AEMC

REVIEW

Australian Energy Market Commission

DRAFT REPORT

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

Commissioners

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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.

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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
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 *NEMMCO* as a *Market Generator*, *Market Customer* or *Market Network Service Provider* 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

In January 2009, 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) under section 45 of the National Electricity Law (NEL). In this Review, the Commission is seeking to provide 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.

Australian Energy Market Operator (AEMO) settles in excess of $10bn worth 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 integrity of 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. AEMO typically holds around $1.5bn to $3.5bn in bank guarantees. State Treasury Corporations also guarantee the operation of the government-owned businesses in the NEM. According to AEMO, the guarantee provided by the NSW Treasury Corporation makes up about 30% of the credit support provided to AEMO.

Confidence of the Market Participants 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 National Electricity Objective (NEO).

NEM participants enter into over-the-counter (OTC) and futures contracts (hedge contracts) to manage the risk from operating in the NEM. The gross pool nature of the NEM in conjunction with the hedging contracts gives rise to circular cash flows or contracts for difference payments. Eliminating or reducing these circular cash flows would minimise settlement risks relating to the pool and contract settlements in the NEM, and mitigate prudential burden on NEM participants.

The NEM settlement arrangements have been modified to incorporate reallocations to take hedging contracts into account. A reallocation is a Rules-supported arrangement between two Market Participants and AEMO that normally allows an off-market financial commitment, such as a hedge contract between participants, to be netted off against pool settlements. In recognition of the impact of reallocations on pool settlements, some relief is given in the level of credit support required.

Stakeholders have expressed concern that the take up of reallocation arrangements has been low. Whilst the percentage of energy reallocated in the NEM has increased, it is less than 9% of total customer energy. Stakeholders have also noted a number of issues in relation to reallocation arrangements and have 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 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 Maximum Credit Limit (MCL) and investigating the feasibility of incorporating futures prices into the MCL methodology.

As outlined in the terms of reference for this Review, the Commission is undertaking this Review in two stages:

Stage 1:

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, including investigations on the MCL methodology.

Stage 2:

As appropriate, develop Rules to support the recommendations made in Stage 1.

Assessment framework for the Review

The draft 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:

    - prudential quality of the NEM;

    - cost of capital to trade in the NEM wholesale market; and

    - operational effectiveness.

When considering the impact on the prudential quality of the NEM, the Commission has examined offset arrangements against the existing prudential quality of NEM under the reduced MCL (RMCL) provision which is available to Market Participants on request.

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.

Summary of the Commission draft recommendations

In summary, the Commission's conclusions and draft recommendations are as follows:

Reasonable worst case scenario and alternative MCL methodologies

The Commission considers that 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 arrangements and propose Rule changes if required.

Reallocation arrangements

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 clarifications and enhancements to the arrangements.

Futures offset arrangements

The Commission considers that futures offset arrangements (FOAs) have the potential to contribute to the NEO and should be implemented in the NEM. The Commission recommends a retailer only model, with AEMO holding an irrevocable power of attorney over funds to which a retailer is entitled from the client segregated account with the SFE Clearing Participant and a strengthened prudential margin.

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

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

Rules and procedures

The Commission recommends that the provisions that relate to substantive rights and obligations and that have a material impact on the NEM and Market Participants be made as Rules. It is recommended that technical and operational detail, such as day-to-day procedures for offset arrangements, 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 the there is appropriate regulatory basis and oversight for the substantive provisions.

The recommendations on Rules and procedures in this Draft Report are on this basis.

In relation to FOAs, the Commission proposes 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.

Next Steps and Consultation on the Draft Report

The Commission invites stakeholders to make submissions on the draft recommendations and reasoning contained in this Draft Report by 30 April 2010. A public forum on the Draft Report will be held on Wednesday, 12 April 2010 in Sydney. Interested parties wishing to attend the public forum are invited to register by 31 March 2010 by completing a registration form on the Commission's website at: www.aemc.gov.au.

The Commission will submit its final report to the MCE in May 2010.

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1 Introduction

1.1 This Draft Report

The Draft Report presents draft 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 purpose of the Draft Report is to seek comments from interested stakeholders on the Commission's findings and recommendations. Following public consultation, the Commission will prepare a Final Report. The Final Report would provide 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 Draft 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.

1.2 Structure of the Draft Report

The Draft Report sets out the Commission's findings and draft 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 to date on this Review, the analysis undertaken and the other related work that has been undertaken or is proposed.

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 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 is provided. In addition, this chapter outlines the Swap and Option offset arrangements which are awaiting implementation subject to licensing considerations by Australian Securities and Investments Commission (ASIC) and a

working example of a futures offset arrangement that was developed as part of this Review and provided to consultants for risk assessment.

Chapter 3 considers existing and proposed offset arrangements in more detail with respect to the risks associated with those arrangements and options for enhancements. This chapter provides the Commission's conclusions and recommendations on the offset arrangements and detailed reasoning for those recommendations.

Chapter 4 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 for its determination.

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.

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;

[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.

- 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 Australian Energy Market Operator (AEMO).

Under this prudential regime, NEM participants are required to lodge credit support (often 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 minimise 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.

AEMO 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 AEMO/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 draft 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

The Review will be undertaken in two stages. Stage 1 of the Review involves analysis and stakeholder consultations leading to the preparation of the Stage 1 Final Report that will set out the Commission's final recommendations to the MCE. The Commission will provide this report to the MCE for its consideration and brief the MCE on its findings.

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	12 April 2010
Stage 1 Final Report to MCE	May 2010

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 the final Rules.

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 contacts 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 of Stage 1 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 the risk assessment and make recommendations to enhance the 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 have been 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.

The draft 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 Commission will have regard to any relevant MCE statements of policy principles in 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 have been 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 the hedging contracts in the existing NEM prudential framework, are 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, are 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 seen as being low, then there is likely to be a default risk premium built into the spot market prices, increasing the wholesale costs paid by 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.

Confidence of the Market Participants 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 if the above assessment criteria are met, then any recommendations on offset arrangements and the MCL methodology would reduce the cost of participation in the NEM wholesale market and as a result prices to consumers, whilst maintaining confidence of Market Participants in settlement of spot electricity transactions and thereby contribute to the achievement of NEO.

1.6.4 Other reviews and Rule changes

The Commission has 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]

[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

AEMO is undertaking a broader review of the readiness of the financial and prudential risk management in the NEM and the administered gas markets. MCE's Financial Market Working Group investigated options for reducing costs for NEM participants. The outcomes of this investigation are available to AEMO and the Commission to consider as part of their respective reviews.

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 readiness of the financial and prudential risk management in the NEM and the administered gas markets, including considerations of the impact of:
  - Carbon Pollution Reduction Scheme (CPRS) and Renewable Energy Target (RET); and
  - Global financial crises and other relevant factors; and
- MCE's Financial Market Working Group consultations on options for reducing costs on NEM participants[4], including:
  - considerations on shorter NEM settlement cycle; and
  - survey of second tier retailers.

The Commission notes that the Terms of Reference of this Review do not include considerations on shorter NEM settlement cycle.

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 and submissions on Framework and Issues Paper;
- Public Forum on Framework and Issues Paper; and

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[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, 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

- Publication and submissions on the draft risk assessment report by PricewaterhouseCoopers (PwC).

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 have been held with the Working Group.

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

- Framework and Issues Paper;
- 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 report together with submissions on the draft risk assessment report were an input to the Commission's considerations on these draft recommendations.

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 Futures Offset Arrangements (FOAs) and risk mitigation options.

AAR's legal advice, which is referred to in the relevant sections of this Draft Report, was an input to the Commission's considerations on the related draft recommendations.

1.7 Lodging submissions

The Commission invites written submissions from interested parties in response to this Draft Report by **5 pm** on **Friday 30 April 2010**. Submissions may be sent electronically from the following link:

http://www.aemc.gov.au

or in hardcopy to:

Australian Energy Market Commission

PO Box A2449

Sydney South NSW 1235

The Commission publishes all submissions in its website subject to a claim of confidentiality.

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 the Market Participants is provided. In addition, this chapter outlines the Swap and Option offset arrangements which are awaiting implementation and provides working examples of a futures offset arrangements (FOAs) developed for risk assessment.

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 NSW[5], Victoria[6], the ACT, Western Australia, Northern Territory and Tasmania; or
- a "Coordination Agreement" - for Queensland[7] and South Australia[8].

[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 users' 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, 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.

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[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] National Energy Customer Framework, MCE, http://www.ret.gov.au/Documents/mce/_documents/Explanatory%20Material.pdf, viewed 8 March 2010.

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

To satisfy the acceptable credit criteria[10], 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 the government-owned businesses in the NEM. According to AEMO, the guarantees provided by the NSW Treasury Corporation make up about 30% of the credit support provided to AEMO.

Confidence of the Market Participants 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). 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 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.

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[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 AU$11Bn. http://www.theapex.org/Documentos/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.

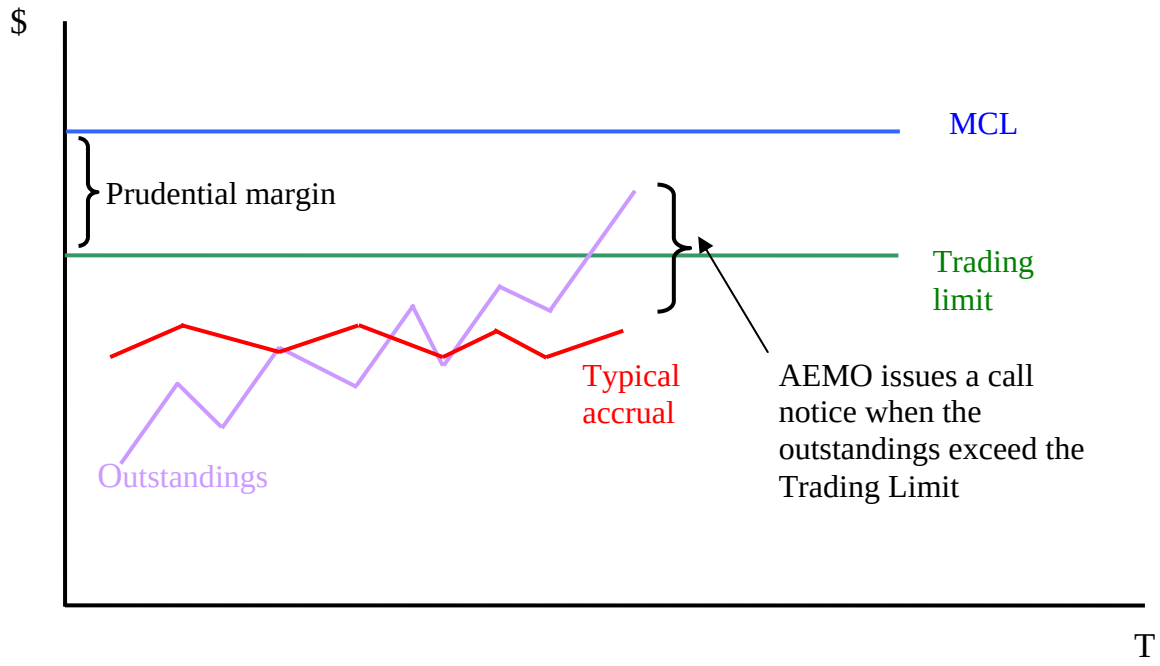
Relevant components of the existing NEM prudential framework are:

- 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 publications[13] 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 (MNSP's).

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 Methodology[14] 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:

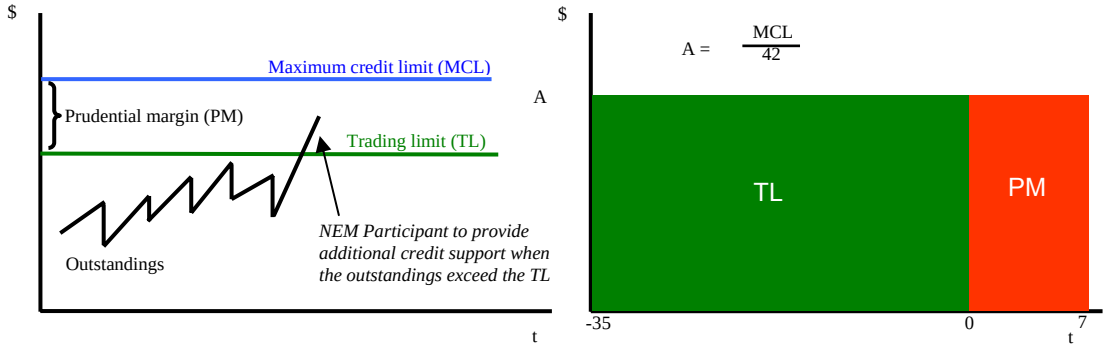
- an estimate of expected electricity price (PR) for each region which is determined as the average spot price over the previous 12 month period in that region;
- estimated average daily load or generation (E) for each Market Participant within each region;

[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 value[15]; 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 MCL, TL and PM in $M for a period. The graph on the right shows the same, as daily amounts over the billing and collection periods (TL) and the reaction period (PM) as a daily average. 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 4 of this Draft Report.

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[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 further 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 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 daily monitoring regime for NEM prudential requirements is effective, to ensure that the prudential quality of the NEM is maintained.

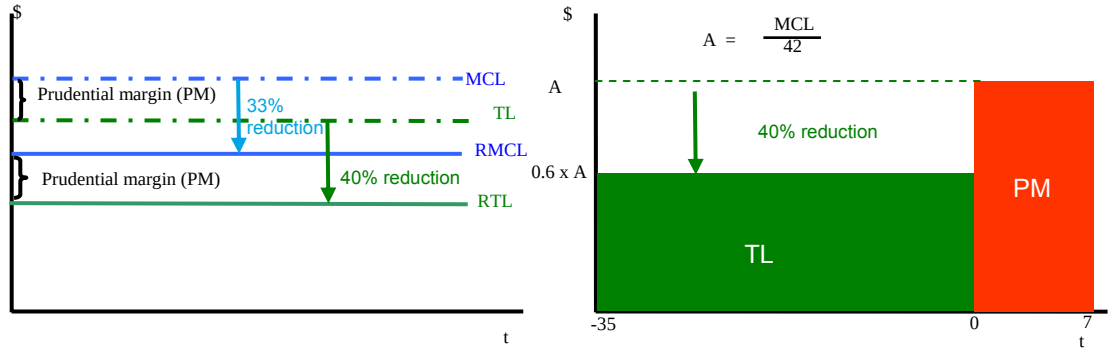
Figure 2.3 provides a conceptual representation on RMCL.

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 benefits 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 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 financial liability of all NEM participants to AEMO on a daily 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.[17]

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

[17] 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 an RA or provide a bank guarantee) equal to the difference, 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.

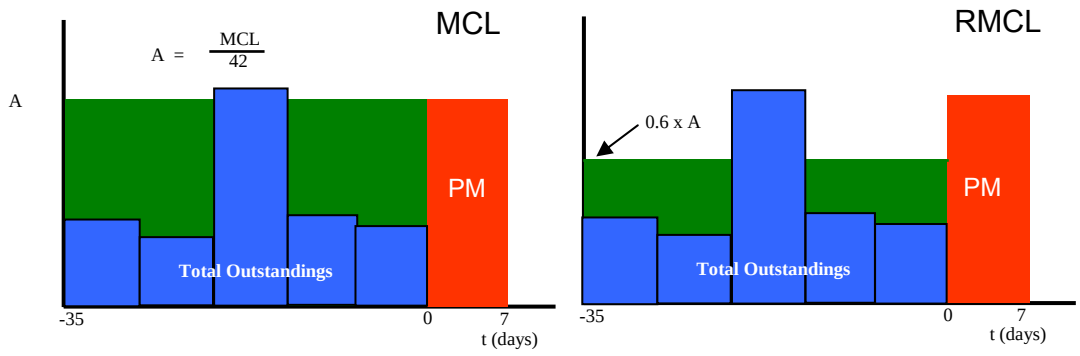
In the case of a default event, AEMO is entitled to call upon the credit support provided by a NEM participant. In such an event, AEMO would determine a call amount that represents the amount of any money actually or contingently owed by the NEM participant to AEMO pursuant to the Rules.

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 markets[18] 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.

[18] 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 are 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.[19]

[19] ASX website, http://www.asx.com.au/about/sfe/index.htm, viewed 28 January 2010.

The SFE:

- offers a futures trading facility to the public;
- acts as the first line of supervision on behalf of the corporate regulator ASIC; and
- provides price and data dissemination to end users.[20]

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[21].

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 become 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.

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

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

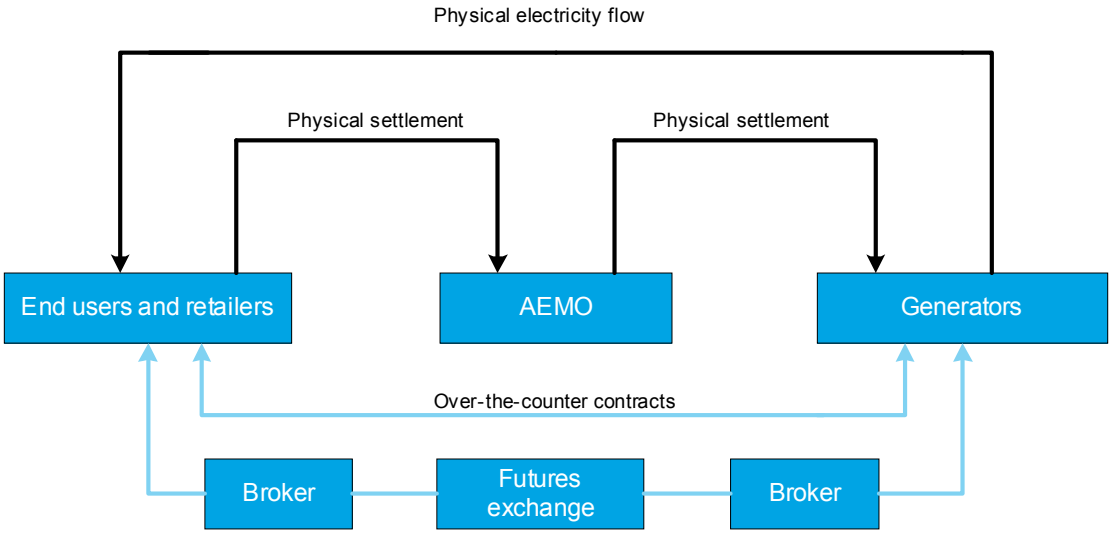
Through the margining process, when the price of a futures contract increases relative to its last price, a margin payment is collected from the party who holds a short position in the futures contract (through its SFECP). In addition, a margin payment is paid to the party, through its SFECP, who holds a long position.

Similarly, the reverse payments would apply if the price of the future 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 exposure in the financial market can affect its bidding behaviour in the NEM. Similarly, a retailer's exposure 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.

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 the participants to offset the credit support requirements in the NEM. This would ensure that Market Participants' costs of participating in the NEM wholesale market is 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 this it is 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 SFECP to register as Reallocator and utilise futures contracts under reallocation arrangements. AEMO 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 2.6 - Conceptual representation of offset arrangements.

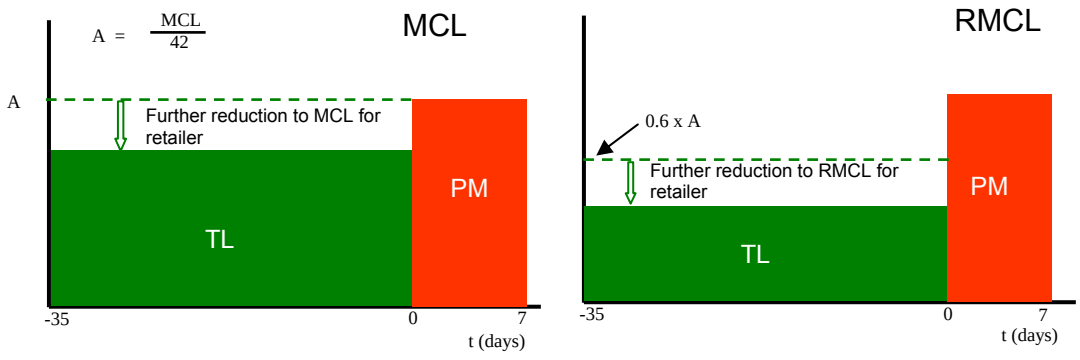


Figure 2.6 illustrates how offset arrangements can further reduce credit support requirements for Market Participants under the MCL and RMCL regimes.

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, however 'margin payments' into a security deposit account (SDA) is 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 an RA by submitting a reallocation request to AEMO. An 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 Reallocations[22]; and
- Reallocation Procedure: Swap & Option Offset Reallocations[23].

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.[24]

AEMO is understood to manage load profile risk of reallocations by requiring that the parties to an 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 match. If this is not the case then AEMO would not allow MCL relief in order to ensure that load profile risk is adequately mitigated.[25]

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.

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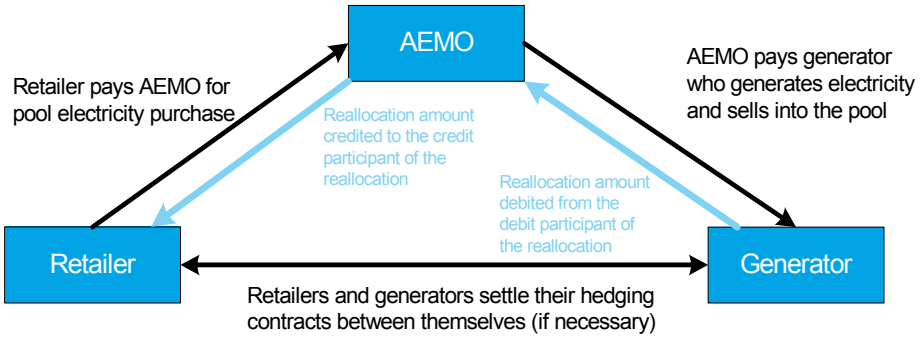
[22] *Reallocation Procedure: Energy and Dollar Offset Reallocations*, AEMO http://www.aemo.com.au/electricityops/0500-0010.pdf, viewed 25 February 2010

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

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

[25] 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.

Figure 2.7: Spot market and reallocation transactions in the NEM



Under a RA, AEMO credits the relocation amount to the credit participant (usually the retailer). In addition, AEMO debits the reallocation amount to the debit participant (usually the generator).

AEMO settles with NEM participants the net of the pool transactions and reallocation transactions.

Figure 2.7 illustrates the NEM transactions taking into account RAs.

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 affected. 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 parities at any given point in time.

Energy And Dollar Offset Reallocations

On 14 December 2007, AEMO published a reallocation procedure for energy and dollar offset reallocations.[26]

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").

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

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

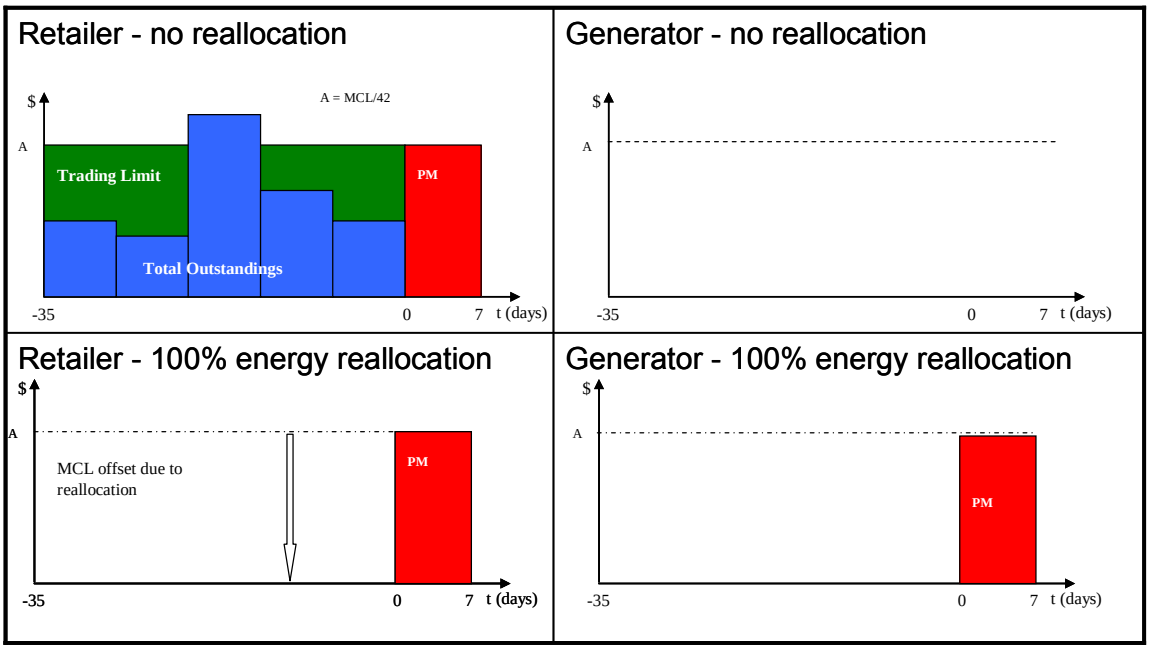
nominated region to determine a trading amount for each trading interval. This is mainly used as a prospective reallocation, where there is an underlying contract which is specified as an energy quantity;

- 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 retailers outstanding 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 2.8 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 2.8 - 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 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.

Swap & Option Offset Reallocations

On 20 November 2007, AEMO 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;

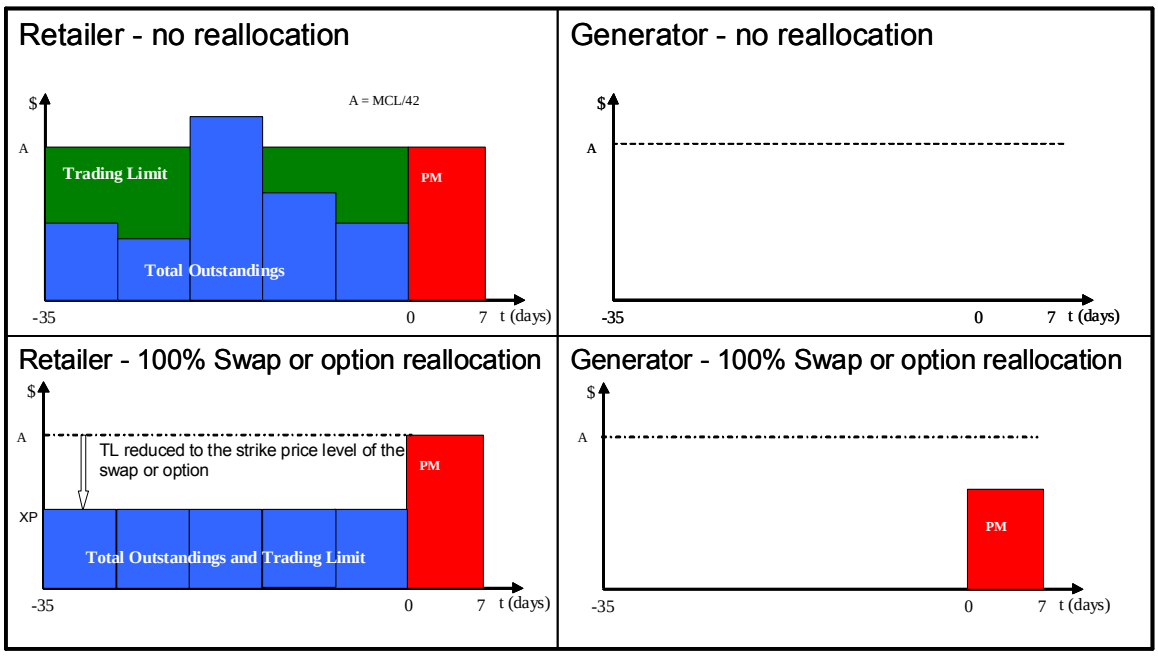
- Floor offset: this reallocation specifies a half-hourly energy profile and a strike price, and calculates a non-zero trading amount when the half-hourly regional reference price for the nominated region is less than the strike price. This allows a hedge contract based on a floor to be represented as 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 match. If this is not the case then AEMO would not allow MCL relief.

Figure 2.9 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 2.9 - 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 prudential margin 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 will 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.

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. An 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:

- AEMO 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;

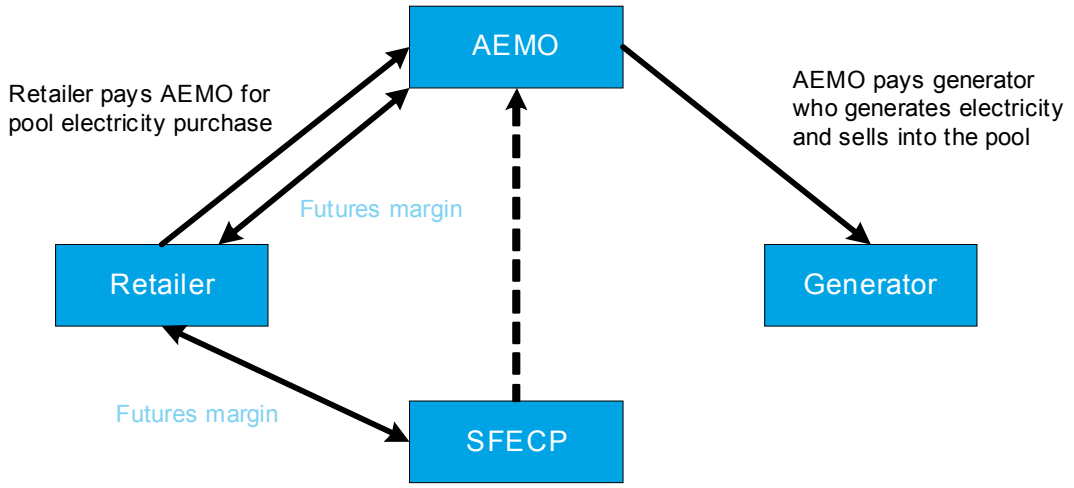
- d-cyphaTrade proposed an initial FOA model similar to that of the AEMO/ASX proposal but the arrangements would be given effect through a contract; and

- 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 proposal[27] to the Commission and were published as part of the Framework and Issues Paper[28] for this Review.

Figure 2.10 shows possible representations of the above FOA models.

Figure 2.10: 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 SFECPs, to register as Market Participants with AEMO. This could, in conjunction with appropriate procedures for an 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 SFECP, which would be funded by the futures margins payments, paid by the SFECP into AEMO's SDA. The SFECP may need to provide security to AEMO (such a 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

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

[28] 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

in the NEM. Concerns have also been expressed about the risk of clawback of amounts held by AEMO as security deposits and about termination risk and surety of payment.

The SFECPs 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 SFECPs 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 are 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 SFECP would confirm that a futures contract is in place. The SFECP 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 SFECP will keep AEMO updated if and when the futures contract is closed (the SFECPs obligations are to be given effect through an addendum to the futures contract). There would be no firm commitment by the SFECP 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 SFECP 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 SFECP 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 2.11: Conceptual representation of FOA

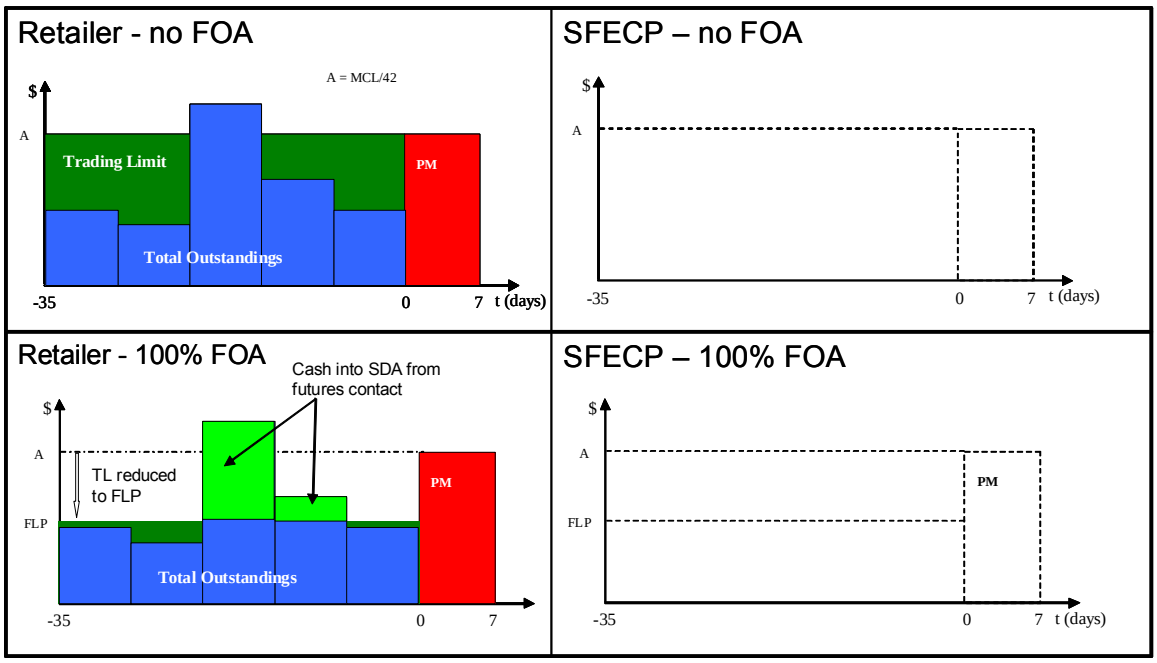


Figure 11 provides a conceptual representation of the FOA with reference to standard MCL. The effects of loss factors and GST have been ignored.

Under the FOA models developed by the Working Group, the SFECP 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 has been published on the Commission's website.[29] 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 3 provides the Commission's draft recommendations and reasoning on offset arrangements based on input from PwC, input from the Working Group, 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.

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

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3 Draft recommendations on prudential 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 considers the existing energy and dollar offset reallocation arrangements, the proposed swaps and options offset reallocations, and investigates options for implementing futures offset arrangements (FOAs). In considering these arrangements, 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.

The following sections examine issues identified as part of this Review, and outline the Commission's draft recommendations and reasoning for stakeholder comment.

3.1 Assessment criteria for offset arrangements

The issues and options are examined against the following assessment criteria:

- 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.

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.

In addition, the prudential quality of the NEM under options for FOA has been compared to the prudential quality of a base load swap and option offset reallocation.

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[30]. 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.

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 actual estimated amounts 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[31]. 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, does not represent a reasonable worst case estimate of the expected trading amount over the reaction period.

Work undertaken by PwC provides useful insight into the possible interpretation of the reasonable worst case performance target and options for the determination of the MCL, including options that include determining the TL and PM using different approaches. The Commission considers that if the PM could be established to meet the reasonable worst case performance target over the reaction period with confidence, then the risk from a default would be less material because the PM would ensure that NEM outstandings are adequately covered. The options put forward by PwC require further analysis and testing and at this stage the Commission is of the view that it cannot make firm recommendations on the interpretation of the reasonable worst case or an appropriate MCL methodology. Chapter 4 provides information on analysis undertaken by PwC, its recommendations and further work that would assist in improving the current MCL methodology.

The Commission has therefore examined offset arrangements against the existing prudential framework when assessing the impact on the prudential quality of the NEM. That is, the offset arrangements are examined in terms of the amount by which the MCL (bank guarantee) is reduced, the nature of risks under different

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

[31] 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.

arrangements and the quality and amount of alternative security provided under each.

The benchmark for the prudential quality of the NEM, when assessing alternatives, is taken to be the RMCL provisions under the Rules because this is available to all Market Participants on request. As described in Chapter 2, the RMCL provisions offer Market Participants the option of a 33% reduction to the MCL determined under the Rules. Whilst the MCL is reduced by 33%, the PM is maintained at the initial level. This results in the TL of the retailer being reduced to 60% of the initial level, requiring more active prudential monitoring and payments of cash into security deposits or other security. The RMCL provisions are widely used and, notwithstanding the reduction in bank guarantees held by AEMO, do not appear to have given rise to material concern about the prudential quality of the NEM.

The Commission believes that under offset arrangements, there are two considerations in relation to the prudential quality of the NEM:

- the reduction in the level of the MCL and as a result the bank guarantee held by AEMO compared to the current arrangements; and
- the impact, if any, on the reaction period.

The Commission notes that if and when the current framework is changed, the basis for assessing the prudential quality could also change.

Reduction in the level of security

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, then there will be a reduction in the prudential quality of the NEM.

The reduction in prudential quality of the NEM can be potentially up to the difference between the credit support provided under an MCL or RMCL and that provided under offset arrangements. In the event of default and suspension, the NEM would potentially be worse off by this amount (potential incremental risk).

Figure 3.1 illustrates this in the case of a Swap RA or an FOA. The unshaded area under the graph is the amount by which the MCL or the RMCL would be reduced (potential reduction in prudential quality subject to mitigation measures under offset arrangements).

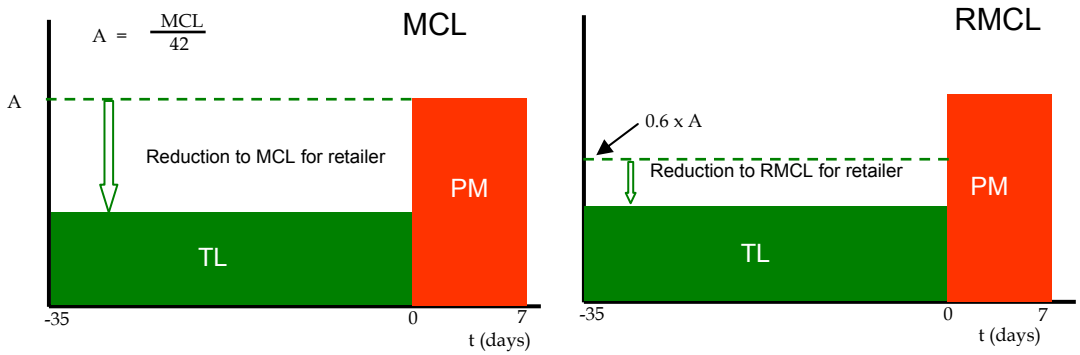
PwC acknowledges this potential incremental exposure in the case of an FOA in its report:

"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."[32]

In the event of a default and suspension this risk would be realised over the 7-day reaction period as a defaulting retailer would continue to accrue outstandings over this period.

Figure 3.1 - Reduction in MCL/RMCL under offset arrangements.



Impact on reaction period arising from default under offset arrangements

Offset arrangements may also 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 an RA is in place (default of a generator leading to a default and suspension of a retailer), PwC comments as follows:

"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 generators 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."[33]

With respect to FOAs, PwC finds as follows:

"On the assumption that there is no information disparity between the SFECP'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

[32] PwC final report, February 2010, p.50.

[33] ibid, p18.

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."[34]

In its submission on PwC's draft report on risk assessment, AEMO notes that various sections of the PWC report refer to time taken or additional risk posed by the various reallocation or FOA arrangement failures. AEMO has performed a review on this area and believes that the analysis is not consistent with the timeframes in the NEM Rules. AEMO presents the analysis in its submission and concludes that there is no incremental risk over an unreallocated retailer in this respect.[35]

PwC responds to this matter raised by AEMO in its final report 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[36].

The Commission seeks stakeholder views on whether there is an additional period of risk under offset arrangements, compared to when such arrangements are not in place.

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;
- 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

[34] PwC final report, February 2010, p.48.

[35] AEMO submission on PwC draft report, 6 November 2009, p. 3 and p. 15

[36] PwC final report, February 2010, section 7.2.1, p.99.

participants under offset arrangements.[37] 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 it is 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 in the efficiency in the provision of credit support.[38]

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 support for margins calls (FOAs).

The Commission seeks stakeholder views on whether there are other costs or benefits that should be considered as part of the assessment.

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

[37] PwC final report, February 2010, p.93.

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

3.1.4 Summary of PwC's findings and recommendation on offset arrangements

In summary, PwC finds that:

- there is no incremental risk under RAs and that these arrangements should be continued with some enhancements;
- working example model 2 is the appropriate model that should be adopted for FOAs in the NEM with some amendments; and
- risks under the amended FOA model 2 are not significant, although mitigation measures are proposed for consideration.

3.1.5 Summary of the Commission's draft recommendations on offset arrangements

The Commission has amended certain aspects of the offset arrangements to strengthen the prudential quality of the NEM, whilst providing the opportunity for Market Participants to reduce the cost of credit support.

In summary, the Commission:

- supports a continuation of the existing RAs and the implementation of the swap and options RAs with some enhancements;
- recommends the integration of FOAs in the existing prudential regime, subject to further amendments to FOA model 2 (as amended by PwC) to improve the prudential quality, (in particular to require that AEMO hold an irrevocable power of attorney over any funds a retailer is entitled to from the client segregated account with the SFECP, and to strengthen the level of PM held); and
- recommends a Rule change to ensure that an appropriate PM is maintained where gentailers internally offset load and generation.

The draft recommendations and the reasoning are detailed in the following four sections:

- considerations that are common to offset arrangements generally, that is apply to both RAs and FOAs;
- considerations specific to RAs;
- considerations specific to FOAs, including an assessment on potential benefits of FOAs; and

- considerations on internal offsets.

3.2 Considerations common to reallocation and futures offset arrangements

This section sets out the Commission's draft recommendations and reasoning relating to existing RAs, proposed swap and options RAs and FOAs.

3.2.1 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.

Draft recommendation

Based on advice from AAR, the Commission is satisfied that existing and proposed reallocation offset arrangements do not give rise to a material risk of clawback of security deposits. Any clawback risk under current arrangements is 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 FOA in the Rules 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 an 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 draft recommendation

Stakeholders have raised concerns that amounts held by AEMO in security deposit accounts (SDA), and applied against amounts owing following a default event, may be subject to clawback in the event of a retailer failure and liquidation.[39] The Commission understands that clawback risk arises when a transaction is considered an unfair preference under the Corporations Act 2001 (Cth) (CA).

[39] 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.

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.[40] 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 an 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.[41]

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.[42]

AAR 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 s.588FG 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

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[40] PwC final report, February 2010, sections 3.3.1, p. 25 and 4.4.4 p. 52

[41] ibid, sections 3.3.2, p.26 and section 4.2, p. 33

[42] CA, section 588FA(1)

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 secure an existing unsecured debt. AAR notes that 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, September 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."[43]

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. Therefore, AEMO concludes 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 AEMO. AEMO does not make a separate supply (financial or otherwise) related to receiving the security deposit from the Market Participant."[44]

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. On this basis, 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

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

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

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.

SDA contemplated for FOAs

The NGF and its Advisors expressed the concern that margin payments under an FOA may be susceptible to legal challenge[45]. The Advisors were concerned that there is a risk that the SFE clearers may be able to make some residual claim over positive margins paid into 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 SFECPs and from its own sources as security.

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.

AAR considers that the proposed operation of the SDAs under the FOA model is 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)

[45] NGF submission on PwC draft report, 5 November 2009, p.3.

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 requires 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. AEMO must administer and apply the funds in the SDAs pursuant to the imposed legislative regime (clause 3.3.13A of the Rules and procedures implementing the FOA), which in certain circumstances may oblige AEMO to direct those security deposit funds in certain ways (including potential refunds to the Market Participant). AEMO would not be obliged to pay funds from the SDA at the direction of the Market Participant. The SDA funds would not be under the retailer's control and direction, but at AEMO's discretion.

The Commission proposes to define the provisions for the return of funds to a Market Participant following a futures price reduction (discussed under the FOA section). 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

Summary of the Commission's conclusions

Based on AAR's advice, there does not appear to be a material 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 no material risk of clawback to the NEM.

The arrangements for FOA 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 FOA in the Rules define the provisions in relation to the return of funds in the SDA arising under an FOA by AEMO, following futures price reduction or termination of an FOA. The Rules and procedures would also clarify that the funds in the SDA would be a security, 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 an FOA would not give rise to a material risk of clawback.

The Commission seeks views from stakeholders on its recommendations and reasoning in relation to the risk of clawback of funds held in the SDA by AEMO in the event of failure of a Market Participant.

3.2.2 Contractual basis for offset arrangements

This section sets out the Commission's draft recommendations and reasoning regarding concerns that the Rules or AEMO procedures do not explicitly require the existence of hedging contracts that underpin reallocation and futures offset arrangements. Offset arrangements are designed to provide MCL relief where hedging contracts are in place. The absence of hedging contracts would 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.

Draft recommendation

The Commission recommends that the Rules be amended to require 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.

In addition, the Commission recommends that AEMO amend its procedures for offset arrangements to require a confirmation by the parties to the offset arrangements that a hedging 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.

Reasoning for draft 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 seek 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."[46]

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").[47]

- Swap & Option Offset Reallocations (see section 2: 1. Swap Offset....."this allows a hedge contract based on swap to be represented as reallocation").[48]

The margin payments arising under the futures contracts 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 offset arrangements, and the significant impact the absence of an underlying contract could have on AEMO's functions and the risk to the NEM, it is important that there is an explicit requirement under the Rules that offset arrangements must be underpinned by underlying hedge contracts. 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:

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46 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

47 *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

48 *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

- 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 recommends that AEMO amend its procedures to require a confirmation by a retailer and the SFECP 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.

The Commission seeks views from stakeholders on its recommendations and reasoning in relation to the requirement that offset arrangements must be underpinned by hedge contracts and that this requirement be a civil penalty provision.

3.2.3 Volume of energy under offset arrangements

Some stakeholders have expressed concerns that 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 offset arrangements, including RAs and FOAs, where the load under these arrangements is more than a Market Participant's estimated load.

Draft Recommendation

The Commission considers that the Rules and procedures for offset arrangements 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.

However, the Commission considers that the MCL relief available to retailers under aggregate offset arrangements, where relevant, should be capped at their average load. The Commission recommends that AEMO review its procedures to ensure that this objective is achieved.

Reasoning for draft recommendation

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 an FOA or combination of FOAs and RAs does not exceed the retailer's estimated NEM load.[49]

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[50]. Under an 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 will 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 their average load.[51] That is, where a retailer registers an FOA (or a combination of FOA and RA) in excess of its average load, then the excess amount should not accrue a MCL reduction.

The Commission understands that AEMO does not cap the MCL relief to retailer's load at present. However, AEMO's processes for ensuring that the load profiles for load under offset arrangements match the retailer's expected load profile and the fact that MCL reduction is capped at the MCL may already achieve this objective. Further, the manner in which the offset arrangement is implemented will determine whether such a cap is relevant. For example, for FOAs it is proposed that the MCL for load under the FOA be based on the FLP rather than as a reduction to MCL which makes such a cap unnecessary.

The Commission considers that the MCL relief provided under offset arrangements, where relevant, should be capped at a retailer's average load. The Commission recommends that AEMO review it procedures to ensure that this objective is achieved.

The Commission seeks views from stakeholders on its recommendations and reasoning not to limit offset arrangements to average load, but to require AEMO's procedures to cap the reduction to the MCL to average load.

3.2.4 Load profile for load under offset arrangements

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

[49] PwC final report, February 2010, section 4.5.3, p.53.

[50] ibid.

[51] ibid.

Draft Recommendation

The Commission recommends that AEMO develop and publish the principles and/or procedures it would apply to adjust the reduction to the MCL under RAs and FOAs to mitigate the profile risks when assessing requests to register offset arrangements.

Reasoning for draft 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."[52]

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."[53]

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.[54]

In relation to load balancing risks for FOAs, PwC recommends that;

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

53 ibid, p.29.

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

"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."[55]

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, match the load profile of the Market Participant's forecast load profile.

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. [56]

To ensure that load profile risks are mitigated, the Commission recommends that AEMO set out the principles and/or processes that it would use to adjust the reduction to the MCL under RAs and FOAs to mitigate the profile risks.

As discussed in section 3.3.2, 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.

The Commission seeks views from stakeholders on its recommendations and reasoning for AEMO to clarify the principles and/or procedures for the management of load profile risk under offset arrangements.

3.2.5 Licensing considerations

This section relates to Corporations Act licensing considerations when giving effect to offset arrangements, including RAs and FOAs.

Draft 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

[55] PwC final report, February 2010, p.55.

[56] AEMO submission on PWC draft report, 6 November 2009, section 1.9, p. 7.

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 draft recommendation

PwC advises that there have been concerns expressed by various entities over swaps and options reallocation 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.[57] Licensing considerations may also be relevant to other RAs and the FOA models.

PwC notes that AEMO will manage the payments owed to and from AEMO by the parties to the swap and options reallocation and the terms of the actual underlying OTC agreement remain unaffected by these payments and 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.[58]

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."

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

[58] ibid, p.29.

The Commission believes 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 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.

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.

The Commission will consider any proposed changes to the Rules should the current investigations by ASIC and AEMO, as part of the licence exemption process, identify a need to change the Rules.

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 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.[59]

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 options 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 is under consideration as part of this process. Whilst the Commission believes that FOAs are unlikely to raise licensing issues for AEMO, this is a matter for AEMO and ASIC when arrangements have been finalised.

The Commission seeks views from stakeholders on its recommendation that licensing issues should be addressed as part of ASIC's considerations on AEMO's application for an exemption from the requirements to hold a clearing an settlement facility licence.

[59] PwC final report, February 2010, p.28.

3.2.6 Offset arrangements and fundamental change to markets

This section relates to AEMO's obligations with respect to registering offset arrangements in the event of fundamental changes to markets.

Draft Recommendation

The Commission notes that fundamental changes to the circumstances in which the NEM operates (such as the introduction of a CPRS), or to market pricing or structures in the futures contract may impact on the risk associated with offset arrangements.

The Commission recommends that the Rules be amended to include provision that permits AEMO to not register offset arrangements, if in AEMO's reasonable opinion, the registration of offset arrangements would have a material impact on the prudential quality of the NEM (reduce the prudential quality of the NEM). It is appropriate that AEMO publish its decision that it would not accept offset arrangements in advance to enable Market Participants to make appropriate arrangements.

Further, if required AEMO may, in accordance with Rules consultation procedures, amend the procedures for offset arrangements to mitigate any risk.

Reasoning for draft recommendation

PwC recommends that AEMC should consider including the right to terminate an 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.[60]

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.

The introduction of CPRS may also impact on the risk assumptions underpinning reallocation arrangements. The credit quality of Market Participants and the value at risk in the NEM may be affected with the introduction of the CPRS. AEMO is undertaking an Energy Markets Financial Readiness Review and the Commission expects that any impact the CPRS and RET would have on the prudential regime would be identified and managed as part of that review.

The Commission is therefore minded to recommend 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

[60] PwC final report, February 2010, p.85.

the NEM. The Commission suggests that AEMO provide advance notice, at the latest, at the time AEMO determines the MCL requirements for future periods.

The Commission seeks views from stakeholders on its recommendations and reasoning on AEMO's right to not register offset arrangements and notice periods.

3.3 Considerations specific to reallocation offset arrangements

The following section outlines the Commission's recommendations and reasoning that are specific to reallocation offset arrangements. 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."

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.[61]

The PwC report provides a risk assessment on the existing and proposed RAs and makes a number of specific recommendations. The stakeholders' response to PwC's conclusions and recommendations provided in its draft report and the Commission's assessment are discussed in the following sections.

3.3.1 Reallocation arrangements and clawback risk

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

Draft recommendation

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 an 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 a Corporations Act defence.

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

Reasoning for draft recommendation

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.[62] There is some concern that if an RA is considered an uncommercial transaction then a liquidator may have rights to (or clawback) the amounts treated as credits and debits under an 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 an 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.

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[62] PwC final report, February 2010, section 3.3.2, p. 26

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 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 an 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."[63]

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.

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[63] *Reallocation Information Paper and Examples*, AEMO, http://www.aemo.com.au/electricityops/0500-0012.pdf, viewed 25 February 2010

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, 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.

The Commission seeks views from stakeholders on its recommendations and reasoning in relation to RAs being considered an uncommercial transaction, and its impact on clawback risk.

3.3.2 Termination risk to the NEM under reallocations

This section sets out the Commission's recommendations 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.

Draft recommendation

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

Reasoning for draft recommendation

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.[64] 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

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

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 of generator the protection against spot price 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 who becomes a party to a swap RA is 'guaranteed' the payment of 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 in the case where a reallocation arrangement is in place and 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, 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.[65]

ERAA agrees with PwC's assessment of the low risk to the NEM prudential quality of an involuntary de-registration of an RA by AEMO.[66] 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.[67]

PwC and AEMO have differed 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.

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[65] PwC final report, February 2010, p.29.

[66] ERAA submission on PWC draft report, 5 November 2009.

[67] AEMO submission on PWC draft report, 6 November 2009, section 1.5 p. 5.

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 when a reallocation is in place. This is discussed in section 3.1.1. 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 somewhat 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 credits and debits 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 responds 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.[68]

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 generators to provide security up to its MCL and to maintain a PM if they are party to an 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. In addition, as discussed in section 3.2.4 limiting the value of MCL relief to a retailer's average load would further mitigate this risk.

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; and
- effectiveness of AEMO's settlement and prudential supervision process in light of the parties to the RA being registered Market Participants.

The Commission is of the view that the two-party failure risk to the NEM is not material and that risk mitigation measures are adequate. The Commission is therefore of the view that no further amendments are required to the Rules or AEMO's procedures in relation to RAs.

The Commission seeks views from stakeholders on its recommendations and reasoning on termination risk to the NEM under reallocation offset arrangements.

[68] PwC final report, February 2010, p.21.

3.3.3 Termination risk to retailers under reallocations

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

Draft recommendation

The Commission notes that the Rules provide AEMO discretion for the processes it adopts for the 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. Early warning of additional security requirements may be beneficial to Market Participants.

The Commission recommends that AEMO, in consultation with stakeholders, consider changes to the procedures for the registration of RAs to seek agreement from parties to an RA to notify a counter-party in the event a call notice is issued to a party.

Reasoning for draft recommendation

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 an RA could be terminated if a retailer breaches its prudential requirements. It states that it is unclear if an 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 an RA, compounding the task of securing the additional credit cover or security deposit. [69]

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.[70]

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.

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[69] ERAA submission on PwC's draft report, 5 November 2009.

[70] PwC final report, February 2010, section 3.2.3, p. 21.

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.

NGF indicates that existing RAs appear adequate; but it believes that exploration of AEMO's termination right appears warranted.[71]

Clause 3.15.11 (f) of the Rules sets out the conditions under which AEMO may de-register an 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 an 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 an 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 exercise its discretion may be unique and, therefore, defining a process for the termination of RAs may be difficult.

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[71] 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.

The Commission considers 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 considerations 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 considers 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.

The Commission therefore recommends 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.

The Commission seeks views from stakeholders on its recommendations and reasoning on mitigation of termination risk to retailers under reallocation offset arrangements.

3.4 Considerations specific to 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 draft recommendations and reasoning in relation to FOAs.

Previous considerations on FOAs

In 2007 a Rule change on Reallocations 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 - SFECP) to register as a Market Participant in the NEM. Once registered, the SEFCP would be required to comply with the NEM Rules and AEMO's procedures and may need to provide prudential support.

AEMO 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 SFECPs 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.[72]

The working examples focused on a single party (retailer) FOA, given the reluctance of SFECPs 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.

PwC undertook risk assessment on the working examples and make 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 SFECPs for futures contracts that are subject to FOAs;
- consider removing the requirement for SFECPs 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 an 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 occasional disconnect between accumulating spot price and the futures prices, a floor of the accumulating spot price be incorporated in margin calculations;

[72] 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

- 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 an 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 SFECP. The SFECP would supply AEMO with identical information on status on the FOA futures position that it supplies the retailer but will have no other obligation.

Stakeholders have raised the following key concerns:

- termination risk of a FOA arising from termination of the underlying contract or a default by the retailer, that is, surety of payment of margins; and

- adequacy of margins arising under the futures contract to meet the retailer's incremental outstanding in the NEM relative to the FLP.

These matters are discussed in more detail below together with options to mitigate any risk. The assessment is based on PwC's recommendation that working example FOA model 2 be adopted with its proposed amendments as outlined above.

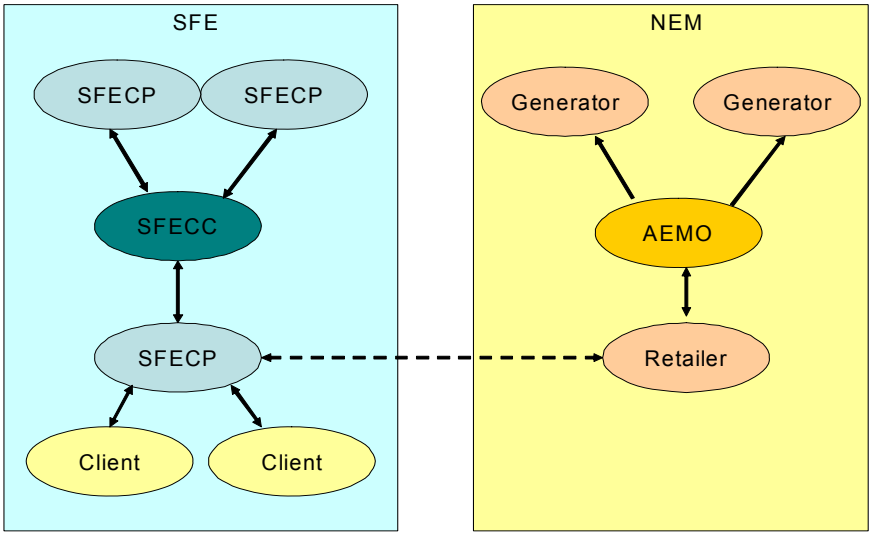
Prudential frameworks for the NEM and the SFE

The NEM regulatory framework and the prudential framework for the wholesale market operate, and are 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 for a reduction in prudential requirements. The fact that the SFECC 'guarantees' the payment of net futures margins to the holders of the futures contracts (SFECP) cannot be taken as a 'guarantee' that a retailer (Client of SFECP) will make a variation margin payment to AEMO.

Figure 3.2 - The SFE and the NEM



SFE processes and prudential requirements

In order to register an FOA with AEMO, an electricity retailer (Client) would enter into long (bought) positions with an SFECP under electricity futures contracts (Contracts). As a full SFE participant, the SFECP must comply with both the SFE Operating Rules (SFEOR) and the SFE Clearing Corporation Clearing Rules (SFECR), together "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 SFECP 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 SFECP 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 SFECP 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 SFECP or negotiated between the SFECP and the Client. Any rights which the SFECP 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 SFECP, being the account for all money and other property owing to or from the SFECP in respect of Contracts entered into for Clients.

SFECC administers the CCA of each SFECP on an omnibus basis and payments to or from the CCA are net payments in respect of all Contracts entered into by the SFECP from time to time. This is likely to include non-FOA contracts and contracts entered into on behalf of multiple other clients of the SFECP. Net payments to the SFECP

will only become referable to particular Contracts registered in the FOA once those payments have been received by the SFECP and paid into the client segregated account (CSA) by the SFECP.

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 SFECP, to be allocated (out of any net payment received by the SFECP 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 SFECP in relation to those Contracts should, in aggregate, always equal the 'positive margin' contemplated under the FOA model, except in circumstances where the SFECP 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 SFECP 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 SFECPs. Each SFECP receives that net amount based on all its Client positions;
- The amount available for distribution to individual Clients of a SFECP 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 SFECP would net off all the positions of a specific Client, such as a retailer with an FOA, and deduct any fees and charges before making margin payments to that Client.

The SFE Rules require the SFECP 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 SFECP 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 SFECPs which may impact on the Clients net cash position from all SFECPs. Therefore, it is not possible to determine with certainty that a Client's obligations to AEMO under an FOA will always be backed by margin payments from SFECPs.

3.4.2 Termination risk to the NEM under futures offset arrangements

This section outlines the Commission's draft recommendations and reasoning regarding risks to the NEM arising from a failure by a retailer to meet the variation margins payments due to AEMO under FOAs as and when it becomes due. Considerations on circumstances under which this risk may arise and mitigation options are also discussed.

Draft recommendation

The Commission recommends that:

- AEMO 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 an FOA. This would be achieved through AEMO's procedures for the registration of an FOA; and

- AEMO's procedures for FOA require a retailer who registers a FOA provide an additional PM equivalent to 7 days of the difference between the price used for the calculation of the standard MCL less the FLP multiplied by the energy under an FOA (this is equivalent to the PM which would be held against the generator who is a party to a Swap RA)

Reasoning for draft recommendation

An FOA is based on a retailer providing security (bank guarantee) based on the FLP, and making variation margin payments (VMP) based on any excess of the futures price above the FLP. When futures prices then fall, AEMO would return the excess margins to the level of the FLP.

Subject to futures price movements accurately reflecting the spot price movements, a retailer's outstandings would be covered by the combination of the bank guarantee and VMPs into the SDA held by AEMO. Issues relating to potential mismatch in futures price and spot price movements are addressed in the next section.

On the basis of the above, the retailer would benefit from a reduction in the level of bank guarantee it is required to provide to AEMO under current arrangements.

Nature of termination risk

Termination risk arises when a retailer fails to make VMP to AEMO as and when it becomes due. VMP is intended to maintain a retailer's total outstandings in the NEM below its TL; failure to pay could result in a NEM shortfall which would be borne by the generators. The assessment of this risk is made against the lowest level of prudential quality available in the NEM, which is the RMCL.

PwC notes that the termination risk in the NEM could arise under the following circumstances:

- in the event of termination of an FOA as a result of the termination of the underlying futures agreement by the SFECP, or

- as a result of the failure of a retailer to make the required VMPs to AEMO.

The Commission's assessment considers the following scenarios where a retailer may not make a VMP to AEMO.

Table 3.1 – Summary of default scenarios under FOAs

Scenario	Comments
SFE Related	
SFECC does not make full margin payments to SFECP	This could arise as a result of netting of SFECPs positions or default of one or more SFECPs.
SFECP does not make full margin payments to retailer.	SFECP nets off a retailer position, default by SFECP's other clients, default by retailer or failure of a SFECP.
Retailer default	
Retailer defaults on margin calls (initial or variation) to SFECP.	SFECP required to terminate positions, resulting in termination of FOA. It may be argued that when spot prices increase, futures contracts would be 'in the money' however, this is not certain given netting of futures positions and costs.
Retailer fails to make VMPs to AEMO – (including when in administration).	A retailer's net futures position could result in inadequate margins being received from SFECP, retailers positions with other SFECPs may impact on available funds, and financial stress, or commercial reasons such as a restructure of business could contribute to a failure to make VMP.
Retailer failure or insolvency	It is likely that the underlying futures contract would be closed out to manage risk. FOA would be terminated.

The main concerns in relation to a retailer's capacity to make VMP to AEMO are as follows:

- netting off of positions by the SFECP, the net futures position of a retailer with all SFECPs and adequacy of margins for VMP;
- retailer default in making VMP to AEMO, for financial or commercial reasons; and
- retailer failure and insolvency and consequences for the underlying futures contracts and the FOA.

Whilst a retailer who registers an FOA will have obligations under the Rules and the terms of an FOA to make the VMPs as and when they are due, the arrangements do not provide adequate surety that such payment will be made (that is, where a retailer is in breach of Rules or contract). This therefore requires an assessment of the quantum of risk and mitigation options.

Potential impact on prudential quality under an FOA

It is expected that a retailer would register an FOA when it expects to benefit from a reduction in bank guarantee requirements under the FOA.

PwC has indicated that there may be reasons other than a reduction in the cost of bank guarantees for a retailer to register an FOA. PwC states that FOAs can provide additional value to the retailer by providing a source of funds to back margin calls required at times of high prices and therefore may be preferable for some retailers to an RMCL, even in the case where the MCL reduction from the FOA is not greater than that available as a result of RMCL.[73] The Commission notes, however, that the source of funds mentioned by PwC is actually the underlying futures contract and the benefit is only attributable to the FOA where a retailer would not consider entering into a futures contract without the FOA.

The Commission accepts that if a retailer were to register an FOA which resulted in an increase in the level of credit support in the NEM, then the prudential quality of the NEM would be improved. Under such circumstances, however, it would seem more likely that a retailer would operate under the RMCL, and as a result benefit from a lower level of credit support to the NEM, yet back its margin exposures through futures contracts.

The underlying futures contracts that underpin FOAs provide financial backing to NEM margin requirements and by doing so contribute towards improving the prudential quality of the NEM. PwC demonstrate that, under market conditions experienced in recent years, FOAs would have generated cash payments into retailers' SDAs that would have matched the retailers' outstandings for much of the time. Further, where AEMO can be guaranteed that the funds will be adequate and, more importantly, will be paid into AEMO's SDA when required, the prudential quality of the NEM would be improved.

The Commission also notes that introduction of FOAs would ensure an alternative form of security that would help to reduce demands on, and compete with, the current forms of security, potentially improving the efficiency of credit support.

The Commission seeks views from stakeholders on whether there are other ways (other than those outlined above) in which integration of futures contracts will increase the operation and efficiency of the NEM prudential framework.

[73] PwC final report, February 2010, section 4.4.1, p.46.

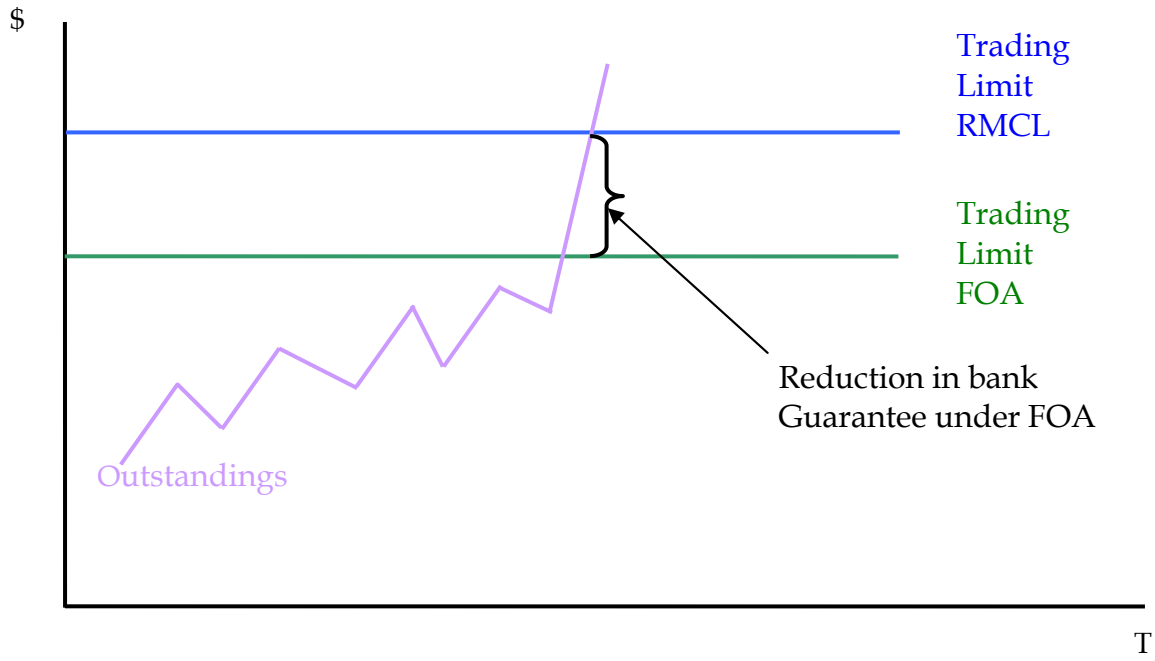
Figure 3.3 provides a representation of the change in bank guarantee when compared to the RMCL.

The PM has been ignored in figure 3.3 since it will not change under an FOA.

The amount up to the 'Trading Limit FOA' is covered by a bank guarantee which will be based on the FLP. The amount above the trading limit is expected to be covered by VMPs which the retailer would fund from margin payments received under futures contracts that underpin the FOA.

PwC notes 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. [74]

Figure 3.3 - Reduction in bank guarantee under an FOA



The maximum incremental risk under an FOA is equivalent to the reduction in the bank guarantee, which is the difference between the RMCL and the bank guarantee based on the FLP.

Since the trading limit under an FOA would be lower (as a consequence of the reduction in bank guarantee), the frequency and the quantum by which the retailer's outstandings will exceed the trading limit (and therefore require margins payments into the SDA) would be higher than under RMCL. This is similar to the change that occurs when the bank guarantee is reduced from that required under standard MCL

[74] PwC final report, February 2010, section 4.4.2, p.50.

to RMCL. PwC's analysis confirms that the payments into the SDA increase under RMCL compared to MCL. Therefore, if the bank guarantee were reduced further, it is expected that there would be an increase in the number of times the TL is exceeded and payments are made into the SDA.

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 (ie an 8 day rather than a 7 day prudential margin period) to the MCL period for NEM Participants with an FOA for the volume subject to FOA.[75]

PwC's risk assessment on FOAs finds that in the event of termination of an FOA, as a result of the termination of the underlying futures agreement by the SFECP, 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.[76]

In response to stakeholder comments provided below, PwC has 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 an 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."*[77] Figure 3.4 below provides this comparison for NSW. Similar figures for other states are available in PwC's report on risk assessment.

The analysis for FOAs in figure 3.4 is based on the VMPs being paid into the SDA as and when they become due.

AEMO is of the view that the termination risk of 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.[78]

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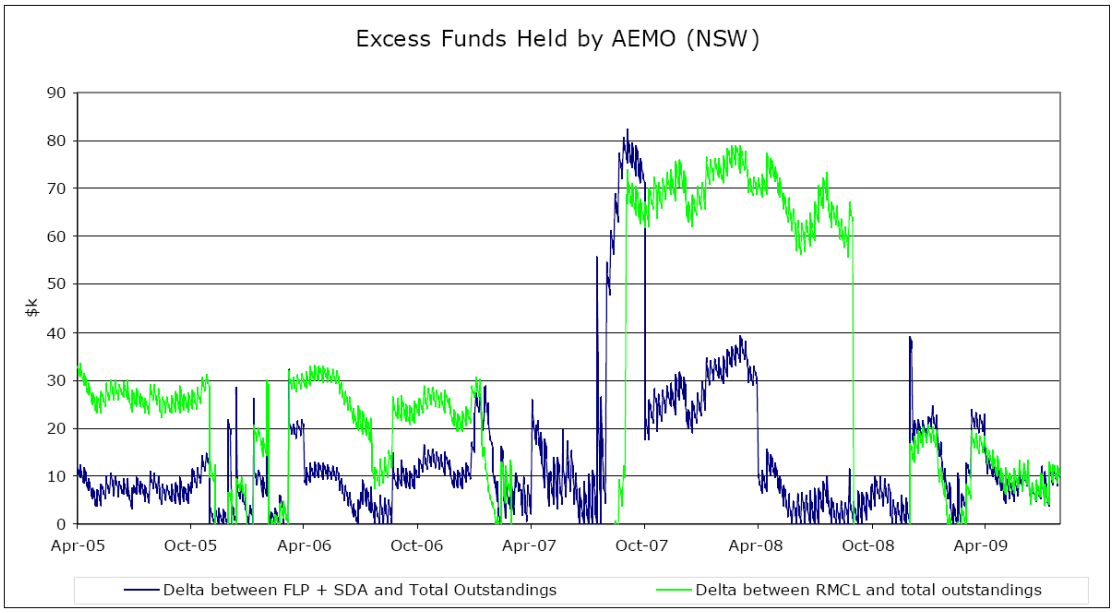
[75] PwC final report, February 2010, p.55.

[76] ibid, p.55.

[77] ibid, p.49.

[78] AEMO submission on PwC draft report, 6 November 2009, section 1.2, p. 3.

Figure 3.4: Comparison of funds held by AEMO against outstandings



Source: PwC report

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 an 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.[79]

AEMO also submits that it is not convinced that the current PM is robust enough to be relied on this way.[80] 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.[81]

[79] AEMO submission on PwC draft report, 6 November 2009, section 1.4, p. 4.

[80] ibid, p.4.

[81] 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.[82]

In its final report, PwC confirmed that its analysis was undertaken on a daily basis.

The Commission's assessment of termination risk

The Commission is 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 the 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 an 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 an 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.[83]

Figure 3.5 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

[82] ERAA submission on PwC draft report, 5 November 2009.

[83] 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.[84]

The Commission believes that there are a number of matters that need to be considered when assessing the prudential quality of an FOA:

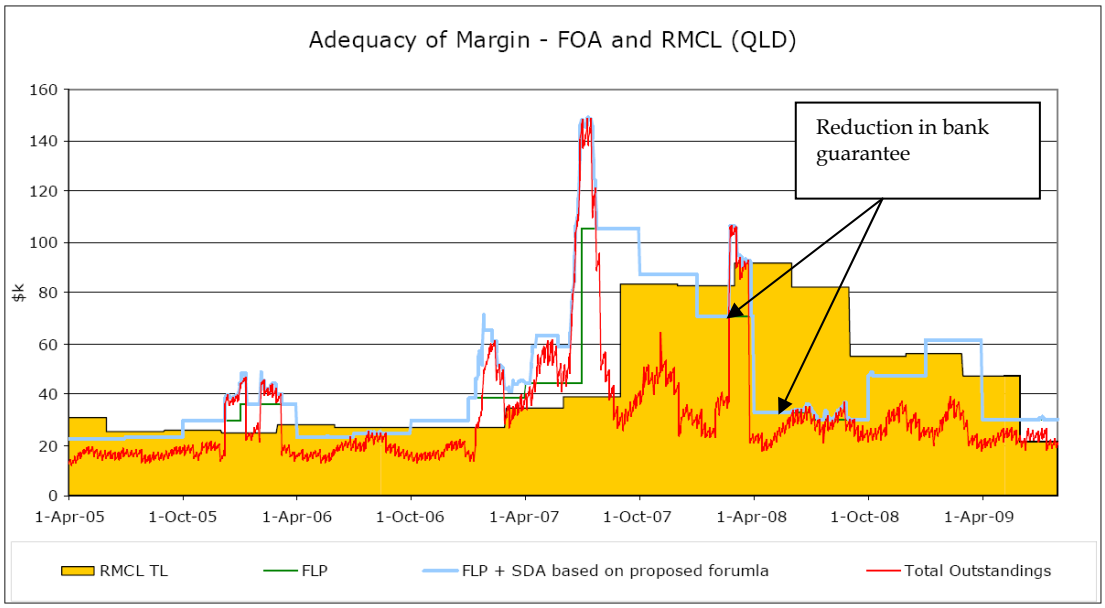
- the level of bank guarantee held by AEMO under an FOA, compared to that under RMCL. As shown above it is expected to be lower, hence the prudential quality would potentially be reduced by this amount;

- 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

- test of the above against the assessment criteria that prudential quality of the NEM be maintained or improved.

Figure 3.5 - Comparison of FLP + SDA and RMCL for Queensland



Source: PwC report

[84] Refer to figure 4.4.2a, p. 49, PwC final report, February 2010.

The April 2008 event above illustrates the incremental risk to NEM and the impact on the prudential quality compared to RMCL. This event follows a high 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 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 considers 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 is not satisfied that the unilateral commitment by a retailer under the Rules and the terms of an FOA can be taken as being of an equivalent quality to the unconditional bank guarantee it replaces. Further, for reasons outlined above the Commission is concerned that margin payments arising from futures contracts will not always be sufficient to meet the VMPs to AEMO.

As discussed in section 3.1.1, the Commission has not been able to ascertain 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 believes this is unlikely to be the case. The Commission has therefore assessed the prudential quality of an FOA against the current RMCL.

In the absence of surety of margin payment, and on the basis of the assessment criteria used, the Commission is not persuaded that the termination risk to the NEM under a FOA is not significant.

The Commission believes that FOA arrangements recommended by PwC need to be strengthened if the prudential quality of the NEM is to be maintained. The options are outlined below.

Commission's considerations on mitigation of termination risk

The Commission has considered a number of options to mitigate termination risk, which are discussed below.

The SFECP becomes a party to an FOA under contract or the Rules

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 allow the full benefit of an FOA to be realised by a retailer.

The existing Rules provide for a SFECP to register in the NEM as a Market Participant and facilitate FOAs. Deliberations on appropriate procedures for such an arrangement have not been successful. Further, the Commission understands that SFECPs are reluctant to be bound by the Rules.

As discussed above, with respect to margins payments to AEMO, the following matters need to be considered:

- the SFECP 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 an FOA. PwC notes that it may not be possible to obtain a confirmation from the SFECP 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 circumstances[85];

- 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 an 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 SFECP on behalf of the retailer are in the retailer's beneficial interest and not for the SFECP to deal with. This could be addressed by the retailers' providing a direction to the SFECP.

The requirement that a SFECP not terminate a retailer's futures positions underpinning the FOA is unlikely to be workable. The SFEOR requires the SFECP to close out all futures positions held on account of a client if that client fails to pay a margin call.

A SFECP 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 is of the view that the commitments by SFECP envisaged above are unlikely to be practical.

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85 PwC final report, February 2010, p. 53.

The Commission seeks views from retailers, SFECPs and AEMO on the feasibility of SFECPs becoming a party to FOAs, agreeing to 'hold' margins arising from futures contracts underpinning FOAs in a separate client sub account and agreeing not to net off those margins against a retailer's other positions .

Increase surety of payment by the retailer to AEMO

The Commission has considered options to increase surety of margin payments by a retailer to AEMO.

AAR advises that one way of potentially reducing the risk to AEMO of a retailer (or an Administrator) not using margin payments from the SFECPs towards its obligations under a FOA would be for AEMO or an officer of AEMO to hold an irrevocable power of attorney from the retailer.

In accordance with AAR's advice, the Commission proposes that, in order to reduce the 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 (NSW) and equivalent legislation in other States). The holder of the power of attorney would be authorised to direct the SFECP, on behalf of the retailer, to direct payment of VMPs to AEMO out of the funds to which the retailer is entitled in the CSA, and to do anything else which is necessary or desirable in connection with such payments. In accordance with section 16 of the Powers of Attorney Act 2003 (NSW), an irrevocable power of attorney should remain effective notwithstanding the insolvency or liquidation of the retailer.

AAR does not consider that a separate power of attorney would be required for each registered FOA. The power may be expressed in terms that:

- authorise AEMO to direct the retailer's SFECP, on behalf of the retailer, to pay funds to which it has a right to AEMO;
- limit that authority to amounts (VMPs) to which AEMO is entitled under one or more FOA's; and
- apply only where the retailer has not given the SFECP a valid direction to the same effect.

AEMO would not become a party to the agreement between the retailer and the SFECP, whether as the retailer's agent or otherwise.

The power of attorney would not bind the SFECP, but should generally be recognised by the SFECP and actioned accordingly, particularly if the retailer has notified the SFECP of the appointment and given an undertaking to AEMO and the SFECP not to give a direction to the SFECP which is inconsistent with a direction given by AEMO under the irrevocable power of attorney.

This mitigation measure, whilst providing access to margins held for the benefit of the retailer in the SFECP's CSA, does not provide assurance that a retailer's VMP obligations under an FOA would be fully met because netting and cost deductions may reduce the retailer's entitlement to funds in the CSA.

The Commission seeks views from retailers, SFECPs and AEMO on the proposal for AEMO to hold an irrevocable power of attorney over the retailer's right to receive funds in the CSA.

Additional prudential margin on the retailer

In light of the issues associated with achieving surety of margin payments to AEMO, the Commission has considered the alternative of increasing the amount of prudential margin held by AEMO to ensure that the prudential quality of the NEM is not materially reduced.

Options for strengthening the prudential margin include:

- one days additional prudential margin as recommended by PwC. PwC notes that based on the current method of calculating the prudential margin, the inclusion of an additional equivalent days coverage to the prudential margin would not cover all potential pricing scenarios over the day of incremental risk (or over the suspension period) but would provide some added protection to account for expected scenarios in a manner consistent with the current prudential margin process.[86] Taking into account the assessment of potential risk above, the Commission is not satisfied that one days additional PM would be sufficient;

- a lead may be taken from arrangements under the Swap RA. Assuming a base load swap contract has a strike price of the FLP, a swap reallocation would be similar in effect to an FOA. Under a swap reallocation the parties to the reallocation cannot terminate the reallocation arrangement without the agreement of AEMO. In addition, AEMO maintains a prudential margin against the counter-party to the retailer (normally a generator);

- PwC refers to another option noting that should to the approach to the calculation of the prudential margin be changed to reflect the risk of AEMO over the suspension period as discussed in the stress test MCL, the additional risk coverage in the prudential margin would fully cover the incremental risk to AEMO.[87] The Commission agrees that where the prudential margin has been established to meet the reasonable worst case outstandings for the reaction period, for example based on the CPT with the remainder of the reaction period at APC (as proposed by PwC for stress test MCL methodology), then this risk would be adequately mitigated. However, the Commission does not believe that the work undertaken on alternative MCL methodologies is sufficiently conclusive to recommend a change in MCL methodology at this stage.

The Commission therefore recommends that the retailer who lodges a FOA provide an additional prudential margin equivalent to that which would be held against the

[86] PwC final report, February 2010, p.51.

[87] ibid, footnote 21, p.51

generator who is a party to a swap reallocation arrangement, except that the PM would be determined with reference to the FLP. 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 believes that the additional prudential margin would:

- address concerns about adequacy of one additional days PM to meet the reasonable worst case exposure and help mitigate termination risk; and
- ensure some consistency in the treatment of futures and OTC contracts.

In addition to the irrevocable power of attorney and a strengthened PM, an amended approach to the VMP calculation, as discussed in the next section, would add to the mitigation measures.

The Commission considers that the combined effect of these mitigation measures, together with AEMO's settlement and prudential supervision process, will ensure that the prudential quality of the NEM is not materially reduced. In addition, the potential for futures positions underpinning an FOA to provide a source of funds for retailers to meet margins calls in the NEM, and in ensuring an alternative source of security, contribute to improving the prudential quality of the NEM and reducing costs to Market Participants.

The Commission seeks views from stakeholders on whether the additional PM and the power of attorney as proposed would adequately mitigate FOA termination risk and whether there are any other options that may help increase the surety of margin payments.

3.4.3 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 bank guarantee provided, based on the FLP, for the volume of energy under the 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.

Draft Recommendation

The Commission is minded to amend the Variation Margin Formula proposed by PwC, back 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 an FOA does not exceed the amounts held under the FLP bank guarantee plus any balance remaining in the SDA (this test to apply in addition to the test that the retailer's total outstandings is less than its TL).

Reasoning for draft 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 comments that:

"The variation margins from a futures position are intended to cover all or the majority of the price movements in the NEM spot pool for a region. Although the time coverage is different between a futures and a spot pool purchase obligation, accumulating information in a futures contract will capture any spot price movements. For instance, if prices move to $100 average for a day from $30 an additional $1,680 will accrue as a debit amount to the retailer for 1MW. The base load price of futures will move approximately the same $1,680 but will be spread across the 91 days of the futures contract and will move the futures price approximately $.77. As the futures contract comes to expiry the price movements in the spot pool will be almost perfectly reflected in the price of the futures displaying convergence of the accumulating spot and futures markets."[88]

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 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's 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 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.[89]

PwC recommends that the spot price floor be implemented by introducing a new term "AS" (accumulating spot price) into the VMP formula as shown below.

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[88] PwC final report, p. 34.

[89] ibid, p.55.

VMP = Max [(Max [DSPt,AS] – Max [FLP,DSPh]) x FQ x (OP/DQ), 0]

VMP = Variation Margin Payment;

AS = Accumulating spot price over the NEM outstanding period (35 days rolling accumulating RRP);

FLP = Futures Lodgement Price;

OP = Days in outstanding period (35 days);

DQ = Days in Futures quarter;

DSPt = Official daily future contracts settlement price as the close of business immediately prior to the calculation day;

DSPh = Previous highest daily settlement price for futures contract since Effective Date during the NEM outstanding periods or the previous days accumulating spot price which ever is greatest.

PwC believes that the scaling factor (OP/DQ) is necessary to adjust for the MCL reduction periods and the futures contract periods. PwC states that:

'The FOA models provided do not define the size of the reduction a retailer will receive further than to say 'load under FOA' and multiply this by the number of days. As such, and based on our discussions, we have assumed this is meant to refer to the daily quantity of the underlying futures agreement. The reduction is therefore based on a futures agreement for a period of 35 days (the outstandings period) rather than the period of 90 to 92 days for which the margin payments to the SFECP are calculated. As a result of the difference in calculation periods, the margin and MCL reduction formulas proposed in the FOA models the retailer would be required to pay variation margins on a significantly larger volume of MWh than MCL relief is provided for. For example, if a retailer has a 10MW FOA in place they would receive MCL relief for 10MW x 35 days x 24 hours = 8,400MWh but would be required to pay variation margins based on 10MW x 90 days x 24 hours = 21,600MWh."[90]

AEMO notes that PwC's draft report addresses a risk that the futures price may not correlate to the spot price by introducing a floor in the VMP, i.e. the term "AS" is included 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.[91]

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.

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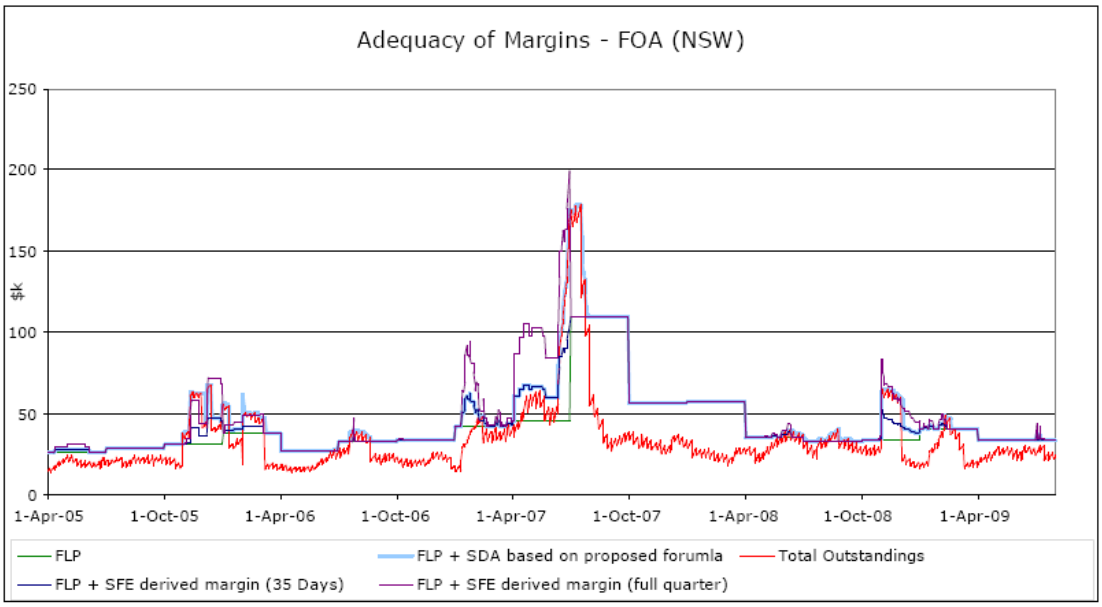
[90] PwC final report, February 2010, p. 39.

[91] AEMO submission on PwC's draft report, 6 November 2009, section 4.3, p.20.

AEMO further notes that the discounting of the margin payments (to 39%) based on the ratio proposed appears to mis-understand how the margins payments are generated, whereby 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.[92]

In its final report, PwC has provided an analysis that compares variation margin formula proposed by PwC to the original formula proposed by the Working Group. The graph below illustrates the comparison for NSW.

Figure 3.6 - Comparison of variation margin formulas for NSW.



Source: PwC final report

The April 08 onwards has been magnified in figure 3.7 below to show the comparison more clearly.

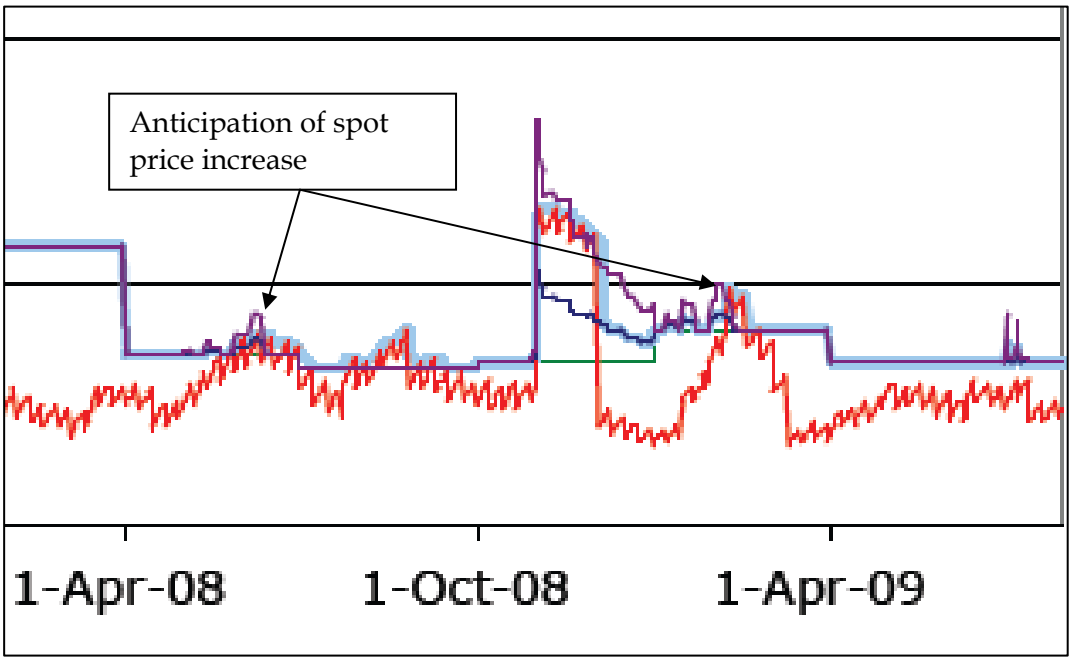
The pale blue line shows the variation margin amounts payable to AEMO under PwC's proposed margin formula. The purple line shows margin payments under the original formula proposed by the Working Group. The dark blue line shows the notional futures margin component under PwC's proposed formula.

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.

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.

[92] AEMO submission on PwC's draft report, 6 November 2009, section 1.6, p.5

Figure 3.7 - Comparison of PwC margin formula to original formula



Another factor that needs to be considered is that an 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 (AS - 35 day accumulating spot price) for a period that is unrelated to the relevant quarter may also be problematic. Retailers who register an 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 spot prices increases in the relevant quarter.

The adjustment for the MCL reduction periods and the futures contract periods (OP/DQ), so far as futures margins are concerned, does not appear to be necessary in light of PwC's comments at the beginning of this section on the relationship between daily spot price movements and futures prices movements (about 1/90th of daily spot). The price relationships appear to reflect the difference in NEM credit period and futures quarters. The manner in which the AS term (accumulating spot price) is incorporated in the variation margin formula 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 an 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 an 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 is 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.

The Commission believes that the original formula proposed by the Working Group could be amended as follows to include a spot price floor and achieve largely similar outcomes to that proposed by PwC:

Variation Margin Payment [VMP] = Max[(DSPt – Max [FLP, DSPh]) x 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 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:

B =
Max[$OSfoa_t$ – (($FLP \times FQ + SDAfoa)_t$ + Max[(DSPt – Max (FLP, DSPh]) x FQ, 0]**), 0]**

Where:

$OSfoa_t$ = outstandings for energy under FOA immediately prior to calculation day, and

$(FLP \times FQ + SDAfoa)_t$ = the sum of the bank guarantee based on the FLP and the accumulated margin payments into the SDA under the FOA at close of business immediately prior to calculation day.

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.[93] 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 bank guarantee 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.

The Commission proposes to address this concern by an additional test for the return of FOA margin payments in the SDA. This test would require that the amounts under the FLP bank guarantee and in the SDA must be greater than or equal to the retailer's outstandings for energy under an FOA. That is,

FLP + SDAfoa on the calculation day >= OSfoa on the day prior to the calculation day. 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 suggests that, where a margin reset becomes available, that AEMO continue to apply this test until the rest amounts have been returned to the retailer.

The model has been appropriately amended to reflect this requirement.

The Commission seeks views from stakeholders on its recommendations and reasoning for amendments to the Variation Margin Formula for an FOA.

The Commission seeks views from stakeholders on the proposal to apply an additional test, as described above, before VMPs are returned following a fall in futures prices.

[93] AEMO submission on PwC's draft report, 6 November 2009, section 9.2, p.45.

3.4.4 Futures offset arrangements and RMCL

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

Draft Recommendation

The Commission recommends that the option to request a reduction in MCL should not be available in respect of load subject to FOA. The MCL reduction formula proposed in the working example FOA model 2 should therefore be amended to ensure that the MCL for load under an FOA is based on the FLP, rather than as a reduction of the total MCL with reference to the FLP.

Reasoning for draft 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 an RMCL a shorter 14 day credit 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 an FOA be accepted where a retailer has an 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 an 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.[94]

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:

MCLfoa = E2 x FLP x 35 x LF x (GST + 1) + E2 x PR x VF x Trp x LF x (GST + 1) + E2 x (PR x VF – FLP) x Trp (recommended in section 3.4.2), where:

MCLfoa = MCL for load subject to FOA,

FLP = Futures lodgement price,

E2 = Energy under FOA,

[94] PwC final report, February 2010, p.55.

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 an FOA.

The Commission notes that the reallocation arrangements, in particular Swap reallocations, currently 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 Commission seeks views from stakeholders on its recommendations and reasoning for the determination on MCL for energy under an FOA.

The Commission seeks views and reasons from stakeholders on whether Swaps and Options reallocation arrangements should work in conjunction with the RMCL.

3.4.5 PwC's other recommendations on FOAs

This section outlines the Commissions draft recommendations and reasoning on other matters raised by PwC in relation to FOAs.

Draft recommendations

The Commission recommends that the requirement under the FOA model to share information in relation to the status of an FOA be strengthened to ensure that information provided by the SFECP to the retailer is provided at the same time to AEMO.

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

The Commission recommends that the requirements for SFECPs to maintain a separate client sub account for futures contracts subject to an FOA and for the SFECPs to agree to not net off margins, be removed from the proposed FOA model 2, as proposed by PwC.

The Commission recommends that the Rules in relation to FOAs include a provision that the retailer must pay to AEMO variation margins as determined by AEMO.

The Commission proposes to make it a Rule requirement that offset arrangements be underpinned by hedge arrangements and to recommend to the MCE that this requirement be made a civil penalty provision (refer section 3.2.2). The Commission

recommends that Rules in relation to FOAs should provide AEMO with the discretion to terminate an FOA if a retailer breaches the terms of the FOA.

Reasoning for the draft recommendations

- Parties to FOA

PwC examined the risk associated with the proposed parties to an FOA, and has reviewed the single party FOA processes. PwC found that the risks associated with not binding the SFECP can be managed through other processes.

PwC recommends that a NEM Participant wishing to have an FOA registered should be required to confirm that it has been established and resides within a structure that requires the SFECP to provide identical information to both the Retailer and AEMO simultaneously.[95]

The matter of termination risk is discussed in section 3.4.2 and the Commission has proposed strengthening of arrangements to mitigate this risk. 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 SFECP that ensures this requirement is met. It would be necessary that the addendum be agreed by the retailer and the SFECP, in a side letter, as a precondition for the registration of an FOA.

- Specification of FOA

PwC states that in practice the provisions in clause 5.1.2.3 (sole purpose futures clearing account) of the proposed FOA Model 2 rules would be very difficult to achieve and in the case that its recommendations relating to the calculation of the variation margin are adopted would not be applicable.

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 SFECP.[96]

The Commission recommends the working example FOA Model 2 be amended to remove the requirements that the SFECP maintain a client sub account for futures contracts that are subject to an FOA. As outlined above the Commission has recommended a number of amendments for the management of termination risk arising from these changes.

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[95] PwC final report, February 2010, p. 56.

[96] ibid, p.56

- Preconditions for FOA Registration

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 SFECP, which underpins the risk coverage of the FOA, are payable without netting against other positions held by the NEM Participants.

PwC recommends that the preconditions for registration of an 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 SFECP 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.[97]

The Commission considers that the proposed requirement under FOAs that SFECPs not net off margins for a Client (retailer) is not likely to be practical and may result in additional costs to retailers. The Commission is therefore recommends the removal of this requirement under the proposed FOA model 2 and recommends a strengthening of arrangements to manage the risk of default by a retailer.

The Commission recommends that the Rules in relation to FOAs include a provision that the retailer must pay to AEMO variation margins as determined by AEMO.

The Commission also recommends that the requirement on SFECPs to provide identical information on the status of futures contracts subject to FOAs to the retailer and AEMO be strengthened. Since the SFECP would not be bound by the Rule, this would need to be a term of a retailer's futures contracts with the SFECP and a term of the FOA under AEMO's procedures, the breach of which would result in termination of the FOA.

- Penalties for Failure

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

[97] ibid, p.56

- A fixed financial penalty for breach.[98]

The Commission proposes to make it a Rule requirement that offset arrangements be underpinned by hedge arrangements (refer to section 3.2.2) and to recommend to the MCE that this requirement be made a civil penalty provision. This would ensure that the AER can monitor and enforce compliance with this obligation.

The Commission recommends that Rules in relation to FOAs provide AEMO with the discretion to terminate an FOA if a retailer breaches the terms of the FOA.

The Commission has proposed the following measures in relation to retailer default.

- power of attorney over client CSA and strengthened prudential requirements as outlined above;
- requirement for FOAs to be underpinned by underlying contracts and that this requirement be a civil penalty provision; and
- requirement on retailers to comply with terms and conditions of the FOA, failure or which could result in the termination of an FOA.

The Commission considers that theses measures should be sufficient to manage default risk and therefore does not propose any further penalties for failure.

The Commission seeks views from stakeholders on the recommendations and reasoning outlined above in relation to:

- *parties to an FOA;*
- *specifications of an FOA; and*
- *preconditions for FOA registration.*

The Commission seeks views from stakeholders on the recommendations and reasoning outlined above in relation penalties for breach of terms on FOAs.

[98] PwC final report, February 2010, p.56.

3.4.6 Comparative assessment of benefits under a FOA

PwC provides an example of potential benefits from reallocations (Energy) and FOA based on the aggregate load for NSW, Qld and Vic as follows:

Table 3.1 - PwC's assessment of reduction in MCL

MCL Inputs	Without offsets	Reallocation (25%)	FOA (25%)	Reallocations (25%) + FOAs (25%)
Estimated System Load for NSW QLD & VIC	20,000MW	20,000MW	20,0000MW	20,000MW
Unhedged Load	20,000MW	15,000MW	15,000MW	10,000MW
Base Price	$35 / MWh	$35 / MWh	$35 / MWh	$35 / MWh
Volatility Factor (based on ave across regions)	2.2	2.2	2.2	2.2
Lodgement Price		$36/MWh	$36/MWh	$36/MWh
Example MCL	$1792 M	$1469 M	$1620 M	$1297 M
Prudential Margin	$298 M	$298 M	$298 M	$298 M
Net MCL Relief	None	$327 M	$172 M	$495M

Source: PwC final report

The benefits shown above are the estimated reduction in MCL requirements compared to standard MCL. The actual benefit would be the avoided costs of bank guarantees for these amounts. In its final report, PwC notes that the savings to retailers from a reduction in bank guarantee costs would equate to about $0.10/MWh and $0.16/MWh (assuming a bank guarantee cost of 2.5% and 4.0% of face value).

It should be noted that the NEM already benefits from RMCL provisions and therefore the more appropriate comparison of benefits of FOA would be against the bank guarantee requirements under RMCL. AEMO has advised that 72% of the energy traded through the NEM is covered by RMCL provisions.

The Commission has undertaken its own analysis of the reduction in MCL under an FOA against the standard MCL and RMCL.[99] The calculation below shows average $/MWh over the credit period (42 days) by region for quarters 1 and 2 of 2009.

The results for Q1 2009 and Q2 2009 in $/MWh are as follows.

[99] Note that this is an indicative assessment only, 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.

Table 3.2 - Assessment of relative reduction in MCL (standard and RMCL)

Value of FOA Q1 2009 - $/MWh	NSW	SA	Qld	Vic
Price for standard MCL (PR x VF)	79	278	125	56
Price for RMCL (standard MCL x 0.66)	52	184	83	37
FLP - based on Q1 futures price on 29 Dec 08.	50	114	73	57
Equivalent price for FOA MCL - unadjusted	55	141	82	57
Adjustment for load profile - 20% adjustment*	8	19	12	10
Additional prudential margin (PM)	5	27	9	0
Reduction (+ve) compared to standard MCL	11	90	23	-11
Reduction (+ve) compared fo RMCL	-16	-4	-20	-30

* the FLP is adjusted by 20% as an approximation (FLP x .2 x 35/42)

Value of FOA Q2 2009 - $/MWh	NSW	SA	Qld	Vic
Price for standard MCL (PR x VF)	75	321	107	160
Price for RMCL (standard MCL x 0.66)	49	212	71	105
FLP - based on Q1 futures price on 29 Mar 09.	41	42	37	41
Equivalent price for FOA MCL - unadjusted	47	88	49	60
Adjustment for load profile - 20% adjustment*	7	7	6	7
Additional prudential margin (PM)	6	46	12	20
Reduction (+ve)compared to standard MCL	15	179	41	73
Reduction (+ve) compared fo RMCL	-10	70	4	18

* the FLP is adjusted by 20% as an approximation (FLP x .2 x 35/42)

For Q1 the effective price for the calculation of standard MCL was $79/MWh (PR x VF), for calculation of RMCL was 33% less at $52/MWh. The FLP based on Q1 futures price, as at 29 December 2008, was $50/MWh. The equivalent price for FOA MCL is based on 35 days of FLP, and 7 days of standard MCL. This equivalent price is then adjusted to allow for differences between actual load profile and the flat profile[100] covered by the FOA and to reflect the additional prudential margin[101]. The adjusted FOA MCL price is then compared to the prices for standard MCL and RMCL.

It can be seen that when compared to the standard MCL, a benefit (reduction in MCL) would have been realised in all states except Victoria in Q1 and in all states in Q2. When compared to RMCL, no benefit would have been available in any of the states in Q1 and a benefit would have been available in SA, Qld and Victoria in Q2. For comparison, the benefit shown by PwC ($172M for a 5,000MW load), when expressed as an average $/MWh price over 42 days, is $34/MWh.

The assessment above shows the amount of MCL reduction. The cost savings to a retailer may be estimated using the cost of a bank guarantee. PwC applied between 2.5% to 4.0 % in its final report.

[100] A 20% load profile adjustment has been applied for illustration purposes. This will depend on AEMO's load profile adjustment processes.

[101] As recommended for the mitigation of FOA termination risk in section 3.4.2.

3.5 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 interregional adjustment factor applied. This section examines the implications of such internal netting of load and generation of vertically integrated entities.

Draft 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 draft 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 interregional adjustment factor applied.[102]

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 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.

d-cyhpaTrade states that furthermore, it seems to automatically provide interregional offsets (albeit with an adjustment factor) exclusively to vertically integrated retailers where their expected generation in one region is allowed to offset

[102] PwC final report, February 2010, section 2.1, p.9.

their demand in another region. Proposed FOAs would not allow interregional MCL offsets and nor do registered reallocations, due to obvious and insurmountable transmission reliability risks as well as interregional 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.[103]

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 an 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.[104] A review of the Rule change proposal and the 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.

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

[104] National Electricity Amendment (Reallocations) Rule 2007, AEMC, 15 February 2007.

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."[105]

In its final determination, the Commission had accepted AEMO's proposed Rules in relation to the prudential requirements.[106] 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.

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
- 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.

The Commission seeks views from stakeholders on the recommendations and reasoning for the mitigation of risks arising from internal offsetting of a gentailer's load and generation.

3.6 Summary of Rule change and Procedure change recommendations

3.6.1 Recommendations on Rules

Offset arrangements generally

- Offset arrangements to be underpinned by hedge contracts for the term of the offset arrangement [this is intended to be a civil penalty provision];

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105 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.

106 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, viewed 25 February 2010.

- Arrangements to reflect the terms of the underlying contracts;
- Parties to offset arrangements must comply with the terms of the arrangements;
- New Rule – AEMO may by giving advance notice decide not to register offset arrangements, if in AEMO's reasonable opinion there has been a fundamental change to market circumstances, and where the registration of offset arrangements would materially increase the risk to the NEM.
- Amend clause 3.3.8 of the Rules to incorporate FOAs in the determination of the MCL and the PM.

Reallocation arrangements

- No change to the Rules.

Futures offset arrangements

- New Rule on the enabling provisions of FOAs:
  - FOA transactions (FLP bank guarantee plus VMP),
  - Retailer must comply with terms and conditions of an FOA and pay margins as determined by AEMO;
  - Registration process
  - De-registration process (termination for breach of terms and conditions)
  - SDA arrangements to be defined in the Rules, held as security under unilateral control of AEMO. Specify test for return of funds from SDA when futures price falls, otherwise existing provisions apply with respect to funds in SDA.
- Requirement for AEMO to, in accordance with the Rules consultation procedures, develop FOA procedures based on the recommendations of this Review and the FOA Model in final report.
- Amend clause 3.3.13 (b) of the Rules to allow a call notice issued by 1.00 pm to be taken as being issued on the same business day (The Rules state that call notice issued after noon is taken to be issued on the next business day).

Internal offset arrangements

- Amend S3.3.2 (1) by substituting "*if the aggregate of all*" with "*if any*".

3.6.2 Recommendations on AEMO procedures

Offset arrangements generally

- Review procedures, and if necessary amend, to ensure that MCL relief available to retailers is capped at their average load;
- Document principles or processes detailing how AEMO would address load profile risk under offset arrangements.

Reallocation arrangements

- Subject to consultation, consider a process for providing counter parties to an offset arrangement early warning of the need to provide additional security (for example when a call notice is issued)

Futures offset arrangements

- Develop and publish FOA procedures in accordance with Rules consultation procedures that reflect the Commission's recommendations (as approved by the MCE), and AEMO's operational requirements that include:
    - Conditions for registration of an FOA;
    - Irrevocable power of attorney over CSA with the SFECP;
    - Calculation of TL, PM, and MCL;
    - Variation margin formula;
    - Information requirement under the Rules, Addendum to contract between retailer and SFECP for provision of information and agreement between SFECP and AEMO on information sharing;
    - Other requirements in accordance with the Rules eg. MCL, PM, and SDA amounts.

Internal offset arrangements

- Amend Credits Limits Methodology to reflect amended Rule.

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4 Draft recommendations on MCL methodology

4.1 Objective

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.[107] 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.[108]

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.[109]

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.

4.1.1 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).

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[107] FOA Rule change proposal, joint submission by Australian Power & Gas, Infratil Energy Australia and Momentum Energy, 10 January 2008.

[108] AEMO's submission to first round consultation on Futures Offset Arrangement Rule Change Proposal, 14 March 2008, section 2.3, p.14.

[109] Rule Determination, National Electricity Amendment (Futures Offset Arrangements (FOAs)) Rule 2009, AEMC, p.42.

The "reasonable worst case" performance target is defined under Chapter 10 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".

4.1.2 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.[110] 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.

4.1.3 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.

4.2 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:

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110 *Credit Limits Methodology*, AEMO, 27 May 2009, http://www.aemo.com.au/electricityops/0530-0007.pdf, viewed 16 February 2010

- 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 an 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 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 consultations on the Framework and Issues Paper for this Review.

The MCL is intended to be a forward looking assessment of NEM's reasonable worst case exposure to individual NEM participants. PwC took this into account in its assessment.

4.2.1 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."[111]

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.[112]

- 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 square root of 6[113]; and

- 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

[111] PwC final report, February 2010, p. 57

[112] Ibid, p. 58

[113] Ibid, p. 63

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.[114]

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 magnitudes as the current MCL methodology.[115]

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.[116]

- 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 week credit period for the determination of the MCL, this weekly average is multiplied by the time factor of square root of 6.

- 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

[114] PwC final report, February 2010, section 7.2.1, item 1.10.1, p.101.

[115] Ibid, p.58

[116] Ibid, section 5, p. 57

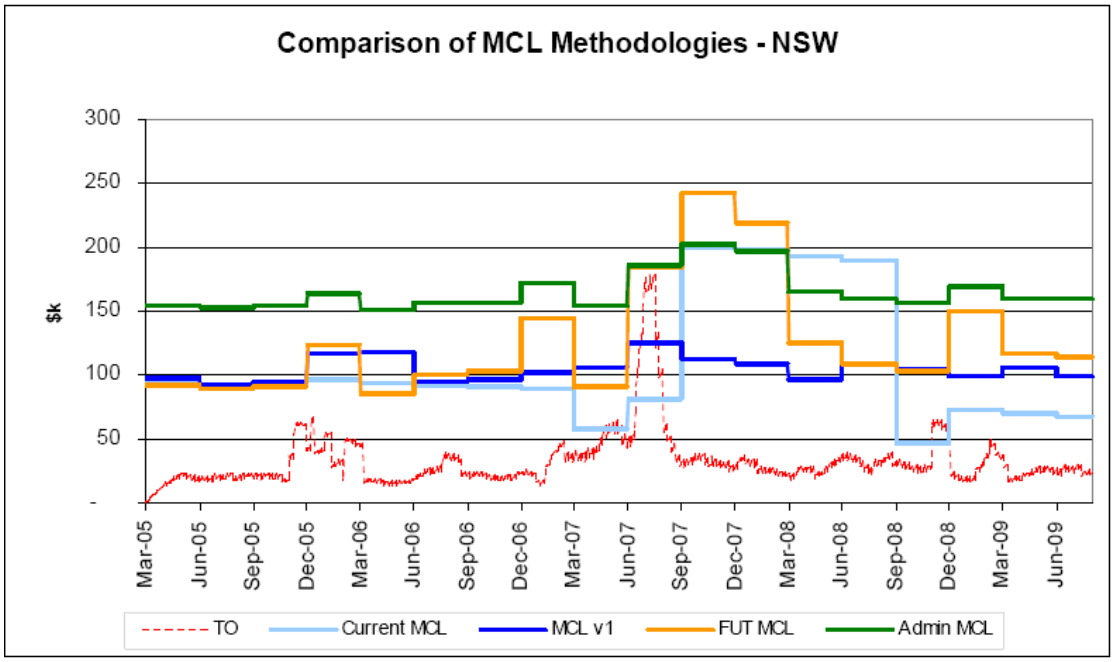
remaining 35 days of the 42 days credit period was based on the spot futures price, as for the FUT MCL. No volatility factor was applied for the 28 day collection period. The volatility factor for the one week of accumulated billings was determined as for FUT MCL, but only for one week. This methodology 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 4.1 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 4.1 - 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.[117]

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.[118] 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, with further work to be done to create a formula that increases the efficiency without impairing the effectiveness. 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.[119]

4.2.2 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.[120]

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

[117] PwC final report, February 2010, section 5.5, p. 75.
[118] Ibid, section 5.3.3, p. 62.
[119] Ibid, p.75.
[120] 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).[121]

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.[122]

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 futures based forward pricing estimate - deserves further exploration. Some element of 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.[123]

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 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.

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

122 PwC final report, February 2010, p.105.

123 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 "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 clarified, 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.[124]

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); and

- 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

[124] 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).[125]

4.2.3 Commissions view on PwC's assessment of MCL methodology and its draft recommendations

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 the spot price movements. Therefore, consideration of the use of futures prices has strong merit.

However, the Commission is mindful of 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 believes 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, 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

[125] PwC final report, February 2010, sections as referenced.

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 the following work is necessary before a recommendation on the interpretation of reasonable worst case scenario can be made:

- 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:

    1. the MCL could be based on the 98th percentile price observation for average 42 day prices, with PM being the 7 day equivalent;

    2. the TL could be based on the 98th percentile observation of 35 day average prices and the PM on 7 day average prices;

    3. 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.[126]

- 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 of Market Participants.

- 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.

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

[126] 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 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 4.1. 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.

PwC's analysis shows that:

- the current approach 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 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;

- 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.

- conclude this Review and recommend a comprehensive Review of the MCL methodology as part of a separate review. These are a number of matters that need to be investigated including the consistency of RMCL arrangements with the existing prudential framework and the balance between TL and PM in the MCL.

To do nothing is not an option since stakeholders have been unanimous in relation to the need to clarify the reasonable worst case performance target. Further, 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. For example, where it can be established that the PM is a reasonable worst case estimate of outstandings over the reaction period, the additional PM required under current reallocation arrangements and proposed for the FOAs may not be necessary (provided the reaction period remains the same). 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.

4.3 Commission draft recommendations

The Commission, subject to further analysis and consultation, recommends that 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.

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 notes 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.

Since the work to clarify the reasonable worst case performance target is unlikely to be completed within the timeframe for the final report on this Review, the Commission proposes that AEMO continue with the work as part of its review. When an agreed target has been established, then AEMO could recommend Rule changes, if required, to give clarity to the performance target.

Once the performance target for reasonable worst case has been established, the Commission recommends that AEMO undertake a review and establish an 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 recommends that the current MCL methodology continue to be used as the basis for the determination of the Maximum Credit Limit until and alternative methodology is developed.

The Commission seeks views from stakeholders on:

1. *the above approach to clarifying the "reasonable worst case" performance target; and*
2. *the proposed process for achieving stakeholder acceptance of the interpretation.*

The Commission also seeks stakeholders' views on whether the clarification of the "reasonable worst case" performance target should be pursued as part of this Review, noting that further consultations could delay the final report on this Review.

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, money in the SDA account is held until the end of the quarter (to which the futures contract relates), is not applied against bills, and the value is returned, ~~to the greater of FLP and DSPt~~, if the futures price falls off provided the FPNP's FLP + SDA is greater than the outstandings for energy under FOA and the FPNP's TO<TL.

Futures Offset Arrangement Request and Registration

Parties

1. Direct Retailer FOA

1.1. Contractual arrangement is between:
1.1.1. SFE Clearing Participant (CP); 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 the AEMO procedures for an FOA~~the Rules. Rules will have to be amended to include NEMMCO's requirements~~;
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 CP;
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 CP 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 CP to provide accurate and up to date information in a timely manner regarding all communications with AEMO;
1.2.2.4. Undertaking by CP to provide notification of updated prices if the SFE published settlement price is incorrect on any day for any reason;
1.2.3. ~~If possible, t~~There is to be a side letter from the CP to AEMO, specifying and agreeing to the terms in the addendum;
~~*1.2.3.1.This options needs to be investigated, we do not know whether CPs will agree to this clause;*~~

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).~~Significant penalties would be imposed on FPNP if they are found to be providing inaccurate information and/or not complying with the Rules regarding FOA. A relevant Rule change to enforce this may have 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 require 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 Q409 is lodged 90 days prior, the MCL reduction will only come into effect on 1/10/09.

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. The FPNP must provide to AEMO an irreovocable power of attorney in relation to all payments which the FPNP is entitled to receive from a Client Segregated Account with the CP in respect of futures contracts underlying an FOA;

~~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 CPsare 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.~~5.1.2.1. ~~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;

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 the CP~~;

5.3.2. ~~The FPNP may make the payment themselves, or may nominate their CP to make the margin payment to NEMMCO, 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~~only~~ 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 FLP + SDA foa on the calculation dat >= OSfoa on the day prior to calculation day and TO<TL where~~;~~ OSfoa = outstandings for energy under FOA, FLP + SDAfoa = the sum of the bank guarantee based on the FLP and the accumulated margin payments into the SDA under the FOA.

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 FLP + SDA >= OSfoa (as per item 6.3) and 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 NEMMCO to reset the DSPh to DSPt by 8:00am on the *Calculation Day*, if FLP + SDAfoa >= OSfoa (as per item 6.3) and 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 CP, 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 FLP + SDAfoa >= OSfoa (as per item 6.3) and 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) will be amended to ensure that a call notice issues 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 = Max[(DSPt – Max (FLP, DSPh]) x 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

$B = Max[OSfoa_t – ((FLP \times FQ + SDAfoa)_t +$ Max[(DSPt – Max (FLP, DSPh] x FQ, 0]**)), 0]**

B is the spot price floor for FOA margins payments where;

$OSfoa_t$ = outstandings for energy under FOA immediately prior to calculation day, and

$(FLP \times FQ + SDAfoa)_t$ = the sum of the bank guarantee based on the FLP and the accumulated margin payments into the SDA under the FOA at close of business immediately prior to calculation day.

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 amonts 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' which would equal zero when sufficient cashflows arise out of the FOA margin payments~~;

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's FLP + SDAfoa >= OSfoa (as defined at item 6.3) and TO<TL.

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 x VF x EL x Tcp x LF x (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
Tcp = credit time period, which is 42 days unless the Participant has requested a RMCL, in which case Tcp is 28 days
Trp – the reaction time period, which is 7 days
LF = loss factor

7.2. MCL with FOA (**bold**) ~~Reduction~~ = P x VF x E1 x Tcp x LF x (GST+1) + **[FLP x E2 x 35 x LF x (GST + 1) + P x VF x E2 x Trp x LF x (GST + 1) + (P x VF – FLP) x E2 x Trp]**

~~MIN[β,1] * Max [(P x VF – FLP) x FL x (Tcp-Trp),0]~~

Where:
E1 = load not subject to FOA
E2 = load subject to FOA
E1 + E2 = EL

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 caculating 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:~~
~~7.1.1.The existing prudential framework including RMCL and reallocations; and~~
~~7.1.2.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 Q409 for a contract that expires in March 2010, the MCL reduction is applicable only from 1 Jan 2010.

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 Q109 futures contract expires on the 3rd business day after close of trading on 31 March 2009). 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 CP~~ 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 remain within the test specified at item 6.3 ~~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 CP, 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 CP, then the CP may close out all positions, in all sub-accounts);

8.5.2. In the instance that this occurs, the CP 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 CP 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 CP 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 CP 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 CP relating to change in futures position relating to FOA;

8.5.4.1.3. Receipt of end of day communication from CP notifying a change in the futures position relating to FOA;

8.5.4.1.4. Lack of receipt of end-of-day communication from CP;

8.5.4.1.5. Lack of margin payment by~~from CP 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 CP, 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;