an important element of its review. It notes however that consistent with the broader scope of its review, AEMO intends to look more generally at how prudential standard should be set for the NEM and, if appropriate, to propose improvement to the current mechanism. AEMO is concerned that the Draft Report sets steps for further work in this area.¹⁷⁶

¹⁷⁶ AEMO's submission on the Commission's Draft Report, 19 March 2010, p.12.

AEMO advises that the further work and options identified by the Commission are helpful and may be considered as part of its review.

The NGF, ERAA, LYMMCO and Origin Energy have expressed the concern that the Commission's view on the approach and recommendations to clarifying the 'reasonable worst case' performance target may unintentionally constrain AEMO's broader review of the NEM prudential framework. These stakeholders support further investigation into the MCL methodology, and support the Commission's recommendation that the Commission should conclude its review and leave the outstanding issues in relation to the MCL methodology for AEMO's review.

6.5 Commission's final recommendations

The Commission recommends that AEMO continue with the work in relation to the MCL methodology as part of its broader review of the NEM prudential framework. This may include the consideration on matters that were part of the Commission's terms of reference or more appropriate alternative arrangements.

The Commission is not able to make recommendations in relation to the MCL methodology that was part of its terms of reference due to the work undertaken to date not being conclusive.

The Commission's terms of reference required it to:

- clarify the 'reasonable worst case' performance target for the MCL as set out in the Rules; and
- investigate alternative approaches to determining the MCL to meet the performance target, in particular the feasibility of incorporating futures prices in the MCL methodology.

The Commission notes that work undertaken by PwC, whilst not conclusive, provides some useful guidance which may be used to improve the MCL methodology.

The Commission intended that views in the Draft Report be treated as options that AEMO may consider should it seek to 'interpret' the reasonable worst case performance target in its review. Those views should not be taken as a direction to AEMO.

Appendix A Review into the role of hedging contracts in the existing NEM prudential framework – Terms of Reference

Under section 45 of the National Electricity Law (NEL), the Australian Energy Market Commission (Commission) has initiated a review into the potential use of futures and other types of contracts in the National Electricity Market (NEM) prudential framework.

Objective of the review

In this review, the Commission is seeking to provide advice to the Ministerial Council of Energy (MCE) on ways in which NEM participants' futures and other types of contracts can be integrated into the NEM prudential framework with the objective of enhancing the operation and efficiency of that regime.

Scope of the review

The scope for this review includes:

- investigating the feasibility of developing a mechanism to offset the prudential requirement of a NEM market participant using its contract position;
- investigating the feasibility of incorporating futures prices in the MCL methodology;
- investigating and developing any other appropriate proposals that may enable NEM participants' contract positions to be taken into account so as to enhance the NEM prudential framework;
- as appropriate, legal analysis of the potential design, and statistical or other suitable analysis to confirm the costs and benefits, of any such proposals; and
- as appropriate, determining the final design of any such proposals (this includes, but is not limited to, appropriate information, reporting and data requirements);
- as appropriate, development of proposed National Electricity Rules to implement these arrangements.

The scope of the review will seek to identify solutions within the context of the Rules framework.

Working Group

The Commission will establish a working group to provide expert advice relating to the review.

This working group may consist of members with the following areas of expertise:

- Rule change process;
- NEM prudential framework;
- relevant financial market knowledge;
- legal knowledge;
- knowledge of the issues from a NEM generator's perspective;
- knowledge of the issues from a NEM retailer's perspective; and
- any other areas of expertise deemed suitable by the Commission to assist in the review process.

Approach to the review

In seeking to address the above objectives, the Commission will undertake a staged approach.

The two stages are as follows:

- **Stage 1:**
 - a) will identify mechanisms to integrate futures and other types of contracts into the NEM prudential regime, including:
 - the issues associated with a mechanism which offsets the prudential requirement of a NEM market participant using its contract position;
 - the issues associated with applying futures price information to determine the MCL for a NEM market participant;
 - where possible, identify solutions for the issues, and recommend an arrangement for offsetting the prudential requirement of a NEM market participant and/or a revised MCL methodology;

b) where there is no feasible solution for the issues, conclude the review process without making a recommendation.

- **Stage 2:** as appropriate, will develop draft Rules to support the recommendations made in Stage 1.

Considerations

In conducting this review, the Commission will have regard to:

- the national electricity objective;
- MCE statement of policy principles;
- previous reviews and Rule determinations relating to reallocations or Futures Offset Arrangements;
- other relevant previous reviews and Rule change determinations;
- expert advice from the working group; and
- any other relevant information.

This review will be conducted in an open and transparent manner to provide all interested stakeholders with the opportunity to contribute at each stage of the review process. The Commission will have regard to stakeholders' opinions raised during the course of the review.

Timing and outputs

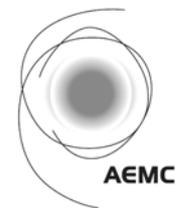
The Commission will deliver the following outputs for this review:

- A **Framework and Issues Paper**, which will identify and consult on the range of issues requiring consideration and inform interested parties on the Commission's proposed assessment criteria;
- A **Stage 1 Draft Report**, which will set out the Commission's proposed recommendations on the appropriate mechanisms in which to integrate NEM market participants' contract positions into the NEM prudential regime. This report will be published to invite submissions from stakeholders; and
- A **Stage 1 Final Report**, which will set out the Commission's final recommendations. The Commission will provide this report to the MCE for its consideration. The Commission will also brief the MCE on its findings.

This process for Stage 1 can be summarised as follows:

Milestone	Timing
Framework and Issues Paper	March 2009
Framework and Issues Public Forum	April 2009
Stage 1 Draft Report	June 2009
Public Forum	July 2009
Stage 1 Final Report to MCE	September 2009

In Stage 2, where appropriate, the Commission would draft recommended Rules to support its recommendations in Stage 1. The Commission intends to submit any such proposed Rules to the MCE by December 2009. Stakeholders will be given an opportunity to comment on any draft proposed Rules before the Commission provides them to the MCE for consideration.



Appendix B Proposed FOA Model 2 - amended

This is the “Model 2” arrangement, where, in brief:

- the Market Participant (FPNP) provides an initial credit support based on the futures lodgement price (FLP) and pays variation margins into the Security Deposit Account (SDA) when the futures prices exceeds the FLP, with a spot price floor; and
- the amount in the SDA is held until the end of the quarter (to which the futures contract relates) and is not applied against bills, however the amount is returned if the futures price falls, provided the FPNP’s initial credit support + amount in SDA is greater than the outstandings for energy under FOA and the FPNP’s Total Outstandings (TO) < its Trading Limit (TL).

This model is provided to assist with the assessment of FOA. The Commission expects that development of detailed procedures may require aspects of this model to be modified.

Futures Offset Arrangement Request and Registration

Parties

1. Direct Retailer Futures Offset Arrangement (FOA)

1.1. Contractual arrangement is between:

- 1.1.1. SFE Clearing Participant (SFCEP); and
- 1.1.2. NEM participant who is a party to a futures contract and uses it to enter into the FOA (FOA Party NEM Participant, or FPNP). A FPNP is registered in the NEM (typically as a Market Customer).

1.2. There is a contractual arrangement between the CP and the FPNP with regards to the futures position. Included in the contract must be clauses relating to the provision of accurate and timely information to AEMO as required under AEMO’s Procedures for an FOA;

- 1.2.1. The change to contract containing the undertaking to provide accurate and timely information to AEMO would normally be an addendum to the Clearing Agreement between FPNP and SFCEP;
- 1.2.2. A standard form contract addendum will be developed by AEMO, included in AEMO’s Procedures, and given force under the National Electricity Rules (Rules), to include:
 - 1.2.2.1. ~~Undertaking that the cashflows arising from futures contracts under FOA will not be netted against other cashflows relating to positions the FPNP holds with the CP;~~
 - 1.2.2.2. Obligation that SFCEP provides information on variation of contracts and positions relating to FOA to AEMO in a timeline agreed with AEMO and in a form prescribed by AEMO;
 - 1.2.2.3. Undertaking by SFCEP to provide accurate and up to date information in a timely manner regarding all communications with AEMO;
 - 1.2.2.4. Undertaking by SFCEP to provide notification of updated prices if the SFE published settlement price is incorrect on any day for any reason;

1.2.3. There is to be a side letter from the SFCEP to AEMO, specifying and agreeing to the terms in the addendum;

1.3. AEMO will be given the right to perform random audits on contracts and futures positions covered by FOA, and will be able to terminate FOAs that do not comply with Rules and Procedures;

1.3.1. The failure to have an underlying futures contract supporting an FOA would be a civil penalty provision under the Rules (subject to MCE’s agreement) and also subject to AER enforcement action;

1.3.2. AEMO may terminate all offset arrangements and commence default proceedings against the~~Significant penalties would be imposed on~~ FPNP if it is found to be providing inaccurate information and/or not complying with the Rules regarding FOA. A Rule change to enforce this requirement is to be implemented.

FOA Registration Timeline

2. Registration Timeline

- 2.1. FOAs can be lodged by the FPNP, up to 90 days before the start of the quarter to which the underlying futures contract relates (*Lodgement Date*);
 - 2.1.1. FOA must be lodged prior to close of the SFE markets (appx 4:30pm) on the *Lodgement Date*;
- 2.2. The end of day *Lodgement Date* Futures Settlement Price is the *Futures Lodgement Price* (FLP);
- 2.3. The following business day is the FOA *Effective Date*;
- 2.4. From the *Effective Date*, AEMO requires two business days (*Processing Period*) to calculate the change in MCL, and the updated MCL level is implemented in line with current arrangements under the Rules;
 - 2.4.1. The *Processing Period* will be 2 business days at the start of the quarter;
 - 2.4.2. NOTE: The MCL reduction will occur in the quarter to which the futures contract relates; ie. If a FOA for Q410 is lodged 90 days prior, the MCL reduction will only come into effect on 1/10/10.
- 2.5. FOAs can be lodged any time up to the end of the quarter to which the underlying futures contract relates but will be subject to the *Processing Period* before the MCL can be reduced;
- 2.6. Expiring FOAs will need to be replaced with alternative credit support, or another FOA, in line with the existing Rules for replacement credit support;
 - 2.6.1. Existing arrangements for replacing expiring credit support are 7 days for “same pattern” replacements, and 30 days for a variation (including new Reallocation Arrangements).

Elements of FOA

3. FOA Elements

- 3.1. Term
 - 3.1.1. *Lodgement Date*
 - 3.1.2. *Termination Date*
 - 3.1.2.1. The Termination Date would normally be expected to fall on the Futures contract expiry date;
 - 3.1.2.2. See point 4 below for more information on the Termination Date;
- 3.2. Futures contract specifications;
 - 3.2.1. Futures contract region;
 - 3.2.2. Product code as referenced by exchange;
 - 3.2.2.1. Contract Term;
 - 3.2.2.2. MWhs per futures contract;
 - 3.2.2.3. Load shape – Baseload only permitted;
 - 3.2.3. Quantity of futures contracts;
 - 3.2.4. FLP;
 - 3.2.4.1. FLP will be determined automatically by AEMO as per point 2.2 above;
 - 3.2.4.2. AEMO will have the capacity to re-process the FLP if there has been an error in the published Settlement Price;
 - 3.2.4.2.1. To assist with re-processing procedures, AEMO will request to be added to the SFE mailing list regarding price corrections;
 - 3.2.4.2.2. Updated prices must be received by 8:00am on the day following the error for the correction to be enacted by AEMO on that day;
 - 3.2.4.2.3. If the corrected prices are received after 8:00am, then the correction will be implemented as soon as practically possible by AEMO.

Termination Date

4. The *Termination Date* is the date from which the FOA is no longer in effect. There are four scenarios under which the FOA may become terminated:

- 4.1. Expiry;
- 4.2. Voluntary;
- 4.3. No Margin Payment; or
- 4.4. Involuntary;

These scenarios are covered in more details under the heading “Termination” in s8 below.

Conditions for FOA Registration

5. Conditions:

5.1. Existence of underlying futures contract, ~~that has been set up under a separate client sub-account with clear, unencumbered access to cashflows and with no netting of FPNP positions;~~

5.1.1. Details of the futures contract will be forwarded to AEMO in line with the agreement in point 1.2.2 above.

~~5.1.2. Note: whilst CPs are generally able and willing to set up client sub-accounts, and maintain independent cashflows for the sub-accounts, in times where the counterparty is defaulting on one sub-account, most CPs are likely to close out the positions in all sub-accounts. This results in a lack of certainty around cashflows from FOA when the FPNP is financially distressed; For clarity:~~

~~5.1.2.1. Under normal operation, The FPNP would have one client sub-account containing the futures positions relating to FOA, and another sub-account relating to futures positions not covered by FOA. When money was owed on the FOA sub-account, that money would be paid without being netted off the non-FOA sub-account, leaving unencumbered cash flows;~~

~~5.1.2.2. If, however, the FPNP defaults on the non-FOA sub-account while expecting a margin payment from the FOA sub-account, it is anticipated that the CP would close out all positions that the FPNP holds with the CP, and would not make the margin payment expected on the FOA sub-account. As it is anticipated that a FPNP would only default on their futures positions in times of financial distress, this circumstance would result in a distressed NEM Participant having a reduced MCL and no firm cashflows supporting the reduction;~~

~~5.1.2.3. Alternatively, the FPNP may establish a sole purpose futures clearing account, just for FOA contracts, with a CP that does not clear any other futures contracts for the FPNP. This quarantines the FOA cashflows.~~

~~5.1.3. The FPNP must provide NEMMCO with information regarding the CP arrangement, i.e. whether they have a separate sub-account with one CP who holds non-FOA positions for the FPNP, or whether they have a CP who holds only FOA-related futures contracts, as the β factor may be affected by the CP agreement;~~

5.2. FPNP commits not to sell or otherwise dispose the futures contract, except on an expiry date specified in the terms of the FOA and with alternative credit support in place prior to closing out of futures position ([Note that FPNP is required to maintain a net futures contract position to fully support a FOA at all times that a FOA is in place](#));

5.2.1. Termination on a date that is different to the specified termination date is covered in more detail under the heading “Termination” in S9 below;

5.3. FPNP undertakes to make futures margin payments relating to the FOA to AEMO;

5.3.1. Margin payment calculations are to be processed by AEMO and forwarded to the FPNP, [and if relevant under 5.3.2 to the SFCEP](#);

- 5.3.2. The FPNP may make the payment themselves, or may nominate their SFIECP to make the margin payment to AEMO, determined by a one-off nomination at the commencement of the FOA;
 - 5.3.3. The Austraclear counterparty must be notified to AEMO in advance;
 - 5.3.4. NOTE: this payment is to be a mirror of SFE margins, not an assignment of SFE margins, ~~a legal distinction which may help reduce the risk of clawback.~~
- 5.4. If, after the futures margin payment is taken into account, the Participant's Total Outstandings (TO) are greater than the revised TL, then the breach must be rectified in accordance with existing prudential procedures.

Margin Payments and Timeline

6. Margin Payments

- 6.1. Margin Payments to AEMO need to reflect the increases beyond the maximum of the FLP or the DSPh, with a spot price floor.
- 6.2. DSPh is the highest price that the futures contract has reached since being registered. If, however, DSPh > DSPt (i.e. the previous day's settlement price), then DSPh can be reset to DSPt. The FPNP must instruct AEMO of the reset and request a SDA refund during business hours, AEMO would then process the reset and refund at the first practicable opportunity.
- 6.3. The FPNP can then receive a refund from the SDA, to the higher of the FLP or DSPt (ie. the previous day's settlement price) if the market falls, on the condition that initial FOA credit support + amounts in FOA SDA on the Calculation Day is greater than the outstandings for energy under FOA prior to the Calculation Day and TO < TL;
- 6.3.1. For Example: If the FLP is \$40/MWh, and the futures price rises to \$60/MWh, then AEMO will receive a margin payment for the \$20/MWh increase. If the price then drops to \$50/MWh, the FPNP can instruct AEMO to reset DSPh to \$50, and receive a return of the margin of \$10/MWh. This return of funds is conditional on requirements in 6.3 being satisfied TO < TL. If the price then increases to \$55/MWh, AEMO will receive a margin payment of \$5/MWh, which is the price increase above the new DSPh of \$50/MWh.
- 6.4. Margin Payments will be made on *Calculation Days* which are futures exchange business days. The first *Calculation Day* is the day after the *Effective Date* of the FOA; ie.

D1 = *Lodgement Date*

FLP = settlement price on *Lodgement Date*

D2 = *Effective Date*, and there is no margin payment as there is no movement in prices until the end of D2

D3 = first *Calculation Date* where margin payments for change in settlement prices between D2 and D1 are paid

Note: Futures Exchange business days are not the same as NEM business days. NEM Business days are Mon-Fri, excluding national public holidays. There may therefore be days when prudential requirements increase and there are no margin payments from the SFE due to differing "business days".

- 6.5. Positive margins will be held by AEMO until the expiry of the FOA, and will not be used to pay bills as they fall due.

6.6. Timeline

- 6.6.1. The first Margin Payment will be made on the first day that has a positive margin after (but not including) the FOA *Effective Date*;
- 6.6.2. AEMO provides a daily clearing statement to the FPNP by 8:00am on the *Calculation Day*;
 - 6.6.2.1. If DSPh > DSPt, then the FPNP may instruct AEMO to reset the DSPh to DSPt by 8:00am on the *Calculation Day*, if requirements in 6.3 are satisfied TO < TL;
- 6.6.3. The Margin Payment must be transacted and cleared by 11:00am on the same day;

- 6.6.3.1. Margins must be paid to AEMO's security deposit account (SDA), by either the FPNP or the SFCEP, as nominated in S5.3;
- 6.6.3.2. AEMO pays back margins when margins are negative, to the higher of DSPH or the FLP, and only when [the requirements in 6.3 are satisfied](#)~~TO<TL~~;
- 6.6.3.3. The final payment is to be made the day after the *Termination Date* for movements on the *Termination Date*;
- 6.6.4. If payment is not cleared by 11:00am on the *Calculation Day* then by 1:00pm on the same day, a call notice will be issued by AEMO;
 - 6.6.4.1. ~~Note: under the current Rules, a call notice must be issued by 12:00pm for a default event to be instigated the following day. The Rules may need to be changed to allow default events to be initiated on the day following a 1:00pm call notice~~ [Clause 3.3.13\(b\) of the Rules will be amended to ensure that a call notice issued by 1.00 pm on the Calculation Day will be considered to be "on the same business day"](#);
- 6.6.5. If there is no response to the call notice by 12:00pm on the day following the notice, then AEMO may instigate existing default proceedings.

6.7. Calculation of Margin Payments

- 6.7.1. Margin Payment = $\text{Max}[(\text{DSPt} - \text{Max}(\text{FLP}, \text{DSPH})) \times \text{FQ}, 0] + B$

where;

DSPH = previous highest daily settlement price for futures contract since *Effective Date* during the NEM outstanding period, or, if it has been reset, the reset value

DSPt = official daily futures contract settlement price as at close of business immediately prior to calculation day

FQ = Quantity of futures contracts x energy covered under each FOA futures contract

FLP = Futures Lodgement Price

B =

$\text{Max}[\text{OSfoa}_t - ((\text{E2} \times \text{FLP} \times 35 \times \text{LF} \times (1 + \text{GST})) + \text{SDAfoa}_t) + \text{Max}[(\text{DSPt} - \text{Max}(\text{FLP}, \text{DSPH})) \times \text{FQ}, 0], 0]$

where:

OSfoa_t = outstandings for energy under FOA immediately prior to Calculation Day, and

E2 = Energy subject to FOA

FLP = Futures Lodgement Price

LF = loss factor

SDAfoa_t = Accumulated margin payments into the SDA under the FOA at close of business immediately prior to Calculation Day

DSPH = previous highest daily settlement price for futures contract since *Effective Date* during the NEM outstanding period, or, if it has been reset, the reset value

DSPt = official daily futures contract settlement price as at close of business immediately prior to calculation day

FQ = Quantity of futures contracts x energy covered under each FOA futures contract

B would only commence from the start of the FOA period and will be zero when the outstandings for energy under the FOA is less than the FLP bank guarantee and the amounts in the SDA.

- 6.8. ~~There is a further consideration regarding margin payments, that the value derived from the margin payments, relating to futures price movements, does not reflect the physical market price movements. i.e. There may be circumstances where the margins from the FOA do not cover the increases in TO arising from the spot market.~~
 - 6.8.1. ~~A solution is to adjust the margin payments calculated by NEMMCO by a 'shortfall equation'~~ ;
- 6.9. When the 42-day MCL period straddles the end of the quarter, the FOA margin payment need only apply to the portion of MCL that is in the quarter to which the FOA relates.

6.10. DSPh resets

- 6.10.1. The DSPh will be reset upwards when the DSPt>DSPh.
- 6.10.2. DSPh will be reset downwards when DSPh>DSPt, the FPNP instructs AEMO to reset DSPh to DSPt, and if the FPNP [satisfies the requirements in clause 6.3's TO<TL. DSPh for a downward reset may not be less than the FLP.](#)

6.11. Settlement

- 6.11.1. AEMO uses the amount in the security deposit as a security deposit only, ~~unless otherwise agreed by AEMO and the FPNP;~~
- 6.11.2. AEMO to ensure it holds accumulated margin payments to cover the difference between the FLP and [FPNP's outstandings for energy under FOA highest official settlement price \(i.e. DSPh, taking DSPh resets into account\);](#)
- 6.11.3. Additional funds in the SDA will be returned when the period to which they apply have passed, if they have not been used as payment against the Participant's Total Outstandings;
- 6.11.4. All interest accrued by AEMO whilst holding the margin payments will be returned to the Participant as per the usual process for returning interest from security deposits;
- 6.11.5. SDAs for FOAs will be put into overnight cash accounts (instead of in term deposits as SDAs for existing operations are held) as the SDA may be paid back if a DSPh reset occurs.

MCL Reduction [Calculation](#)

7. MCL calculation:

- 7.1. $MCL = P \times VF \times EL \times T_{cp} \times LF \times (GST+1)$
For load-only Participant with no reallocations

Where:

P = average historical price used in MCL calculation

VF = volatility factor

EL = load estimate

FL = load under FOA

FLP = futures lodgement price

T_{cp} = credit time period, which is 42 days unless the Participant has requested a RMCL, in which case T_{cp} is 28 days

Trp – the reaction time period, which is 7 days

LF = loss factor

- 7.2. $MCL \text{ with FOA (bold) Reduction} = \frac{P \times VF \times E1 \times T_{cp} \times LF \times (GST+1) + [FLP \times E2 \times 35 \times LF \times (GST + 1) + P \times VF \times E2 \times Trp \times LF \times (GST + 1)]}{\text{Denominator}}$

~~$MIN[\beta, 1] * Max \{[(P \times VF - FLP) \times FL \times (T_{cp} - Trp)], 0\}$~~

Where:

[E1 = load not subject to FOA](#)

[E2 = load subject to FOA](#)

[E1 + E2 = EL \(as defined under current MCL methodology\)](#)

[P = average historical price used in MCL calculation](#)

[VF = volatility factor](#)

[FLP = futures lodgement price](#)

[T_{cp} = credit time period, which is 42 days unless the Participant has requested a RMCL, in which case T_{cp} is 28 days](#)

[Trp – the reaction time period, which is 7 days](#)

[LF = loss factor](#)

Note:

- [the MCL formula will need to be reviewed in light of RA's and inter-regional offsets to accommodate that above basis for integrating an FOA; and](#)

- [Load profile adjustments need to be taken into account when calculating the MCL.](#)

~~β is a risk adjustment factor between 0 and 2, applied to the MCL reduction to account for the risk impact (positive or negative) to the prudential framework arising due to the introduction of FOAs when compared to:~~

~~7.2.1. The existing prudential framework including RMCL and reallocations; and~~

~~7.2.2. An unconditional bank guarantee~~

- 7.3. When the 42-day MCL period straddles the end of the quarter, the MCL reduction only applies to the period which is covered by the FOA.
- 7.4. The MCL reduction applies only in the period to which the futures contract relates. ie. If an FOA is lodged in Q410 for a contract that expires in March 2011, the MCL reduction is applicable only from 1 Jan 2011.

Termination of FOA

8. The *Termination Date* is the date from which the FOA is no longer in effect. There are four scenarios under which AEMO may terminate the FOA;

- 8.1. Expiry;
- 8.2. Voluntary;
- 8.3. No Margin Payment; or
- 8.4. Involuntary.

The procedures following termination and the circumstances under which termination is allowed (if any) are outlined below:

- 8.1. Expiry
 - 8.1.1. Futures contracts stop trading at the end of the quarter to which they relate and expire on the 3rd business day after the end of the relevant quarter (eg, a Q110 futures contract expires on the 3rd business day after close of trading on 31 March 2010). A final Cash Settlement Price (in effect, a final daily Settlement Price) is confirmed by the SFE on the 3rd business day of the relevant quarter, based on the average pool price for the quarter as instructed by AEMO to the SFE on the 1st business day after the end of the quarter;
 - 8.1.2. A FOA would normally terminate when the futures contract expires, at which point (or prior to this day) further FOAs will have to be lodged or bank guarantee will have to be provided;
 - 8.1.3. Alternative support must be provided before the expiry of the futures contract, in line with existing Rules for replacement credit support;
 - 8.1.3.1. Existing arrangements for replacing expiring credit support are 7 days for "same pattern" replacements, and 30 days for a variation (including new Reallocation Arrangements)
- 8.2. Voluntary;
 - 8.2.1. Prior to the expiry of the futures contract, a Participant may decide they want to terminate the FOA for any reason;
 - 8.2.2. They must provide written/system notice to AEMO of their intention to terminate the FOA;
 - 8.2.3. They must provide alternative credit support at least 10 days prior to the intended termination date;
- 8.3. No Margin Payment;
 - 8.3.1. As outlined in the Margin Payments and Timeline section, AEMO provides a daily clearing statement to the FPNP and, [if relevant](#), SFECF by 8:00am, and the Margin Payment must be transacted and cleared by 11:00am on the same day;
 - 8.3.2. If AEMO does not receive a Margin Payment as expected, they issue a call notice on the calculation day at 1:00pm;
 - 8.3.3. If the FPNP does not meet the call notice by 11:00am the following day, a default event will be instigated;
 - 8.3.4. For clarity;
 - 8.3.4.1. Between D1 and D2 there is a positive settlement price movement resulting in a margin payment coming due to AEMO;
 - 8.3.4.2. By 8:00am on D3 AEMO issue a statement to the FPNP relating to the D1-D2 price movement;

- 8.3.4.3. By 11:00am on D3, the FPNP must make the margin payment;
 - 8.3.4.4. If there is no payment forthcoming, then at 1:00pm on D3 AEMO to issue a call notice;
 - 8.3.4.5. The FPNP must meet the call notice by 11:00am on D4;
 - 8.3.4.6. If the notice is not met, then default proceedings begin at 12:00pm on D4;
- 8.4. Deemed Margin Payment agreed in advance;
- 8.4.1. If a FPNP has sufficient funds in their SDA to cover a margin payment requirement (eg, in the instance where they have made an advance payment in anticipation of future price movements), and [satisfy the requirements specified in clause 6.3](#)~~remain within their TL~~, the FPNP may request AEMO allow a *Deemed Margin Payment* and not be liable for the agreed value;
 - 8.4.1.1. This arrangement must be requested in advance, or it will be considered as per S8.3 above, and could lead to a default event;
 - 8.4.1.2. The FPNP can request that AEMO agree to take a *Deemed Margin Payment*, but it is at AEMO's discretion whether to accept a *Deemed Margin Payment*;
 - 8.4.1.3. If AEMO deny the *Deemed Margin Payment*, then the FPNP will be liable for the margin payment as per usual processes;
- 8.5. Involuntary
- 8.5.1. There are some instances when the underlying futures contract can be closed out by the SFCEP, and the FPNP is left without a hedge position at short notice (eg, if a distressed FPNP is defaulting on other positions held with the same SFCEP, then the SFCEP may close out all positions, in all sub-accounts);
 - 8.5.2. In the instance that this occurs, the SFCEP is bound by contract addendum (see s1.2.2) to inform AEMO of the termination of the position;
 - 8.5.3. In the instance where the SFCEP does not provide termination information, they will still have been bound by contract to provide end-of-day position updates, and if that email is not received (due to close-out of position) or contains information indicating that the futures position relating to FOA has changed in any volumetric way, then it will be treated as an involuntary termination of FOA;
 - 8.5.3.1. Note: There may be some cases where the SFCEP does not provide information as requested and agreed. Based on the above criteria, this will be treated as an involuntary termination and could lead to a default event. This places heavy obligation on the FPNP to ensure their contract with the SFCEP contains clauses relating to the provision of information, and will prevent AEMO being delayed in their responses to true default events;
 - 8.5.4. In any case where the involuntary termination of FOA occurs, an immediate MCL review is issued to the FPNP to provide increased credit support, or a replacement FOA or reallocation if accepted by AEMO, within 23 hours (the call notice would go out by 1pm on day of involuntary termination, and it must be met by 11:00am the following day) of the involuntary termination;
 - 8.5.4.1. Involuntary termination can be indicated by:
 - 8.5.4.1.1. Receipt of information from FPNP;
 - 8.5.4.1.2. Receipt of intra-day notification from SFCEP relating to change in futures position relating to FOA;
 - 8.5.4.1.3. Receipt of end of day communication from SFCEP notifying a change in the futures position relating to FOA;
 - 8.5.4.1.4. Lack of receipt of end-of-day communication from SFCEP;
 - 8.5.4.1.5. Lack of margin payment from SFCEP where relevant, or retailer, in the absence of a pre-agreed waive;
 - 8.5.5. If increased credit support is not provided within the prescribed timeframes, then a default event is instigated;
 - 8.5.5.1. In the case where involuntary termination has been assumed due to lack of information being received from the SFCEP, the requirement for alternative credit support can be met by an email being received from the Clearing Participant stating that the futures contract position is still in place with no changes to the FPNP's position relating to the FOA;
 - 8.5.5.2. This will allow errors in communication to be corrected prior to the commencement of a default event.