

Australian Energy Market Commission

FINAL RULE DETERMINATION

Potential Generator Market Power in the NEM

Rule Proponent(s)

Major Energy Users

26 April 2013

RULE
CHANGE

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About the AEMC

The Council of Australian Governments (COAG), through its then Ministerial Council on Energy (MCE), established the Australian Energy Market Commission (AEMC) in July 2005. In June 2011, COAG established the Standing Council on Energy and Resources (SCER) to replace the MCE. The AEMC has two main functions. We make and amend the national electricity, gas and energy retail rules, and we conduct independent reviews of the energy markets for the SCER.

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Executive summary

The Australian Energy Market Commission's (AEMC or Commission) has determined to make no rule on the rule change request proposed by the Major Energy Users (MEU) relating to the potential exercise of market power by generators in the National Electricity Market (NEM).

After consideration of the issues raised in the rule change request and consultation throughout the rule change process, the Commission is not satisfied that the proposed rule will or is likely to contribute to achievement of the National Electricity Objective (NEO).

The Commission has explored the possibility of making a rule which would confer on the Australian Energy Regulator (AER) a specific function to monitor the wholesale electricity market, but considers there is material doubt as to whether this function is compatible with the existing functions of the AER.

The Commission considers that analysis of market outcomes in Queensland, New South Wales and Victoria does not support a conclusion that there is or has been substantial market power in those regions of the NEM.

With regard to South Australia, the Commission considers it is not clear as to whether substantial market power has existed in that region to date. The Commission however considers there is insufficient evidence to support the likely exercise of substantial market power in the current market environment.

The current market environment is characterised by falling demand for electricity in recent years, generation plant shutdowns and mothballing and average annual wholesale spot prices across NEM jurisdictions at or near the lowest levels since commencement of the NEM.¹

The Commission however accepts, informed in particular by its analysis of outcomes in South Australia, that there are some circumstances in which substantial market power could exist and be exercised.

Recognising there is potential for substantial market power to exist or be exercised in the future, the Commission has explored the possibility of making a rule which would confer on the AER a specific function to monitor the wholesale electricity market, but considers there is material doubt as to whether this function is compatible with the existing functions of the AER.

Therefore the Commission recommends that the Standing Council on Energy and Resources (SCER) consider conferring on the AER such a monitoring function and add further accountability mechanisms for the use of the AER's current information gathering powers in relation to this monitoring function.

¹ In the two years before the introduction of the carbon price, the average annual wholesale spot prices in the mainland NEM jurisdictions were amongst the lowest in real terms since the start of the NEM in 1998. An increased volume of renewable generation capacity and reductions in the rate of demand growth have contributed to the depressed wholesale prices. See AEMC, *Impact of the enhanced Renewable Energy Target on energy markets – Final Report*, 25 November 2011, p25.

Analysis of the problem the MEU's rule seeks to address

In analysing the MEU's rule change request the AEMC adopted a three step analytical process:

- Defining the problem;
- Assessing whether there is evidence of the defined problem; and
- Assessing solutions to any problems that are identified.

Defining the problem

In order to ensure that the assessment of the likely impact of the proposed rule on the NEO is robust, the Commission considered it important to establish a clear definition of 'market power' and to consider how this concept should be applied in the context of the NEM.

In an energy-only market such as the NEM, the costs of the generating units, including fixed costs, must be recovered over time through sales of electricity by way of spot and contract markets. Generating units do not receive spot market payments in periods when capacity is not dispatched.

This is in contrast to so called capacity 'markets' where generators receive two forms of payment, one for energy produced and another for the level of generation capacity offered. Capacity markets require a central planning agency to estimate the required capacity needed in order to achieve an efficient outcome. Retailers are then required to purchase from generators the share of the capacity determined by the planning agency related to their customer load. Customers bear the risk of decisions by that planner such as too little or too much capacity being purchased.

Spot price volatility is an inherent and necessary feature of a market with the characteristics of the NEM. Flexibility is essential for maintaining a reliable system given the range of factors that impact on the dynamics of both demand and supply of electricity.

The Commission notes, based on the findings of the analysis undertaken by Seed Advisory, that it is possible for users in all NEM jurisdictions to mitigate their financial exposure to price spikes through hedging strategies.

To develop a definition of 'market power', the Commission considered approaches of competition authorities, approaches to defining market power in electricity markets and approaches in previous legal cases in Australia. In determining its definition the Commission distinguished between:

- 'substantial market power', which involves sustained pricing above the level that would prevail in a workably competitive market; and
- 'transient pricing power', which involves a transient ability to increase prices for short periods of time.

The Commission considers that transient pricing power, manifesting itself through occasional spot price spikes, is an inherent feature of a workably competitive wholesale market, and is only a concern if it occurs frequently enough and to a significant enough

magnitude to lead to average annual wholesale prices being above the long-run marginal cost (LRMC) of generation. LRMC is a measure of the workably competitive level of wholesale electricity prices, with actual prices expected to be above this level in some years and below in other years, reflecting supply and demand conditions at particular points in time.

In electricity generation, which is characterised by relatively high fixed costs and 'lumpy' investments, a competitive response to price signals will not occur in very short timeframes. It is therefore important to recognise prices must be sustained above estimates of LRMC for a sufficient period of time, reflecting a time frame in which new entry may reasonably be expected to occur. This also recognises it is not likely that generators recover their costs in a steady way over time. At times, generators' operating margins may be relatively high, while at other times, the margin will be quite low or even negative.

The existence of material barriers to entry may prevent a normal market response under conditions of workable competition from occurring, namely new entry into the market in response to price signals.

As a result of these considerations, the Commission defined substantial market power in the context of the NEM as the ability of a generator or group of generators to increase annual average wholesale prices to a level that exceeds LRMC, and sustain prices at that level due to the presence of significant barriers to entry.

In making this assessment, an examination of the existence or otherwise of significant barriers to entry is of particular relevance, as only in the presence of significant barriers to entry can substantial market power be sustained.

Assessing whether there is evidence of the existence and exercise of substantial market power

The Commission undertook analysis of prices compared to LRMC and the potential presence of barriers to entry for the period from 2005 to 2012, which included all the periods of time highlighted by the MEU as periods in which it considered market power had been exercised by generators in the NEM. The Commission engaged Competition Economists Group (CEG) and NERA Economic Consulting (NERA) to assess, respectively, to what extent barriers to entry can be said to exist in the NEM and to what extent prices have been maintained above LRMC in various regions of the NEM.

New South Wales, Queensland and Victoria

Analysis by CEG found that in New South Wales, Victoria and Queensland there were no matters of significance prohibiting new generators from entering the market.

In addition, the comparison of LRMC with wholesale spot and contract market outcomes for New South Wales, Queensland and Victoria shows results which are consistent with a wholesale electricity market that responds to the supply demand position broadly in the way that would be expected of a workably competitive market.

South Australia

Some of CEG's findings may point to barriers to entry being present in South Australia. However, they also noted that there were alternative explanations for their results in

South Australia such that a definitive conclusion of whether new competitors were being inhibited from entering the South Australian market could not be made.

The Commission considers NERA's results from comparison of annual average wholesale prices and estimates of LRMC for South Australia to be less clear than for the other NEM regions. The results show prices to have exceeded or been very close to the LRMC level in some years. In particular there is a three year period, from 2007-08 to 2009-10, where for two years the annual average wholesale spot prices could be observed to be near the top of the LRMC range and one year where prices have exceeded the market modelled LRMC, with a significant deviation observed in 2007-08. However, annual average wholesale spot prices for the most recent two year period from 2010-11 to 2011-12 are significantly below market modelling estimates of LRMC and the range of AIC LRMC estimates.

In the case of South Australia, the Commission therefore considers that, to the extent that any substantial market power may possibly have been exercised by generators in South Australia in the period from 2007-08 to 2009-10, the following years have demonstrated the response to these price outcomes that is consistent with what would be expected of a well-functioning market, ie price responsive investment or structural changes that have shifted the balance of supply and demand.

The Commission also notes that the renewable energy target has driven a considerable increase in the capacity of generation in South Australia through the uptake of wind generation in the period under review. The installed wind generation capacity increased from 389 megawatts (MW) to 1,205 MW between January 2006 and June 2012.² The Commission furthermore notes the planned upgrade of the Heywood interconnector with Victoria which is envisaged to increase its capability by about 40 per cent in both directions. When available, the increased capacity on the interconnector will increase the extent of competition between generators in Victoria and South Australia.

In the case of South Australia, the Commission considers that the findings from the investigation into the presence of barriers to entry and the results of the comparison of annual average wholesale prices and estimates of LRMC mean there is the possibility of the exercise of substantial market power over the period 2007-08 to 2009-10. The Commission considers there to be insufficient grounds however to assume the likely exercise of substantial market power in the current market environment. The Commission notes that, should industry structure or conditions substantially change, the possibility of the future exercise of substantial market power cannot be ruled out.

Assessing solutions to any problems that are identified - The MEU's proposed rule

In the MEU rule change request, the Commission is asked to consider making a rule which would impose restrictions on dispatch offers that may be submitted by a 'dominant generator' (to be determined by the AER for each NEM region). The offer restrictions would come into play when regional demand exceeds the level at which the generator has been declared to be a dominant generator.

² Source: Australian Energy Market Operator, *South Australian Wind Study Report*, Figure 2-3, Excel data.

In addition, the MEU rule change request proposes making amendments to the National Electricity Law (NEL) and the National Electricity Rules (NER) in order to confer additional investigation and enforcement powers on the AER to ensure compliance with the newly proposed provisions. According to the proposal, this would include the power to impose penalties, with reference to the Australian Competition and Consumer Commission's powers under the Competition and Consumer Act 2010. Regarding these aspects of the rule change request, the Commission notes that the proposed changes lie beyond the Commission's rule making powers. For these reasons, the Commission has not further assessed these aspects of the MEU's proposed rule.

A rule as proposed by the MEU, or similar, which seeks to limit occasional price spikes by capping generator dispatch offers is difficult to reconcile with the fundamental features of the NEM. A rule that limits the ability of generators to bid during particular periods in a manner that seeks to recover their efficient costs over time is likely to be detrimental to the NEM investment environment.

Even if substantial market power was identified, ex-ante rules like the MEU's proposed rule would attempt to address the potential 'symptoms' rather than the likely causes that have contributed to the situation in which substantial market power could arise, such as the existence of barriers to entry or insufficient competition due to the industry structure. These causes are likely to require solutions that lie beyond the scope of changes to the rules.

This is all the more the case since the proposed rule would apply NEM-wide, including in New South Wales, Queensland and Victoria where the Commission considers there was no evidence of the existence or exercise of substantial market power. Even if the rule was only to apply to South Australia, where the results were less clear, the Commission, for the reasons set out above, does not consider the proposed rule is the appropriate response.

In light of the Commission's analysis set out in this final determination, the Commission is not satisfied that the rule proposed by the MEU will, or is likely to, contribute to achievement of the NEO as it would not promote the 'efficient investment in electricity services to promote reliability of supply for consumers' and would undermine the efficient operation of the wholesale market.

Systematic market monitoring of the NEM

The Commission recognises that industry conditions in the NEM could change, such that they become more conducive to the exercise of substantial market power in the future.

The Commission considers that the presence of barriers to entry or structural factors that mean the wholesale electricity market is not workably competitive would be detrimental to the long-term interests of consumers. In particular, it would or would be likely to have an adverse effect on the efficient investment in, and efficient operation of electricity services in the NEM.

Therefore, the Commission considers it is important that a monitoring regime be established under the NEL/NER framework to regularly report on whether the wholesale electricity market is workably competitive.

An appropriately developed monitoring regime is a pre-requisite for identifying at an earlier stage any evidence that the efficient operation of the wholesale electricity market is undermined by the presence of significant barriers to entry or other features of the industry structure.

Systematic and periodic review is an increasingly important part of the regulatory framework for wholesale electricity markets in other jurisdictions, for example New Zealand and Western Australia.³ Implementing a monitoring regime for the NEM was also suggested by some stakeholders, including the South Australian Government.⁴

The monitoring would allow identified problems to be addressed in the long term interests of consumers based on an understanding of the underlying cause(s) of any concerns that the market is not workably competitive. The AER would report periodically on the outcomes of its monitoring.

Any rule changes developed by SCER or any other party as an outworking of the monitoring would be considered by the AEMC.

The Commission considers that such a monitoring regime will, or is likely to, contribute to the achievement of the NEO. The Commission has therefore considered making a rule which would put in place such a monitoring regime.

The AER is the energy market institution best placed to carry out this monitoring role. The Commission considers such a role is more compatible with the AER's existing functions and scope of activities under the NEL than, for example, with those of the AEMC or, more clearly, the Australian Energy Market Operator (AEMO). The Commission has explored the possibility of making a rule which would confer this monitoring function on the AER.

A rule of this type would be with respect to a subject matter on which the Commission may make rules under section 34 of the NEL. However, the Commission considers that SCER is the appropriate body to determine whether such a new function should be conferred on the AER, for the following reasons:

- the proposed monitoring role would represent a significant increase in the scope of the AER's monitoring functions and there is material doubt whether this function is consistent with the functions of the AER as currently specified in the NEL;
- the AER would be required to allocate material additional resources in order to perform the role; and
- SCER has the ability to coordinate a comprehensive assessment of changes that may be required to the governance framework in order to effectively confer the new monitoring function on the AER, including considering whether the AER's

³ In New Zealand, the Electricity Industry Act 2010 introduced a new function for the Electricity Authority, requiring it to undertake industry and market monitoring. In Western Australia, under the Wholesale Electricity Market Rules, the Economic Regulation Authority of Western Australia must provide the WA Minister for Energy with a report on the effectiveness of the WA Wholesale Electricity Market at least annually.

⁴ Government of South Australia, submission on draft determination, 2 August 2012, p2.

existing information gathering powers under section 28 of the NEL are appropriate with respect to the new monitoring function.

The Commission therefore recommends that SCER consider making changes to the NEL in order to confer on the AER a specific function to monitor the wholesale electricity market and add further accountability mechanisms for the use of the AER's current information gathering powers in relation to this monitoring function.

The focus of the monitoring function should be to periodically review the performance of electricity wholesale markets in the NEM in a systematic manner and to analyse whether market outcomes are observed which are compatible with a workably competitive market environment in the NEM, and therefore the achievement of the NEO.

The Commission recommends that SCER then submit a rule change proposal to implement the detailed aspects of the monitoring role.

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1 Introduction

1.1 The rule change request

On 23 November 2010, the MEU submitted a rule change request to the AEMC in relation to the potential exercise of market power by generators in the NEM. The stated purpose of the proposed rule change is to prevent or constrain the exercise of market power by generators in the NEM.

1.2 Rationale for the rule change request

The MEU considers that some generators in the NEM have market power. The MEU also considers that during periods of high demand, those generators have the ability and incentive to use their market power to increase the wholesale spot price.

In the rule change request, the MEU defines 'market power' in this context as "an ability of a generator to manipulate the spot price at a regional demand less than the maximum regional demand, by either physical or economic withholding of its capacity."⁵ Physical withholding of capacity involves a generator determining not to offer a proportion of its available capacity to the market. The MEU defines 'economic withholding' as occurring where a generator prices a proportion of its capacity near the market price cap so that it is less likely to be dispatched and other generators will be dispatched ahead of it.⁶

The MEU considers that there is evidence of the exercise of market power in the past in South Australia. The MEU also refers to instances of potential exercise of market power by generators in other regions.

The MEU considers that the exercise of market power has significantly increased wholesale prices in South Australia. It also considers that the consequences of the exercise of market power by generators include:⁷

- major energy users incurring substantial economic losses;
- an increase in prices of retail contracts and a general increase in electricity prices;
- an increase in the risk and cost of making transactions in the NEM;
- the exit from the retail market by retailers that are unable to obtain wholesale electricity hedge contracts to manage risks; and
- the creation of barriers to new entry in generation and retail.

The MEU considers that the Competition and Consumer Act 2010 (CCA) does not effectively address the problem that this rule change request seeks to address. Section 46 of the CCA prohibits a corporation that has a substantial degree of power in a market from taking advantage of that power for an anti-competitive purpose. The MEU considers that the generator bidding behaviour that is the subject of this rule change proposal will not infringe the CCA because the generators' actions are not motivated by an anti-competitive purpose.

⁵ MEU, rule change request, 23 November 2012, p32.

⁶ Ibid, p37.

⁷ Ibid, p8.

The MEU states that the NEM is unusual compared with overseas jurisdictions in leaving generator market power issues to be regulated by general competition law and not including specific provisions in the rules to prevent generators exercising market power. The MEU considers that electricity markets require additional specific provisions addressing the exercise of market power because of the unique features of electricity markets including the relative inelasticity of demand for electricity and the need to constantly balance supply and demand.

1.3 Solution proposed in the rule change request

The rule change request proposes to address the issues discussed above by adding additional provisions to Chapter 3 of the NER.

In summary, the proposed rule would impose restrictions on the dispatch offers that can be submitted by a generator that is declared by the AER to be a 'dominant generator'. The proposed rule would not impose any restrictions on the dispatch offers of generators that are not declared to be a 'dominant generator'.

The key elements of the proposed rule are as follows:

- The AER would determine which generator, or generators, in each NEM region is a 'dominant generator'. For each dominant generator, the AER would determine the level of regional demand at which that generator becomes a dominant generator. The AER would be required to publish guidelines on how it will make its determinations.
- The MEU's proposed amendments provide that a 'dominant generator' is any generator that has the ability to exercise market power at or above a certain level of regional demand. The rule change request contains the following comments that indicate the MEU's intended tests for determining whether a generator is a dominant generator:
 - A dominant generator is a generator that "is able, at particular demand levels in a region, to set prices without any effective competition from other generators or has the ability to manipulate prices and supply in a regional market, to the extent that the actions of other competitors will have no effect in influencing the regional spot price."⁸
 - "The process by which a dominant generator would be identified is that if it can be demonstrated that the maximum regional demand at any time cannot be met without dispatch of that generator, then that generator is a 'dominant generator'.⁹
 - This assessment would be based on all generating units owned by an entity and any other generation over which the entity has dispatch control.¹⁰

8 Ibid, p32.

9 Ibid, p32.

10 Ibid, p68. Therefore, the assessment would not be based on individual power stations, but would consider the combined generation output of all generating units owned or controlled by a generator in a NEM region.

- The AER would conduct this assessment annually. The list of dominant generators is therefore likely to change over time. More than one generator could be declared to be a dominant generator in a region.
- If a generator is declared to be a dominant generator then, when regional demand:
 - is less than or equal to the level of demand at which the generator has been declared to be a dominant generator, no additional restrictions would apply to the generator and it can offer any amount of generation for dispatch at any price (subject to any relevant existing rules); and
 - exceeds the level of demand at which the generator has been declared to be a dominant generator, the generator would be required to offer all of its available capacity for dispatch at a price that is no more than the administered price cap (APC). The APC is currently set at \$300/MWh.
- AEMO would be required to make amendments to the dispatch algorithm to implement these restrictions.
- Generators that are not declared to be a dominant generator can offer any amount of generation for dispatch at any price, subject to any relevant existing rules.
- The regional reference price (RRP) would continue to be determined as under the current rules and would be received by all generators including the dominant generator. If the RRP is set at more than \$300/MWh due to dispatch offers above that level by generators that are not dominant generators, all generators including the dominant generator would receive the RRP.
- Additional investigation and enforcement powers would be conferred on the AER to ensure compliance with these new provisions. In particular the:
 - AER would have the same investigation and enforcement powers that the Australian Competition and Consumer Commission (ACCC) has when enforcing a breach of sections 46 to 48 of the CCA;¹¹ and
 - rules would confer on the AER the same ability to seek or impose penalties as the ACCC has under the CCA.¹²

The proponent considers that the proposed rule will prevent or constrain the exercise of market power by generators and will have the following benefits:

- the wholesale market will be able to operate as intended by dispatching generation in a merit order based on dispatch offers that reflect each generator's marginal cost;

¹¹ The MEU considers that additional investigation and enforcement powers are required to ensure that a dominant generator does not engage in physical withholding of capacity in breach of the proposed rule, for example to determine whether any claimed outages were genuine. In particular, the proponent considers that additional powers similar to the ACCC's powers under section 155 of the CCA are required for the AER to effectively investigate allegations of physical withholding.

¹² It appears that the proponent's intention is that the AER could seek Court imposed civil pecuniary penalties similar to the maximum penalties under section 46 of the CCA, which are the greater of \$10,000,000, three times the value of the benefits obtained from the breach, or, if the Court cannot determine the value of the benefits, 10% of the annual turnover of the body corporate.

- wholesale price volatility will reduce, which will also reduce exposure of retailers to wholesale price volatility;
- liquidity in the contract and futures markets will improve; and
- retail electricity prices for consumers will reduce, which will promote downstream investment.

The MEU's rule change request, including supporting documents, can be found on the AEMC's website.¹³

1.4 The rule making process

1.4.1 Commencement of the rule making process

On 14 April 2011, the Commission published a notice under section 95 of the NEL advising of its intention to commence the rule making process and the first round of consultation in respect of the rule change request. A consultation paper identifying specific issues and questions for consultation was also published with the rule change request. Submissions to the consultation paper closed on 26 May 2011. The Commission received 19 submissions in response to the rule change request as part of the first round of consultation.

The Commission also opened a Web Forum page on its website to provide an opportunity for stakeholders to contribute further to the rule change process by providing relevant comments, papers or consultancy reports for publication on the forum.

1.4.2 Publication of the directions paper and technical paper

On 22 September 2011, the Commission published a directions paper, which set out the AEMC's proposed approach to the definition of market power in the context of the NEM. It was accompanied by a report prepared by NERA outlining an analytical approach to defining market power¹⁴ and a peer review of NERA's report by CoRE Research.¹⁵ Submissions on the directions paper closed on 17 November 2011. The Commission received 16 submissions (including two by the MEU) in response to the directions paper.

A public forum was held in Adelaide on 12 October 2011 to discuss the directions paper and to provide an opportunity for stakeholders to discuss issues raised in the directions paper.

At the public forum and in several submissions to the directions paper, a number of stakeholders requested that the Commission publish a technical paper providing additional details on the approach to estimating long-run marginal cost. On 19 December 2011 the Commission published a technical paper, prepared by NERA and

¹³ www.aemc.gov.au/Electricity/Rule-changes/Open/potential-generator-market-power-in-the-nem

¹⁴ NERA Economic Consulting, *Potential Generator Market Power in the NEM - A Report for the AEMC*, 22 June 2011.

¹⁵ CoRE Research, *Review of the Report Potential Generator Market Power in the NEM by NERA Economic Consulting*, 24 July 2011.

Oakley Greenwood, outlining a methodology for estimating long-run marginal cost in the NEM.¹⁶ The Commission received three submissions in response to the technical paper.

1.4.3 Publication of draft rule determination

On 7 June 2012, the Commission published a notice under section 99 of the NEL and a draft determination in relation to the MEU's rule change request. The Commission's draft determination was to make no rule. The draft determination was accompanied by a report prepared by NERA titled 'Benchmarking NEM wholesale prices against estimates of long-run marginal cost'¹⁷ and a report prepared by CEG titled 'Barriers to entry in electricity generation in the NEM'.¹⁸

Submissions in response to the draft rule determination closed on 20 July 2012. The Commission received 16 submissions (including two by the National Generators Forum).

All submissions the Commission has received in relation to this rule change request are available on the AEMC website.¹⁹ A summary of the issues raised in these submissions, and the Commission's response, is contained in Appendix B of this final determination.

1.4.4 Consultants reports

The Commission engaged the following consultants to undertake analysis and produce reports to assist it with its analysis and assessment of issues raised in the rule change request from the MEU:

- NERA Economic Consulting: *Potential Generator Market Power in the NEM*, 22 June 2011;
- NERA Economic Consulting and Oakley Greenwood:
 - *Estimating Long-Run Marginal Cost in the National Electricity Market*, 19 December 2011;
 - *Benchmarking NEM Wholesale Prices Against Estimates of Long Run Marginal Cost*, 12 April 2012;
 - *Estimates of the Long Run Marginal Cost for Electricity Generation in the National Electricity Market*, 25 October 2012;
- CoRE Research: *Review of the Report Potential Generator Market Power in the NEM by NERA Economic Consulting*, 24 July 2011;
- Competition Economists Group (CEG): *Barriers to entry in electricity generation in the NEM*, June 2011;

¹⁶ NERA Economic Consulting and Oakley Greenwood, *Estimating Long Run Marginal Cost in the National Electricity Market - A Report for the AEMC*, 19 December 2011.

¹⁷ NERA Economic Consulting, *Benchmarking NEM Wholesale Prices Against Estimates of Long Run Marginal Cost*, 12 April 2012.

¹⁸ Competition Economists Group, *Barriers to entry in electricity generation in the NEM*, June 2012.

¹⁹ www.aemc.gov.au/Electricity/Rule-changes/Open/potential-generator-market-power-in-the-nem

- Seed Advisory: *Market Risks for Large Customers*, 17 December 2012.

These reports have been published on the AEMC's website.²⁰

1.4.5 Extensions of time

During the assessment of the rule change request, the AEMC issued notices under section 107 of the NEL to extend the length of time to make a determination on the rule change request. On 14 April 2011 the AEMC gave notice under section 107 of the NEL that it had extended the period of time for making the draft rule determination until 30 April 2012. An additional time extension was published on 26 April 2012, extending the time for publication of the draft rule determination until 7 June 2012. The MEU's rule change request raised a number of complex issues that required analysis as part of the rule change process. In the consultation document the AEMC outlined its assessment framework that would allow the AEMC to address these complex issues. The additional work required under the assessment framework and subsequent stakeholder consultation led to the AEMC extending the time for the draft rule determination

On 30 August 2012, the period of time for the making of the final determination was extended to 11 April 2013. Additional time was necessary in order to complete the analysis due to the complexity of the issues raised by submissions to the draft rule determination, and to consider options for the making of a preferred rule.

On 11 April 2013, the AEMC extended the period of time for publication of the final determination to 26 April 2013, due to the complexity and difficulty of the issues involved such that further time is needed to complete work on them.

The AEMC also published a notice under section 108A of the NEL, explaining why a final rule determination was not made within 12 months of the publication of the notification of the commencement of the rule change process.

1.5 Structure of this final determination

The remainder of this final determination is structured as follows:

- Chapter 2 sets out the Commission's final determination on the basis of the rule making test set out in the NEL. It summarises the Commission's assessment of the proposed rule against the NEO and its considerations regarding a monitoring regime
- Chapter 3 outlines the analytical framework the Commission has applied in assessing the proposed rule. It also contains views expressed by stakeholders in response to the Commission's approach, and the Commission's response to comments made;
- Chapter 4 outlines the Commission's examination of evidence of a problem in regions of the NEM. It also contains comments made by stakeholders and the Commission's response to those;

²⁰ www.aemc.gov.au/Electricity/Rule-changes/Open/potential-generator-market-power-in-the-nem

- Chapter 5 discusses the results of additional analysis and further modelling commissioned by the Commission since the publication of the draft determination;
- Chapter 6 presents an examination of the market risks large electricity users face, and of hedging strategies available to mitigate those risks;
- Chapter 7 contains the Commission's conclusions on the basis of analysis undertaken and its considerations for the making of a rule; and
- Chapter 8 contains the Commission's considerations regarding a monitoring regime and its recommendations to SCER.

2 Final rule determination

2.1 Commission's final determination

In accordance with section 102 of the NEL, the Commission has made this final rule determination in relation to the rule change proposed by the MEU. The Commission has determined not to make a rule.

The Commission's reasons for making this final rule determination are set out in more detail in Chapters 7 and 8.

2.2 Commission's considerations

The Commission has considered the following in assessing the rule change request:

- the rule change request;
- submissions received during all stages of the rule change process;
- comments made by stakeholders during the public forum and in bilateral discussions with the AEMC;
- expert reports and advice the Commission has requested and published;
- the Commission's powers under the NEL to make the rule; and
- the Commission's analysis as to the ways in which the proposed rule will or is likely to, contribute to the achievement of the NEO.

There is no relevant SCER Statement of Policy Principles relating to the subject matter of this rule change request.²¹

2.3 Rule making test

2.3.1 NEO

Under section 88(1) of the NEL the Commission may only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the NEO. This is the decision making framework that the Commission must apply.

The NEO is set out in section 7 of the NEL as follows:

"The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:

- (a) price, quality, safety, reliability and security of supply of electricity; and*
- (b) the reliability, safety and security of the national electricity system."*

The Commission considers that the most relevant aspect of the NEO for this rule change request is the promotion of efficient investment in, and efficient operation of, electricity services for the long term interests of consumers with respect to price and reliability.

²¹ Under section 33 of the NEL the AEMC must have regard to any relevant SCER statement of policy principles in making a rule.

2.3.2 Assessment of the proposed rule against the NEO

After consideration of the issues raised in the rule change request and consultation throughout the rule change process, the Commission is not satisfied that the proposed rule will or is likely to contribute to achievement of the NEO.

Even though the Commission accepts that the exercise of substantial market power is possible in the NEM, the Commission considers that the proposed rule would not effectively address such an exercise of substantial market power and could have other significant adverse consequences for investment in generation capacity and reliability of supply in the future.

In reaching this conclusion, the Commission has given particular weight to the following considerations:

- the Commission considers there is insufficient evidence of the problem that the proposed rule seeks to address to warrant making a rule²²
- the current market environment of low wholesale prices and falling demand for electricity;
- a rule change of the type proposed by the MEU, which would impose restrictions on the bids that can be submitted under certain market conditions by generators that are declared to be 'dominant', would cap wholesale electricity spot prices at moments when they are expected to be high, without direct reference to whether or not substantial market power existed or may be exercised;
- by suppressing wholesale spot price signals which are an inherent feature of the NEM wholesale market, the proposed rule risks undermining investment incentives, particularly investments in peaking generation plant which are necessary to maintain a reliable supply; and
- in turn, this would lead to a risk of reliability standards and outcomes not being met.

2.4 Consideration of a monitoring regime

The Commission considers that, taking account of all the evidence, it is not clear as to whether substantial market power has existed in the South Australian region to date, but accepts, informed in particular by its analysis of outcomes in South Australia, that there are some circumstances in which substantial market power could exist and be exercised in the NEM.²³ The Commission however considers there is insufficient evidence to support the likely exercise of substantial market power in the current market environment.

The current market environment is characterised by falling demand for electricity, generation plant closures and mothballing and average annual wholesale spot prices

²² As outlined further in Chapter 3, the AEMC's definition of 'market power' differs from the MEU's definition, which forms the basis of the rule change request.

²³ The definition of 'substantial market power' in the context of a workably competitive market is explained in Chapter 3.

across NEM jurisdictions at or near the lowest levels since commencement of the NEM.²⁴

The Commission considers that the presence of significant barriers to entry or structural factors that mean the wholesale market is not workably competitive would be detrimental to the long-term interests of consumers. In particular, it would or would be likely to have an adverse effect on the efficient investment in, and efficient operation of electricity services in the NEM.

For this reason, the Commission considers that it is important that a monitoring regime be established under the NEL/NER framework to regularly report on whether the wholesale electricity market is workably competitive.

An appropriately developed monitoring regime is a pre-requisite for identifying at an earlier stage any evidence that the efficient operation of the wholesale electricity market is undermined by the presence of significant barriers to entry or other features of the industry structure.

Systematic and periodic review is an increasingly important part of the regulatory framework for wholesale electricity markets in other jurisdictions, for example New Zealand and Western Australia.²⁵ Implementing a monitoring regime for the NEM was also suggested by some stakeholders, including the South Australian Government.²⁶

The monitoring would allow identified problem(s) to be addressed in the long term interests of consumers based on an understanding of the underlying cause(s) of any concerns that the market is not workably competitive. The AER would report periodically on the outcomes of its monitoring.

Any rule changes developed by SCER or any other party as an outworking of the monitoring would be considered by the AEMC.

The Commission considers that such a monitoring regime will, or is likely to, contribute to the achievement of the NEO. The Commission has therefore considered making a rule which would put in place such a monitoring regime.

Given the AER's existing functions and scope of activities, the Commission considers that the AER is the energy market institution best placed to carry out this monitoring role. The Commission considers such a role is more compatible with the AER's existing functions and scope of activities under the NEL than, for example, with those of the AEMC or, more clearly, AEMO. The Commission has explored the possibility of

²⁴ In the two years before the introduction of the carbon price, the average annual wholesale spot prices in the mainland NEM jurisdictions were amongst the lowest in real terms since the start of the NEM in 1998. An increased volume of renewable generation capacity and reductions in the rate of demand growth have contributed to the depressed wholesale prices. See AEMC, *Impact of the enhanced Renewable Energy Target on energy markets* – Final Report, 25 November 2011, p25.

²⁵ In New Zealand, the Electricity Industry Act 2010 introduced a new function for the Electricity Authority, requiring it to undertake industry and market monitoring. In Western Australia, under the Wholesale Electricity Market Rules, the Economic Regulation Authority of Western Australia must provide the WA Minister for Energy with a report on the effectiveness of the WA Wholesale Electricity Market at least annually.

²⁶ Government of South Australia, submission on draft determination, 2 August 2012, p2.

conferring this monitoring function on the AER, but considers there is material doubt as to whether this function is compatible with the existing functions of the AER.

2.5 Recommendation to SCER

For reasons set out in more detail in Chapter 8, the Commission considers that some changes are required to the NEL before a monitoring role is given to the AER in the Rules. In particular, while the AER undertakes some monitoring of the wholesale electricity market to inform the performance of its compliance role, the NEL does not give the AER a specific function to monitor the wholesale market without reference to compliance with NEL or NER provisions.

A monitoring function of the type proposed by the Commission would also allow the AER to ask for information from market participants to fulfil the role. The Commission considers that additional accountability provisions should be included in the NEL about how the AER exercises these information gathering powers.

The Commission will write to the Chair of SCER to recommend that SCER make changes to the NEL to facilitate the implementation of a monitoring role for the AER in regard to the wholesale electricity market. The Commission recommends that SCER then submit a rule change proposal to implement the detailed aspects of the monitoring role.

3 The Commission's assessment approach

The proposed rule would impose restrictions on the dispatch offers that can be submitted under certain market conditions by a generator that is declared by the AER to be a 'dominant generator'. It would thus introduce a mechanism which would significantly interfere with market participants' normal commercial behaviour (in this case: the setting of dispatch offers) and market dynamics in the NEM.

The Commission followed a three-step approach to assess the rule change request in accordance with the requirements set out in the NEL, explained in Chapter 2:

1. *Defining the problem.*
In order to assess the likely impact of the proposed rule on the NEO, the Commission began by defining the issue that the rule change is seeking to address. For that purpose, the Commission considered it fundamental to establish a clear definition of 'market power' and to consider how this concept should be applied in the context of the NEM. The Commission's approach to these issues is outlined in this Chapter;
2. *Assessing whether there is evidence of the defined problem.*
On the basis of the Commission's approach to the defined problem, outlined in this Chapter, Chapters 4 and 5 discuss whether the Commission has found evidence of the defined problem in regions of the NEM; and
3. *Assessing solutions to the problem.*
After having considered the first two steps, the Commission has examined whether the proposed rule would provide an effective and proportionate response to the defined problem or whether an alternative option is preferred. This assessment is included in Chapters 7 and 8.

3.1 Starting point: the NEM as 'energy-only' market

The Commission's analysis takes account of the design of the NEM as an 'energy-only' market, as this context influences how generator market power issues should be examined.

In an energy-only market the costs of a generating unit, which consist of operating costs and capital investment costs including a reasonable return on investment, must be recovered over time through the sales of electricity by way of spot and contract markets. This is because operators of generating units do not receive spot market payments in periods when capacity is not dispatched.²⁷

The energy-only market model contrasts with a so-called capacity 'market' that exists in for example Western Australia and the majority of states in the United States. Generators in these markets have the ability to sell capacity in a separate market, in addition to offering electricity in the wholesale market. Capacity markets require a central planning agency to estimate the required capacity needed in order to achieve an efficient outcome. Retailers are then required to purchase from generators the share of

²⁷ Renewable forms of generation may receive some revenue from Government programmes such as the Renewable Energy Target that are outside the wholesale electricity market.

the capacity determined by the planning agency related to their customer load. Customers bear the risk of decisions by that planner such as too little or too much capacity being purchased.

In both energy-only markets and capacity markets, the price that generators receive for energy produced is determined by forces of supply and demand in order to achieve an optimal and efficient outcome. However, in capacity markets the additional price that generators receive for capacity offered is centrally determined. The efficient operation of capacity markets relies on the accuracy of the centrally determined level of capacity payments. Payments must be set at a level that encourages investment sufficient to meet demand growth but not so high as to result in excess profits to generators at the expense of consumers.

Under market circumstances in the NEM wholesale market when there is ample generating capacity to meet demand, the market price will tend towards the variable operating cost of the most expensive unit that needs to be dispatched to meet demand.

Baseload and intermediate generators that are scheduled to be dispatched will generally recover their variable operating cost and part of their fixed cost if the market clearing price exceeds their own variable operating costs.

Peak generators largely rely on a relatively small number of hours per year, when generating capacity is relatively scarce compared to prevailing demand, to generate revenue. Under these conditions, prices tend to spike, significantly exceeding their variable operating cost, in order to allow peak generators and other generators to recover their fixed costs (long-run marginal costs).

The prices that occur at times of scarcity must be high enough and occur frequently enough to attract sufficient new investment in supply when needed. A cap on prices that is set too low will limit revenue and will be insufficient to retain generation or attract entry of new generating facilities.

Spot price volatility is an inherent and necessary feature of a market with the characteristics of the NEM. Flexibility in spot pricing is essential for maintaining a reliable system given the range of factors that impact on the dynamics of both demand and supply of electricity.

Similarly, the Market Surveillance Administrator for the electricity wholesale market of Alberta (Canada), also an energy-only market, noted:

“This context is important because in a high fixed cost industry such as electricity generation, where revenue is obtained only from sales into the wholesale market (Alberta’s energy-only market) it is not appropriate that firms are expected (or required) to price at their marginal cost because they will not be able to cover their fixed costs, make a normal return and afford to reinvest in the market (or attract investors to the market because of the stable revenue platform).”²⁸

Figures 3.1 and 3.2 below show the regional price duration curves for prices above and below \$100 in the NEM for the financial year 2011-12. For the vast majority of time, prices varied between \$30/MWh and \$50/MWh, with occasions where prices reach a level (close to) the market price cap occurring less than 0.1 per cent of the time.

²⁸ Market Surveillance Administrator, *State of the Market Report 2012*, p1.

Figure 3.1 Price duration curve for prices greater than \$100

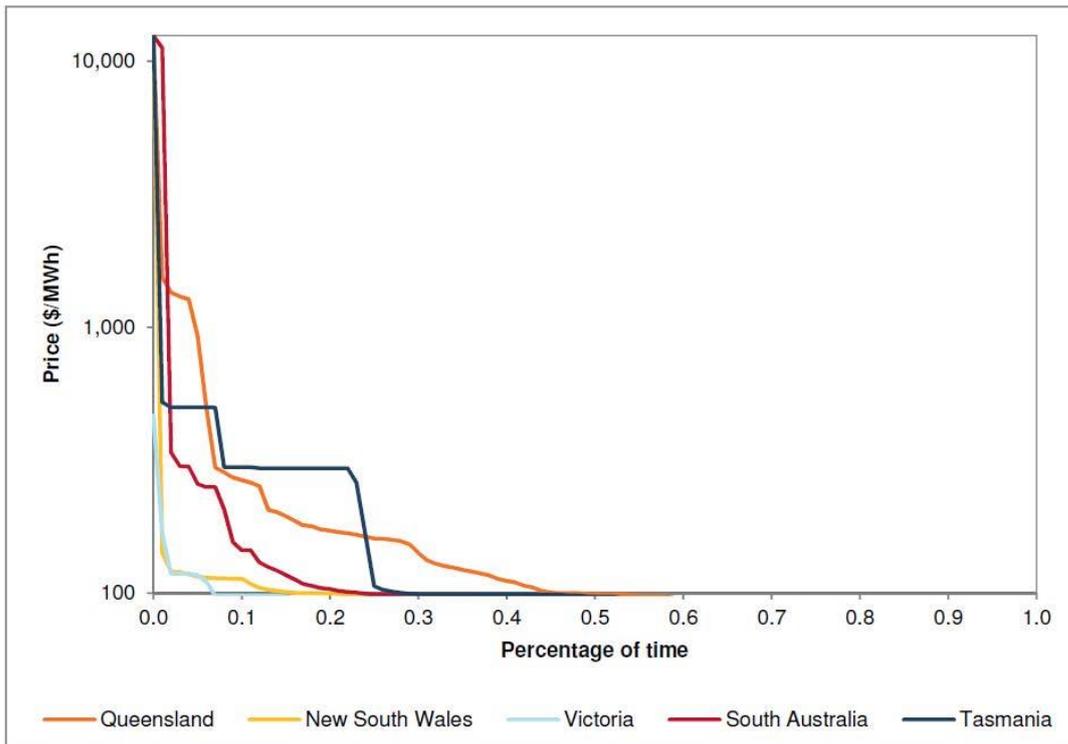
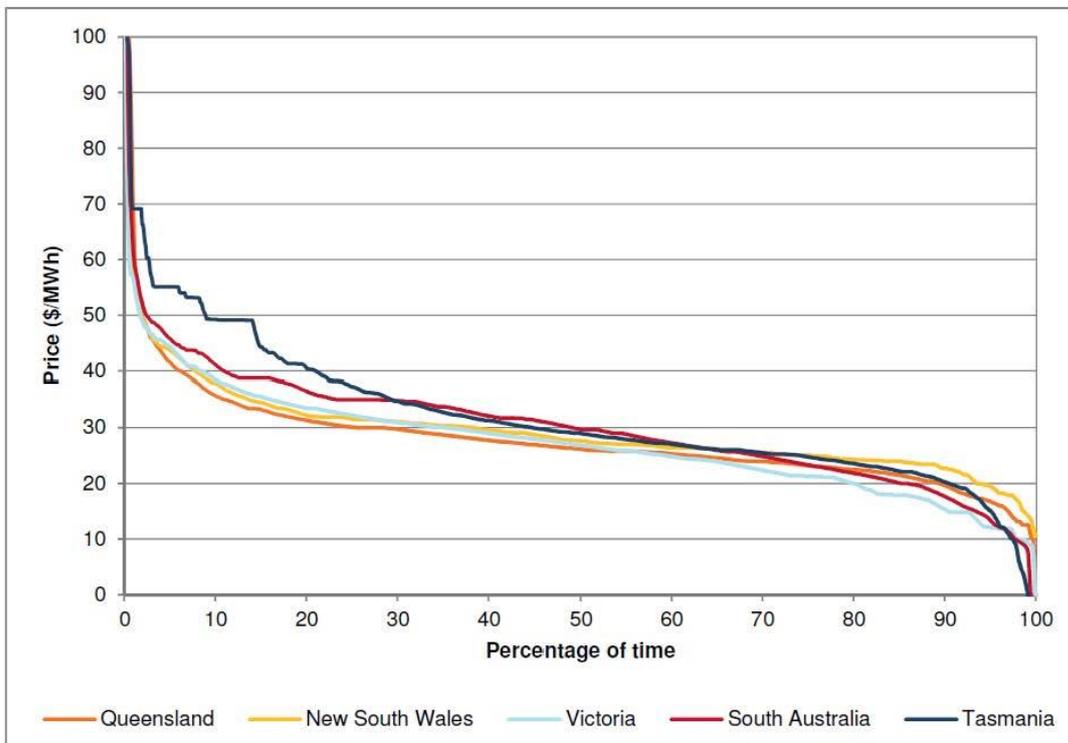


Figure 3.2 Price duration curve for prices less than \$100



Source: Australian Energy Market Operator, *NEM-Wide Historical Information Report 2012*, p30.

The nature of investment signals in energy-only electricity markets is explained further in Annex A.

The volatility of wholesale spot market prices in the NEM is exacerbated by the fact that electricity cannot be readily stored, which would allow market participants to store electricity when prices are low and sell it again when prices are high, and that demand for electricity is relatively inelastic.

Market participants and customers in the NEM have the possibility to hedge against the financial risk of price volatility by entering into bilateral contracts in the over-the-counter (OTC) market or by using instruments offered on the exchange market (see Chapter 6 for more detail). This interplay between spot and contract markets mean that market outcomes can only be assessed by reference to both spot prices and contract prices.

For generators, entering into a hedge contract reduces some of the uncertainty around cost-recovery as it provides steady revenue from electricity supplied to its counterparty under the contract.

A generator which is unhedged solely relies on revenue from spot market prices. For any generator either fully or partially unhedged, taking opportunities to bid prices above their variable operating cost in the spot market is normal profit maximising behaviour, and essential for recovery of its fixed costs.²⁹

²⁹ See also: Cramton, Peter, 'Competitive Bidding Behavior in Uniform-Price Auction Markets', *Proceedings of the Hawaii International Conference on System Sciences*, January 2004.

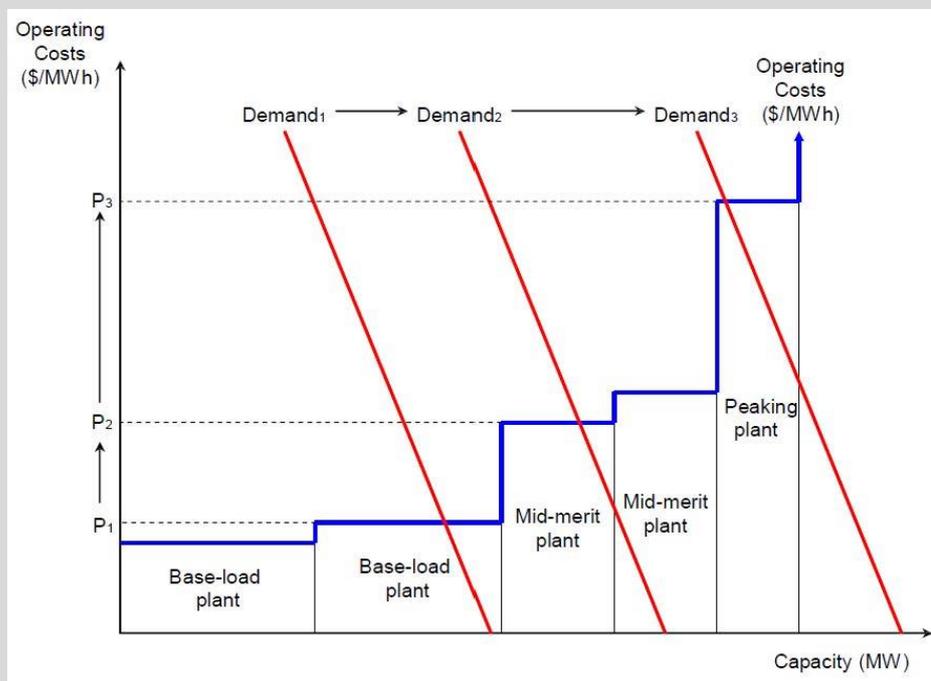
Box 3.1: Demand and generation investment in the NEM

A reliable supply of electricity in the NEM requires an efficient mix of generation plant.

Baseload plant and mid-merit generation plant will generally be sufficient to meet demand under most circumstances. During times of high demand, mostly associated with extreme weather temperatures, peaking plant will have to be dispatched in order to meet demand as well as the reliability standards and outcomes.

A typical 'merit order' of generation plant, meeting varying demand levels is depicted in Figure 3.3.

Figure 3.3 Merit order generation plant

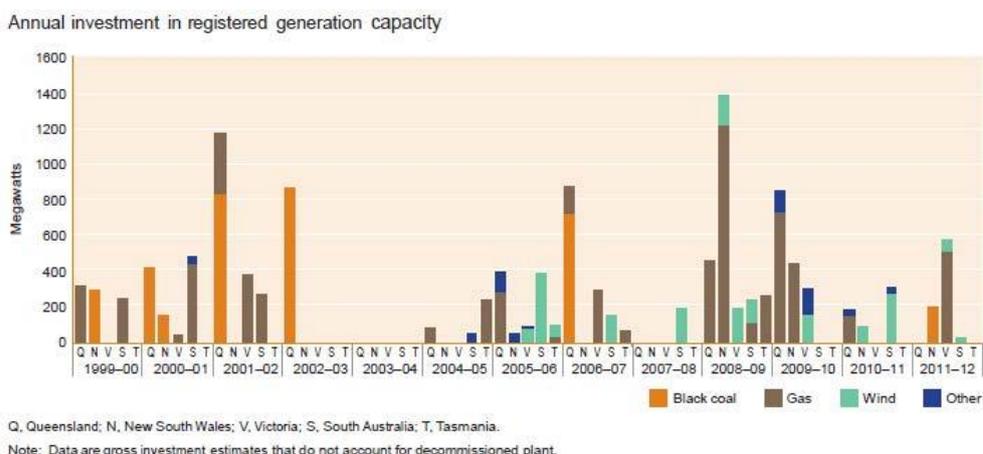


Source: NERA Economic Consulting, *Potential Generator Market Power in the NEM*, 22 June 2011, p20.

In order to safeguard a reliable supply to consumers, the NEM must provide the appropriate investment signals so that sufficient and timely investment in various generation technologies takes place. Price signals in the wholesale and contract markets are an important driver of new investment in the NEM.

Investment in the NEM to date has generally reflected underlying demand/supply trends. As Figure 3.4 demonstrates, tightening supply conditions led to substantial additional investment in 2008-09 and 2009-10, while more recently, subdued demand conditions are reflected in flat investment and a pushing out of timing for required new generation capacity in all NEM jurisdictions.

Figure 3.4 Annual investment in registered generation capacity



Source: Australian Energy Regulator, *State of the Energy Market 2012*, p51.

Figure 3.4 also demonstrates that, in recent years, most investment has taken place in gas turbines (peaking plant), and, driven by the Renewable Energy Target, in wind-generation.

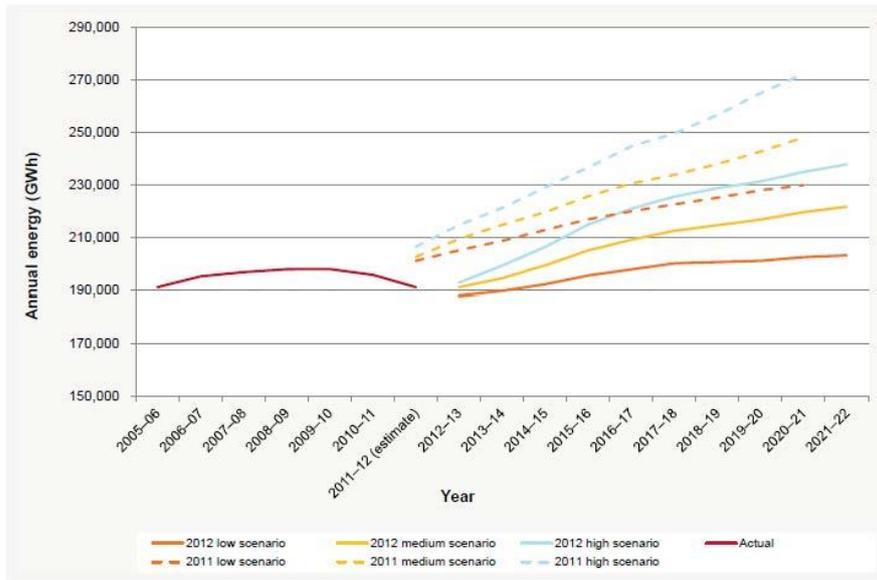
The Reliability Panel, established by the AEMC under the NEL, annually reports on the generation sector's reliability performance. The Panel has found that, over the last ten years, the generation sector's reliability performance has been adequate. Generation capacity across the NEM has usually been sufficient to meet peak demand as well as the reliability standards and outcomes.³⁰ The NEM has managed to attract sufficient investment in generation capacity in order to meet demand consistent with reliability standards in all but a limited number of circumstances of very high demand and/or extreme weather.

The NEM is currently characterised by downward trending demand levels compared to previous years. Initially, it was expected that the slower demand growth would be short-term, stemming from the global financial crisis. However, larger than expected reductions in demand in the financial year 2010-11 required AEMO to review the energy outlook and ultimately led to a downward revision of the projections.³¹ This is reflected in Figure 3.5, where the broken lines reflect the initial demand outlook and the firm lines reflect the revised demand estimates. It is clear that growth rates are expected to be substantially lower compared to previous projections.

³⁰ AEMC Reliability Panel, *Annual Market Performance Review 2010-2011*, p10.

³¹ AEMO, *Electricity Statement of Opportunities for the National Electricity Market 2012*, p2-11.

Figure 3.5 Demand estimates



Source: AEMO, *Electricity Statement of Opportunities for the National Electricity Market 2012*, p2-12.

Figure 3.6 below shows that, under a low-demand scenario, additional generation capacity is only required after 2020 (in Victoria), while under a high-demand scenario, capacity is required before 2020 in multiple jurisdictions.

Figure 3.6 NEM supply-demand outlook summary

Region	Low scenario		Medium scenario		High scenario	
	LRC point	Reserve deficit (MW)	LRC point	Reserve deficit (MW)	LRC point	Reserve deficit (MW)
Queensland	>2021-22	-	2020-21	79	2016-17	93
New South Wales	>2021-22	-	>2021-22	-	>2021-22	-
Victoria	2021-22	54	2018-19	115	2015-16	50
South Australia	>2021-22	-	2019-20	24	2015-16	3
Tasmania (summer)	>2021-22	-	>2021-22	-	>2021-22	-
Tasmania (winter) ^a	>2022	-	>2022	-	>2022	-

a. Tasmania's winter outlook is included because the maximum demand occurs during winter.

Source: AEMO, *Electricity Statement of Opportunities for the National Electricity Market 2012*, p2-2.

In the recent Energy White Paper, this demand outlook is recognised as a challenge to the investment and operational environment in the NEM. Given this challenge, the White Paper emphasises the importance of investment-friendly economic and regulatory frameworks that offer investors commercially attractive returns.³²

³² Department of Resources, Energy and Tourism, *Energy White Paper 2012*, pp38-39.

3.2 The Commission's definition of market power in the NEM

In assessing the rule change request, the Commission considers that in the context of the NEM, it is relevant to distinguish between:

- 'substantial market power', which involves sustained pricing above the level that would prevail in a workably competitive market; and
- 'transient pricing power', which involves a transient ability to increase prices above estimates of costs for short periods of time.

The promotion of efficient investment in, and efficient operation of, electricity services in the NEM is best delivered in a market climate which is workably competitive.

The Commission considers 'workable competition' is the appropriate benchmark against which to test market outcomes in the wholesale electricity market, rather than 'perfect competition'. Perfect competition assumes -among other things- that firms do not incur any sunk costs, and therefore bid their output at SRMC. Although a stylised ideal identified in economics literature, 'perfect competition' is unlikely to be reflective of the realities of the wholesale electricity market or indeed other markets in the economy.

In a workably competitive market it is expected that firms display profit maximising behaviour, seeking the widest possible margin between prices and their underlying costs. Pricing behaviour is disciplined by the threat of new suppliers entering the market in response to price signals and consumers exercising choice.

New entry in the wholesale electricity market, which could consist of new generation entry, expansion of existing generation, or an upgrade of the relevant interconnectors, will normally only occur when investors have an expectation that they are able to recover not only variable operating costs (short-run marginal cost or SRMC) but also efficient fixed costs of investment.

As new entry generally results in competitive pressure on market prices, it is expected that a workably competitive market will not show an outcome in which prices are being maintained above a competitive level (represented by the LRMC as a proxy for the costs of new entry) for a sustained period of time.

The Commission considers that substantial market power exists where a generator or group of generators is able to increase annual average wholesale prices to a level that exceeds estimates of LRMC, and sustain prices at that level. If a generator is able to sustain average wholesale prices above a workably competitive level, those prices are likely to flow through to retail prices and increase the prices that users pay for electricity.

Substantial market power requires the presence of significant barriers to entry, which prevents a normal competitive response such as new entry from occurring and allows substantial market power to be sustained. These barriers may be the result of structural factors, for example overly stringent licensing or permit conditions, or strategic factors, caused by the behaviour of incumbent market participants.

In electricity generation, which is characterised by relatively high fixed costs and 'lumpy' investments, a competitive response to price signals will not occur in very short

timeframes. It is therefore important to recognise prices must be sustained above estimates of LRMC for a sufficient period of time, reflecting a time frame in which new entry may reasonably be expected to occur. This also recognises it is not likely that generators recover their costs in a steady way over time. At times, generators' operating margins may be relatively high, while at other times, the margin will be quite low or even negative.

Following from the above, the Commission therefore defined 'substantial market power' in the context of a region or interconnected regions of the NEM as follows:

Box 3.2: Definition of substantial market power

Substantial market power in the context of the NEM is the ability of a generator or group of generators³³ to increase annual average wholesale prices to a level that exceeds long-run marginal cost (LRMC), and sustain prices at that level due to the presence of significant barriers to entry.

This definition recognises that certain generators may be able to exert transient pricing power at times of tight supply and demand, which enables them to bid electricity into the market at prices above SRMC. As was discussed in the previous section, these generators in fact rely on these occasional price spikes occurring for the recovery of their fixed costs.

The Commission considers that transient pricing power, manifesting itself through occasional price spikes, is an inherent feature of a workably competitive wholesale market, and is only a concern if it occurs frequently enough and to a significant enough magnitude to lead to average annual wholesale prices being above LRMC of generation.

The Commission considers that an analysis of market power in the NEM should therefore be concerned with industry and market structure characteristics which allow 'substantial market power' to be exercised, rather than focussing on individual instances of transient pricing power.

The Commission's directions paper and draft determination explain in more detail the Commission's analysis that led to its definition of substantial market power.

3.3 Stakeholder views

3.3.1 Transient pricing power vs substantial market power

The National Generators Forum (NGF) and the Energy Supply Association of Australia (ESAA) agree with the Commission's definition of market power and that it should be distinguished from transient pricing power.³⁴

³³ The inclusion of 'a group of generators' is meant to refer to situations of potential 'tacit collusion' in an oligopolistic market, rather than collusive conduct between firms (cartels).

³⁴ NGF, submission on draft determination, 23 July 2012, p2; ESAA, submission on draft determination, 20 July 2012, p1.

However, the MEU and its consultant Poyry (MEU/Poyry) argue that the Commission's approach presents an opportunity for generators to exercise transient pricing power to maximum extent, by economically or physically withholding capacity, provided it does not result in a sustained rise in average wholesale prices. They submit that exercising transient pricing power can be expected to harm consumers and other users, reduce efficiency of dispatch, increase overall system costs and may also distort long term investment decisions.³⁵

The MEU and its legal consultant Dwyer Lawyers submit that the AEMC fails to explain how transient pricing power can be permitted under the NEO, which seeks to improve efficiency of the market for the long term interests of consumers. They argue that the AEMC's approach to the rule change request has not been appropriate. At the very least, they argue, the AEMC should have more clearly demonstrated why the proposed rule would be detrimental to the NEO and the long term interests of consumers. This analysis should contain an assessment and comparison of the welfare effects of the proposed rule against the welfare effects of not making a rule (and allowing economic withholding to occur).³⁶

Uniting Care Australia (UCA) echoes the MEU's point and notes that the Commission's approach allows generators a certain margin on top of the LRMC which is above the efficient operating level but just below the level which would attract new entrants.³⁷ UCA considers this margin represents a loss to consumers, and that the question 'what is an acceptable margin that does not cause too much consumer detriment?' should be answered. UCA also interprets the Commission's approach as 'ex-post', in that no rule change is required unless past evidence of a problem in the NEM has been demonstrated. UCA considers that, under the NEO, the Commission should apply a pro-active approach to ensure the long-term interests of consumers are achieved ('precautionary principle').³⁸ A similar point was made by the South Australian Council of Social Services (SACOSS).³⁹

The MEU also submits that in Victoria, which it considers to be a more competitive market than South Australia, economic withholding seldom takes place while investment has occurred when needed. According to the MEU, this questions the fundamental argument underlying the AEMC's approach, that economic withholding is a prerequisite for an energy-only market to allow generators to recoup their costs.⁴⁰

3.3.2 Weighted average annual prices compared to LRMC

A number of stakeholders have provided detailed comments regarding the 'price vs LRMC' test as applied in the draft determination and the underlying analyses.

³⁵ MEU, submission on draft determination, 22 July 2012, p13-16; Poyry Management Consulting, *Generator Market Power - Review of AEMC Draft Rule Determination*, 12 July 2012, p10-11.

³⁶ MEU, submission on draft determination, 22 July 2012, p13,57; Dwyer Lawyers, Legal advice regarding the AEMC obligations, 17 July 2012, p2.

³⁷ UCA, submission on draft determination, 7 August 2012, p18.

³⁸ Ibid, p8.

³⁹ SACOSS, submission on draft determination, 20 July 2012, p10.

⁴⁰ MEU, submission on draft determination, 22 July 2012, p18-19.

ESAA, International Power GDF-SUEZ (IPRA) and Origin Energy, while supportive of the AEMC's approach, caution against future use of a price vs LRMC test given the inherent assumptions and uncertainties when applying this test in practice. They state that many elements used in calculating LRMC will be uncertain and subject to changes over time, such as capital costs, transmission connection costs, fuel costs, and operating and maintenance costs. It is therefore unlikely that the calculated costs would be representative of market prices over the long term. In addition, the analytical framework suggests perfect foresight and undervalues the risks faced by merchant generation investors in the NEM.⁴¹

3.3.3 Additional forms of analysis

The AER and the MEU/Poyry argue that the Commission should have applied additional indicators in its assessment of potential market power, such as the 'Lerner index' and the 'Pivotal/Residual Supply Index'.⁴²

A number of stakeholders, including the AER, the Energy Users Association of Australia (EUAA), MEU/Poyry, SACOSS and UCA, consider the AEMC's analysis would benefit from a more detailed examination of market participants' behaviour. This examination would give better insight into how individual generators' behaviour influences price outcomes and how transient pricing power may be inflating costs to consumers.⁴³

3.4 The Commission's response to stakeholders' views

3.4.1 Transient pricing power vs Substantial market power

Fundamental to an assessment of the MEU's rule change request is the appropriate definition of 'market power' in the context of the NEM, and the extent to which the exercise of that market power, which is evidenced through wholesale electricity prices being maintained at a level that would not be sustained in a workably competitive market, is not in the long term interests of consumers.

The Commission understands that most, if not all, competition and regulatory organisations have regard to 'price vs cost' outcomes when assessing the potential exercise of market power. Generally, it is accepted that the existence of market power assumes the ability of a firm to sustain prices away from a 'competitive level'.⁴⁴

⁴¹ ESAA, submission on draft determination, 20 July 2012, p2; IPRA, submission on draft determination, 20 July 2012, p2; Origin Energy, submission on draft determination, 20 July 2012, p2.

⁴² AER, submission on draft determination, 1 August 2012, p3-4; MEU, submission on draft determination, 22 July 2012, p10, Poyry Management Consulting, *Generator Market Power - Review of AEMC Draft Rule Determination*, 12 July 2012, p5,11.

⁴³ AER, submission on draft determination, 1 August 2012, p4; EUAA, submission on draft determination, 10 August 2012, p1; MEU, submission on draft determination, 22 July 2012, p14-18; Poyry Management Consulting, *Generator Market Power - Review of AEMC Draft Rule Determination*, 12 July 2012, p10-13; SACOSS, submission on draft determination, 20 July 2012, p7-10; UCA, submission on draft determination, 7 August 2012, p3.

⁴⁴ The European Commission for example considers that "an undertaking which is capable of profitably increasing prices above the competitive level for a significant period of time does not face sufficiently effective competitive constraints and can thus generally be regarded as dominant."

It is the definition of the 'competitive level' that represents the difference between the Commission's view and that of the MEU.

Broadly, the MEU considers that the 'competitive level' should be determined for each spot market dispatch period by reference to a measure of the production costs of electricity in that period or, as a proxy for this, to dispatch offers by generators in previous periods.

The Commission's definition of 'substantial market power' applies a longer term perspective to assessing what is the 'competitive level' of prices. In a workably competitive market with substantial fixed costs such as electricity generation, SRMC and LRMC will not be the same and they will both vary over time. At any point in time, prices may therefore be above or below LRMC, but over the long term, prices in a workably competitive market will reflect LRMC (and the underlying trend in SRMC) .

If a generator is able to increase spot or contract prices to such an extent and with sufficient frequency that it causes annual average electricity wholesale prices to exceed LRMC for a sustained period of time, then that may constitute evidence of substantial market power.

For this purpose, the necessary period of time to be taken into account should reflect a sufficient timeframe under which new entry would be expected to occur in the absence of significant barriers to entry. However, it is not appropriate to set a fixed timeframe, as circumstances which affect the period within which new entry may take place may change over time and may also be dependent on local circumstances.

The Commission's approach recognises that occasional spot prices above SRMC are an inherent feature of the NEM, particularly given that wholesale prices may be very low or negative at times. As was mentioned earlier, at times, generators' operating margins may be relatively high, while at other times the margin will be quite low or even negative. Indeed, this is what the trend has been in recent years, in which relatively high priced years (2007-2009) are alternated with relatively low-priced years (from 2010 onwards). As will be discussed in more detail in Chapter 6, market participants have the possibility to hedge against the financial risk of price volatility in the spot market, so that their -and ultimately consumers'- exposure to high price events is reduced.

In the same vein, the Energy Reform Implementation Group (ERIG) noted that:

"In an energy-only market price spikes are expected to occur. The key question is whether the observed volatility is considered efficient (that is, enough to provide the right investment signals), or excessive (that is, too high, and/or lasting too long,

Communication from the Commission – Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, 24-2-2009, Official Journal of the European Union, C 45/7. In the Australian High Court case Queensland Wire v BHP, market power was defined by Mason CJ and Wilson CJ as 'the ability of a firm to raise prices above the supply cost without rivals taking away customers in due time', see Queenswire Industries Pty Ltd v Broken Hill Pty Co Ltd, (1989) 167 CLR at 189. In the ACCC v Metcash judgment on 25 August 2011, Emmett J defined substantial market power as follows: "Substantial market power is the ability to earn returns substantially in excess of the opportunity cost of capital, without attracting the entry of participants who would be likely to impose significant competitive constraints". ACCC v Metcash Trading Limited [2011] FCA 967 at [164].

*suggesting some form of market power or barriers to entry into the market on the supply side)."*⁴⁵

Some stakeholders have submitted that some of the price spikes that occur do not represent a situation of 'genuine scarcity' of available capacity, but are the result of deliberate economic withholding of capacity by generators in order to 'artificially' create scarcity and drive up dispatch prices.⁴⁶ This practice is sometimes referred to as generators 'gaming the market'.

Aside from the fact that it is difficult in practice to distinguish between a high price level that reflects 'true' scarcity rents or a high price occurring as a result of opportunistic bidding behaviour at a particular moment in time, the Commission does not dismiss that instances of withholding of capacity by generators may have occurred. However, even if instances of strategic withholding of capacity could be identified, the Commission notes that these instances still do not necessarily reflect an ability to exercise 'substantial market power' by generators.

Indeed, absent of any intentionally anti-competitive conduct by a dominant generator, profit maximising behaviour as manifested by bidding prices above SRMC is behaviour that is expected to be displayed by a generator with some unhedged capacity in a workably competitive market.⁴⁷

The ERIG noted in this respect that:

*"In an energy-only market, only when this behaviour [physical or economic withholding of capacity] is able to be repeated frequently do concerns arise about market power."*⁴⁸

In 2003, the current High Court Chief Justice, Justice French, considered issues of market power in the electricity market in a case which related to the acquisition of Loy Yang A by a consortium including AGL. Part of the judgment considered Loy Yang's bidding behaviour during the summer of financial year 2000-01, which the ACCC alleged that Loy Yang had exercised substantial market power to raise spot prices. The conduct in question has similarities to the generator conduct that is asserted in the MEU's rule change proposal. Justice French specifically addressed whether economic withholding by generators causing price spikes constituted an exercise of substantial market power and observed that:

"I might add that success at 'gaming' in the market during limited periods of high demand does not reflect market power even if it results in a high forward contract price. [..]"

⁴⁵ *Energy Reform – The Way Forward for Australia. A Report for the Council of Australian Governments, Energy Reform Implementation Group, 2007, Chapter 4, p65.*

⁴⁶ MEU, submission on draft determination, 22 July 2012, p30; Poyry Management Consulting, *Generator Market Power - Review of AEMC Draft Rule Determination*, 12 July 2012, p11; Carbon Market Economics, *Electricity market power in South Australia - A report to the Energy Users Association of Australia*, 10 August 2012, p23.

⁴⁷ See also: Cramton, Peter, 'Competitive Bidding Behavior in Uniform-Price Auction Markets', *Proceedings of the Hawaii International Conference on System Sciences*, January 2004.

⁴⁸ *Energy Reform – The Way Forward for Australia. A Report for the Council of Australian Governments, Energy Reform Implementation Group, 2007, Chapter 4, p65.*

I am prepared to accept that there are periods of high demand where a generator may opportunistically bid to increase the spot price. I do not accept that such inter-temporal market power reflects more than an intermittent phenomenon nor does it reflect a long run phenomenon having regard to the possibilities of new entry through additional generation capacity and the upgrade of interconnections between regions. It does not amount to an ongoing ability to price without constraint from competition.”⁴⁹

These observations appear to be consistent with the Commission’s approach as outlined above.

Box 3.3: Examining individual generators' behaviour

Some stakeholders have suggested the AEMC should have examined individual generators' bidding behaviour during certain time intervals more closely.⁵⁰

Under the Commission’s approach, the exercise of 'substantial market power' assumes the ability to sustain prices above competitive levels for a sustained period of time. The Commission has examined whether this has been the case in the NEM. This is by its nature an 'ex-post' assessment.

Taking account of the design of the NEM , the Commission's approach recognises that occasional price spikes are an inherent feature of the market. Naturally, price spikes are driven by individual generators' bidding behaviour.

To the extent that any investigation of specific behaviour of individual generators would be carried out, this would be in the context of informing the need for a rule change. This type of analysis would be most relevant if substantial market power was found to have been exercised, in order to provide insight into the factors, including individual market participants’ behaviour, which have contributed to overall market outcomes.

The Commission notes that individual behaviour of generators in the market is covered by various legislation.

The *Competition and Consumer Act 2010 (Cth)* (CCA) and the Competition Codes of participating NEM jurisdictions fully applies to the electricity sector. The CCA prohibits collusive conduct between firms and misuse of market power by a dominant firm which is intended to harm competition in the market. The CCA is enforced by the ACCC.

In addition, generators' bidding behaviour is subject to rules such as the ‘good faith’ provision in the NER, which is enforced by the AER.⁵¹ The AER also monitors and reports on instances where the spot price exceeds \$5,000/MWh .

⁴⁹ *Australian Gas Light Company v Australian Competition and Consumer Commission* (No 3). [2003] FCA 1525 (19 December 2003), paragraphs 492 and 493.

⁵⁰ AER, submission on draft determination, 1 August 2012, p4; EUAA, submission on draft determination, 10 August 2012, p1; MEU, submission on draft determination, 22 July 2012, p14-18; Poyry Management Consulting, *Generator Market Power - Review of AEMC Draft Rule Determination*, 12 July 2012, p10-13; SACOSS, submission on draft determination, 20 July 2012, p7-10; UCA, submission on draft determination, 7 August 2012, p3.

3.4.2 Weighted average annual prices compared to LRMC

In respect of the more detailed comments regarding the applied 'weighted annual average price vs LRMC' test, the Commission considers that by definition, every model that is applied will be based on assumptions and will have inherent limitations. Despite this, the Commission is confident that the applied methodology is a good indicator of whether the wholesale electricity market displays an outcome which is consistent with a workably competitive market, or whether substantial market power is present and may have been exercised. To provide further confidence in the weighted annual average price vs LRMC' test, NERA has applied two distinct methodologies to the estimation of LRMC for the relevant markets - an approximation approach and a market modelling approach.

3.4.3 Additional forms of analysis

The Commission's definition of substantial market power focuses on whether there are any significant barriers to constrain the entry of competing generators and on an assessment of whether prices are sustained above the level of prices that might be expected in a workably competitive market. . The Commission considers that these two elements are the fundamental features of an assessment of whether there is substantial market power.

The Commission is aware of other approaches for measuring potential market power, such as the 'Lerner index' and the 'Pivotal Supply Index', mentioned in submissions from the MEU/Poyry and the AER. Aside from the fact that these tests are equally characterised by limitations and assumptions, these tests primarily provide insight into the potential of an individual generator to have transient pricing power. As also noted by Frontier Economics⁵², it is unclear to the Commission how the suggested additional analytical techniques would necessarily interact with the two main features of the assessment of whether there is substantial market power. While stakeholders noted the existence of these alternative tests, they have not explained how they should be adopted as part of an analytical approach for the AEMC to form an opinion as to whether substantial market power has been exercised, rather than transient pricing power.

51 Rule 3.8.22A(1) provides that a 'Scheduled Generator, Semi-Scheduled Generator or Market Participant must make a dispatch offer, dispatch bid or rebid in relation to available capacity and daily energy constraints in good faith.' In Rule 3.8.22A(2), it is provided that this means that 'at the time of making such an offer, bid or rebid, a Scheduled Generator, Semi-Scheduled Generator or Market Participant has a genuine intention to honour that offer, bid or rebid if the material conditions and circumstances upon which the offer, bid or rebid were based remain unchanged until the relevant dispatch interval.'

52 Frontier Economics, *Potential generator market power in the NEM - Response to AER submission. A report prepared for the National Generators' Forum*, August 2012, p2-6.

Box 3.4: The Commission's approach and approaches in other countries

The MEU and Poyry assert that the Commission's approach is inconsistent with established processes in international markets and jurisdictions.⁵³

The Commission notes that there is not one particular approach that can be considered as 'standard'. Regulatory frameworks are rooted in local circumstances and regulatory traditions.

The MEU draws comparison with energy markets in the United States. In fact, its proposed rule was inspired by a similar rule in the New York market.⁵⁴ However this comparison is not entirely appropriate. With the notable exception of Texas, US energy markets are generally capacity markets, in which generators have the ability to sell capacity in a separate capacity market, in addition to selling electricity in the wholesale market. Regulators in these markets tend to be concerned about high prices in the energy markets if they lead to generators recovering revenue through energy sales that is already in effect provided for in the capacity payment.

The electricity market in Texas is, like the NEM, an energy-only market. Until recently, a market price cap was in place which capped the peak electricity price at US\$3,000/MWh. The Texas Public Utilities Commission has however recently decided to raise this cap to US\$4,500/MWh, with further increases to US\$7,000 - US\$9,000/MWh expected for 2013 and beyond. The reason for raising the market price cap is that it was concluded that the (low) level of the cap had not attracted sufficient investment in new power plants in Texas. Raising the price cap is therefore seen as an important signal to encourage new investment in generation.⁵⁵

Another example of an energy-only market is the electricity market of Alberta, Canada. Similar to the Commission's approach to the NEM, the Market Surveillance Administrator (MSA), which regulates and supervises the Alberta wholesale electricity market, uses a longer term approach to considering issues of 'market power'. The MSA has also drawn comparison with the US energy markets and notes that: "*short run cost based standard and associated efforts to police against the exercise of market power is important for most other competitive electricity markets in North America because they rely on separate capacity markets to ensure adequate new investment in generation. Given the absence of capacity markets or other mechanisms in Alberta the MSA believes giving too much weight to static efficiency concerns is not appropriate. Such an approach could chill the incentive to innovate or invest and therefore may harm dynamic efficiency*".⁵⁶

⁵³ MEU, submission on draft determination, 22 July 2012, p10; Poyry Management Consulting, *Generator Market Power - Review of AEMC Draft Rule Determination*, 12 July 2012, p9.

⁵⁴ MEU, rule change request, p31.

⁵⁵ Reuters, 'Texas regulators raise power price cap by 50 percent', 28 June 2012.

⁵⁶ It is also therefore that the MSA draws on the concept of the long-run marginal cost of investment as a way of capturing how much of a transfer needs to occur from consumers to producers in order to

The MSA in principle considers 'economic withholding' to be rational profit maximising behaviour which should be allowed, unless it leads to outcomes which are inconsistent with a workably competitive market.⁵⁷ There is no mechanism in place in Alberta that caps individual dispatch offers by generators, similar to the MEU's proposed rule.

The MEU also mentioned that in Great Britain a 'Transmission Constraint License Condition' (TCLC) was recently introduced to address concerns about generator market power until forthcoming transmission upgrades have occurred. The TCLC appears to have come into effect on 29 October 2012.⁵⁸ In response to submissions to its consultation on the TCLC, the UK Department of Energy and Climate Change has noted that the license condition does not extend to high price offers by generators, as it believes that such an extension of the licence condition would reduce the incentive to build new plant in import constrained areas.⁵⁹

The above examples demonstrate that these international regulatory frameworks also recognise that sufficiently high price signals are an inherent feature of energy-only markets in order to secure adequate new investment in generation.

3.5 Conclusion

In this Chapter, the Commission has outlined the conceptual framework it has applied in assessing the rule change request. After consideration of comments made by stakeholders to its draft determination, the Commission has re-affirmed that the relevant definition to apply in its assessment is that of 'substantial market power', defined as 'the ability of a generator or group of generators to increase annual average wholesale prices to a level that exceeds estimates of LRMC, and sustain prices at that level due to the presence of significant barriers to entry.'

allow for a full recovery of fixed costs and sufficient profits as an incentive for new investment. Market Surveillance Administrator, *State of the Market Report 2012*, 10 December 2012, p4.

⁵⁷ *Offer Behaviour Enforcement Guidelines*, Market Surveillance Administrator, 14 January 2011, p10.

⁵⁸ Ofgem, *Transmission Constraint Licence Condition Guidance*, 29 October 2012. Retrieved via the Ofgem website: www.ofgem.gov.uk

⁵⁹ Department of Energy and Climate Change, *Government response to the consultation on the Transmission Constraint License Condition*, 16 July 2012.

4 Assessment of evidence of substantial market power in the NEM for the draft determination

To inform its analysis for the draft determination, the Commission engaged NERA and CEG to assess, respectively; to what extent annual average wholesale prices have been sustained above LRMC in the regions of the NEM and to what extent barriers to entry exist in the NEM.

4.1 A comparison of wholesale prices to long-run marginal cost

The Commission's definition of substantial market power requires that annual average wholesale electricity prices exceed estimates of LRMC for a sustained period of time.

In order to assess whether there is evidence supporting the exercise of substantial market power in the NEM, the Commission engaged NERA to undertake an analysis of whether annual average wholesale spot prices have exceeded LRMC for a sustained period of time. The following sections explain NERA's approach to calculating LRMC and wholesale spot and contract market prices, and discuss the results of the 'price vs LRMC' analysis.

4.1.1 Calculation of LRMC

NERA applied two distinct methodologies to the estimation of LRMC. These are:

- an average incremental cost (AIC) approach, which estimates the least cost combination of plant to satisfy demand in a given year; and
- a market modelling approach, which estimates the cost of bringing forward a new entrant capacity expansion to meet an incremental increase in demand over a future time period.⁶⁰

The AIC method applied by NERA represents a relatively quick and effective means of estimating the LRMC but is generally considered to be a less precise approach than the market modelling method. It uses information on new entrant technology costs to calculate the least cost combination of generation capacity to satisfy a given load duration curve for a given region and year and makes some simplifying assumptions, including that existing capacity is already optimal and that demand grows at a constant rate into the future with a constant load profile.

While generally more complex and time intensive to perform than the AIC approach, the market modelling approach is generally considered to be the closest to a true approximation of LRMC. The market modelling approach develops two separate future investment profiles based on a least-cost combination of generation capacity to satisfy a future average annual demand – one to satisfy an existing expectation of future average annual and maximum demand and the other to satisfy a hypothesised incremental increase (or decrease) in demand over the same period. A detailed explanation of the

⁶⁰ This method of estimating LRMC is also commonly referred to as the perturbation approach or the Turvey approach.

separate approaches to the calculation of LRMC is contained in NERA's technical paper, which is available on the AEMC website.⁶¹

4.1.2 Wholesale spot and contract prices

NERA based the calculation of spot prices on a volume-weighted average approach that weights the spot price of each half-hour in the year by the volume of energy that was dispatched. NERA considered the volume weighted average approach to be appropriate because a generator's incentive for investment is based on its ability to recover its LRMC through revenue received in the market, which in turn is determined by the volume of energy dispatched at the market spot price.

NERA based its approach to estimating average contract prices for a specific year on the use of publicly available Australian Securities Exchange (ASX) exchange traded contracts, as reported by d-cypha trade.⁶² Average contract price estimates for a given year have been based on a combination of base, peak, and cap contracts that retailers would be expected to progressively purchase over a preceding four-year period to meet the expected system demand profile. NERA recognises that there are a number of limitations associated with the methodology used, including:

- The limited publicly available information regarding contract prices and volumes of trade. This is particularly evident in South Australia where increasing amounts of vertical integration have resulted in less reliance on contracts to hedge exposures to the spot market.
- The estimation of contract prices based on a system wide contract portfolio may not necessarily reflect the hedging strategies adopted by individual retailers seeking to hedge their specific load profile. Given the tailored approach to hedging adopted by the majority of retailers, a system-wide approach is likely to underestimate the contract price.
- The time lag that occurs between the spot market's impact on contract prices and the impact on a retailer's contract portfolio for any given year as it is progressively built up over a number of preceding years. This effect would likely mean that an even longer period of analysis would be needed to assess the impact than the comparison of spot price and LRMC.

The limitations discussed above may mean that the estimated contract prices are less representative of the actual contract prices for the periods considered. NERA considers that, in the absence of considerably more information about contracting strategies and timing, liquidity, individual demand profiles, and the effects of policy uncertainty on contracting positions, the conclusions that can be drawn from the comparison of LRMC with contract price estimates is limited.

Therefore, the focus of the analysis should be the comparison between volume-weighted average spot prices and LRMC, with a comparison of contract price estimates and LRMC used to potentially provide some further insight. This is not to say

⁶¹ NERA Economic Consulting, *Estimating Long Run Marginal Cost in the National Electricity Market – A paper for the AEMC*, 19 December 2011.

⁶² www.d-cyphatrade.com.au.

that contract prices were merely developed as a check on spot prices, as NERA have provided separate comparisons of both spot and contract prices with LRMC estimates.

A more detailed explanation of the approach adopted by NERA for the determination of contract prices can be found in the NERA modelling report.⁶³

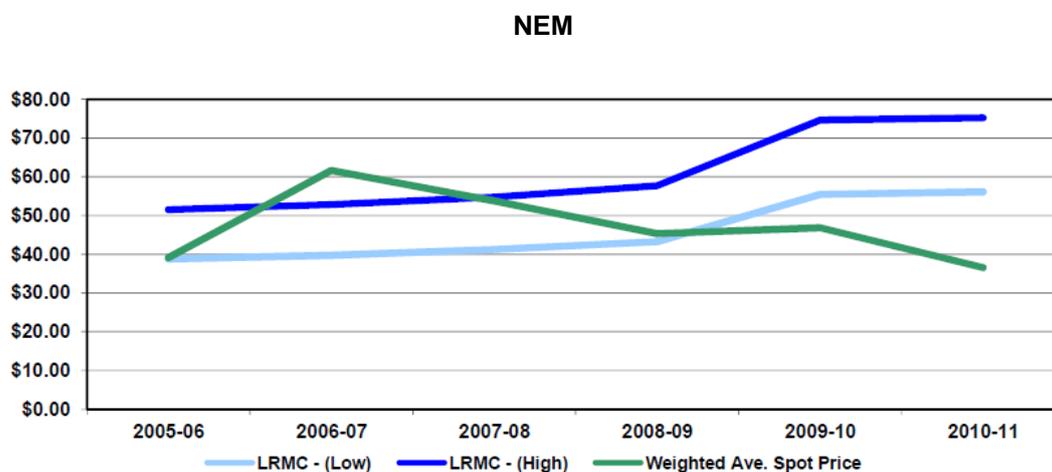
4.2 Results of the comparison of wholesale prices to long-run marginal cost

Figure 4.1 shows the results from NERA’s comparison of LRMC and annual average wholesale spot prices, which was undertaken to inform the Commission’s assessment for the purposes of the draft determination. NERA’s analysis showed that prices in each region have, on occasion, exceeded estimates of LRMC. In New South Wales, Victoria, and South Australia there was one year, and in the case of Queensland two years, out of the six-year period where this had occurred.

In New South Wales and Victoria annual average wholesale price in the two years at the end of the assessment period fell below the range of LRMC estimates. In Queensland, this was the case for the last three years. In all other years the annual average wholesale price in each region fell within the range of LRMC estimates.

While NERA has determined that each NEM region is the relevant market for the purposes of the analysis, these observations could also be applied to the NEM as a whole.⁶⁴

Figure 4.1 - Results from draft determination, comparison of LRMC and price



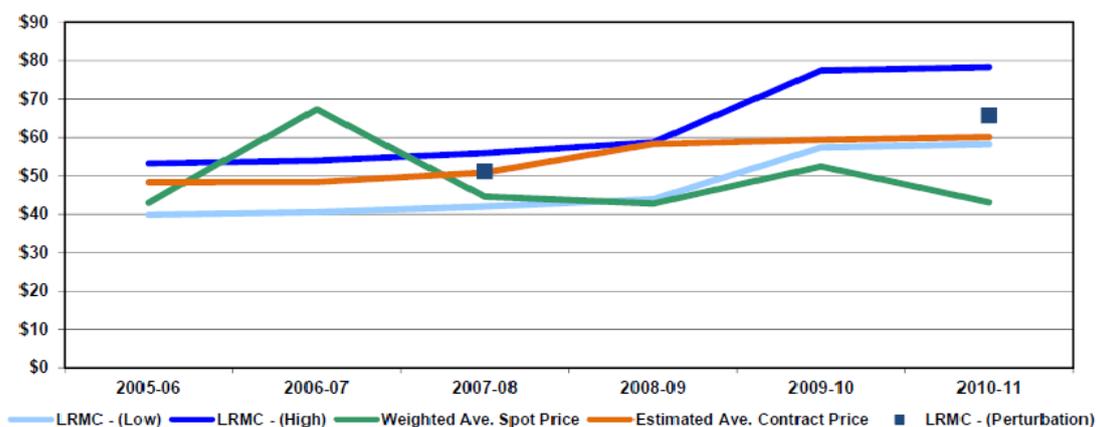
⁶³ NERA Economic Consulting, *Benchmarking NEM Wholesale Prices Against Estimates of Long Run Marginal Cost - A Report for the Australian Energy Market Commission*, 16 March 2012, p11.

⁶⁴ The process of defining the 'relevant market' helps identify the potential substitutes that impose a significant competitive constrain on a generator's behaviour. The Commission has adopted the usual competition law approach to market definition. Under that approach, a market is defined in terms of its product, geographic, functional and temporal dimensions. See for further details Chapter 5 of the Draft rule determination.

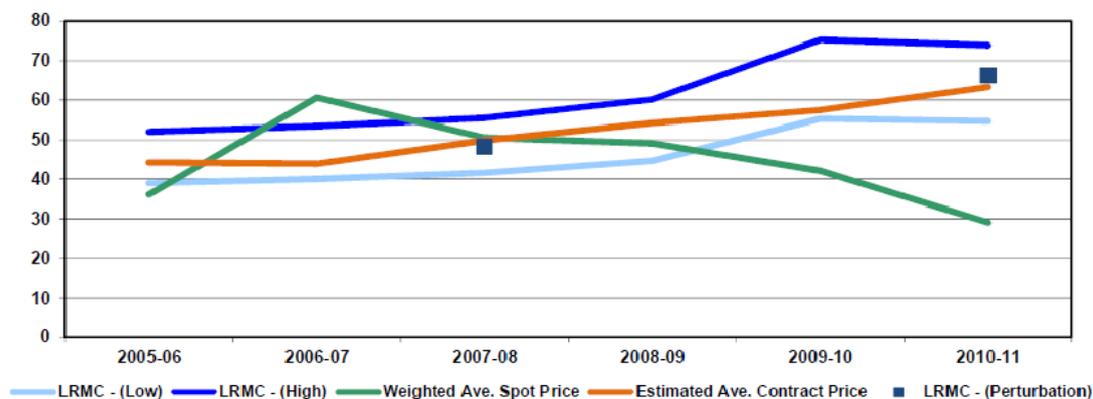
Queensland



New South Wales



Victoria



South Australia



Source: NERA Economic Consulting, *Benchmarking NEM Wholesale Prices Against Estimates of Long Run Marginal Cost - A Report for the Australian Energy Market Commission*, 16 March 2012.

The Commission analysed NERA's results and considered for the draft rule determination that they were consistent with a functioning workably competitive market in which wholesale prices vary over time according to supply and demand conditions but that, measured over a sufficiently long time frame, they will trend towards the long-run efficient price level.

The Commission considered that NERA's results demonstrated that some large generators in the NEM have, on occasion, the ability to bid their capacity so as to increase the spot price to levels considerably above their costs. Although in these cases the generators' dispatch offers may be reflecting the scarcity value customers place on being able to consume electricity.

Certain supply and demand conditions have existed in previous years that may have, for short periods, added to this ability and increased some generator's transient pricing power. NERA's analysis indicated that these conditions were the combination of restricted interconnector flow and high demand in South Australia in 2007-08 and the combination of drought restrictions on generator capacity and high demand in Queensland, New South Wales and Victoria in 2006-07.⁶⁵ This effect extended into 2007-08 in the case of Queensland.

These conditions of supply and demand resulted in wholesale annual average prices rising above the range of LRMC estimates in these particular years due to:

- Less expensive base-load plant being withdrawn from the merit order, thereby relying on more expensive plant to be dispatched to satisfy demand; and
- A greater ability of generators still in the merit order to exercise transient pricing power.

⁶⁵ NERA Economic Consulting, *Benchmarking NEM Wholesale Prices Against Estimates of Long Run Marginal Cost*, 12 April 2012.

4.3 Barriers to entry

The entry of new competitors to the generation market is an important constraint on incumbent generators exercising substantial market power. Substantial market power is a product of ineffective competition between incumbent generators. Substantial market power is therefore likely to be sustained where the existing levels of competition are insufficient but no new investment occurs because it is prevented or delayed due to significant barriers to entry.

The Commission engaged CEG to assess evidence of structural, strategic or legal factors that would prevent or inhibit new competitors efficiently investing in new generation in the NEM. In this exercise, more broadly, CEG considered any set of structural, institutional and behavioural conditions that would allow incumbent generators to earn prices above costs for a sustained period of time.

The Commission considers that CEG's definition of a barrier to entry in the context of the NEM in box 4.1 is appropriate.

Box 4.1: Definition of a barrier to entry⁶⁶

A **barrier to entry** is any set of conditions that give rise to the ability of incumbent generators, acting individually or in concert, to set market prices above the level required to compensate for the efficient costs of new capacity required to meet demand growth in the NEM (or in a NEM region).

CEG found that in New South Wales, Victoria and Queensland there were no matters of significance prohibiting new generators from entering the market.

For South Australia, the results were less clear. CEG found precursory signs that may be consistent with the presence of structural and strategic barriers to entry in South Australia.

CEG suggested with regard to structural barriers that a principal concern for South Australia is the large minimum investment size relative to the size of the market.⁶⁷ Demand is not growing at a strong rate and AEMO is not predicting the need for material new capacity. A new entrant of sufficient size may expect a material reduction in prices post-entry and may not be confident of recovering its sunk and irreversible costs. In such a situation, incumbent generators may be able to raise average annual market prices above the level necessary to encourage additional investment in generation without the threat of that new entry occurring.

Alternatively, CEG suggested that it is conceivable that the entry of an additional generator would destabilise the coordination of incumbent generators to a sufficient extent that post-entry prices would be materially lower. Although CEG did not provide

⁶⁶ Competition Economists Group, *Barriers to entry in electricity generation - a report for the AEMC*, April 2012, p4.

⁶⁷ Competition Economists Group, *Barriers to entry in electricity generation - a report for the AEMC*, April 2012, p40.

evidence to suggest that generators in South Australia are in fact coordinating price outcomes.

CEG suggested with regard to strategic barriers that incumbent generators in South Australia may be able to deliberately promote the expectation that the entry of a minimum efficient scale new entrant would materially alter the pricing strategies of the incumbents. Incumbent generators may install excess capacity in order to create the conditions necessary for an independent new entrant to expect low prices. CEG suggest that expansions of existing capacity by incumbents in South Australia have so far been consistent with this theory.⁶⁸

Since acquiring Torrens Island Power Station, AGL has been the largest incumbent generator in South Australia and has also been the single largest investor in new capacity. In addition, all of the announced plans for new scheduled generation in South Australia are by large incumbent generators.

However, CEG qualifies this explanation by suggesting that incumbent generators are likely to have the lowest cost expansion opportunities, that AGL's investments have predominantly been in wind farms to provide Renewable Energy Certificates (REC) to support its retail load, and that announced plans should not be taken particularly seriously into consideration until investment or construction has actually commenced.

CEG also considers that another form of pre-emption by incumbent generators in South Australia may arise from the large presence of vertical integration between generators and retailers, the consequence of which may raise the costs of hedging for independent new entrants.⁶⁹ CEG refers to the recent statement by the AER that since 2007 there has been negligible investment in generation by firms that are not also present at the retail level.⁷⁰

Vertical integration acts as a natural hedge to the wholesale market and reduces the level of participation in the market for hedge contracts. South Australia persistently demonstrates a lower level of contract market liquidity than other NEM regions.⁷¹ A lack of liquidity in the hedge contract market has the potential to act as a significant deterrent to new entry. Long-term hedge contracts may be a material prerequisite for a potential new entrant to arrange for finance for the upfront costs of project development. The costs of financing may be substantially increased for a new entrant if they cannot obtain such a hedge contract or be confident of being able to access a relatively liquid contract market in the future.

However, CEG notes that businesses who are unable to negotiate hedge contracts on terms they consider to be reasonable may simply be underestimating the efficient market price for hedging. A further explanation is that vertically integrated entities have lower cost expansion opportunities and are able to undercut new entrants in the construction of infrastructure.

68 Ibid, p41.

69 Ibid, p42.

70 Australian Energy Regulator, *State of the Energy Market 2011*, p106.

71 Competition Economists Group, *Barriers to entry in electricity generation - a report for the AEMC*, April 2012, p47.

CEG's assessment of factors inhibiting new entrants in South Australia is not inconsistent with the findings by NERA that there is no evidence of the exercise of substantial market power.

The overall evidence from CEG's analysis suggests that barriers to entry are unlikely to be a significant concern in New South Wales, Queensland and Victoria, but that the evidence concerning South Australia is less clear. While some findings may point to barriers to entry being present in South Australia, CEG also noted that there were alternative explanations for the results such that a definitive conclusion of whether new competitors were being inhibited from entering the South Australian market could not be made.

In light of these results, CEG recommended in their report that the relationship between prices and LRMC in South Australia be subject to ongoing review to identify whether the historical evidence in the NERA analysis is atypical. Further, CEG proposed that the impact of vertical integration and the problem of contracting for new entrants in South Australia should also be kept under review.

4.4 Commission's conclusion in the draft determination

Having considered the results of NERA's analysis of annual average wholesale spot prices vs LRMC and CEG's analysis of barriers to entry, the Commission determined not to make a rule in respect of the rule change request in its draft determination.

4.5 Stakeholder views

The Commission's conclusion is supported by the Australian Financial Markets Association (AFMA), Energy Australia, ESAA, IPRA, NGF, Origin Energy and the Private Generators.⁷²

However, a number of stakeholders, including the AER, the EUAA, MEU/Poyry, SACOSS and the UCA disagree with the Commission that there is insufficient evidence of substantial market power in the NEM, particularly with regard to South Australia.⁷³

UCA argues that there is sufficient evidence, which can be deduced from the reports by CEG and NERA, to support a conclusion that there is potentially a market power problem in South Australia, and also in Tasmania. The UCA considers that, coupled with a precautionary approach with regard to consumers' best interests, the

⁷² AFMA, submission on draft determination, 19 July 2012, p1; TRUenergy, submission on draft determination, 7 September 2012, p1-2; ESAA, submission on draft determination, 20 July 2012, p1; IPRA, submission on draft determination, 20 July 2012, p1; NGF, submission on draft determination, 23 July 2012, p1; Origin Energy, submission on draft determination, 20 July 2012, p1-2; Private Generators, submission on draft determination, 20 July 2012, p1.

⁷³ AER, submission on draft determination, 1 August 2012, p7-12; EUAA, submission on draft determination, 10 August 2012, p1; MEU, submission on draft determination, 22 July 2012, p3-7; Poyry Management Consulting, *Generator Market Power - Review of AEMC Draft Rule Determination*, 12 July 2012, p18-19; Government of South Australia, submission on draft determination, 2 August 2012, p1-2; SACOSS, submission on draft determination, 20 July 2012, p10; UCA, submission on draft determination, 7 August 2012, p3.

Commission should have actively considered a rule change option to mitigate future risk for consumers.⁷⁴

Similarly, Poyry and the AER also argue that the results for South Australia seem to suggest a market power problem, especially if prices are not compared to the upper bound of LRMC estimates, but rather to the mid-point of the AIC approach.⁷⁵ Further, the market modelling approach shows different results to the AIC approach, which undermines the validity of the outcomes of a price vs upper bound LRMC test. The AER has investigated high price events in 2007-2008 as part of its compliance monitoring and found that individual generator bidding behaviour contributed to these outcomes.⁷⁶

This conclusion is supported by the MEU, which also analysed the high price days in March 2008.⁷⁷ The MEU considers that NERA should have taken the role of economic withholding into account, rather than explaining events primarily in terms of prevailing weather conditions at that time. But even if weather conditions are taken into account, the MEU argues a comparison with Victoria shows unusual results for South Australia, where prices are on average significantly higher than in Victoria, despite having similar weather patterns.

4.5.1 Results for South Australia

The South Australian Government submitted that the AEMC provided insufficient analysis of the factors which contributed to the unusually high wholesale prices in South Australia during 2007-08, and the potential for them to be replicated in the future.⁷⁸

The MEU /Poyry and the AER argue that CEG's findings on barriers to entry, in particular with respect to South Australia, do not support the AEMC's conclusion that 'CEG has found no strong evidence to support barriers to entry in any NEM region'.⁷⁹

In this context, a number of stakeholders, including SACOSS, argue that the Commission should have more closely analysed the role of vertical integration, especially in the South Australian market, in its assessment of market power.⁸⁰ Stakeholders considered that vertical integration can create barriers to entry to new entrants -by causing a reduction in liquidity for hedging contracts in the market- and that it may alter the pricing incentives of the vertically integrated firms.

SACOSS presented an overview of vertical integration in South Australia. SACOSS argues that CEG's analysis of concentration indexes and interpretation of results is not correct. The role of wind energy is overstated, especially at times of peak demand, and

⁷⁴ UCA, submission on draft determination, 7 August 2012, p9-13.

⁷⁵ Poyry Management Consulting, *Generator Market Power - Review of AEMC Draft Rule Determination*, 12 July 2012, p13-14; AER, submission on draft determination, 1 August 2012, p7-12.

⁷⁶ AER, submission on draft determination, 1 August 2012, p7-12.

⁷⁷ MEU, submission on draft determination, 22 July 2012, p35-41.

⁷⁸ Government of South Australia, submission on draft determination, 2 August 2012, p1.

⁷⁹ MEU, submission on draft determination, 22 July 2012, p45-52; Poyry Management Consulting, *Generator Market Power - Review of AEMC Draft Rule Determination*, 12 July 2012, p14-15; AER, submission on draft determination, 1 August 2012, p15.

⁸⁰ SACOSS, submission on draft determination, 20 July 2012, p4.

the reported fall in the concentration of generation in South Australia has been largely due to expansion of wind capacity rather than firm capacity. Therefore, SACOSS argue the role of wind cannot be considered as an indication that there is increased competition between incumbent firm capacity generators, nor that, if it were present, significant market power by incumbent firm generators is weakening over time.⁸¹

The EUAA commissioned Carbon Market Economics (CME) to examine potential generator market power in South Australia. CME suggests that its findings regarding the prices in South Australia in the period 2008-11 are evidence of the exercise of market power rather than genuine scarcity in the market.⁸² CME argues these high price events affected consumers and, through the contract market, also affect large industrial consumers. In addition to vertical integration, the EUAA/CME stress the importance of analysing market participants' positions in the contracting/hedging market in South Australia when analysing the strategic use of market power.⁸³ CME considers that the high volatility of prices in South Australia is likely to negatively influence the liquidity of hedge contracts, creating a barrier to entry for potential new entrants. However, CME also notes that prices in South Australia have fallen considerably in recent years, suggesting that concerns about market power in the period from 2008-2011 are not valid in 2012. This is exacerbated by a trend of declining demand for electricity, which, according to CME, makes the exercise of market power more difficult.⁸⁴

4.5.2 Range of LRMC estimates

The AER states that it is unclear why the Commission compares prices to the upper bound of the range of the AIC LRMC estimates. The AER submits that the upper bound is the most conservative 'price vs LRMC' test that could be applied from the range of LRMC estimates and as such may fail to detect a market power problem. The AER notes that prices which fall within the upper bound range of LRMC estimates are described in the draft determination as 'competitive prices' or 'efficient prices' - however, the AER considers that these prices have the potential to reflect non-competitive prices.⁸⁵

The MEU also makes this point and argues that the AEMC's use of a wide range of estimates of LRMC implies that prices can be significantly higher (towards the upper bound LRMC) compared to the average of the LRMC estimates without causing a problem.⁸⁶ The MEU / Poyry argue that the AEMC's preference for the upper bound LRMC is also unclear in light of the market modelling approach, which is considered the closest to a true approximation of LRMC.⁸⁷ In each instance, the LRMC calculated using this approach is less than the upper bound LRMC estimate.

81 SACOSS, submission on draft determination, 20 July 2012, p5-7.

82 CME, *Electricity market power in South Australia - A report to the Energy Users Association of Australia*, 10 August 2012, p25-30.

83 Ibid, p31.

84 Ibid, p32.

85 AER, submission on draft determination, 1 August 2012, p5-6.

86 MEU, submission on draft determination, 22 July 2012, p27.

87 Ibid, p27-29; Poyry Management Consulting, *Generator Market Power - Review of AEMC Draft Rule Determination*, 12 July 2012, p14.

SACOSS comments that price comparisons with a range of LRMC estimates is done in a way which assumes that upper and lower LRMC bounds are equally as probable as any point in the range.⁸⁸ Such a range means the upper bound is taken as a 'true' value when, according to SACOSS, it is not. SACOSS points to NERA's report, in which it is acknowledged that the conclusions that can be drawn from the comparison of LRMC with price estimates is limited.

Further, the AER and the South Australian Government consider that the AEMC should include a time frame in its definition and clarify how many years prices would need to exceed LRMC to constitute substantial market power.⁸⁹

4.6 The Commission's response to stakeholders' views

4.6.1 Results for South Australia

The vast majority of comments regarding the Commission's interpretation of results of the 'price vs LRMC' modelling and the barriers to entry analysis relate to the South Australian market. A number of participants have submitted their views and analysis of particular high price events in South Australia and the role of individual generators' behaviour in contributing to these events.

Not all of this information may necessarily be evidence of the exercise of substantial market power. For example, submissions have documented instances in which Torrens Island Power Station may have exercised transient pricing power at particular times in South Australia. While the Commission does not dismiss that this may at times have occurred, it is unclear how instances of transient pricing power in particular trading intervals in the NEM would lead to a different conclusion regarding the exercise of substantial market power, which, as noted above, is over a sustained period of time. The Commission considers it more preferable to use this form of analysis to provide insight into the factors, including individual market participants' bids and rebids, which contributed to overall market outcomes under circumstances where substantial market power has been shown to exist.

Box 4.2: Comparison of jurisdictions

Can conclusions be drawn from a comparison between regions, such as a comparison between outcomes in South Australia and Victoria? The MEU has noted that in Victoria, investment has occurred when needed despite low levels of economic withholding, and therefore questions why the Commission seems to accept that economic withholding needs to take place in South Australia.⁹⁰

Such a comparison should, however, be treated with caution. States may have very different market characteristics which influence overall market outcomes.

For example, total demand for electricity in South Australia is significantly lower

⁸⁸ SACOSS, submission on draft determination, 20 July 2012, p3.

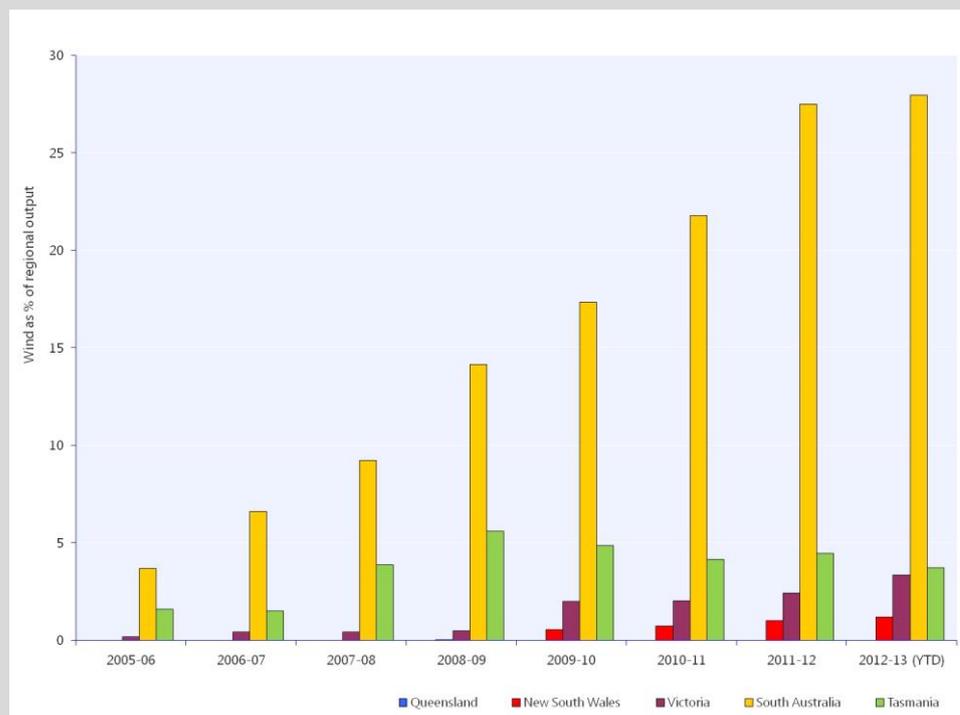
⁸⁹ AER, submission on draft determination, 1 August 2012, p6; Government of South Australia, submission on draft determination, 2 August 2012, p1.

⁹⁰ MEU, submission on draft determination, 22 July 2012, p38-41.

than demand in Victoria. At the same time, demand in South Australia has historically always been 'peakier' than in Victoria. This in itself introduces a degree of price volatility in the market and directly contributes to the difference in frequency and intensity of price spikes in South Australia compared to Victoria.

Further, South Australia has a much higher proportion of wind generation compared to other jurisdictions, as Figure 4.6 demonstrates.

Figure 4.6 Wind generation as a percentage of regional output



Source: Australian Energy Regulator, retrieved via: <http://www.aer.gov.au/node/9777>

This adds to the price volatility on the market, in view of a wind generator's cost structure and the intermittent nature of wind generation.

Victoria on the other hand has significant amount of low cost baseload capacity. With interconnections with New South Wales, South Australia and Tasmania, Victoria is a net exporter of electricity, while South Australia is a net importer.⁹¹

Market characteristics such as these mean that market outcomes across jurisdictions are not readily comparable.

With regard to the point that the Commission should have taken vertical integration into account, especially in South Australia, the Commission notes that vertical integration has been one of the factors that CEG has examined in its analysis of potential barriers to entry in the NEM.

CEG's conclusions on the role of vertical integration in creating a barrier to entry in South Australia were not definitive. CEG noted that high levels of vertical integration could raise the costs of hedging for a non-vertically integrated generator, thereby

⁹¹ See AER, *State of the Energy Market 2012*, p42.

effectively creating a barrier to entry. CEG also pointed to some evidence suggesting that incumbent generators in South Australia may have intentionally ('pre-emptively') engaged in this type of conduct.⁹²

However, CEG also considered that vertical integration can create efficiencies by reducing transaction costs or facilitating better risk management, and that, accordingly, regulators should be cautious in drawing implications from the extent of vertical integration.⁹³

The Commission recognises the recent trend towards vertical integration between generators and retailers and is aware of the market positions of the largest three companies (AGL, Energy Australia and Origin Energy) in both retail and generation. The AER however recently also noted that a number of smaller retailers (Simply Energy, Lumo Energy and Australian Power & Gas) have been successful in building market share in South Australia, currently accounting for 17 per cent of electricity customers (up from 5 per cent in 2005).⁹⁴ Of these three, Simply Energy and Lumo Energy are part of vertically integrated firms, while Australian Power & Gas is not.

The Commission also notes that in 2011-12, four new entrants entered the South Australian retail market (Alinta Energy, Sanctuary Energy, Momentum Energy and QEnergy), most of which are also part of a vertically integrated firm.⁹⁵

Whether more vertical integration is a sub-optimal response to an existing market situation or simply the most efficient business model, and whether this trend reduces liquidity in the contract market or is a response to already illiquid markets, are considerations beyond the scope of this rule change request. However, the recent developments in market share growth and market entry by smaller retailers in South Australia do not appear to be consistent with a presence of significant barriers to entry.

To examine contract market issues more closely, the Commission commissioned Seed Advisory to examine available risk-management strategies in the South Australian market. The results of this analysis are discussed in Chapter 6.

4.6.2 Range of LRMC estimates

The Commission has compared price with a range of LRMC estimates, not with the upper bound estimates of the LRMC specifically, for its analysis of the potential exercise of substantial market power. This was also observed by Frontier Economics.⁹⁶ NERA has estimated the LRMC range based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by policy uncertainties. The use of a range of estimates removes the potential for binary outcomes.

⁹² Competition Economists Group, *Barriers to entry in electricity generation. A report outline for the AEMC*, June 2012, p46-53.

⁹³ *Ibid*, p46.

⁹⁴ AER, *State of the Energy Market 2012*, p118.

⁹⁵ *Ibid*, p119.

⁹⁶ Frontier Economics, *Potential generator market power in the NEM - Response to AER submission. A report prepared for the National Generators' Forum*, August 2012, p7-9.

The Commission has noted the different outcomes of this test with the results of the market modelling approach in the years 2007-08 and 2010-11. For this reason, and having regard to stakeholder responses, the Commission engaged NERA to conduct additional modelling using the latter approach for the remainder of the years. The results of this additional modelling exercise are discussed in Chapter 5.

5 Further analysis of the exercise of substantial market power in the NEM

This Chapter provides a description of the additional analysis undertaken since the draft determination to assess whether there is evidence of the exercise of substantial market power in the NEM.

Initially, NERA analysed whether annual average wholesale spot prices have exceeded LRMC for a sustained period of time on the basis of the AIC approach for the financial years between 2005-06 and 2010-11, and on the basis of a market modelling approach for the financial years 2007-08 and 2010-11. The results of this analysis were included in the draft rule determination, and were explained in Chapter 4.

Comments in submissions suggested that, in order for the Commission to draw more robust conclusions about the potential exercise of substantial market power in the NEM during this period, NERA should have performed the price vs LRMC test using the market modelling method for all the years under review (ie for all the years between 2005 and 2012), as this method is considered to be the closest to a true approximation of LRMC.

In response to these comments, especially in the context of the results for South Australia, the Commission engaged NERA to undertake additional modelling. NERA was requested to extend the initial analysis beyond that conducted for the draft determination to include:

- a comparison of annual average wholesale prices against LRMC for the most recent financial year 2011-12; and
- an estimation of LRMC using the market modelling approach for every financial year of the seven-year modelled period in addition to the estimations previously calculated for 2007-08 and 2010-11.

For its analysis, NERA was required to make assumptions about the expected timing of the expansion of the Renewable Energy Target (RET) from the Mandatory Renewable Energy Target (MRET). This is because NERA was estimating the LRMC for each year based on prevailing conditions and expectations at that time, rather than now or at any other point in time. Therefore, it was necessary for NERA to take a view on the expectations of market participants about key policy issues, such as the RET, in each year.

The enhanced RET was announced in 2009, setting the target of 20 per cent by 2020, thereby extending the target of 9,500 GWh of renewable generation to 45,000 GWh. NERA considers there to have been considerable uncertainty in the market in 2007-08 and 2008-09, in the lead up to the announcement of whether or not the renewable energy target would be expanded. NERA therefore applied two sets of assumptions in those two years – one set of assumptions based on a continuation of the MRET and another set of assumptions based on the enhanced RET. Estimates of LRMC using the market modelling approach for the years prior to 2007-08 were based on a continuation of the MRET and estimates for the years following 2008-09 were based on the enhanced RET.

5.1 Interpretation of NERA's results

This section provides an overview of the results of NERA's comparison of LRMC estimates with wholesale market prices, including the additional analysis undertaken since the publication of the draft determination. The Commission's interpretation of the results is provided.

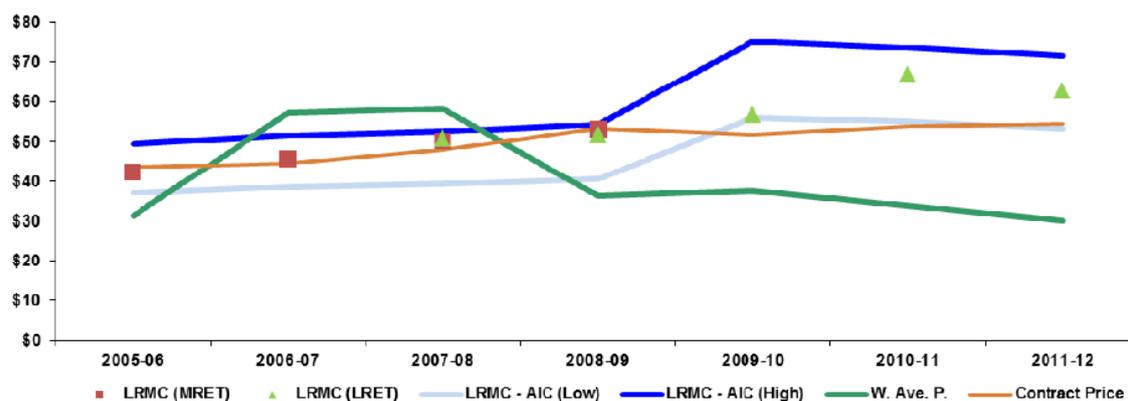
5.1.1 Results for each NEM region⁹⁷

Queensland

Figure 5.1 shows NERA's comparison of LRMC to annual average wholesale spot and contract prices for Queensland. Annual average wholesale spot prices are above the range of AIC LRMC estimates for the financial years 2006-07 and 2007-08 and move down to below the range for the four years from 2008-09 to 2011-12. Indicative contract prices are within the range from 2005-06 to 2008-09, below the range for the two years 2009-10 and 2010-11, and at the bottom of the range for 2011-12. Market modelling estimates of LRMC are generally consistent with the range of LRMC estimates derived through the AIC approach, with annual average wholesale prices above the LRMC estimates in 2006-07 and 2007-08, and below the estimates for the most recent four years.

The market modelling LRMC estimates based on the MRET and enhanced RET are broadly consistent. NERA suggests that, given the relatively limited role played by generation in Queensland in meeting the RET, an increase in the target has relatively little effect on the overall estimates of LRMC.

Figure 5.1 Queensland weighted average prices compared with LRMC



Source: NERA Economic Consulting, *Estimates of the Long Run Marginal Cost for Electricity Generation in the National Electricity Market - A Report for the Australian Energy Market Commission*, 22 November 2012, p8.

Annual average wholesale spot prices in 2006-07 and 2007-08 are considerably higher than those observed in other years, predominantly driven by high price periods in the June quarter of 2007 and the March quarter of 2008. The high prices over this period

⁹⁷ A more detailed explanation of the results from the comparison of wholesale prices to LRMC for each region can be found in the NERA modelling report. NERA Economic Consulting, *Estimates of the Long Run Marginal Cost for Electricity Generation in the National Electricity Market - A Report for the Australian Energy Market Commission*, 22 November 2012.

cover an extended period of drought that restricted available capacity at a number of large generators in Queensland and New South Wales. In combination with the drought effects, the particularly high prices in the June quarter of 2007 were influenced by record high levels of demand in Queensland. NERA notes that high annual spot prices in 2006-07 and 2007-08 were driven by high prices at all times, not just during the peak periods. This is consistent with the effects of drought restrictions impacting on the availability of lower cost base-load generators.

Following an easing of drought conditions, the wholesale spot price reduced to levels below the range of LRMC estimates. NERA has attributed this reduction in observed spot prices in 2008-09 to a combination of lower fuel costs driven by the increased availability of ramp gas associated with the development of liquefied natural gas (LNG) facilities in Queensland and an expansion of generation capacity since July 2009 at a rate faster than the underlying growth of demand.

Recent short-term bidding behaviour by generators, particularly in Queensland, has been portrayed by some parties as evidence of the exercise of market power and the ability to increase wholesale spot electricity prices to the detriment of consumers. The Commission notes that, on a number of occasions, disorderly bidding by generators seems to be a key factor in these volatile price periods.

Box 5.1: Disorderly bidding⁹⁸

Generators in the NEM are exposed to dispatch risk as a consequence of congestion in the transmission network. There is currently no mechanism that allows generators to hedge this risk. Instead, generators engage in particular behaviour, termed “disorderly bidding”, to reduce the extent of being constrained off.

Disorderly bidding occurs because generators located behind constraints in the transmission network know that the price they receive will be set by higher cost generation elsewhere in the network and therefore can make non-cost reflective offers. Such generators will instead offer output to the market at a price which maximises their dispatch. At the extreme, this could be the market floor price of -\$1,000/MWh. When this occurs, the market dispatch engine is unable to distinguish between high cost generators (such as peaking units) and low cost generators (such as baseload coal units), as it only observes the price floor offers from a range of generators affected by the constraint.

When all constrained generators price their offers at the price floor, dispatch is pro-rated among those generators based on the capacity they have made available in dispatch. This prevents demand from being met from the lowest cost generation options and represents a productive inefficiency.

The Commission accepts that disorderly bidding is an inefficiency in the current rules. However, the Commission also considers there to be a distinction between disorderly

⁹⁸ Source: AEMC, *Transmission Frameworks Review – First Interim Report*, 17 November 2011, p33.

bidding and substantial market power. The issue of disorderly bidding is being examined as part of the AEMC's Transmission Frameworks Review.

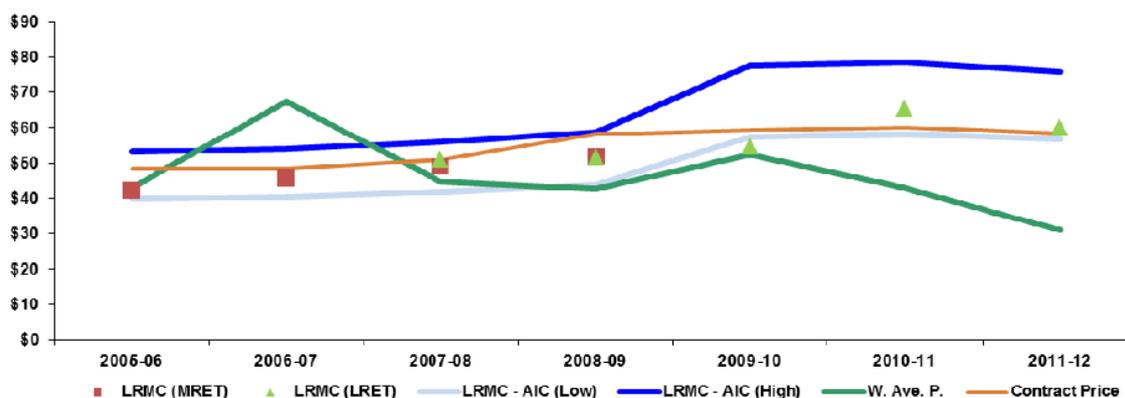
New South Wales

NERA's comparison of wholesale prices to LRMC estimates for New South Wales is shown in Figure 5.2. Similar to observations in the Queensland region, annual average wholesale spot prices exceeded the AIC LRMC range in the financial year 2006-07 but fell back down to within the range in 2007-08. For the five most recent years 2007-08 to 2011-12 the comparison shows spot prices at the low end or below the LRMC range. Indicative contract prices are within the range from 2005-06 to 2011-12; at the high end of the range in 2008-09 and at the lower end of the range for the three years 2009-10 to 2011-12.

Estimates of LRMC using the market modelling approach are generally consistent with the range of LRMC estimates derived using the AIC approach, with the exception of 2009-10 where the market modelling estimate of LRMC sits below the range. Nevertheless, the trend in comparison of annual average wholesale prices with market modelling LRMC estimates is similar to that observed in the comparison of annual average wholesale prices with the AIC LRMC estimates.

Similar to Queensland, generation in New South Wales has historically played a relatively limited role in meeting the RET. As such, the broad consistency between the market modelling LRMC estimates based on the MRET and enhanced RET is expected.

Figure 5.2 New South Wales weighted average prices compared with LRMC



NERA Economic Consulting, *Estimates of the Long Run Marginal Cost for Electricity Generation in the National Electricity Market - A Report for the Australian Energy Market Commission*, 22 November 2012, p10.

NERA has attributed the high annual average spot price in 2006-07 to outcomes in the June quarter where a combination of continuing drought conditions affecting the availability of supply in New South Wales and Queensland and high winter demand led to 17 half hour periods where spot prices exceeded \$5,000/MWh.

NERA notes that the considerable reduction in spot prices in 2010-11 and 2011-12 to levels well below the range of LRMC estimates is likely to have been caused by a significant reduction in load to levels below any of the previous five years. While spot

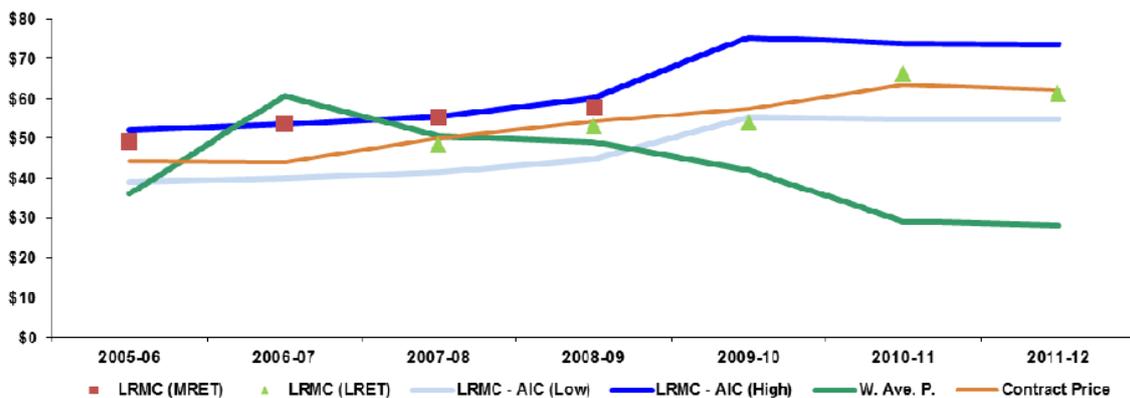
prices for 2008-09 and 2009-10 are at the low end of the LRMC range, load for these periods is generally consistent with previous years. NERA contends that there does not appear to be any extenuating circumstances that would give rise to a deviation of annual average wholesale spot prices from LRMC during these years.

Victoria

NERA’s comparison of wholesale spot and contract prices to LRMC estimates for Victoria is shown in Figure 5.3. Similar to Queensland and New South Wales, the annual average wholesale spot price for 2006-07 is above the AIC LRMC range. Spot prices fall back down to within the range for 2007-08 and 2008-09 and then fall below the range for 2009-10 to 2011-12. Estimated contract prices are at the bottom of the LRMC range from 2005-06 through to 2011-12.

There is an observable difference in LRMC results using the market modelling approach between those based on the MRET and those based on the enhanced RET. This difference reflects the significant contribution that generation in Victoria makes to the achievement of the RET. A higher RET defers the need for additional thermal generation and reduces the LRMC estimate. Nevertheless, the LRMC estimates derived using the market modelling approach are broadly consistent with the range of estimates derived using the AIC approach, with the market modelling estimates based on MRET sitting at the top of the range for the years 2005-06 to 2008-09 and those based on the enhanced RET sitting at the middle or bottom of the range for the years 2007-08 to 2011-12.

Figure 5.3 Victoria weighted average prices compared with LRMC



NERA Economic Consulting, *Estimates of the Long Run Marginal Cost for Electricity Generation in the National Electricity Market - A Report for the Australian Energy Market Commission*, 22 November 2012, p12.

The high spot prices in 2006-07 are predominantly driven by high average spot prices in the March and June quarters of 2007. Bushfires and record demand in January 2007 and high demand in June 2007 combined with drought restrictions affecting generators in the New South Wales and Snowy regions resulted in a number of price spikes. However, while the observed wholesale spot price for 2006-07 is above the LRMC range, NERA notes that the number of half-hour prices above \$5,000/MWh for this year is not abnormally high in comparison to other years, suggesting that the drought

induced shortage of supply had a more evenly spread uplifting effect on spot prices over the whole period.

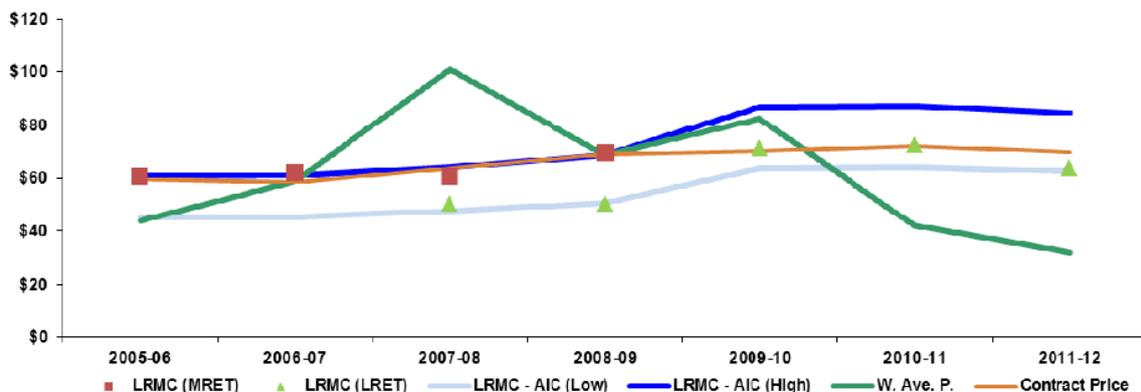
Similar to Queensland and New South Wales, annual average wholesale spot prices following the drought period fell to within the range of LRMC estimates and in more recent years have shown a decline, falling below the bottom of the range. This effect is most pronounced in the Victorian region, with the annual average wholesale spot price in 2009-10, 2010-11 and 2011-12 at 31, 47 and 49 per cent below the bottom of the range in each year. NERA attributes this deviation to a reduction in load and the commissioning of new wind generation capacity in Victoria and South Australia.

South Australia

NERA’s comparison of LRMC to wholesale spot and contract prices for South Australia is shown in Figure 5.4. Unlike the other three NEM regions modelled, observed wholesale annual average spot prices for South Australia are within the range of AIC LRMC estimates in 2006-07 but are considerably above the estimated LRMC range in 2007-08. Spot prices in 2008-09 and 2009-10 remain high but are just within the LRMC range, while spot prices for 2010-11 and 2011-12 fall considerably below the range. Indicative contract prices are at the high end of the AIC LRMC range from 2005-06 through to 2008-09 and then at the bottom of the range for the three years 2009-10 to 2011-12.

South Australia shows the most significant difference between market modelling estimates of LRMC based on the MRET and enhanced RET. Given the large uptake of wind generation in South Australia, a larger RET has a greater influence on renewable generation investment in South Australia. Despite the significant difference, market modelling estimates of LRMC that are based on the MRET and the enhanced RET remain within, or very close to, the range of LRMC estimates derived using the AIC approach.

Figure 5.4 South Australia weighted average prices compared with LRMC



NERA Economic Consulting, *Estimates of the Long Run Marginal Cost for Electricity Generation in the National Electricity Market - A Report for the Australian Energy Market Commission*, 22 November 2012, p14.

NERA suggests that the high observed annual average wholesale spot prices in 2007-08 are predominantly a result of the March quarter in 2008, which remains a record high

quarterly price across all NEM regions. The number of high price events in 2007-08 increased considerably from previous years, driven mainly by the period between 5 and 17 March 2008 where prices exceeded \$5,000/MWh for 26 half hour periods. NERA suggests that contributing factors to these high price events are an unprecedented 15-day heat wave over this period, leading to record levels of electricity demand, and unusually low levels of interconnector capability, limiting electricity imports from Victoria.

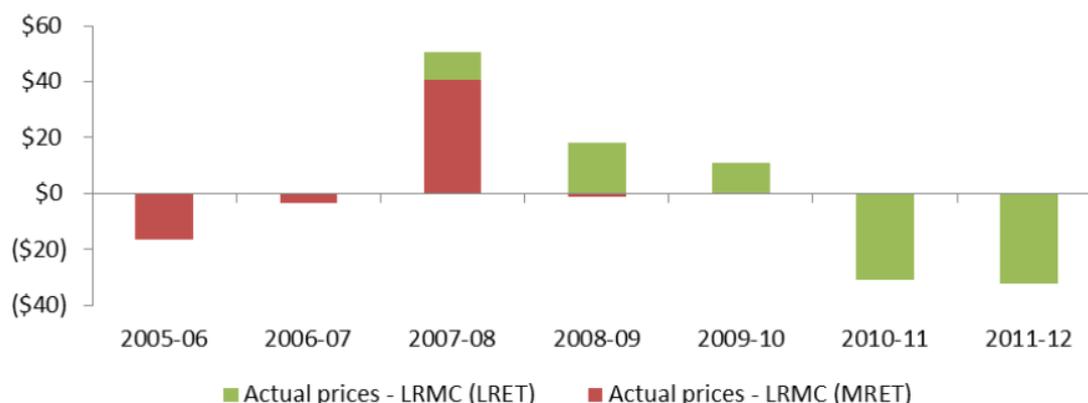
In 2007-08 there were 39 half-hour periods where the price difference between Victoria and South Australia was greater than \$9,000/MWh, twice the number of the next highest year in 2009-10. An extraordinarily high demand period also occurred in 2009-10, with November 2009 recording South Australia's most severe heat wave on record. This period saw prices exceed \$5,000/MWh for 14 trading intervals. An additional 9 trading intervals exceeded \$5,000/MWh in February 2010.

The number of high price events fell in 2008-09, increased again in 2009-10 and fell back again in 2010-11 and 2011-12, broadly in line with movements in the annual average wholesale spot price. Annual average wholesale spot prices in these four most recent years have not exceeded the range of AIC LRMC estimates.

Figure 5.5 shows the difference between annual average wholesale spot prices and estimates of LRMC using the market modelling approach. It can be seen that there is a three-year period from 2007-08 to 2009-10 where the annual average wholesale spot prices are above market modelling estimates of LRMC, with a considerable difference observable in 2007-08. It can also be seen that annual average wholesale prices are below estimates of LRMC for the two years 2005-06 and 2006-07 and the two years 2010-11 and 2011-12, with the two most recent years showing significant deviations.

NERA suggests that the growing impact of wind generation capacity has resulted in an increased prevalence of low and negative price periods, thereby contributing to lower annual average prices. This has been compounded in 2010-11 and 2011-12 by generally lower levels of demand than in previous years.

Figure 5.5 Difference between weighted average prices and LRMC in South Australia using the market modelling approach



NERA Economic Consulting, *Estimates of the Long Run Marginal Cost for Electricity Generation in the National Electricity Market - A Report for the Australian Energy Market Commission*, 22 November 2012, p16.

Tasmania

The MEU considers that Tasmania is a special case and should be exempt from the application of the proposed rule. The MEU asserts that Hydro Tasmania always has market power as the combined output of all other sources of generation in Tasmania is almost always less than the actual demand. Therefore to constrain the bidding of Hydro Tasmania at all times would provide an unintended benefit to Victorian consumers through energy imports via Basslink. The MEU stated in their rule change request that the proposed rule should not apply to the Tasmanian region of the NEM and suggested that a derogation would be required to insulate Hydro Tasmania from the imposition of the proposed rule.

In light of the MEU's position, and the difficulty of adequately modelling the cost of hydro generation, the Commission decided not to commit the additional resources required to estimate values of LRMC for the Tasmanian region. The Commission has noted that the Tasmanian Government appointed an Expert Panel to review the electricity industry in Tasmania. The Expert Panel has considered issues regarding the market power of generators in Tasmania and made recommendations about how those issues should be addressed.⁹⁹ The Tasmanian Government has recently proposed a comprehensive package of measures aimed at reforming the Tasmanian energy market. The Electricity Reform Act 2012, facilitating the implementation of these reforms, was adopted by the Tasmanian Parliament in November 2012.¹⁰⁰

5.2 Are these results evidence of the exercise of substantial market power?

Queensland, New South Wales and Victoria

The Commission notes that for Queensland, New South Wales and Victoria, CEG found that barriers to entry are unlikely to be a significant concern.

In regard of a comparison of annual average wholesale prices and estimates of LRMC, the Commission considers that the relationship between LRMC and wholesale prices must be viewed over a sufficient period of time such that investors are able to respond to the signals of the market. It therefore follows that a generator, or group of generators, can only be considered to have exercised substantial market power if, in the presence of significant barriers to entry, they have bid in such a way so as to increase wholesale prices for a sufficient duration or frequency to sustain prices above LRMC.

NERA's comparison of annual average wholesale prices with estimates of LRMC has shown that prices in each region have, on occasion, exceeded this level in certain years. In New South Wales and Victoria there is one year, and in the case of Queensland two years, out of the seven-year period, where this has occurred. In Victoria the three most recent years have fallen below estimates of LRMC. This is extended to four years in the analysis of New South Wales and Queensland.

⁹⁹ Electricity Supply Industry Expert Panel, http://www.electricity.dpac.tas.gov.au/news/expert_panel_delivers_final_report

¹⁰⁰ Tasmanian Government, <http://www.electricity.tas.gov.au/policy-project-governance/>

The Commission considers that, in the case of Queensland, New South Wales and Victoria, the comparison of LRMC with spot and contract market outcomes demonstrates results which are consistent with a wholesale electricity market that responds to the supply demand position broadly in the way that would be expected of a workably competitive market. For example, in recent years when demand has been relatively low and supply plentiful to meet the demand, annual average wholesale electricity prices have been significantly below estimates of LRMC.

The analysis and evidence therefore do not support a conclusion that there is or has been substantial market power in those regions of the NEM.

South Australia

The Commission has considered the results of CEG's analysis, which found that barriers to entry are unlikely to be a significant concern in New South Wales, Queensland and Victoria, but that the evidence concerning South Australia is less clear. CEG's analysis provided evidence supporting elements of both structural and strategic barriers to entry in South Australia.

In particular, CEG noted the large minimum investment size relative to the size of the market in South Australia and the pre-emptive investment by incumbent generators in South Australia to install excess capacity to promote the expectation that the entry of a minimum efficient scale new entrant would lead to low prices. CEG suggested that the pre-emptive investment by incumbent generators may arise in South Australia from the large presence of vertical integration between generators and retailers, the consequence of which may raise the costs of hedging for independent new entrants.

However, CEG also noted that there are alternative explanations for its results in South Australia such that a definitive conclusion of whether new competitors were being inhibited from entering the South Australian market could not be made.

In addition, the Commission considers NERA's results from comparison of annual average wholesale prices and estimates of LRMC for South Australia to be less clear than for the other NEM regions. The results show that prices have exceeded or been very close to the LRMC level in some years. In particular there is a three-year period, from 2007-08 to 2009-10, where for two years the annual average wholesale spot prices could be observed to be near the top of the LRMC range and one year where prices have exceeded the market modelled LRMC, with a significant deviation observed in 2007-08. However, annual average wholesale spot prices for the most recent two-year period, from 2010-11 to 2011-12, are significantly below market modelling estimates of LRMC and the range of AIC LRMC estimates.

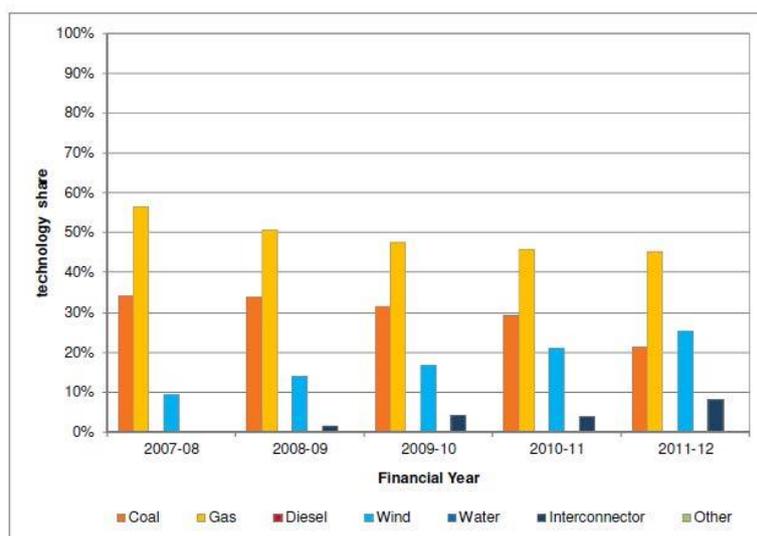
The Commission notes that the three-year period from 2007-08 to 2009-10 was characterised by record levels of demand in South Australia, creating conditions conducive to the exercise of transient pricing power by generators. However, the Commission also notes that, since the record high prices observed in 2007-08, every subsequent year has shown a negative movement in the difference between the annual average wholesale spot price and market modelling estimates of LRMC. This is most visible in figure 5.5, where the difference between annual average wholesale prices and LRMC since 2007-08 follows a clear downward sloping trend.

The Commission therefore considers that, to the extent that any substantial market power may have been present or exercised by generators in South Australia during the three-year period from 2007-08 to 2009-10, the following years have demonstrated the response to these price outcomes that would be expected in a workably competitive market, ie price responsive investment or structural changes that have shifted the balance of supply and demand.

The Commission recognises that lower price outcomes in South Australia in recent years are partly attributable to much lower levels of demand than the historic average. This reduction in demand can be attributed in part to transitory or cyclical effects, such as milder weather conditions in particular years, and also to other more permanent structural shifts, such as a greater uptake of solar photovoltaic installations and other forms of embedded generation, and a consumption response by consumers to higher retail electricity prices.¹⁰¹

The Commission also notes that the RET has driven a considerable increase in the capacity of generation in South Australia through the uptake in the period under review, resulting in a greater occurrence of low and negative half-hour prices. The installed wind generation capacity increased from 389 megawatts (MW) to 1,205 MW between January 2006 and June 2012.¹⁰² Figure 5.6 demonstrates that the proportion of wind generated electricity in South Australia’s fuel mix has more than doubled since 2007-08.

Figure 5.6 Energy generation by fuel type - South Australia



Source: Australian Energy Market Operator, *NEM-wide historical information 2012*, p20.

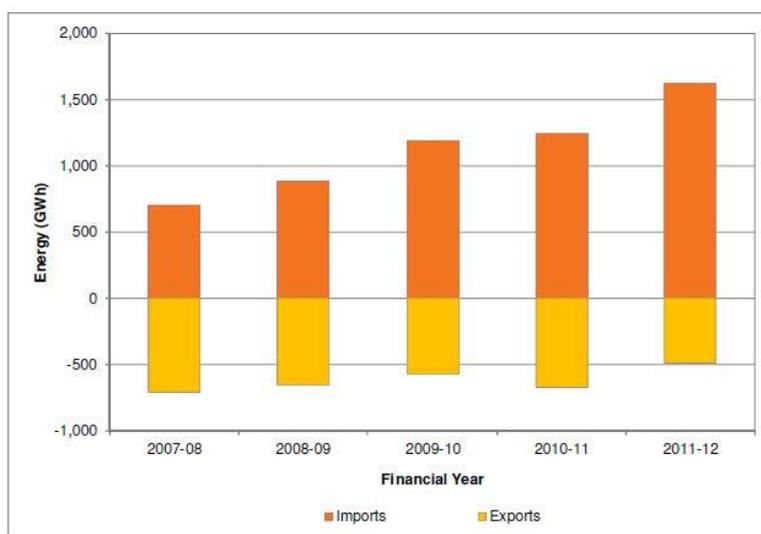
In addition to these structural changes, the Commission notes the recently concluded Regulatory Investment Test for Transmission process to upgrade the capacity of the

¹⁰¹ Australian Energy Market Operator, *Electricity Statement of Opportunities - Update as at 2 March 2012*.

¹⁰² Source: Australian Energy Market Operator, *South Australian Wind Study Report, Figure 2-3, Excel data*.

Heywood interconnector. Figure 5.7 shows that imports into South Australia via interconnectors have more than doubled since 2007-08.

Figure 5.7 Total interconnector import and export South Australia



Source: Australian Energy Market Operator, *NEM-wide historical information 2012*, p24.

Under the proposed upgrade, interconnector capability is expected to increase by about 40 per cent in both directions, allowing for increased wind energy exports from South Australia and also increase imports of lower cost generation into South Australia at times of peak demand. On the assumption of an investment commitment, the estimated commissioning date for the upgrade is July 2016.¹⁰³

The significant structural changes that have occurred, and are ongoing, in South Australia suggest that the regional market environment may be substantially different from what it was over the period 2007-08 to 2009-10. To this extent, the Commission notes Alinta Energy's closure of Playford power station and changes to the operation of Northern power station during certain months of the year due to insufficient expected revenue from the wholesale market.¹⁰⁴

The Commission considers that the findings from the investigation into the presence of barriers to entry in South Australia and the results of the comparison of annual average wholesale prices and estimates of LRMC mean there is the possibility of exercise of substantial market power over the period 2007-08 to 2009-10. The Commission however considers there is insufficient evidence to support the likely exercise of substantial market power in the current market environment. The Commission accepts that, should industry structure or conditions substantially change, the possibility of future exercise of substantial market power cannot be ruled out.

¹⁰³ ElectraNet and AEMO, *South Australia - Victoria (Heywood) Interconnector Upgrade (RIT-T: Project Assessment Conclusions Report)*, January 2013.

¹⁰⁴ Alinta Energy website, *In the Press*, November 2012, accessed via: <http://alintaenergy.com.au/Everything-Alinta-Energy/News/In-the-Press-November>

6 Market risks and hedging options for large energy users

A number of comments made in submissions to the draft determination suggested the Commission, in its assessment of the potential exercise of substantial market power in the NEM, should look more closely at the situation in the contract market, where market participants engage in strategies in order to manage the financial risks arising from volatile spot market prices.

This Chapter provides a description of the analysis and advice provided by Seed Advisory on the market risks to large energy users in the NEM and the options available to manage those risks.

6.1 Background to analysis

The Commission is interested in the extent to which the electricity purchase costs of large commercial and industrial users are influenced by price spikes on the wholesale market, and the extent to which exposure to higher wholesale prices is managed through user purchasing strategies.

Electricity markets face swings in the relative levels of supply and demand, and the expectations of those levels, as supply increases in discrete lumps while demand forecasts and levels change gradually. Extenuating conditions in the market can sometimes exacerbate supply restrictions, such as drought, or increase the peakiness of demand, such as a heat wave. It is at these times that contract negotiations may be less favourable for a large user.

For example, a large user who contracted during, or soon after, the high prices of 2006-07 in New South Wales, Queensland or Victoria, or 2007-08 in South Australia, is likely to have paid a relatively high price for their expected electricity consumption. Conversely, a similar contract transacted in more recent years would likely have been agreed at a relatively low price.

6.2 Engagement of Seed Advisory

The AEMC engaged Seed Advisory to provide a report that includes:

- advice on the range of possible approaches to risk management of electricity purchases for large commercial and industrial users;
- an assessment of the potential for effective application of these approaches with particular focus on the South Australian region; and
- a quantitative assessment of the financial impact of different risk management approaches on large commercial and industrial users.

The purpose of the first two tasks is to provide a detailed qualitative discussion of the options available for the management of market risks. The purpose of the third task is to apply the various purchasing strategies developed through the first two tasks to quantitatively investigate the financial impact on large users under conditions of price volatility.

6.3 Conclusions of Seed's analysis

Seed's findings suggest that, in all cases, hedging is a superior option to not hedging and the more comprehensive the hedge the better.

Further, Seed's analysis shows that users in all jurisdictions have access to risk mitigation instruments. Seed's results indicate that in the smaller markets of South Australia and Tasmania, medium and large users are able to contract with a retailer at a fixed price for all electricity consumed. Seed's analysis show that the range of options available for risk management is greater in Queensland, New South Wales and Victoria.

Seed notes that, while it is possible to potentially obtain a cheaper outcome through full spot market exposure, there is also considerable uncertainty as to the costs of the outcome of this strategy. The costs of a hedge strategy can be impacted by the level of spot market price and volatility at the time of contracting. As such, the customer does not know whether the hedge strategy will be cheaper or more expensive than full pool exposure, but has greater certainty about the costs that it is exposed to.

6.4 Range of possible approaches to risk management of electricity purchases for large commercial and industrial users

Seed Advisory identified six basic hedge strategies that could be adopted by a large energy user in managing its exposure to the spot price.¹⁰⁵ These strategies include:

- **Full spot price exposure** – no hedge contracts in place, the large user would register directly with AEMO and would be exposed to the spot market price for all electricity consumed.
- **Spot price exposure plus caps** – exposure to the spot market price for all electricity consumed with price capped at \$300/MWh.
- **Spot price exposure plus weather derivatives** – exposure to the spot market for all electricity consumed with weather derivatives that pay off when the temperature at a defined location exceeds an agreed level.
- **Part spot price exposure, part hedge contract** – exposure to the spot market for part of electricity consumed with any combination of over-the-counter (OTC) and exchange-traded contracts and caps for the remainder.
- **Progressive hedge** – a rolling hedge program where a two-year contract is entered into for 50 per cent of total expected electricity consumption on an annual basis.
- **Full load following hedge** – a complete hedge against movements in the spot market price for all electricity consumed.

In theory, these six hedge strategies could be implemented by the large energy user directly in the market or alternatively through a retailer as an intermediary. When hedging through a retailer, the user may incur additional fees associated with the costs

¹⁰⁵ Seed Advisory, *Market Risks for Large Customers*, 10 January 2013, p19.

to the retailer of managing the user's position and a contract premium related to the transfer of risk to the retailer of the large user's consumption profile.¹⁰⁶

6.5 Application of these approaches with particular focus on the South Australian region

With the exception of full spot price exposure, the range of hedge strategies identified by Seed are generally more easily undertaken by a large user if it chooses to use a retailer as an intermediary, rather than implementing the strategy directly in the market.

Seed suggests reasons as to why it would be easier for large electricity user to use an intermediary, including:

- Market characteristics are generally designed for very large market participants. The standard contract size in exchange-traded markets is 1 MW, representing 8.7 GWh/year. A typical large user may consume 10 GWh every year, and therefore is likely to face a substantial mismatch between the size of its load and its hedge position. In the OTC market, the standard contract size is even higher at 5 MW, although participants may negotiate a price for a smaller contract size.¹⁰⁷
- A large user's consumption profile may be very peaky, thereby making it difficult to match a standard OTC or exchange-traded contract profile to its load shape. Retailers typically offer load following hedges that match the customer's load profile in the event of load and shape variations.¹⁰⁸
- A large user that enters into hedge contracts will also be exposed to a number of obligations relating to valuation and reporting of its contracts and other Australian Financial Service Licence requirements, although these services may be outsourced at a cost.¹⁰⁹

While the range of purchasing strategies identified by Seed are theoretically useful for the purposes of hedging spot price risk, they are not all considered to be practically applicable under all circumstances and in all regions of the NEM. A distinction can be observed in Figure 6.1 between the two smaller markets in South Australia and Tasmania and the three larger markets in Queensland, New South Wales and Victoria. While the hedge strategies identified by Seed are generally available in the larger regions, they are not readily available in the smaller markets located in South Australia and Tasmania.

In the circumstance where the large user wishes to implement a hedge strategy directly in the market, rather than through a retailer, the low liquidity of traded volumes in South Australia and Tasmania would most likely prevent implementation in these regions.¹¹⁰ Seed notes that the most frequently traded region is New South Wales, the

106 Ibid, p28.

107 Ibid, p30.

108 Ibid, p15.

109 Ibid, p30.

110 Ibid, p29.

least traded region is South Australia, and exchange trading does not exist for Tasmania.

Providing a range of hedge strategy options to large electricity users transfers price and volume risk to the hedge provider. Therefore, in the circumstance where the large user wishes to use a retailer as an intermediary, Seed suggests that there may be a limited number of intermediaries willing to assume the risk in the smaller markets located in South Australia and Tasmania.¹¹¹ In the larger, more liquid regions there are only likely to be a small number of participants willing to assume these risks. It is possible that participants may be willing to offer a range of hedge strategies at higher prices, although these prices may not be acceptable to large users.

Seed also notes that in the case of the progressive hedge strategy, forward contracts are likely to be available for only one (in the case of Queensland, South Australia and Tasmania) or two (in the case of New South Wales and, possibly, Victoria) years into the future.¹¹² While Seed notes that the absence of liquidity for longer dated contracts may relate to uncertainty about the future of the carbon price, they also note that the proportion of OTC contracts with a term of more than one year have been showing a long term decline, suggesting that liquidity in these contracts may not necessarily increase, even with greater carbon policy certainty.¹¹³

Figure 6.1 shows Seed Advisory's views on the range of hedging strategies available to a large energy user and the potential availability of these strategies in each of the five regions of the NEM. The strategies are arranged on a spectrum from full exposure to the spot market price through to a contract that provides a full hedge by providing a fixed price for all electricity consumed by the large energy user according to its demand profile.

111 Ibid, p30.

112 Ibid, p8, 29.

113 Ibid, p29.

Figure 6.1 Possible large user hedging strategies, availability by NEM region¹¹⁴

Strategy		NEM Region				
		NSW	Qld	SA	Tas	VIC
Without retailer	1. Full spot	For customers willing to take spot price exposure. May be able to manage exposure with changes to consumption				
	2. Pool plus caps	Available, but some customer characteristics better suited (willingness to take residual risks, scale)		Not available: low market liquidity		
	3. Pool plus weather derivative					
	4. Part hedge					
	5. Progressive hedge	For customers with size, no weather sensitivity and predictability				
	6. Full hedge					
With retailer	7. Full spot	Available, but not standard		Unlikely to be available		
	8. Pool plus caps					
	9. Pool plus weather derivative					
	10. Part hedge					
	11. Progressive hedge	Available		Low availability/not all retailers offer		
	12. Full hedge					
	13. Buy/build	For customers willing to purchase a generator for whom this represents an economic use of capital				

¹¹⁴ Seed Advisory, Market Risks for Large Customers, 10 January 2013, p32.

6.6 Quantitative assessment of the financial impact of different risk management approaches on large commercial and industrial users.

In response to the third task, Seed applied the various purchasing strategies developed through the first two tasks to quantitatively investigate the financial impact on large electricity users under conditions of price volatility. The intention of the quantitative modelling exercise was to undertake a hypothetical investigation of the merits of a range of hedge strategies under conditions of price volatility without reference to any actual market participants or actual prices that have occurred.

Seed modelled a range of hedge strategies for a hypothetical large commercial and industrial customer with an assumed annual consumption of 30 GWh in both the Victorian and South Australian markets under three different load profiles - flat, summer peaking and winter peaking.¹¹⁵ More detail on Seed's methodology and conclusions are available in the Seed report available on the AEMC's website.¹¹⁶

In addition to full spot price exposure, the hedge strategies used were consistent with those developed under the qualitative exercise described in Section 6.4 above and included a full load following hedge, a progressive hedge, part hedge and part spot exposure, and spot price exposure combined with \$300 caps.

The robustness of each hedge strategy was explored using one thousand spot price simulations for each of four alternative market states. The market states represent the four different combinations of low and high price and low and high volatility.¹¹⁷

In all cases, load curtailment provides the lowest cost hedge strategy and narrowest variations in potential outcomes, and therefore represents a superior strategy to any of the other available options. However, not all large users are likely to have the consumption flexibility and rapid demand-side response that would be necessary to implement this strategy. In addition, Seed has assumed that a large user adopting this strategy can reduce its consumption in perfect alignment with periods of high spot market price without consideration of wastage costs or foregone production revenue.

With the exception of load curtailment, Seed's findings suggest that, in all cases, hedging is a superior option to not hedging, and the more comprehensive the hedge, the better. While load following and progressive hedges are on average the more expensive of the available options, they also represent the lowest variation in potential outcomes under different market states and are therefore, with the exception of the load curtailment option, considered to be the preferred strategies compared to the other options. While the progressive hedge is generally cheaper than the full load following hedge, there are a small number of occasions where the full load following hedge is the

115 Ibid, p4.

116 www.aemc.gov.au/Electricity/Rule-changes/Open/potential-generator-market-power-in-the-nem

117 The four market states do not represent all possible market conditions in the NEM, but rather represent elements of a 'stress test'. As an approach to stress testing, the market states capture the characteristics a large commercial and industrial customer might consider in evaluating a proposed hedging strategy. The different states -ranging from 'low price, low volatility' to 'high price, high volatility'- are believed to have different implications for the hedging strategies to be tested.

preferred strategy based on the narrower variation in outcomes under different market states.

6.7 Impact on residential retail customers

A number of submissions to the draft determination argued that the exercise of market power unduly influences the prices retail customers pay for electricity, as energy retailers pass on wholesale electricity costs to end customers. In its letter to the Commission dated 8 March, the MEU argued that the Commission's draft determination provided a view that the retail price cap in South Australia would insulate residential and other small consumers from the impacts of generator market power.¹¹⁸ The MEU mentions that in December 2012, the South Australian Minister for Energy revoked the retail price cap on electricity from February 2013, which, according to the MEU, is now exposing all South Australian electricity consumers to the potential exercise of generator market power.

In its draft determination, the Commission has outlined that in jurisdictions that are open to full retail contestability, electricity customers have a choice of being supplied under a 'standing offer' contract or a 'market' contract. This is the case in Victoria, and, since 1 February 2013, also in South Australia.¹¹⁹ The retail tariffs that are offered under a 'standing offer contract' are set by the jurisdictional regulators, while market contracts are negotiated between the retailer and customer.

Jurisdictional regulators set residential electricity prices for incumbent retailers for standing contracts through retail price determinations. There is currently no uniform methodology utilised by jurisdictional regulators for setting retail electricity prices with each jurisdiction having evolved its own methodology over time, although some aspects of the methodologies are similar.

One of the key inputs to jurisdictional retail price determinations is an allowance to cover the costs retailers will incur for the wholesale purchase of electricity to supply the load profile of customers remaining on regulated retail tariffs. This allowance is referred to as the wholesale energy cost (WEC). The wholesale electricity costs, on average, make up around one third of customers' bills, the second largest component, after network costs.¹²⁰

The WEC is typically based on an assessment of:

- the LRMC of electricity generation from a portfolio of new entrant generation; and/or
- the market cost of purchasing electricity from the spot market and through hedge contracts.

The LRMC of generation, as calculated by jurisdictional regulators, reflects the minimum price that new generators require to enter the market and also reflects the price that a new entrant retailer can expect to pay for wholesale electricity in the

¹¹⁸ MEU, Letter to the AEMC, 8 March 2013. Accessible via the AEMC website.

¹¹⁹ News release *Lower power prices for South Australia*, Government of South Australia, 18 December 2012.

¹²⁰ Australian Energy Regulator, *State of the Energy Market 2012*, p5.

long-run. The market purchase cost approach is a more direct measure of estimating the wholesale energy purchase costs that a prudent and efficient electricity retailer would be expected to incur.

The market cost purchase approach is more susceptible to price movements on the wholesale market than the LRMC approach, which is determined independently of movements in the wholesale market price. A period of tight demand and supply conditions could therefore be reflected in the WEC component of the retail price if this occurs around the time the jurisdictional regulator is making its price determination and if the expectation is that tight demand-supply conditions may continue to characterise the market.

The opposite is also true: if the wholesale costs are relatively low, this will also be more directly reflected in a WEC calculation according to the market cost approach compared to an LRMC-approach.

The South Australian Government decided to deregulate electricity retail prices.¹²¹ In parallel with deregulating electricity retail prices, the National Energy Customer Framework came into effect in South Australia, providing electricity consumers in that jurisdiction with stronger consumer protection.

The MEU notes that deregulated prices will expose 'all SA electricity consumers to the potential exercise of generator market power', apparently suggesting that this will mean that retail electricity prices will increase for that reason.

This assumption is difficult to reconcile with the fact that wholesale prices in South Australia have been falling and are currently at about their lowest point (excluding the carbon emission price) since commencement of the NEM, reflecting a NEM-wide trend of decreasing wholesale prices, and that the conditions which are causing this downward sloping trend -falling demand, greater uptake of wind generation and embedded generation- appear to be ongoing.¹²²

Even before the decision of the South Australian Government to fully deregulate retail prices, more than 75% of the South Australian consumers had already elected to enter into a market contract (with deregulated prices), rather than a standing contract (with regulated prices), as market contracts often offer significant discounts to the standing contract tariffs.¹²³

Indeed, the South Australian Government expects deregulation will lead to lower retail prices.¹²⁴

121 News release *Lower power prices for South Australia*, Government of South Australia, 18 December 2012.

122 See also: Australian Energy Regulator, *State of the Energy Market 2012*, p42, 44.

123 See also: Essential Services Commission of South Australia, *Performance of the South Australian retail energy market - market development 2011/12*.

124 Government of South Australia, *News release Lower power prices for South Australia*, 18 December 2012.

7 Conclusions and considerations for the making of a rule

This Chapter provides a summary of the conclusions reached by the Commission with regard to the MEU rule change request.

7.1 Conclusions from the Commission's assessment

In the draft determination and in the additional analytical work undertaken since the draft determination, the Commission has analysed the problem stated by the MEU, which is the exercise of market power by generators in the NEM.

The starting point for the Commission's analysis is the NEO, which is to promote efficient investment in, and efficient operation of, electricity services for the long term interests of consumers of electricity.

The Commission has outlined, in its draft determination and also in Chapter 3 of this document, that in a workably competitive energy-only market such as the NEM, characterised by relatively substantial fixed costs and lumpy investments, spot price volatility is an inherent feature of the market. It helps provide investment signals and is necessary for generators to recover their efficient fixed costs, particularly given that wholesale prices may be very low or negative at other times.

In this context, the Commission considered that transient pricing power is to be distinguished from 'substantial market power', which is defined as the ability of a generator or group of generators to increase annual average wholesale prices to a level that exceeds estimates of LRMC, and sustain prices at that level due to the presence of significant barriers to entry (see Box 3.2). The presence of significant barriers to entry prevents a normal competitive response -new suppliers entering the market in response to price signals- from occurring, and allows substantial market power to be sustained.

At any point in time, market prices may be above or below the SRMC of the marginal generating unit of supply, but in the long term, prices in a workably competitive market would be expected to broadly reflect LRMC (and the underlying trend in SRMC).

An examination of the relationship between annual average wholesale market prices and LRMC is a good first indicator of whether market outcomes are reflective of a workably competitive market environment, ie the market demonstrates responsiveness to underlying demand and supply dynamics.

If there is evidence that suggests that the wholesale electricity market is not performing as would be expected of a workably competitive market, a further examination of factors that contributed to this market situation is warranted.

Such an exercise should include an examination of (causes of) significant barriers to entry and other structural industry characteristics which are likely to have enabled this market outcome to occur. A further examination of contributing factors is also likely to require an assessment of the extent that the behaviour of market participants may have contributed to this market outcome.

The Commission considers that the presence of barriers to entry or structural factors that mean the wholesale market is not workably competitive would be detrimental to the long term interests of consumers. In particular, it would or would be likely to have

an adverse effect on the efficient investment in, and efficient operation of, electricity services in the NEM, and thus on achievement of the NEO.

Consistent with this approach, the Commission engaged CEG and NERA to assess, respectively, to what extent barriers to entry exist in the NEM and to what extent prices have been sustained above LRMC in various regions of the NEM. The outcomes of these assessments are reported in the draft rule determination. Additional analytical work was undertaken after publication of the draft rule determination, which is described in the previous Chapters.

New South Wales, Queensland and Victoria

Taking account of these analyses, the Commission considers that analysis by CEG has not identified any significant barriers to entry in these regions.

The comparison of wholesale electricity prices with estimates of LRMC for New South Wales, Queensland and Victoria in the period under review demonstrates outcomes which are consistent with a wholesale electricity market that responds to supply and demand dynamics broadly in the way that would be expected from a workably competitive market.

In particular, wholesale spot prices have moved up and down in response to changes in the supply-demand balance, with periods of prices above and below estimates of LRMC. For example, in recent years when demand has been relatively low and supply plentiful to meet the demand, annual average wholesale electricity prices have been significantly below estimates of LRMC.

The results of the CEG and NERA analyses show outcomes which are consistent with a workably competitive market with no material barriers to entry or exercise of substantial market power in these regions.

South Australia

For South Australia, the results are less clear than for the other NEM regions. Market modelling results show that there is a three year period, from 2007-08 to 2009-10, where for two years the average annual wholesale prices could be observed to be near the top of the LRMC range and one year where prices have exceeded the market modelled LRMC.

CEG highlighted a number of concerns regarding potential barriers to entry in South Australia which may have been a contributing factor to the price outcomes, but the report was not able to reach definitive conclusions on this issue in the presence of alternative explanations. The period from 2007-08 to 2009-10 was also characterised by record levels of demand in South Australia, creating conditions conducive to the exercise of transient pricing power by generators.

The Commission notes that in more recent years there have been developments in the wholesale market that make the exercise of substantial market power unlikely, in particular for 2010-11 and 2011-12, the price vs LRMC test shows weighted average prices well below LRMC. This appears to be the expected response to a changing market climate and a considerable increase in generation capacity through the uptake of wind generation, which appear to have significantly impacted the South Australian wholesale market.

The current market environment is characterised by falling demand for electricity in recent years, generation plant shutdowns and mothballing and average annual wholesale spot prices across NEM jurisdictions at or near the lowest levels since commencement of the NEM.

The Commission also notes the planned upgrade of the Heywood interconnector with Victoria which is envisaged to increase its capability by about 40 per cent in both directions. When available, the increased capacity on the interconnector is expected to reduce the extent of price variation between South Australia and Victoria.

In the case of South Australia, the Commission considers that the findings from the investigation into the presence of barriers to entry and the results of the comparison of annual average wholesale prices and estimates of LRMC mean there is the possibility of the exercise of substantial market power over the period 2007-08 to 2009-10. Given the range of structural factors that have contributed in part to reduced price outcomes in South Australia over the two most recent years, the Commission considers there to be insufficient evidence to assume the likely exercise of substantial market power in the current market environment.

However, the Commission accepts that, should industry conditions substantially change, the possibility of the future exercise of substantial market power cannot be ruled out.

7.2 Assessment of the MEU's proposed rule

In the MEU rule change request, the Commission is asked to consider making a rule which would impose restrictions on dispatch offers that may be submitted by a 'dominant generator' (to be determined by the AER for each NEM region) during particular periods. The offer restrictions would come into play when regional demand exceeds the level at which the generator has been declared to be a dominant generator. Under these conditions, according to the proposed rule, the dominant generator must offer all of its available capacity for dispatch at a price that does not exceed the APC, which is currently set at \$300 per MWh.

In addition, the MEU rule change request proposes making amendments to the NEL and the NER in order to confer additional investigation and enforcement powers on the AER to ensure compliance with the newly proposed provisions. According to the proposal, this would include the power to impose penalties, with reference to the ACCC's powers under the CCA. Regarding these aspects of the rule change request, the Commission notes that the proposed changes lie beyond the Commission's rule making powers, as the Commission does not have the power to make changes to the NEL, nor to make a rule which would introduce penalty provisions (section 36 of the NEL). For these reasons, the Commission has not further assessed these aspects of the MEU's proposed rule.

The MEU's proposed rule would introduce a mechanism which would significantly interfere with normal market bidding behaviour by generators in the NEM. Implementing such an intrusive measure should only be considered if market circumstances or characteristics require the underlying problem to be addressed, and if the Commission is satisfied that the measure will, or is likely to, contribute to the achievement of the NEO.

For reasons set out below, the Commission does not consider that the proposed rule will, or is likely to, contribute to the achievement of the NEO.

It is important for the achievement of the NEO, particularly the efficient investment in electricity services for the long term interests of consumers, that the NEM provides a reasonable opportunity for electricity generators to recover their costs (LRMC is a proxy) as an incentive for new investment.

As was noted earlier, in the NEM, generators will bid output at levels above SRMC to maximise profits and recover efficient fixed costs when competitive and market conditions allow. This is especially the case for peaking plant generators, with high response rate, high marginal costs and low utilization.

Similar dynamics also occur in other markets. Hotels may charge higher prices for available rooms during periods in which demand is relatively high compared to available capacity. The same can be observed when airlines charge higher prices for available seats during peak times. It is unlikely in these markets that the majority of costs for the hotels or airlines are materially different at times of high and low demand, and therefore this cost differential does not explain the degree to which prices vary between periods of high and low demand.

Without affording electricity generators the opportunity to submit dispatch bids or rebids above marginal cost, new capacity would fail to enter the market and the market would become vulnerable to periods of inadequate supply.¹²⁵

Wholesale market price volatility and the ability for electricity generators to – from time to time- offer electricity into the market at prices above marginal costs (sometimes even as high as the market price cap) is entirely consistent with the design of the NEM.

The Market Surveillance Administrator for the Alberta (Canada) wholesale market similarly noted that:

*“wholesale price volatility and price polarity (periods of low prices interspersed with shorter periods of high prices) are an expected outcome in an electricity market such as Alberta’s and consistent with effective competition. In fact, these price signals promote innovation and economic efficiency.”*¹²⁶

Energy markets in the United States, from which the MEU has adopted this proposed measure, are generally capacity markets, where generators have the ability to sell capacity on separate capacity markets in addition to offering electricity on the electricity wholesale market. Generators are therefore not dependent on electricity wholesale markets to recover their fixed costs. This partly explains why in US energy markets, mitigation mechanisms similar to the MEU proposal are in place.

It is illustrative that, as was mentioned in Chapter 3, in Texas, the only energy-only market in the US, the market price cap was recently doubled (with another increase

¹²⁵ See also: Cramton, Peter, *Competitive Bidding Behavior in Uniform-Price Auction Markets*, Proceedings of the Hawaii International Conference on System Sciences, January 2004, p11.

¹²⁶ Market Surveillance Administrator, *State of the Market Report 2012*, 10 December 2012, p1.

foreseen in the near future) because it was concluded that the lower market price cap did not attract enough investment in new capacity in the market.¹²⁷

A recent report by the Brattle Group for the Texas market operator in fact warned against regulatory intervention in response to high prices:

“The cyclical periods of high prices or low reliability that characterize energy-only markets can also make them susceptible to regulatory intervention, depending on the political context. Political pressures may arise in response to price shocks even if average customer costs are no higher than all-in costs in markets with resource adequacy standards. If public officials were to succumb to the pressure and intervene in the market (e.g., by changing the rules or sponsoring out-of-market supplies), they would not only depress in-market investment but also undermine investor confidence generally. Resisting political pressures to intervene is essential if an energy only market is to attract investment.”¹²⁸

Therefore, a rule as proposed by the MEU, or similar, which seeks to limit occasional price spikes by capping generator dispatch offers is difficult to reconcile with the fundamental features of the NEM.

A rule that limits the ability of generators to bid during particular periods in a manner that seeks to recover their efficient costs over time is likely to be detrimental to the NEM investment environment. Ultimately, a reduction in investment when required by forecast demand growth may have implications for the reliability of supply. This potential reduction in reliability is not in the long-term interests of consumers.

This is all the more the case since the proposed rule would apply NEM-wide, including the States of New South Wales, Queensland and Victoria where the Commission considers that no evidence of substantial market power was found. But even if the rule was only to apply to South Australia, where the results were less clear, the Commission, for the reasons set out above, does not consider the proposed rule is the appropriate response to exercise of substantial market power.

This is because the proposed rule would attempt to fight some of the potential 'symptoms' rather than address the likely causes that have contributed to the situation in which substantial market power could arise, such as the existence of barriers to entry or insufficient competition due to industry structure issues. These causes are likely to require solutions that lie beyond the scope of changes to the NEM.

It is the Commission's view that any solution to substantial market power should address the factors that gave rise to the substantial market power in the first place.

The proposed rule would automatically cap *every* bid of 'dominant generators' above \$300 under certain supply-demand conditions, without direct reference to whether or not market power existed or may be exercised, and would prevent these generators from charging prices that could lead to efficient outcomes, such as efficient investment in electricity generation.

¹²⁷ Texas regulators vote to double wholesale power cap, Reuters, 26 October 2012: <http://www.reuters.com/article/2012/10/26/utilities-texas-cap-idUSL1E8LQ25020121026>

¹²⁸ The Brattle Group, *ERCOT Investment Incentives and Resource Adequacy*, 1 June 2012, p13.

In light of the Commission's analysis set out in this final determination the Commission is not satisfied that the rule proposed by the MEU will, or is likely to, contribute to the achievement of the NEO.

8 The Commission's considerations regarding a monitoring regime

The Commission considers that the presence of barriers to entry or structural factors that mean the wholesale electricity market is not workably competitive would be detrimental to the long-term interests of consumers. In particular, it would or would be likely to have an adverse effect on the efficient investment in, and efficient operation of, electricity services in the NEM.

For this reason, the Commission considers that it is important that a monitoring regime be established under the NEL/NER framework to regularly report on whether the wholesale electricity market is workably competitive.

An appropriately developed monitoring regime is a pre-requisite for identifying at an earlier stage any evidence that the efficient operation of the wholesale electricity market is undermined by the presence of significant barriers to entry or other features of the industry structure.

Systematic and periodic review is an increasingly important part of the regulatory framework for wholesale electricity markets in other jurisdictions, for example New Zealand and Western Australia.¹²⁹ Implementing a monitoring regime for the NEM was also suggested by some stakeholders, including the South Australian Government.¹³⁰

The monitoring would allow identified problem(s) to be addressed in the long term interests of consumers based on an understanding of the underlying cause(s) of any concerns that the market is not workably competitive.

Any rule changes developed by SCER, the AER or any other party as an outworking of the monitoring would be considered by the AEMC.

The Commission considers that such a monitoring regime would, or would be likely to, contribute to the achievement of the NEO. The Commission has therefore considered making a rule which would put in place such a monitoring regime.

Market monitoring and the AER's functions

The Commission considers that the AER would be the energy market institution best placed to have the responsibility for such a monitoring function given the AER's existing functions and scope of activities.

The AER's NEM-related functions are enshrined in the CCA, the NEL and the Australian Energy Market Agreement (AEMA). Section 44AI(1) of the CCA provides that the NEL (being a State/Territory energy law) may confer functions or powers, or impose duties, on the AER for the purposes of that law or instrument. However, section

¹²⁹ In New Zealand, the Electricity Industry Act 2010 introduced a new function for the Electricity Authority, requiring it to undertake industry and market monitoring. In Western Australia, under the Wholesale Electricity Market Rules, the Economic Regulation Authority of Western Australia must provide the WA Minister for Energy with a report on the effectiveness of the WA Wholesale Electricity Market at least annually.

¹³⁰ Government of South Australia, submission on draft determination, 2 August 2012, p2.

44AI(3) of the CCA provides that 'the AER cannot perform a duty or function, or exercise a power, under a State/Territory energy law [...] unless the conferral of the function or power, or the imposition of the duty, is in accordance with the Australian Energy Market Agreement, or any other relevant agreement between the Commonwealth and the State or Territory concerned.'

Under section 15 of the NEL, the AER's main functions are:

- to monitor compliance by market participants in the NEM with the NEL, the National Electricity Regulations and the NER and investigate possible breaches of these laws and rules; and
- functions related to economic regulation.

Similarly, the AEMA states in section 9.1 that the AER's functions include 'economic regulation of the NEM', which, in turn, includes 'monitoring and reporting on compliance with the NEL and the National Electricity Rules'.

In summary, the AER's existing monitoring functions regarding the NEM are related to its role of enforcing compliance by market participants with the NEL, the NER and the Regulations.

The Commission has considered the alternative options of conferring such a function on other institutions such as AEMO or the AEMC, but considers that a monitoring function would be more difficult to reconcile with the roles and functions of these institutions under the NEL framework.

The Commission is of the view that the AER is best positioned to undertake this role as it is more compatible with the monitoring for compliance functions that the regulator currently possesses, and can build on processes and information collection the AER currently undertakes.

The Commission notes that in other jurisdictions that have a market monitoring regime, this function has generally been conferred on the regulator. This is the case in the already mentioned examples of Western Australia and New Zealand and also for example in the EU.¹³¹

The NEL gives the AER broad powers to gather information for the purposes of its powers and functions. Under section 28 of the NEL the AER, if it has reason to believe that a person is capable of providing any information it requires for the performance or exercise of a function or power conferred on it, has the power to obtain that information from that person.

The new monitoring regime considered by the Commission would complement and strengthen the AER's current monitoring and compliance functions and activities with a market review task which would broadly require the AER to:

- monitor the performance of electricity wholesale markets in the NEM in a systematic manner, in order to analyse whether market features are observed

¹³¹ Article 37 of EU Directive 2009/72 concerning common rules for the internal market in electricity, requires 'national regulatory authorities' to undertake a number of monitoring functions in relation to wholesale and retail electricity markets.

which could be detrimental to a workably competitive market environment in the NEM;

- consider, as part of its review, a number of indicators, tests and methodologies which are appropriate for this assessment. At a minimum, this should include an analysis of any significant barriers to entry and of the average annual wholesale prices against estimates of the LRMC;
- publish a wholesale market review report, not less often than every two years, reporting the results of the monitoring, and make this publicly available. The report should, at a minimum, provide analysis and comment on:
 - market features observed during the review period (of at least five years) which impact on efficient functioning of electricity wholesale markets in the NEM and achievement of the NEO, such as the presence of significant barriers to entry or other features of the industry structure that raise potential concerns that the wholesale electricity market is not functioning as a workably competitive market;
 - whether exercise of substantial market power by electricity generators has been observed and/or whether market conditions are such that exercise of market power is likely to occur;
 - the monitoring methodology applied and the results of indicators, tests and calculations performed, including a discussion of these results; and
 - other longer term observations which may be relevant, for example, planned increases in interconnector capacity, trends in demand, trends in uptake of alternative energy sources.
- publish for consultation, prior to commencing monitoring, a detailed ‘Statement of Approach’ in which it outlines how it intends to undertake the review; and
- include in the report its opinion as to whether the monitoring results identify a market problem that requires a legislative, regulatory or other response by an appropriate authority or Government, and the reasons for its opinion.

The monitoring regime is not intended to regulate individual market participants’ conduct and is to function alongside existing legislation, general or sector specific, which applies to conduct of market participants in the NEM.

The primary aim of the monitoring regime is to provide a factual insight into the overall performance of the market. This assessment should focus on whether the market is workably competitive. The Commission considers the exercise could predominantly be carried out on the basis of aggregated, publicly available information.

However, if the AER found evidence that suggested the market was not functioning as would be expected from a workably competitive market, it is important that the causes of this occurring are understood, so that any response can be focussed on addressing those causes. Depending on the findings of the primary exercise, this may require some initial investigation of individual participants’ behaviour.

It would also be expected that where the monitoring exercise by the AER does identify issues with the operation of a workably competitive market, it would refer that matter,

along with its conclusions as to the cause of the substantial market power, to the appropriate authority or Government to resolve. This would by necessity leave the AER with the discretion as to which is the most appropriate authority or Government to address the issue.

Any rule changes developed by SCER or any other party as an outworking of the monitoring would be considered by the AEMC.

8.1 The Commission's recommendation to SCER

The Commission has considered making a rule that confers on the AER a monitoring function as described above.

The Commission considers that a rule of this type would be with respect to a subject matter on which it may make rules under section 34 of the NEL. However, the Commission considers that SCER is the appropriate body to determine whether such a new function should be conferred on the AER, for the following reasons:

- the proposed monitoring role would represent a significant increase in the scope of the AER's monitoring functions and there is material doubt whether this function is consistent with the functions of the AER as currently specified in the NEL;
- the AER would be required to allocate material additional resources in order to perform the role; and
- SCER has the ability to coordinate a comprehensive assessment of changes that may be required to the governance framework in order to effectively confer the new monitoring function on the AER, including considering whether the AER's existing information gathering powers under section 28 of the NEL are appropriate with respect to the new monitoring function.

The AEMC therefore recommends that SCER consider making changes to the NEL in order to confer on the AER a specific function to monitor the wholesale electricity market and add further accountability mechanisms for the use of the AER's current information gathering powers in relation to this monitoring function. The additional accountability mechanisms could draw on the approach for issuing Regulatory Information Notices and Orders.

The focus of the monitoring function should be to periodically review the performance of electricity wholesale markets in the NEM in a systematic manner and to analyse whether market outcomes are observed which are compatible with a workably competitive market environment in the NEM.

The Commission recommends that SCER then submit a rule change proposal to implement the detailed aspects of the monitoring role.

Abbreviations

AEMC or Commission	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AFMA	Australian Financial Markets Association
AIC	average incremental cost
APC	administered price cap
ASX	Australian Securities Exchange
CCA	Competition and Consumer Act 2010 (Cth)
CEG	Competition Economists Group
CEM	Carbon Market Economics
ESAA	Energy Supply Association of Australia
EUAA	Energy Users Association of Australia
HHI	Herfindahl–Hirschman Index
IPRA	International Power GDF-SUEZ
LNG	liquefied natural gas
LRMC	long-run marginal cost
MEU	Major Energy Users
MPC	market price cap
MRET	Mandatory Renewable Energy Target
MSA	Market Surveillance Administrator for the Alberta (Canada) wholesale electricity market
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective
NER or Rules	National Electricity Rules
NERA	NERA Economic Consulting
NGF	National Generators Forum
OTC	over-the-counter
REC	Renewable Energy Certificates
RET	Renewable Energy Target

RIT-T	Regulatory Investment Test for Transmission
SACOSS	South Australian Council of Social Services
SSNIP test	Small but Significant and Non-transitory Increase in Price test
SRMC	short-run marginal cost
UCA	Uniting Care Australia

A Investment signals in an energy-only electricity market

An important underlying consideration to the methodology and findings is the nature of investment signals in energy-only electricity markets such as the NEM. The AEMC has included the following extract to explain this concept.¹³²

The desired market outcome for consumers is to be provided with reliable supplies of electricity on an ongoing basis at efficient cost. This involves, amongst other factors, decisions regarding the construction of new generation capacity and when existing generation capacity should be retired. It also includes decisions by consumers on when and how much to consume, given that firm commitments to reduce consumption at peak times can be an alternative to building new generation capacity.

The strength of the signal for new investment is influenced significantly by regulation. The value of new generation depends on the level of expected prices, including when capacity is scarce. The maximum price in the spot market, likely to be seen most when capacity is scarce, is a regulatory setting. It is currently set at \$12,900/MWh, and will increase to \$13,100/MWh on 1 July 2013.

If prices were not capped, then prices at peak times could rise to unacceptably high levels for consumers and retailers. Electricity wholesale markets need to be balanced in real time, and quite often it is not feasible for consumers to respond to price spikes at very short notice. The required technology to respond is not generally available, for most consumers, although technology is changing and improving all the time, and the transactions costs can be prohibitively high. Hence, if consumers cannot reveal their willingness to avoid very high prices through their consumption decisions, then there is a case for imposing a regulated proxy to limit the maximum price that consumers are exposed to. Another important rationale for capping prices is that it limits the overall risk for market participants to manage in providing a more stable price for consumers under a retail tariff.

The choice of this regulated spot market price will affect the economics of prospective new generation investment. The specific risk from a reliability perspective is that if the price cap is set too low, it may not be economic to build peaking generation consistent with meeting the desired reliability standard of 0.002 per cent expected unserved energy (USE).

The means by which spot market prices signal the efficient mix of generation capacity, and the potential impact of a regulated price cap, is illustrated in figures A.1 and A.2 below. They use the concept of a price duration curve. This plots how many hours in a year the spot market price is above a given level. The shape of the price duration curve depends significantly on the shape of the underlying time-profile-of-demand.

For any given pattern of demand over time, there will be an associated optimal mix of generation. Figure A.1 illustrates this. The proportion of demand that does not change over time is most efficiently served by base-load technologies, predominately coal-fired generation to date in Australia, or intermittent technologies such as wind. Base-load technologies are characterised by high initial capital costs and relatively low running

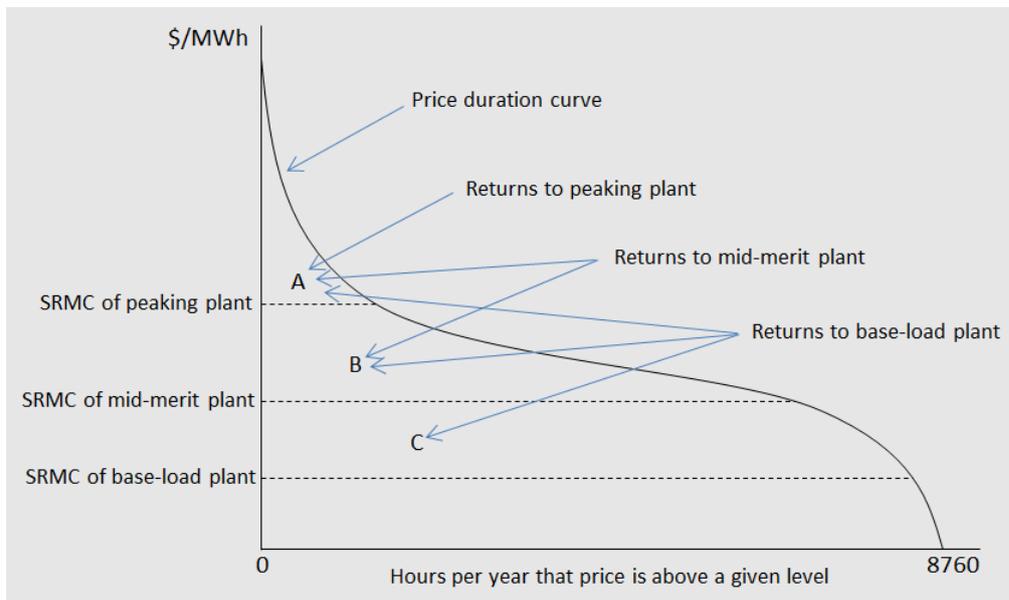
¹³² AEMC, Review of energy market frameworks in light of climate change policies, 30 September 2009. This report is available on the AEMC website.

costs. The proportion of demand which varies but is predictable, for example the periods of higher demand in weekday mornings and evenings, is most efficiently served by mid-merit plant such as combined cycle gas turbines (CCGT). This type of plant generally has lower capital costs and more flexibility, but higher running costs, than base-load generators. The final proportion of demand that is highly uncertain, for example the peak hours during the hottest summer day, is most efficiently served by peaking plant such as open cycle gas turbines (OCGT). This type of plant has low capital costs but high operating costs because of their relative technical inefficiency.

An efficient mix of generation is one which minimises the total cost of meeting demand. The shape of the demand profile is a key consideration. For example, a relatively flat demand profile implies a greater role for base-load generation, while a very peaky demand profile implies a greater role for peaking generation.

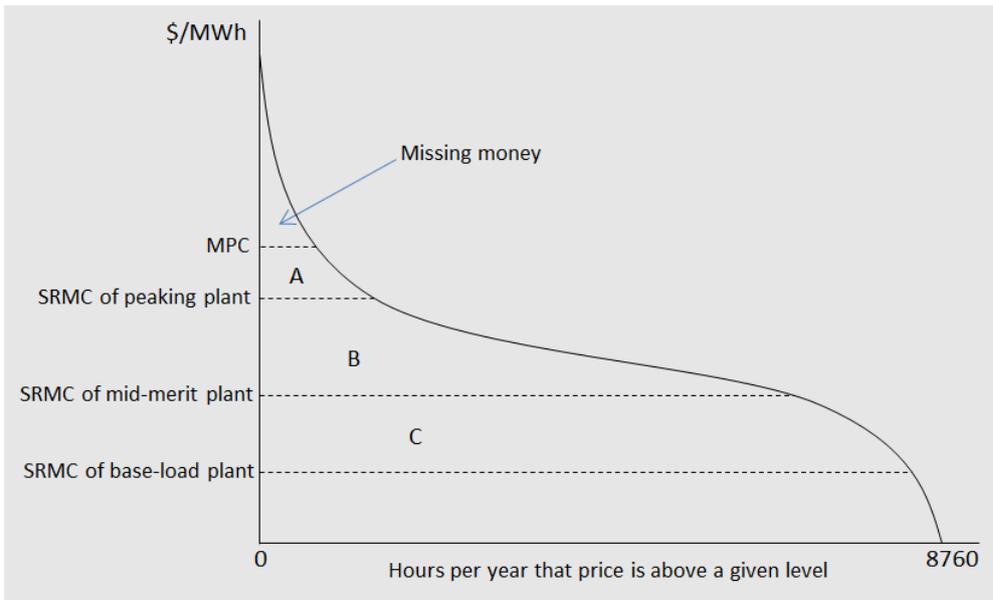
Whenever the price is above the immediate costs of operation (e.g. fuel, maintenance) for a particular generator, that generator is recovering a portion of its fixed costs (including a return on capital employed). The expected level of these payments over time will determine whether it is economic or not to enter the market. It will also determine what mix of base-load, mid-merit and peaking generation is most economic, i.e. minimises costs, given the underlying profile of demand.

Figure A.1 Relationship between the price duration curve and generation technology mix



The imposition of a regulated maximum price changes the signals provided through the spot market. Specifically, it constrains the potential returns to peaking plant. This is illustrated in Figure A.2. This means that less peaking capacity will be built, or will enter later, relative to if the market price was uncapped, although the investment incentives are a very important consideration when setting the price cap. The cap also places a limit on the overall risk exposure for the market as a whole, recognising the associated costs of managing such risks.

Figure A.2 Effect of a regulated maximum price in an energy-only market



The challenge for the NEM is, essentially, an empirical question as to what level of price cap is likely to deliver a level of generation capacity consistent with meeting the desired standard of reliability of 0.002 per cent USE. While the price cap has the effect of reducing expected revenue from the market, the objective is to set a price cap that delivers sufficient investment to meet the reliability standard.

B Summary of submissions

The tables below provide a summary of issues raised by stakeholders in their submissions to the draft rule determination, the consultation paper, the directions paper and the technical paper. The tables also set out the Commission's response. The submissions and supplementary submissions received are available on the AEMC website at www.aemc.gov.au.

B.1 Summary of issues raised in submissions to the draft determination

The stakeholder responses raised in connection with the Commission's draft rule determination are summarised in the table below. They are grouped in the following way:

- **Comments in submissions regarding applied approach and methodology**
 - comments regarding the assessment against the NEO and the AEMC's role and responsibilities;
 - comments regarding the applied methodology in general;
 - comments regarding the definitions of 'substantial market power' vs 'transient pricing power';
 - comments regarding the use of additional parameters;
 - comments on analysis of individual behaviour;
 - comments on vertical integration and the contract market;
 - comments regarding the comparison of the Commission's approach with the approach taken in other jurisdictions;
 - comments regarding the Commission's conclusion regarding making the MEU's proposed rule;
 - comments regarding making a more preferable rule;
 - miscellaneous comments regarding the applied methodology
- **Comments in submissions regarding the examination of evidence of a problem and interpretation of results.**

Stakeholder	Issue	AEMC response
Comments regarding applied approach and methodology		
<i>Assessment against the NEO and the AEMC's role and responsibilities</i>		
Major Energy Users (MEU)	The AEMC is required under section 99(2)(a)(i) of the NEL to provide the evidence to demonstrate how the draft decision contributes to achieving the NEO.	The final determination sets out the framework the AEMC has used to assess the proposed rule against the NEO and the reasons for its determination that the proposed rule will not, or is not likely to, contribute to the achievement of the NEO. See Chapter 3 and section 7.2.
MEU	<p>A generator will only exercise its market power if, by doing so, it will increase its profitability. Generators are not concerned with:</p> <ul style="list-style-type: none"> • Any impact on the efficiency of the wholesale market; • The costs incurred by consumers purchasing from the wholesale/retail markets, other than if its actions increase the price of hedging products, then this is an additional benefit; • Whether the actions increase volatility in the market or causes a reduction in market liquidity; • Whether its actions increase any barriers to entry of new generation (or reduces retail competition), although if these actions caused an increase in the barriers to entry then this would be an advantage to a vertically integrated generator/retailer as CEG observes. <p>All these issues run counter to the NEO yet the draft determination accepts that economic withholding is acceptable practice and should be permitted to continue.</p>	The final determination sets out the framework the AEMC has used to assess the proposed rule against the NEO. A key part of the AEMC's assessment framework was to define the problem identified in the rule change request, and to assess whether transitory pricing power of the type identified by the rule proponent should be addressed or whether it is a necessary feature of the NEM. The Commission's consideration of these matters is set out in Chapter 3 of the final determination.
MEU	The AEMC does not explain how transient pricing power is permitted by the NEO even though the AEMC must have	The Commission's views on transient pricing power are set out in the Commission's definition of market power in the NEM. See

Stakeholder	Issue	AEMC response
	<p>regard to the NEO in making rules for an efficient electricity market which works in the long-term interests of consumers. The AEMC draft decision does not address that the act of economic withholding is inefficient and yet the NEO is all about ensuring the market is efficient.</p>	<p>Chapter 3.</p>
<p>MEU</p>	<p>It is not enough for the AEMC to say “on average, the market works”. It must examine whether economic withholding causing price spikes is acceptable market conduct which is what the proposed Rule is directed at. Such examination of price spiking must address the welfare implications to both current consumers as well as future consumers.</p>	<p>The Commission's views on economic withholding/transient pricing power are set out in the Commission's definition of market power in the NEM. See Chapter 3.</p>
<p>MEU - Dwyer Lawyers</p>	<p>Under section 88(1) of the NEL, the AEMC may “only make a rule if it is satisfied that the Rule will or is likely to contribute to the achievement of the national electricity objective”. There is thus a conservative bias against making a Rule, in that the AEMC has to be so satisfied. But that is not an excuse for doing nothing. The AEMC must test the proposed Rule against the NEO. It cannot dismiss the question of making a proposed Rule without explaining why the proposed Rule would fail to contribute to the NEO. By contrast, in this case, the AEMC has failed completely to explain how economic or physical withholding and abusive price spiking is “efficient” or in the “long term interests of consumers”. It has thus ignored its duty to have regard to the NEO in making its draft determination.</p> <p>The AEMC will therefore be in breach of its statutory duty should it determine not to make a Rule, given the evidence before is as to price spiking in South Australia, if it fails to deal with the question of whether price spiking is efficient or not and in the long term interests of consumers. What the AEMC has implicitly done is conclude that price spiking is efficient and in the long-term interests of consumers – but without looking at,</p>	<p>The final determination sets out the framework the AEMC has used to assess the proposed rule against the NEO and the reasons for its determination that the proposed rule does not satisfy the rule making test. See chapter 3 and section 7.2.</p> <p>Further, in regards to prices spiking or transient pricing power, the Commission's views on these matters are set out in the Commission's definition of market power in the NEM. See Chapter 3.</p>

Stakeholder	Issue	AEMC response
	or dealing with, that precise question or the evidence before it.	
MEU	The AEMC is bound to apply the NEO in its decision making, and the NEO makes clear reference to the “long term interests of consumers” as being a key criterion of the objective, as confirmed by the Limited Merits Review Panel.	Under section 88(1) of the NEL the Commission may only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the NEO.
MEU	To address the rule change proposal, the AEMC is required to assess the rule change in terms of the NEO. It must consider the particular conduct proscribed by the proposed rule change and whether outlawing that conduct contributes to efficiency in the long-term interests of consumers. It is only by showing that permitting the continued use of the conduct is efficient (as understood in the NEO) can the AEMC determine that no rule change should be made. Simply put, the AEMC must quantify whether the net benefit of the making the rule (or a better rule) is exceeded by the net benefit of not making the rule.	For the reasons set out in section 7.2 of the final determination the Commission has determined that the proposed rule will not, or is not likely to, contribute to the achievement of the NEO.
MEU	The draft decision has to prove its contention that eliminating economic withholding from the market will provide a detriment to consumers. The AEMC has asserted, but not proven, that the constraint on this behaviour will result in a detriment to consumers. If a detriment can be proven, then the AEMC must then quantify this detriment so that it can be balanced against the benefit to consumers that will result from preventing economic withholding.	
NGF - Frontier Economics	The Rule-making test in the NEL requires that a Rule can only be made if it contributes to the achievement of the NEO. This, in turn, requires a comparison of benefits and costs from the proposed rule change. Therefore, it is not enough for a rule change to make certain unwanted behaviour unlawful – it must also demonstrate that the benefits of the change outweigh any costs. This is something the MEU could not demonstrate in	

Stakeholder	Issue	AEMC response
	relation to its rule change proposal.	
South Australian Council of Social Service (SACOSS)	The Commission appears to have the view that the perceived threat to investment outweighs the potential for economic harm to consumers.	Under section 88(2) of the NEL, the Commission may give weight to any aspect of the NEO it considers appropriate in all the circumstances. For the reasons set out in section 7.2 of the final determination the Commission has determined that the proposed rule will not, or is not likely to, contribute to the achievement of the NEO.
MEU	The AEMC finds that there is no problem, but if there were, it should be managed outside the rules. This abrogates the AEMC duty to the NEO.	<p>The Commission has indicated that, if it had concluded that there was evidence that substantial market power had been exercised, any solution should be focussed on effectively addressing that problem.</p> <p>This means that an effective solution should focus on the market characteristics that enable or facilitate the exercise of substantial market power. This is likely to require solutions that lie beyond the scope of the NER. See section 7.2.</p>
Uniting Care Australia (UCA)	UCA strongly suggests that the NEO requires the AEMC, as rule maker, to place greatest perspective on the material impacts on consumers of historical as well as likely future circumstances. This means applying a precautionary principle, to ensure the best long-term interests for consumers are achieved.	The rule making test under the NEL requires the Commission to have regard to the long-term interests of consumers. Benefits that are realised in the short-term, while credible, will not be deemed as sufficient to justify regulatory intervention unless they are sufficient to offset any detriment to consumers in the long term.
SACOSS	SACOSS is extremely disappointed by the AEMC's treatment of the rule change proposal. The SA market warrants and requires a more thorough and consumer-focussed inquiry. To use the same analytical framework and approach in any future allegations of market power, as the Commission announced, is not advisable or appropriate.	<p>A market situation that allows substantial market power to be exercised does not reflect a workably competitive market and is also not in the long-term interest of consumers.</p> <p>If such a situation were found to exist, a solution should focus on effectively addressing that problem.</p> <p>The Commission considers that the MEU proposed rule would not effectively address such a market failure and could have other significant adverse consequences for investment in</p>

Stakeholder	Issue	AEMC response
		generation capacity and reliability of supply in the future, which are detrimental to the long-term interests of consumers. See section 7.2. Further, the Commission's considerations regarding a market monitoring regime are set out in Chapter 8.
UCA	<p>UCA understands that the AEMC is saying that, unless there is demonstrated past evidence of a problem within the NEM, then no rule change action is needed. In other words: rule making is an 'ex-post' process. UCA however believes rule making should be an 'ex-ante' process where the potential of future consumer outcomes are considered along with any historical evidence. In other words: rule making should be pro-active rather than reactive.</p> <p>UCA suggests this use is broader than the present rule change request and therefore needs to be considered by the AEMC in a process separate to this specific rule change consideration. UCA disagrees with the Commission's draft determination that there has been no exercise of market power. UCA believes that there has been exercise of market power, at least in SA.</p> <p>UCA believes the various consultancy reports (Poyry, NERA, CEG) provide evidence of use of market power in SA over a number of years and does not understand why the AEMC claims there is no evidence of market power in SA. In terms of consumer impact, the draft determination implies that electricity bills could exceed costs by 10% for 4-5 years, before the AEMC would consider there to be a definitive basis for taking action.</p>	<p>The Commission agrees that rule making is a forward-looking process, in the sense that the Commission can only make rules that apply to future situations, and that satisfy the rule making test under the NEO.</p> <p>The Commission may only make a rule if it is satisfied the rule will, or is likely to, contribute to the achievement of the NEO.</p> <p>A necessary step in the Commission's assessment of a rule change is to consider whether the problem identified by the rule change proponent exists. This involves a review of the evidence available (i.e. historical information) and a consideration of what may occur in the future.</p> <p>NERA's analysis informed the AEMC's views on whether there is or has been exercise of substantial market power and helped form the AEMC's views on possible future substantial market power issues. See section 7.2.</p>
Australian Energy Regulator (AER), MEU	The AER considers that, given the difficult nature of the issues, the process of peer review of economic work that occurred earlier in the AEMC's consideration of the rule change proposal should be continued.	The AEMC notes that there is no legislative requirement to undertake peer review of its work. However, given the importance of the issues raised by the rule change request, the AEMC has undertaken a peer review by CoRE Research on the

Stakeholder	Issue	AEMC response
		NERA report 'Potential Market Power in the NEM' (June 2011). This report discussed the basic concepts which are relevant for assessing the rule change request. Additional pieces of work by NERA, and also by CEG, all built on and applied this conceptual framework in practice. See Chapter 1.
<i>The applied methodology in general</i>		
Energy Supply Association of Australia (ESAA)	Considers the Commission has generally adopted a sound framework for assessing the rule change, by focussing on long term market outcomes rather than short term pricing events.	Noted.
National Generators Forum (NGF)	Agrees that any assessment of market power concerns needs to be supplemented by an analysis of market features which may raise the costs of new entrants and that such an analysis should focus on socially inefficient impediments to new entry and strategic barriers potentially created by the actions of incumbent players.	Noted. The AEMC engaged CEG to undertake an analysis of barriers to entry in electricity generation in the NEM.
MEU	The draft decision does not consider if rent taking by generators is the result of a market inefficiency, such as the exercise of market power, or even if this is acceptable market practice. Not including any review of the cause of any rent taking is contrary to the National Electricity Law – wealth transfers are a concern if they are not necessary for the achievement of the objective of the Law.	<p>The Commission's approach, outlined in the draft determination and in Chapter 3, recognises that 'transient pricing power', which would include behaviour such as 'economic withholding', is expected profit-maximising behaviour of generators in the energy-only NEM, necessary for recovery of efficient fixed costs of investment. Without such investments, consumers in the long term may not benefit from efficient investment in and efficient operation of electricity generation in order to ensure a reliable supply.</p> <p>Rather than focussing on instances of transient pricing power, the relevant test is whether a generator is able to exercise 'substantial market power', ie has the ability to exceed prices above LRMC and maintain prices at that level for a sustained period of time. This presumes the presence of significant</p>

Stakeholder	Issue	AEMC response
		barriers to entry which prevent a normal competitive response from occurring (new entry).. See Chapter 3.
MEU	<p>By adopting the NERA approach it would appear that it enables the AEMC to use it as an excuse not to undertake analysis of:</p> <ul style="list-style-type: none"> • individual generator bidding behaviour, strategies and profitability; • the welfare consequences of economic withholding; and • the raising of barriers to new entrants in generation and retail. 	<p>The Commission's assessment framework and the reasons for its adoption are set out in chapter 3.</p> <p>The Commission considers that its assessment framework is appropriate. Its assessment of the proposed rule against the assessment framework has led the Commission to determine that the proposed rule will not or is not likely to contribute to the achievement of the NEO. See section 7.2.</p>
MEU	<p>The justification for the AEMC approach is based on a distinction between 'perfect competition' and 'workable competition'. The latter, it is implied by the AEMC, means that there is scope for what it terms transitory pricing power. However, 'workable competition' is not an established economic concept.</p>	<p>The Commission considers that 'workably competitive' is a sufficiently well-known and understood concept which recognises that 'perfect competition' seldom if ever occurs in practice. 'Workable competition' recognises the substantial fixed or 'sunk' costs that exist in electricity generation markets.</p>
MEU - Poyry	<p>The LRM benchmark is taken as a proxy for an 'efficient level' of prices because in general, markets, especially where there are large, irreversible investments, tend to fluctuate around a LRM level depending on whether there is excess supply (below LRM) or demand (above LRM). This does not tell you whether the actual prices are competitive given the market supply-demand position. The fundamental point of contention is whether substantial market power is about raising prices above LRM – or is it about raising prices above the competitive levels that would otherwise be observed?</p>	<p>The Commission's views on transient pricing power and price/cost relationship are set out in the Commission's definition of market power in the NEM. See Chapter 3.</p>
SACOSS	<p>SACOSS takes the view that the market is not competitive and need to be convinced that it is. The Commission has the</p>	<p>The final determination sets out the framework the AEMC has used to assess the proposed rule against the NEO and the</p>

Stakeholder	Issue	AEMC response
	<p>alternate view: that the markets do function well and, in order to countenance the proposal, needed to be convinced otherwise. The Commission's analysis should address the null hypothesis to test whether a set of market and commercial conditions could plausibly exist where end consumers were insulated from the shorter and longer term impacts of the 'dominant generator', and that these conditions could be sustained.</p>	<p>reasons for its determination that the proposed rule will not, or is not likely to, contribute to the achievement of the NEO. See chapter 3 and section 7.2.</p>
UCA	<p>UCA suggests that the draft determination should have given greater consideration to impacts on small consumers of both very high electricity prices, and the welfare risk for consumers from the potential of the exercise of market power, as energy costs make up a substantial part of lower income households. Surveys of the UCA show that as a result, lower income households, but increasingly also middle income households, have indicated that rising energy bills would require them to cut back on other expenses such as health, study and training with various negative (economic) consequences.</p> <p>Given this, the UCA was surprised the AEMC did not consider 'price' to be a relevant aspect of the NEO for this rule change request and encourages the AEMC to do so.</p>	<p>Under section 88(2) of the NEL, the Commission may give weight to any aspect of the NEO it considers appropriate in all the circumstances. For the reasons set out in section 7.2 of the final determination the Commission has determined that the proposed rule will not, or is not likely to, contribute to the achievement of the NEO.</p> <p>In relation to retail prices, wholesale costs are one of the components that make up the total retail price. Expectations of short or longer term supply-demand dynamics, including (expectations of) wholesale price developments, impact on the wholesale electricity costs. Given the inherent volatility of the NEM, it may be expected from a prudent retailer to have adequate risk management strategies in place to minimise the risks associated with price volatility. See Chapter 6.</p> <p>The exercise of substantial market power, ie where prices have exceeded LRMC for a sustained period of time, is likely to be reflected in retail electricity contracts. Early identification of concerns about the exercise of substantial market power, and, in general, evidence that the NEM was not performing as would be expected of a workably competitive market, is therefore important. This is why the Commission intends to recommend to SCER to implement a monitoring regime for the NEM. See Chapter 8.</p> <p>The Commission's considerations of prices and its reasons that</p>

Stakeholder	Issue	AEMC response
		the proposed rule will or is not likely to contribute to the achievement of the NEO are set out in Chapter 3 and section 7.2.
<i>Definitions of 'substantial market power' and 'transient pricing power'</i>		
MEU - Poyry	<p>The implied position of the AEMC and NERA is that short-term price spikes do not require monitoring for two reasons:</p> <ul style="list-style-type: none"> • They have limited impact on 'the achievement of the NEO or the productivity of the wider economy' – this finding is contrary to that of many other regulators, and appears to rely on the assumption that the level and volatility of spot prices is less important than the annual average level of wholesale prices; and • Provided there are no 'enduring barriers to entry and expansion' then entry/exit will occur to ensure the long-term prices trend around a new entry cost – however, even with a largely contestable market with no barriers to entry, transitory market power could lead to price increases that raise the risk and costs for consumers exposed to the spot prices without materially changing the long-term investment signal. As such, the 'transitory' market power can persist even if there is contestability. <p>While the AEMC has arrived at this conclusion following consultation, the approach adopted does not appear to have been fully justified. Specifically, it has been asserted that transitory pricing behaviour has no material impact on achievement of the NEO, though no evidence has been provided to support such a conclusion.</p>	<p>The Commission considers that a longer-term perspective is needed when assessing market power issues in the NEM, characterised by relatively large sunk costs and lumpy investments. See Chapter 3.</p> <p>The Commission notes that the hedging market and retail contracts are available means for electricity customers to mitigate against short term volatility and price spikes. See Chapter 6.</p>
MEU	The AEMC approach of focussing on annual averages and the long term is very unsafe. It implies that short lived but dramatic	

Stakeholder	Issue	AEMC response
	price increases do not injure consumers and competition, and that short term is a practice acceptable to the AEMC.	
MEU	An aspect expressed by the AEMC has consistently been that there are times when a generator has transient market power but the harm created by this transient market power may be less than the harm created by addressing the problem. The AEMC still has to demonstrate this proposition before deciding not to make the rule proposed and still has to consider whether there is a more preferable rule which might be adopted.	
NGF	Agrees with the AEMC that the starting point for considering a market power concern must be based on “substantial” prices that are held at a level above what would prevail in a workably competitive market for a sustained period of time. A transient period of prices above LRMC is not sufficient evidence of a problem with generator market power. The NEM was deliberately designed to elicit periods of price volatility to provide a signal of tightening supply-demand conditions.	Noted.
NGF - Frontier Economics	More generally, we consider it would be hard to disagree with the proposition that, in determining whether a generator has substantial market power, a comparison of average prices and estimates of LRMC should be undertaken over a period of more than one year. In our view, several years of wholesale prices above LRMC will typically be followed by several years of lower prices as part of a natural ‘cycle’ of market outcomes reflecting changes in the balance of demand and supply in the market over time. Indeed, this is what we are now observing across the NEM.	Noted.
Alinta - supplementary	High prices have a role in recovering large capacity costs or in	Noted.

Stakeholder	Issue	AEMC response
submission	<p>providing signals of market entry to generators and retailers:</p> <ul style="list-style-type: none"> • High spot market and/or contract market prices provide an incentive for additional generation build or additional contract offerings by generators both in the South Australian region or from other regions as well as financial intermediaries; • High retail prices provide a driver for additional retail entry to take profits from incumbent retailers should enough headroom be available to allow for competition. 	
Alinta - supplementary submission	<p>Considers that the NEM continues to provide appropriate signals, and appropriate risk management mechanisms, to market participants. It is worth noting that high priced periods in the market are an essential feature of its design, providing both the variability to support peaking plant/demand side response and the incentive to manage demand through contracts, which then drive investment.</p>	Noted.
Alinta - supplementary submission	<p>As part of their operations, firms bidding into the NEM and contracting must respond to not only underlying supply and demand but also to exogenous shocks. These primarily take the form of weather events and the corresponding step changes in demand or transmission outages. Concern around rebidding and economic withholding seems to be that bids reflect not a response to underlying market conditions and exogenous events but strategic gaming as if these factors can be readily identified and separated. Alinta Energy is certain that bidding around demand shocks and similar factors ultimately lead to the efficient management of those factors. In other words, outcomes across a period affected by an exogenous factor (i.e. a hot afternoon or series of days) manage consumption and supply efficiently in the context of the markets design (i.e. by making supply available to meet</p>	Noted.

Stakeholder	Issue	AEMC response
	demand under the prevailing market conditions).	
Alinta - supplementary submission	In Alinta Energy's view, the issue is not whether economic withholding exists and whether that "gaming" from time to time may influence price outcomes, in particular by exacerbating reactions to exogenous factors, but whether such withholding illustrates systemic inefficiency. Alinta Energy holds the view that the NEM functions in an efficient manner consistent with the AEMC's perspectives on workable competition.	Noted.
Alinta - supplementary submission	For economic withholding to have relevance within the existing debate a generators ability to game could only arise if its response to an exogenous shock, primarily a demand shock, did not give rise to any counter bids or actions outside the spot market (i.e. buy buying contracts, selling caps, curtailing load or selling demand-side response) which mute the impact of that gaming for the duration of that shock, for future events or over the long-run. In addition, over the longer term, sufficient barriers to entry would need to exist to impede a competitor entering the market to respond to exogenous factors and general price spikes which form valid market signals or a consumer would need to be prevented from responding where they are directly exposed to those price events. In other words, unless a generator can hold the market to ransom for an extended period than transitory market power is of limited consequence in the long run.	Noted.
MEU	The AEMC ignores observations in the CEG report and the peer review report that economic withholding might actually dis-incentivise future investment.	The AEMC has taken into account all the material contained in the CEG report. The AEMC has accepted CEG's conclusion that while there is some evidence consistent with barriers to entry in South Australia, there are alternative explanations for that evidence that are not related to strategic barriers to entry. See section 4.3.

Stakeholder	Issue	AEMC response
MEU	<p>What is not addressed at any point in the draft determination is that market power is exercised by the unilateral decision of economic withdrawal of capacity by a generator which knows that under the market conditions applying, it must be dispatched regardless of the price it offers to the market. Where there is competition, a generator deciding to withdraw capacity would not receive a benefit from doing so. To be clear, either economic withholding is required to ensure that generators recover their efficient costs, or it is not required. If it is required, then there is a flaw in the market design because it relies on an abuse of market power and price spiking behaviour in order to enable generators to recover their efficient costs. Either way, the AEMC needs to address the problem.</p>	<p>The Commission notes that, under tight supply-demand conditions, some generators may have transient pricing power. This is an inherent feature of the NEM.t. The Commission does not dismiss that there will be transitory time periods where demand and supply function in such a way that generators will be able to bid in above their short run marginal costs. However, the Commission disagrees with the MEU and UCA that this market feature is a market failure which needs to be addressed under the NER. See Chapters 3 and 7.</p>
UCA	<p>Another issue at stake with this rule change proposal is that in specific (smaller) markets a single generator must be dispatched to meet demand in the market. It is this circumstance that provides the opportunity for the exercise of market power in wholesale energy markets to the detriment of consumers.</p>	
MEU	<p>In its response to the input by the AER consultant Mr Daryl Biggar, the AEMC states that a competitive energy-only market recovers long-run costs by bidding short run marginal costs providing the marginal price applies to all output. This observation clearly supports a view that capacity withholding (price spiking) is not needed to achieve long-run costs and thereby future investment will be achieved. This would appear to be the case, because in Victoria, where there is a competitive market, economic withholding seldom occurs, but despite this there has been continual investment as and when it is needed and investment has continually occurred as</p>	<p>The Commission's views on economic withholding (transient pricing power) are set out in the Commission's definition of market power in the NEM. See Chapter 3.</p>

Stakeholder	Issue	AEMC response
	needed.	
MEU – Poyry, UCA	<p>In effect, the definition applied by the AEMC presents an opportunity for generators that have transitory pricing power to exercise that power to the maximum extent, provided it does not result in a sustained rise in average wholesale prices. This can be expected to reduce efficiency of dispatch, increase overall system costs and may also distort long-term investment decisions (both in terms of the level of capacity investment (artificially pushing prices up close to LRMC may perversely lead to incentives for overinvestment) and the type of capacity (peak or baseload).</p> <p>UCA notes that, within the AEMC's assessment framework, generators are able and have an incentive to price somewhere between an efficient operating level and a higher price that is just below a price that would attract new entrants. UCA considers this margin represents a loss for consumers and suggests there should be a debate on what an acceptable margin should be.</p>	<p>The AEMC considers that prices should tend towards LRMC over the long term. The LRMC reflects the price that generators in the market should be receiving for their generation. The AEMC notes that where the exercise of transitory pricing power is sustained for periods long enough to distort long term investment, which requires transitory pricing power to lift prices above LRMC and sustain them there, then it amounts to substantial market power. The Commission's views on market power in the NEM are set out in Chapter 3.</p>
MEU	<p>The AEMC advises that large users would implement risk mitigation strategies to ensure that the impacts of the swings in wholesale prices over time are minimised. By doing this the AEMC seems to assume that the costs from the exercise of transient market power will be avoided. This assessment by the AEMC totally avoids the basic fact that transient market power can and has been used by a generator to increase its revenue. This additional revenue must come from the market and it is consumers that incur the costs of the market.</p>	<p>Market participants have the possibility to hedge their risks against price volatility in the contract market. This has been an integral part of the NEM market design since its inception. Hedging risks can significantly reduce market participants' (and ultimately consumers') exposure to high price events. Which risk mitigation strategy might be beneficial for a certain user depends on a number of factors. See Chapter 6.</p> <p>The Commission recognises that occasional high price spikes as a result of the exercise of 'transient pricing power' are an inherent feature of the NEM design. As with all suppliers who are selling a product in a particular market, this revenue ultimately comes from buyers of the products. The extent to which intermediate participants such as retailers ultimately pass</p>

Stakeholder	Issue	AEMC response
		<p>on costs to end-customers is an individual decision of those retailers, with electricity customers able to choose a retailer.</p> <p>The price spikes are essential for generators to recover their fixed costs. This means if the price in these periods are limited then either:</p> <ul style="list-style-type: none"> • prices in other periods will increase to recover the foregone revenue; or • there will be a reduction in investment by generators. <p>The Commission notes that annual average wholesale spot prices in recent years have been downward trending, and have fallen below LRMC.</p>
Energy Users Association of Australia (EUAA) (incl. CME report)	There does not seem to be a capacity problem in SA, as there was still spare capacity available even during the highest peak demand periods. CME suggests –after analysing residual demand against available capacity- the high prices were the result of exercise of market power by TIPS, which withheld capacity during these periods (as it knew it had to be dispatched). It also managed to maintain high prices during periods which were around 10% below peak demand.	<p>The Commission’s approach to market power is outlined in Chapter 3.</p> <p>The Commission's considerations of the exercise of substantial market power in South Australia are set out in Chapter 5.</p>
<i>The use of additional parameters</i>		
MEU	AEMC has ignored the Gans/King advice of using other additional measures such as the Residual Supply Index.	<p>The Commission is aware of other approaches for measuring potential market power, such as the 'Lerner index' and the 'Pivotal Supply Index'. It is unclear to the Commission how the additional analytical techniques suggested would necessarily interact with the two main features of the assessment of whether there is substantial market power. See section 3.4.3.</p>
MEU - Poyry	The standard indicators of market power, such as individual market share thresholds, and market concentration measures, like the Herfindahl-Hirschmann Index (HHI), do not provide a consistent view of the potential for market power. Defining whether a particular generator has market power therefore requires a different set of structural indicators to those that are	

Stakeholder	Issue	AEMC response
	traditionally used in wider competition analysis, such as the Pivotal Supplier Index or the Residual Supplier Index.	
AER	Reliance on a single analytical approach would not have the same degree of requisite flexibility nor robustness as having regard to a broader range of evidence and analytical tools. This would include tools such as the Lerner Index and the Pivotal and Residual Supplier Indices. The AEMC might wish to consider the significant insights into the exercise of market power provided by competition/antitrust approaches.	
NGF - Frontier Economics	<p>The AER, in their submission to the draft rule determination, did not address the difficulty of applying the Lerner Index to the NEM. This difficulty arises in particular as price and marginal cost are variable over time in the NEM and hence their application in the Lerner Index, defined as: $(P-MC)/P$, is problematic. Price and marginal cost are variable, because:</p> <ul style="list-style-type: none"> • investments in electricity supply are ‘lumpy’ and long-lived; • short-run marginal cost can be unclear and ambiguous; and • real-time wholesale prices in the NEM apply market-wide and are extremely volatile. 	Noted.
NGF - Frontier Economics	Applying the Lerner Index on a half-hourly basis in order to measure transient pricing power under tight demand-supply conditions, which appears to be suggested by the AER, does not inform the assessment of substantial market power. Under these circumstances, the Lerner Index merely serves to largely restate or re-express the observations of the AER in its reports on price outcomes above \$5,000/MWh.	
NGF -Frontier Economics	The principle drawback of applying Pivotal/Residual Supply	

Stakeholder	Issue	AEMC response
	<p>Indexes is that they require a large number of assumptions to be made about various demand and supply factors in the market, including the behavioural responses of other generators. Some of these shortcomings were highlighted by Justice French in the AGL vs ACCC Federal Court decision of 2003. The development of a Residual Supply Index does not provide useful additional information on whether a generator has substantial market power in the NEM. The purpose of developing the measure appears to be solely geared towards identifying particular generators that may have an ability to raise prices at particular times.</p>	
NGF - Frontier Economics	<p>The suggestion made by the AER in its response to the draft rule determination in favour of examining other measures of competition lack a robust rationale. These suggestions largely appear driven by a desire to highlight instances of transient generator conduct that the AER considers objectionable, without having any clear or necessary relationship with the existence or exercise of substantial market power. Indeed, the suggested alternative measures of market power could and would not, of themselves, provide evidence that the harm flowing from the exercise of transient pricing power was substantial enough to warrant the proposed regulatory response.</p>	
<i>Analysis of individual behaviour</i>		
MEU	<p>The AEMC approach bypasses any examination of the exercise of market power by individual generators. The AER considers that exercise of market power can have substantial market impacts. CEG and Poyry support this. The AEMC quantification approach is quite significantly flawed because it does not follow this widely accepted practice and conceals the impact of patently unacceptable and anti-competitive</p>	<p>The final determination sets out the framework the AEMC has applied to assess the proposed rule against the NEO and the reasons for its determination that the proposed rule will not, or is not likely to, contribute to the achievement of the NEO. See Chapters 3 and 7.</p> <p>The Commission's approach on how a generator or group of</p>

Stakeholder	Issue	AEMC response
	practices behind averaging.	generators could exercise substantial market power is set out in the Commission's definition of market power in the NEM. See section 3.2 and box 3.3.
MEU	NERA does indicate that the frequency of high spot prices after 09/10 falls significantly. NERA comments that this might be associated with the increasing amount of wind generation in the South Australian region. This is a factor, but a more likely cause of the reduction of the number of price spikes is related to the level of contracting AGL has secured for TIPS. Since AGL secured a large number of retail contracts (MEU has explained to AEMC how this occurred) it has no reason to spike the price since 2010 but, because there was no comparative analysis by NERA, this aspect is not investigated at all even though the issue had been highlighted by the MEU in discussions with the AEMC.	
MEU - Poyry	Our experience from previous analysis of a number of other liberalised energy markets highlights the difficulty of testing the theory that prices should tend to LRMC and the range of drivers that can influence this relationship. In particular, it implies that failure to explicitly rule out through a review of behaviour the exercise of market power by individual generators as a driver of price variations around LRMC reduces the robustness of any conclusion that variations are solely due to temporary factors such as unexpected demand or supply shocks.	
MEU - Dwyer Lawyers	The AEMC has failed to conduct, or cause to be conducted, any forensic examination of the evidence put to it of precise cases where there were alleged market abuses. No investigation of the market conduct of the Torres Island Power Station was conducted. The AEMC has made a fundamental error of logic in thinking a report on aggregate or average behaviour of the market meant no rule was justified to deal with economic or physical withholding leading to price spiking	

Stakeholder	Issue	AEMC response
	in specific cases.	
MEU	In its qualitative assessment, NERA does not differentiate between the impacts of scarcity and the impacts of market power. NERA considers that the high price in SA in early 2008 was due to a heat wave and reduced interconnector flows to SA. It does not investigate this assertion although both CEG and Poyry consider that deeper investigation is warranted.	
Government of South Australia, the Hon. T. Koutsantonis MP, Minister for Mineral Resources and Energy (SA Government)	Considers that the draft determination and the consultancy reports provided insufficient analysis of the factors which contributed to the price outcomes of 2007-08 and the potential for them to be replicated in the future.	
SACOSS	Mentions the report by CME which found that SA's higher than average spot prices can be traced to a few periods of high priced events which in turn can be traced to periods of economic withholding of capacity by generators rather than scarcity.	
AER	Considers that the review by the AEMC would profit from more detailed analysis of the behaviour of market participants.	
MEU - Dwyer Lawyers	No one was examined on oath as to the reasons for capacity withdrawal.	
MEU - Poyry	As there has been no analysis of the behaviour of individual plant or generators, the extent to which additional costs have been imposed on consumers either directly (where they are exposed to spot price fluctuations) or indirectly (to the extent that forward and contract prices (including hedging costs) are influenced by spot market price levels and volatility) has not been quantified. It also does not present any evidence, for	In a workably competitive market it is unclear how a generator would be able to earn "excess profits" through exercising substantial market power without increasing average prices above LRMC and therefore it is not clear what this analysis would reveal beyond the analysis already undertaken by the AEMC.

Stakeholder	Issue	AEMC response
	<p>example, through net revenue tests, that the bidding behaviour of plant is in line with, as opposed to above, their required returns.</p> <p>A more accurate reflection of the relative performance of the market would come from undertaking a full competitive simulation of the market on a half hourly basis, to provide a benchmark for the expected efficient pattern of prices. This would have the added benefit of illustrating the extent to which any transitory pricing power may be inflating costs to consumers.</p>	
<i>Vertical integration and the contract market</i>		
MEU	<p>The MEU has concerns with the AGL's approach of using the dominant generator in tandem with the dominant retailer to use capacity withholding as a tool to increase contract market share at higher prices. Despite the concerns raised by CEG (and the MEU), the AEMC has failed to have regard to these considerations in deciding not to make the proposed rule. As these matters were drawn to the attention of the AEMC, it must give them due consideration rather than merely ignoring them.</p>	<p>The Commission rejects the MEU's assertion that the AEMC ignored any matters which the MEU has submitted to it.</p> <p>The AEMC engaged CEG to examine potential barriers to entry in electricity generation in the NEM. The Commission notes that this analysis included vertical integration as a potential barrier to entry.</p> <p>CEG did not find significant barriers to entry in Queensland, New South Wales and Victoria.</p>
MEU	<p>The Gans/King peer review recommended that additional work be undertaken, such as strategic behaviour and the interaction between generation and retail markets, but these have not been undertaken.</p>	<p>CEG's conclusions on the role of vertical integration in creating a barrier to entry in South Australia were not definitive. The Commission notes that CEG indicated that high levels of vertical integration could raise the costs of hedging for a non-vertically integrated generator, thereby effectively creating a barrier to entry, but also considered that vertical integration can create efficiencies by reducing transaction costs or facilitating better risk management, and that, accordingly, regulators should be cautious in drawing implications from the extent of vertical integration. See section 4.6.</p>
MEU	<p>CEG noted concerns of vertical integration in SA potentially acting as a barrier to entry of independent generation. AEMC have not analysed this issue.</p>	
EUAA	<p>The EUAA commissioned Carbon Market Economics (CME)</p>	

Stakeholder	Issue	AEMC response
	to produce a report on exercise of market power in SA. The report emphasizes the importance of analysis of contracting/hedging behaviour and vertical integration when analysing the strategic use of market power.	To examine contract market issues more closely, in response to stakeholder comments, the Commission engaged Seed Advisory to examine available risk-management strategies that could be undertaken by large energy-users to hedge their risks from price volatility. See Chapter 6.
Alinta - supplementary submission	The sometimes popular constraint on vertical integration is cited as a possible remedy against market power in the CME report. Alinta Energy notes that its entry into the South Australian and Victoria retail markets is on the back of its South Australian generation assets. Vertical integration is not a problem where there exist a number of competitors who are competing for market share.	
MEU - Poyry	There appears to be a very large divergence over time between the pattern of modelled contract and wholesale prices. While we recognise the limitations of the modelling approach, we would anticipate that a regulator relying on this information may see this as a cause for concern as it suggests that retail market entry is not being observed when conditions would indicate that there is scope to undercut incumbent suppliers. Alternatively, it may suggest that there are additional issues of vertical integration that should be considered in addition to the horizontal market power concerns in the wholesale market. The AEMC has however not investigated this further.	
NGF - Frontier Economics	On the notion that vertical integration can create barriers to entry, neither CEG nor the AER provided meaningful evidence for this view. The basis on which vertical integration is meant to create barriers is through a lower level of contract market liquidity. Long term contracts have never been negotiated during the life of the NEM, either in the over-the-counter market or the exchange-traded market. This was the case even prior to any moves towards vertical integration. To the	

Stakeholder	Issue	AEMC response
	<p>extent such long term contracts are necessary to underwrite new generation investment, it is not possible to blame vertical integration for the lack of such contracts. Neither should it be surprising that vertical integration has occurred if such long term arrangements are required to underwrite investment.</p> <p>It is not clear why if wholesale market prices were high, vertically integrated participants would refuse to contract with a standalone generator that offered power at an attractive price. The CEG report provided no compelling explanation for why such contracts would not be agreed.</p>	
SACOSS	<p>The focus on generation only is inappropriate for South Australia. The AEMC has accepted NERA's conclusions that the relevant functional dimension is electricity generation only, and does not include electricity retailing. This may be appropriate in other regions but clearly not in SA where the generator-retailer model is the almost entirely dominant industry structure. Vertical integration provides different incentives than would otherwise be the case. In South Australia there is clearly the structural opportunity to exercise market power, the incentives to limit retail market entry are present and the findings of CEG, the AER, MEU and others suggest there is some observable market evidence of behaviour consistent with the exercise of market power. Failing to consider the relationship to the retail market in SA fundamentally undermines the ability for the AEMC to draw the conclusions that it has.</p>	
<i>Comparison of the Commission's approach with the approach taken in other jurisdictions</i>		
MEU	<p>The approach taken by AEMC to identify if the exercise of market power was a concern is unique in economic regulation in energy markets in comparable overseas jurisdictions.</p>	<p>The Commission refers to Box 3.4 where it is explained that the Commission's approach is not dissimilar to that taken in a</p>

Stakeholder	Issue	AEMC response
	<p>Rather than looking at the issue as one of efficiency of the market (the approach most widely used), it sought advice from NERA as to the relative costs of new entrant generation against the prices charged for the provision of wholesale electricity. No other approaches used overseas have been contemplated by the AEMC, or even considered to be applicable. This is a curious and disturbing omission and increases the concerns the MEU has with the AEMC framework, approach and with the review process. The Commission's approach is contrary to the approach taken by many other jurisdictions with regard to the problem of economic withholding and runs counter to the stated ERIG view on the issue.</p>	<p>number of other jurisdictions with energy-only markets.</p> <p>The Commission takes the view that approaches taken in non energy-only markets lack relevance because in those markets generators would be expected to bid into the wholesale energy market at, or close to, their SRMC as they recover their fixed costs through the capacity market.</p> <p>The Commission's reasons for determining that the proposed rule will not, or is unlikely to, contribute to achievement of the NEO, are set out in section 7.2.</p>
MEU - Poyry	<p>The AEMC's definition of 'substantial market power' seems similar to that of the US Department of Justice, which defines market power as 'the ability profitably to maintain prices above competitive levels for a significant period of time'. However, Professor Wolak and many other academic economists and policymakers are of the conclusion that competition and anti-trust policy as it is applied to other industries may be insufficient to protect electricity consumers because of the defining characteristics of electricity markets:</p> <ul style="list-style-type: none"> • lack of demand-side responsiveness; • lack of storability; and • the delivery through an integrated network system. <p>Because of these characteristics, market power in electricity markets can be exercised for short time periods, but with similar impacts to a long-lived exercise of market power in other markets. The AEMC definition effectively ignores many of the unilateral behaviours of generators (economic and physical withholding) that other markets have identified as</p>	

Stakeholder	Issue	AEMC response
	having negative welfare effects on consumers. This is because, despite imposing additional costs through (unwarranted) short-term price spikes, the effect on annual average prices would be limited.	
MEU - Poyry	Practical experience shows that regulators and policy makers across a range of jurisdictions have either sought or successfully implemented additional powers or restrictions to mitigate market power issues within electricity markets, over and above the powers conferred by competition law. Examples include the Independent System Operators in the US, Great Britain (introduction of market abuse license conditions) and the EU (implementation of the market abuse directive).	
<i>The Commission's conclusion regarding making the MEU's proposed rule</i>		
NGF	Supports the AEMC's assessment and conclusions in its Draft determination. Appreciates the AEMC's independent, transparent and thorough review of the relevant issues. Agrees that a short period of spot market volatility does not justify the imposition of arbitrary price caps on generator bids across the NEM. Strongly supports the AEMC key conclusion that the MEU proposal is likely to reduce the long-term reliability of supply to consumers. Sees the draft determination as offering validation that the current market design is workably competitive. The draft determination provides strong grounds for the generation sector to challenge negative claims about pricing outcomes in the NEM.	Noted.
Private Generators, International Power, Australian Financial Markets Association,	Support the AEMC's decision not to make the MEU's proposed rule.	

Stakeholder	Issue	AEMC response
ESAA, Origin		
Private Generators, International Power	Support the AEMC's conclusion that such a rule change would potentially result in a number of perverse outcomes including: <ul style="list-style-type: none"> • acting as a disincentive for new generators to enter the market; and • reducing the long-term reliability of supply to consumers resulting in an increase to prices as supply fails to keep pace with the growth in demand. 	
Private Generators	Considers that the NEM continues to provide appropriate signals, and appropriate risk management mechanisms, to market participants.	
International Power	Argues that a rule which restricts the dispatch offers of generators would undermine the competitive framework upon which the NEM is based and would only increase regulatory uncertainty and perversely increase barriers to entry.	
<i>Making a more preferred rule</i>		
MEU - Dwyer Lawyers	If the AEMC were to conclude that the proposed rule will do more harm than good in terms of achieving the NEO, it also ought to consider whether it might make a more preferable rule under section 102A of the NEL.	Chapter 8 sets out the Commission's considerations regarding a monitoring regime.
AER	Based on the AEMC's proposed approach for dealing with future market power concerns, there will not be sufficient time for industry to approach the AEMC and then for the AEMC to put in place rule changes to address the issue.	
AER	The AEMC should consider a range of possible solutions given that, in the AER's view, analysis of past market	

Stakeholder	Issue	AEMC response
	outcomes indicates that there is a significant problem.	
EUAA	EUAA believes that the CME report provides strong evidence of the systemic exercise of market power in SA over a sustained period, the impact of which has been to significantly raise prices with detriment to electricity consumers. EUAA therefore argues the report supports the need for action to curtail the use of market power and asks the Commission to consider this need.	
EUAA (incl. CME report)	<p>If further investigation concludes that market power concerns need to be addressed, there are several possibilities that might be considered:</p> <ul style="list-style-type: none"> • least intrusive: strengthening transparency and market monitoring, perhaps through greater disclosure of contract positions or the actual margins that retailers are receiving; • more radical approaches: structural constraints (limits on vertical integration, mandatory contracting of a percentage of production, mandatory sale of generation rights such as occurred in Alberta in the 1990s) or changes to market design (lower market price caps, tighter cumulative price thresholds, or the introduction of capacity payments). 	
SACOSS	SACOSS asks the Commission to seriously consider a more preferable rule.	
Origin	Origin questions CEG's recommendation about the need for a monitoring mechanism for SA and notes the regulatory oversight roles of the AER and AEMO already in place. Origin notes it is unclear what form any additional monitoring would take, and if it is indeed required. Notes that it is important that any such monitoring is not intrusive and does not add to the	

Stakeholder	Issue	AEMC response
	regulatory burden of market participants.	
SA Government	In light of CEG’s recommendations regarding a monitoring mechanism for SA, the AEMC should give further consideration to the potential for, and practical application of, additional monitoring of wholesale prices and barriers to entry in SA and other jurisdictions with similar circumstances.	
UCA	In the context of this rule change, UCA observes there is enough evidence of possible exercise of generator market power, in the past, in at least one jurisdiction and that there continues to be potential for the exercise of market power, into the future, so a rule change is needed in order to best ensure long-term interests of consumers.	
UCA	Concludes there is at least a risk of generator market power and –on the basis of the precautionary approach- consequently an imperative for the AEMC to actively consider rule change options to mitigate future risk for consumers.	
<i>Miscellaneous comments regarding the applied methodology</i>		
MEU - Dwyer Lawyers	The AEMC is charged with the duty of making findings of fact in deciding to make rules. It cannot delegate that duty to a consultant’s report (such as that produced by NERA) or “cherry pick” from this or that report to make “findings of fact”, where those “facts” are inconsistent with other evidence before the AEMC – and indeed strongly contested by other witnesses.	<p>The Commission is not 'charged with making findings of fact' when examining a rule change request. Rather, the NEL determines that the Commission may (only) make a rule if it is satisfied that the rule "will or is likely to" contribute to the achievement of the NEO.</p> <p>This requires the Commission to examine the perceived problem a proposed rule seeks to address and to assess whether the solution as proposed by the requested rule will or is likely to contribute to the NEO. This is not an establishment of fact.</p> <p>In performing this assessment, the Commission may rely on</p>
MEU - Dwyer Lawyers	The AEMC has relied on “facts” which are erroneous and/or distortive. In particular, NERA’s LRMG graphs upon which it has relied are erroneous or misleading as they are alleged to overstate costs and understate prices. The AEMC can	

Stakeholder	Issue	AEMC response
	therefore not rely upon them to reach any conclusions about market efficiency.	<p>various sources which help inform the Commission in making this assessment. This includes work the Commission has commissioned from consultants with relevant expertise.</p> <p>The Commission ultimately forms its own view on the matter, and will refer to pieces of information that it deems relevant for this process.</p> <p>The Commission rejects MEU/Dwyer Lawyers' assertion that NERA's LRMC graphs are 'misleading' or 'distortive'.</p>
MEU	The NERA report containing its quantification and detailed methodology was released as part of the AEMC draft determination. Prior to its release, it was provided to CEG to assist in their work on assessing the impacts on barriers to entry. This seems to have provided CEG with a conundrum. The NERA analysis concluded there was no problem and CEG appears to have been obliged to accept this conclusion despite its views to the contrary.	<p>The Commission has considered both the NERA and the CEG reports and is satisfied that the matters referred to in the reports are sufficient and robust for the purposes of its final determination of the proposed rule.</p> <p>The Commission notes that CEG examined a number of sources of information in its analysis of barriers to entry. Among these sources were NERA's pricing results.</p>
AER	The AER notes that the conclusions of the CEG report rely heavily on the NERA analysis. There is significant circularity involved in this approach. This approach means that the outcomes of the NERA report, in effect, become determinative on the issue of barriers to entry in South Australia. Given the AER's views on the shortcomings of the NERA approach, the AER considers that the CEG approach of relying on the results of NERA analysis to reach its conclusions on barriers to entry is unsatisfactory.	<p>The Commission notes that, for South Australia, CEG concluded (number 220), that "the evidence is mixed". CEG states that it found some evidence potentially consistent with materially more capacity being withheld to drive prices up in South Australia than any other mainland state. CEG then states that it also found that vertical integration in South Australia is associated with reduced liquidity in contract/futures markets and it is reasonable to question whether, in this context, high volatility in South Australian prices may be creating a barrier to entry by independent non-vertically integrated generators. However, CEG then states that the contribution to price volatility from wind generation should not be underestimated.</p>
MEU	CEG considers that there are problems, particularly in regard to economic withholding in Tasmania and South Australia which warrant further investigation. CEG then states that, as NERA considers there is no problem, then there is no problem. The AEMC then uses the CEG report to support the	<p>The Commission notes that CEG concluded that these 'findings of evidence' may reflect strategic and/or structural barriers to entry. The Commission however notes that CEG was not able to</p>

Stakeholder	Issue	AEMC response
	conclusion that there is no problem. Such circularity in approach by the AEMC detracts considerably from the independence and conclusions of the CEG report. That the draft decision does not address this apparent conflict in detail also raises considerable concern.	reach a definitive conclusion, as, in all instances where CEG has identified possible evidence of structural or strategic barriers to entry in South Australia, they have also noted the existence of competing alternative explanations.
MEU	CEG provides a view that there is a problem and that economic withholding is probably occurring in Tasmania and SA and yet the AEMC accepts the conclusion of the other consultant (NERA) that there is not and this is not explained.	In addition, the Commission notes that CEG indicated that NERA's pricing evidence, another source of information, suggests there are no barriers to entry as prices have not been kept above LRMC for a sustained period of time (which would only have been possible in the presence of barriers to entry). CEG noted that it believes 'significant weight' should be attached to this evidence as the most direct way to assess whether there are any competition problems.
MEU	CEG relies on the accuracy and appropriateness of the NERA quantitative analysis to make it lean towards the conclusion that there is no problem in the SA market. As the MEU analysis clearly shows that the NERA work analysis is in error, then the CEG work does indicate that the MEU contention is that there is a problem in the SA market that highlights a need for a rule change such as that submitted by the MEU in the NEM design.	CEG has given its own interpretation to pieces of evidence that it has considered and drawn its own conclusions regarding South Australia. Accordingly, the Commission rejects the MEU's assertion that CEG was obliged to accept NERA's conclusions. See section 4.3.
MEU	CEG raised concerns that capacity utilisation is lower in SA than other regions but the AEMC has failed to have regard to these considerations in deciding not to make the proposed rule. Whilst acknowledging that on the evidence of concentration of the markets, there might not be a problem, CEG analysis and observation implies that SA (and NSW) is on the border of warranting more investigation. CEG also acknowledges that HHI is not the best tool for assessing the ability to exercise market power, but it fails to use these to test admitted borderline cases.	
AER	CEG's assessment suggests that there are market concentration issues in South Australia. CEG notes that "AGL's position in South Australia is relatively large and hence	

Stakeholder	Issue	AEMC response
	that position does warrant further consideration". Also refers to the "greater potential for less competitive outcomes" in South Australia, compared to other mainland states of the NEM.	
AER	CEG highlights that most recent investment has been undertaken by AGL and the other major incumbent generators. CEG notes that this could be consistent with a theory of pre-emption, where incumbent generators invest in order to pre-empt investment by other parties. CEG concludes that "pre-emption is potentially a problem in South Australia."	
AER	CEG's analysis demonstrates that there is a noticeable reduction in capacity utilisation in South Australia at prices above \$250/MWh. This is in contrast with the experience in other NEM regions where there are smaller reductions or increases.	
AER	Structural barriers to entry may exist as CEG notes that new large scale entry by a CCGT may not be required as demand in South Australia is not growing at a strong rate and AEMO is not predicting the need for material new capacity. In these conditions it is conceivable that incumbents would be able to raise average market prices above the level that would make a new CCGT plant profitable without inducing entry by that plant.	
AER	CEG suggest that expansions of existing capacity by incumbents in South Australia have so far been consistent with the theory of deliberately promoting the expectation that the entry of a minimum efficient scale new entrant would materially alter the pricing strategies of the incumbents. CEG also notes that South Australia persistently demonstrates a lower level of contract market liquidity than other NEM regions. A lack of liquidity in the hedge contract market has the	

Stakeholder	Issue	AEMC response
	potential to act as a significant deterrent to new entry.	
NGF - Frontier Economics	Although the AER commented that due to the sunk and irreversible costs associated with new generation entry, prices can be held 'permanently' above the costs of efficient new capacity without attracting competitive new entry, CEG put this argument much less strongly. CEG noted that because demand in South Australia was growing slowly, it was 'conceivable' that incumbents would be able to raise prices above the level that would make new CCGT plant profitable without inducing new entry by that plant. In any case, as noted by CEG, spot prices over the last two years have been well below the levels needed to make CCGT entry profitable.	
NGF - Frontier Economics	Considers, contrary to the AER in its submission to the draft rule determination, that the findings of the CEG report are consistent with low barriers to entry in South Australia. Alternative pro-efficiency explanations for incumbent investments and vertical integration are more convincing than anti-competitive explanations for perceived strategic and structural barriers to entry.	
NGF - Frontier Economics	Thinking first of generation investment by incumbents, it is far from clear that it makes sense for an incumbent to pre-emptively invest to deter entry. Rather, there is every reason to expect that a participant with a net exposure to wholesale spot prices through its retail business (AGL) would seek to invest in generation to manage its risks in a manner that avoided the transactions costs of negotiating derivative contracts with third parties. CEG noted that investment by incumbents could constitute anti-competitive pre-emption if it was not justified by market conditions. However, the CEG report did not properly evaluate the claim by the MEU that new generation investment was not required in South Australia	

Stakeholder	Issue	AEMC response
	during 2008-10. In fact, the NEMMCO 2008 SOO pointed to reserve shortfalls in Victoria-South Australia in 2008/09 of 168 MW.	
MEU	CEG fails to note that the large investment in 2000 in SA (Pelican Point base load power station) was incentivised by government and that the bulk of investment in later years was in non-dispatchable (highly incentivised) wind generation. To assume that there has been no barrier to new investment in generation as a result of the market prices in 2008-2010 is quite misleading.	
SACOSS	CEG's interpretation of market shares and HHI calculations for the SA market is not correct. The AEMC should take note of the difference in HHI in the submarkets for dispatchable vs wind generation (table provided by SACOSS). The five vertically integrated gentailers own or control the entire fleet of dispatchable generation. There is more diversity in wind generation. But even if wind generation is included, the HHI for total generation still sits just below the 2500, which is well above the 2000 threshold which the ACCC considers to indicate competition problem.	CEG does not consider the HHI values to indicate a substantial problem relating to levels of competition. Further, the Commission notes that CEG reported that the values calculated for regions in the NEM are similar or lower than those for international generation markets.
SACOSS	CEG's observations about the SA market are not correct. The fall in SA generation HHI from 2008 has been largely due to expansion of wind capacity and, when accounted for in terms of capacity, has hardly fallen at all. Also, to say that the fall in SA is indicative of significant competition, is a misrepresentation of the market. CEG's conclusion then that, even if significant market power were present in those states, it is weakening over time, is not true.	
MEU	The MEU recognises that its concerns arise from a structural problem in the NEM and that it sees, as does the AER, that	To provide structural insight whether the electricity wholesale market is workably competitive, the Commission proposes a

Stakeholder	Issue	AEMC response
	there is a great potential for the problem to increase in the future.	structural monitoring framework for the electricity wholesale market be implemented. See Chapter 8 for more details.
MEU	The Poyry report states that in regard to the AEMC framework: “From our review, we cannot conclude that the framework is fit for purpose and that it meets an appropriate threshold for application.” This conclusion is based on a review that identifies many critical failures on the part of the AEMC draft decision to provide sufficient and/or robust evidence for the conclusion that there is no “significant and sustained problem with the efficient functioning of the market.	As was noted earlier, the Commission has a different view to the MEU (and Poyry) on the issue that is at the core of the MEU's rule change request. See Chapter 3 and section 7.1.
MEU - Poyry	In its draft determination, the AEMC states that it ‘considers that the assessment framework and approach adopted for this rule change request provides a framework within which market participants and other stakeholders can assess whether at any time in the future issues of substantial market power in the NEM arise’. From our review, we cannot conclude that the framework is fit for purpose and that it meets an appropriate threshold for application.	
MEU	The implementation of the AEMC approach has resulted in an outcome that effectively “defines” the problem away through annual averaging of data and comparing past prices with future costs – a practice not supported by either the AEMC’s consultant (CEG) or the MEU’s consultant (Poyry).	NERA’s LRMC vs price assessment is based on assessing the expectations that an investor might have regarding its ability to recover the costs of its investments in the NEM. An investor cannot accurately predict future prices and must rely on a combination of past prices and its assumptions about the future state of the market in order to make a decision regarding the likely recovery of investment costs. The AEMC considers the assessment to be a reflection of investors’ perceptions of the competitive state of the market.
MEU	CEG makes the point that comparing past prices with future costs is not correct and by implication (as future prices are unknown) past prices should be compared to past costs. Poyry reinforces this point.	
MEU	NERA’s comparison of prices and costs are not equivalent in that the costs are all based on future costs but the prices are	

Stakeholder	Issue	AEMC response
	<p>based on historic data. CEG and Poyry point out that, at best, the comparison should be based on future costs and future prices in order to be analogous. However, no one knows what future prices will be (unless these are contracted) so it is extremely difficult to achieve what CEG and Poyry consider is the appropriate comparison. As historical prices are known and past costs are also known, using historic prices and costs would provide a more balanced approach.</p>	
MEU	<p>The cost of carbon is included in the future costs but the past prices do not include any cost of carbon.</p>	<p>The Commission notes that NERA's market modelling estimate of LRMC involves the projection of two separate costs streams – one based on the costs required to meet forecast demand, and another based on the costs required to meet forecast demand, which has been shifted incrementally higher. The estimated LRMC is based on the difference between these two cost streams. Both cost streams incorporate the costs of carbon. Taking the difference between the two cost streams cancels out the impacts of the carbon price.</p> <p>The Commission is satisfied that NERA's market modelling addresses both the timing (past and forecast) and the impact of the cost of carbon.</p>
MEU	<p>The AEMC advised in its Directions Paper that it would not apply a “bright line” approach to any quantification analysis but would use this as a guide as to the extent of any problem. The AEMC proposed that it would examine in a qualitative manner each of the quantitative outcomes of the NERA assessment. However, the qualitative evaluation by the AEMC consultant NERA provided a very high level and minimalist approach which is demonstrably biased to support their view that there is no problem. Even the deeper qualitative analysis provided by the AEMC consultant (CEG) shows the many shortcomings of this high level qualitative analysis undertaken by NERA.</p>	<p>The Commission is satisfied that its definition of ‘substantial market power’ and the methodology applied by its consultants to assess whether substantial market power has occurred in practice in the NEM provides the appropriate framework.</p> <p>The Commission has relied on various pieces of information when informing its opinion as expressed in the draft determination, including reports by NERA and CEG. In addition, in response to stakeholder responses, the AEMC has commissioned additional work by NERA and Seed Advisory.</p> <p>The Commission therefore rejects the MEU’s assertion of its</p>

Stakeholder	Issue	AEMC response
MEU	There are errors of fact and logic in the reports (especially the NERA report) but which the draft decision accepts and uses as the basis for its decision. At the same time the draft decision excludes observations that do not support the contention that there is no problem of market power being exercised.	assessment as being 'minimalist' or simply applying a 'bright line' analysis.
MEU	The price vs LRMC test means that there can be up to an 18% premium in price above the midpoint of the LRMC range before NERA would start to consider there to be a problem. The sensitivity ranges used by NERA are excessive.	<p>The Commission compared outcomes with a range of LRMC estimates, rather than using the top or bottom levels as a benchmark.</p> <p>The Commission notes that the probability of accuracy does not increase from the edge of the range to the centre, ie the top of the range is equally as probable as the middle of the range and equally as probable as the bottom of the range. Therefore, it is not accurate to compare average spot price outcomes with the middle of the range.</p> <p>NERA has based its estimations of LRMC using the average incremental cost approach on a range of publicly available assumptions, including ACIL Tasman fuel cost and capital cost estimates.</p>
MEU	Another impact on the AIC LRMC calculations would be the increase seen in recent years in the value of the Australian dollar. This would deflate capital costs thereby considerably reducing the LRMC calculations.	The Commission notes that the LRMC calculations NERA performed are based on the realistic assumptions that a potential investor would have been likely to hold at various points in time in the past. These assumptions would include expectations regarding exchange rates, which may have been different to conditions seen in recent years.
MEU	The market model LRMC values are based on AEMO forecast of future demand and consumption for the next 20 years. The AEMO forecasts have recently been significantly revised down by 5% or more in the recently released revised 2011	<p>The Commission has engaged NERA to do additional analysis according to the market modelling approach for the remainder of the years in the period under review. See Chapter 5.</p> <p>The updated modelling has used AEMO ESOO for 2011 for the</p>

Stakeholder	Issue	AEMC response
	ESOO. This implies that the market model LRMC values are probably overstated as they are based on inflated forecasts.	relevant years. The market modelling approach is based on assessing an estimated marginal cost that occurs under an incremental shift in demand. The calculations are therefore generally insensitive to the absolute levels of forecast demand.
MEU	NERA has calculated the contract prices on a system wide basis using a four year rolling average of futures prices. The implication of this approach is that a quarter of the contract price is based on futures prices applying four years prior to the year investigated. Poyry suggests that, at most, 1/3rd of the contract price might be developed on such a rolling average as retailers would have a reasonable expectation of maintaining the same market share of the residential market. Prices that a retailer offers to large users of electricity apply for the next 3-4 days after which they may be varied. Averaging over 4 years to generate a system wide price value, tends to deflate and smooth prices considerably and therefore they are likely to be significantly lower than in actuality.	NERA has recognised the limitations with estimating contract prices, partly resulting from limited publicly available information. NERA has however indicated that the results are in line with what they consider to be typical approaches to contracting by participants in the NEM. See Chapter 5.
MEU - Poyry	<p>To the extent that the majority of retail contracts are managed and structured according to a four to five year hedging strategy, then the stylised contract costs may be reflective of market out-turns. However, notes the following:</p> <ul style="list-style-type: none"> • it is very unlikely that a large proportion of non-domestic retail customers are contracted in such a way (expects that large, energy intensive consumers, in particular, will have contracts with prices based upon spot prices, rather than longer term average prices); and • that the forward market in any of the regional markets would have sufficient liquidity over the required time period to provide credible reference prices for such contracts. 	

Stakeholder	Issue	AEMC response
SACOSS	Significant weight is placed on the contract price estimates despite the acknowledgement that public information about historical contract prices is relatively limited, especially in SA with high levels of vertical integration. These significant assumptions do not stop the consultants representing the data to three significant figures.	
MEU	CEG's definition of the conditions giving rise to market power suggests that their view is based on the market model approach to LRMC, not the average incremental approach. The market model LRMC values are at the low range of AIC values for SA and yet CEG accepts the NERA conclusion that there is no problem despite its own assessment being to the contrary.	The Commission notes that CEG does not 'accept' NERA's conclusion that there is no problem, but rather considers that, on the basis of all the evidence it considered (among this was NERA's analysis), it was not able to reach a definitive conclusion on potential barriers to entry in South Australia.
MEU	In the case of residential consumers, the draft determination points out that retail price caps are set on the basis of average incremental long-run marginal costs of new entrant generation. Therefore, residential consumers are not exposed to a price premium should market prices exceed LRMC. This argument is wrong. In practice the retail price cap is designed to provide "head room" so that there can be competition between retailers in the zone beneath the cap. What the draft determination fails to highlight is that if transient market power is exercised by the dominant retailer/generator, then other retailers are not able to secure hedging contracts that allow them to operate under the retail price cap. Exclusion of competing retailers allows the dominant retailer/generator to retain the premium between the actual costs and the price cap.	<p>The Commission has engaged Seed Advisory to examine contract market issues more closely.</p> <p>While the South Australian market may be relatively illiquid, it is not clear whether vertical integration has led to this situation, or whether vertical integration was a response to a situation which already existed. The Commission notes the recent entry of a number of new retailers on the SA market (most of which are vertically integrated).</p> <p>Whether (more) vertical integration is a sub-optimal response to an existing market situation or simply the most efficient business model, and whether this trend reduces liquidity in the contract market or is a response to already illiquid markets, are considerations beyond the scope of this rule change request.</p>
MEU - Poyry	While acknowledging that long-run investment decisions are based upon future expectations of prices:	The Commission's views on market power in the NEM are set out in Chapter 3.

Stakeholder	Issue	AEMC response
	<ul style="list-style-type: none"> • an annual estimate of LRMC does not reflect the long-term price expectations that a future generator will take into account when investing, especially when that investment is long-lived and will take several years to be realised; • the types of behaviour (i.e. economic and physical withholding of capacity) that are being cited as the reason for the rule change are not consistent with the competitive derivation of scarcity rents; and • there is no corroborating evidence that price fluctuations around the LRMC that have been observed are explained by changes in market fundamentals. 	
NGF - Frontier Economics	<p>Considers, on the point made by the AER in favour of the market modelling estimates of LRMC, that these estimates should be treated as definitive. Rather, without knowing the precise details of their derivation, they should be considered as part of the set of information that feeds into the assessment of the presence and extent of market power in the NEM. Would welcome the development of market modelling estimates for other years in addition to 2007/2008 and 2010/2011.</p>	<p>Noted.</p> <p>The AEMC has engaged NERA to do additional analysis according to the market modelling approach for the remainder of the years in the period under review. See Chapter 5 of this document.</p>
MEU - Poyry	<p>Regardless of the appropriateness of LRMC as a metric for use on market power assessment, the methodology used to determine LRMC presents potential issues. NERA itself acknowledges some limitations in the approach. For most States, the market modelling derived LRMC is mid-to-high within the range of average incremental cost derived LRMCs. The clear exception is the case of South Australia, where the perturbation derived LRMC is in the lower end of the range, either matching or below the quoted price metrics. If the perturbation method is considered to be more accurate (as suggested by NERA), this brings into question the conclusions</p>	<p>The AEMC has engaged NERA to do additional analysis according to the market modelling approach for the remainder of the years in the period under review. See Chapter 5.</p> <p>The Commission considers that the additional estimates of LRMC using the market modelling approach are reflective and support the broad appropriateness of the range of estimates provided using the average incremental cost approach.</p> <p>The Commission compared outcomes with a range of LRMC estimates, rather than using the top or bottom levels as a</p>

Stakeholder	Issue	AEMC response
	<p>in relation to South Australia. It also brings into question whether having a market modelling derived LRMC within the average incremental cost derived LRMC cost range is sufficient evidence to assume that the range is appropriate.</p>	<p>benchmark.</p>
MEU	<p>The NERA analysis of SA cannot be considered as evidence that market power does not exist:</p> <ul style="list-style-type: none"> • The market model LRMC values are consistently below the average incremental LRMC for the entire period, implying that the average incremental LRMC values are overstated for SA and indicate that new entrant generation is not required as a result of the high prices seen; • In SA, the spot prices either exceeded or tracked the high end LRMC for four consecutive years (i.e. exhibited an 18% premium to the average LRMC); • In SA, average spot prices for four years exceeded the high end average LRMC by 10% over four consecutive years; • In SA the contract prices tracked the high range LRMC for four years; and • In SA, the contract prices exceeded for five years the market model LRMC actual or implied values by as much as 35%. 	<p>NERA has estimated this range for the LRMC based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by policy uncertainties. The presence of a range of estimates removes the potential for binary outcomes.</p> <p>The probability of accuracy does not increase as you move from the edge of the range to the centre, ie the top of the range is equally as probable as the middle of the range and equally as probable as the bottom of the range. Therefore, it is not accurate to compare average spot price outcomes with the middle of the range.</p> <p>The Commission is satisfied with NERA's reports for the purposes of the final determination.</p>
MEU	<p>The market model LRMC estimates for SA are well below the mid-point average incremental LRMC cost curve and close to the low range cost curves. The MEU considers that the market model LRMC calculations for SA show that the average incremental LRMC values are significantly higher than is warranted. This is further exacerbated when the market model LRMC values include the cost of carbon.</p>	

Stakeholder	Issue	AEMC response
AER	<p>In each case the more accurate market modelled LRMC is below the upper bound of the range. The market modelling results for South Australia do not provide confidence in the AIC results. The top-end LRMC estimates developed by NERA using the approximation approach may fundamentally overestimate the 'true' LRMC in South Australia. More confidence would be provided in the analysis if the AEMC calculated LRMC for each year in South Australia using the market modelling approach, with the test comparing price to this measure of LRMC.</p> <p>It is not clear why price should be compared to the top-end estimate of LRMC. If the price versus LRMC test was applied using a midpoint estimate of LRMC, price clearly exceeds LRMC in South Australia for four successive years. This should breach the threshold for a finding that there is substantial market power.</p>	
AER	<p>The test that is adopted in the draft determination compares price to the upper bound of the range of LRMC estimates. It is not clear from the information provided why the test should compare price to the top-end estimate of LRMC, rather than some other LRMC estimate within the range. The assessment of the appropriateness of the upper bound as the threshold test requires a clearer indication as to why in both theoretical and practical terms it is to be preferred over other thresholds, for example, a mid-point of the range.</p>	
AER	<p>There is a significant difference between the lower bound and upper bound estimates of LRMC in all states in all years. The draft determination refers to prices below the upper bound of the range as 'competitive' and 'efficient'. This is not an accurate description of these prices. Prices at the top end of a broad range of LRMC estimates clearly have the potential to</p>	

Stakeholder	Issue	AEMC response
	reflect non-competitive prices.	
SACOSS	Comparison of single price point estimates to a range of LRMC estimates is done in a way that assumes the upper and lower LRMC bounds are equally as probable as any point in the range. Such use of a range means the upper bound is taken as a 'true' value when clearly, by definition, it is not.	
NGF - Frontier Economics	It is unclear how the AER came to the view that the AEMC, in its draft rule determination, exhibited a 'preference' for the upper bound estimate of LRMC over the lower bound estimate as the draft rule determination consistently referred to the range of LRMC estimates, not just the upper bound of NERA's estimates.	Noted
NGF - Frontier Economics	It is not clear how the AER came to the view that the AEMC would consider that the substantial market power test was not breached provided that prices were below the top-end estimate of LRMC for one year in three, even if prices were extreme for the other two years. A close reading of the draft determination does not support this interpretation. The draft determination simply pointed out that in assessing the presence of substantial market power, it is necessary to consider a long enough timeframe to reflect the possibility of new entry in response to high prices.	Noted.
NGF - Frontier Economics	<p>Considers, contrary to the AER in its submission to the draft determination, that analysis of the data regarding South Australia does not demonstrate the existence of substantial market power in that State.</p> <p>As was pointed out in the NERA report and the AEMC draft determination, and is well-accepted in the market, the relatively high average South Australian prices over the</p>	Noted.

Stakeholder	Issue	AEMC response
	<p>2006/07 to 2009/10 period were driven by outcomes in one year, 2007/08. Specifically, the high price outcomes in 2007/08 were strongly influenced by prices during unprecedented and unseasonable heatwave conditions in March 2008. Prices in other financial years fell within the range of LRMC prices calculated by NERA. Further, South Australian prices since 2009/10 have clearly been below any reasonable estimate of LRMC.</p> <p>Indeed, prices have fallen to the extent that one can perform a similar exercise as the AER did using more up-to-date data to produce the exact opposite result: the load-weighted average price in South Australia for the four year period 2008/09 to 2011/12 was below even the average of NERA's bottom-end estimates of LRMC over the same period. The 4-year average price was \$56.3 while the 4-year average LRMC (lower) was \$60.7. Further, the 4-year average price was 20% lower than the 4-year average of the AER's midpoint of NERA's LRMC estimates.</p> <p>These outcomes confirm that prices in the NEM tend to move in multi-year cycles in response to changes in the balance of demand and supply over time. These outcomes are also consistent with what one would expect in a workably competitive market.</p>	
Origin	Considers comparing pricing outcomes against a range of plausible LRMC values, as NERA has done, is reasonable and is less contentious than basing the analysis on a single LRMC figure.	Noted.
NGF	The NGF's underlying reasons for concern of the use of LRMC vs average prices as a benchmark (too simplistic), expressed in earlier stages, remain, but notes that both of the methodologies selected by NERA would be likely to report	The Commission notes that NERA's analysis uses cost estimates that are intended to be a reasonable reflection of the operating and capital costs of new and existing generation capacity.

Stakeholder	Issue	AEMC response
	markedly lower LRMC estimates than an approach based on building a new standalone gas-fired plant to deliver an additional generating unit to the market.	
NGF	The NGF provided a table with spot price outcomes for 2011-2012 by region as a percentage of NERA's low and high estimates for the LRMC (based on the 'approximation approach'). These volume weighted prices are in all cases substantially below any of the LRMC estimates; this emphatically confirms the recent price trends reported by NERA.	Noted. Further, the Commission refers to additional modelling work undertaken for the recent years according to the market modelling approach. See Chapter 5.
ESAA	With regard to the relevant time frame to be taken into account, the ESAA refers to the Investment Reference Group report which shows that the period from conception to operations is typically four to six years for closed cycle gas turbines, three to five years for open cycle gas turbines and more than five years for coal.	The Commission considers that the necessary period of time to be taken into account should reflect a sufficient time frame under which new entry (which could consist of new generation entry, expansion of existing generation or an upgrade of the relevant interconnectors) would be expected to occur in the absence of significant barriers to entry. It would not be correct to set a fixed time frame, as circumstances which affect the period within which new entry may take place may change over time and may be dependent on local circumstances. See section 3.4.1.
AER	It is not clear for how many years price would need to exceed the top-end estimate of LRMC to constitute substantial market power. The time-frame is a fundamental component of the definition of substantial market power.	
MEU	The issue is what constitutes a significant period of time. Under the NERA analysis, in the case of SA, contract and spot prices were at or above an 18% premium to the average LRMC for four years. They were above the market model new entrant cost for five years.	
NGF	Understands that the AEMC was reluctant to put a definitive time frame for examining whether there was evidence of sustained or non-transient market power, but remains firmly of the view that the originally proposed period of 2 to 3 years is	

Stakeholder	Issue	AEMC response
	<p>too narrow for the purposes of this type of assessment:</p> <ul style="list-style-type: none"> • transmission and generation investments require significant lead times (not just construction of the project but also planning and approval), so a minimum of five years should be the starting point; and • the specific characteristics of generation investments in energy-only markets (substantial expenditures, investment is irreversible; considerable uncertainty about future market outcomes) mean that investors have a strong incentive to delay projects. 	
SA Government	<p>Notes that the AEMC has noted that if there are concerns with existence of market power, it would be important to understand the cause to determine whether a rule change is the most effective way to address the issue. In light of this, SA considers that the AEMC should specify in their final determination how long high wholesale prices are required for the exercise of pricing power by generators to be considered sustained over the long term.</p>	
NGF	<p>Agrees on the importance for analysing barriers to entry as a key indicator of the structural competitiveness of a market, but notes that not all barriers to entry are inefficient or a cause for concern if they are a normal business cost in making significant sunk investment.</p>	<p>The Commission considers that barriers to entry arising from costs related to making significant sunk investments are not necessarily cause for concern from a regulatory perspective.</p>
ESAA, International Power	<p>ESAA considers the relevant geographical market should be the NEM as a whole, rather than individual NEM regions as the NEM was designed to enable trade of energy between regions. New entry into a NEM region can effectively be achieved not just through new generation investment but also through new transmission investment that enhances the capability of inter-regional power flows; i.e. generation and</p>	<p>The Commission notes that the SSNIP test is a standard tool for helping to define the relevant market when assessing market power. The Commission is aware of the limitations of the SSNIP-test and regards the test as an analytical tool that may assist with defining the market rather than the only basis for defining the markets. In this case, it has not been necessary for the Commission to reach a firm conclusion on the appropriate</p>

Stakeholder	Issue	AEMC response
NGF	<p>transmission can be substitutes.</p> <p>Considers the 'SSNIP' test is not appropriate for defining the geographic boundary of electricity markets, as it does not take account of:</p> <ul style="list-style-type: none"> • the degree of actual price separation between regions and the incidence of constraints between regions; • the ability of retailers to hedge inter-regional price exposures, backed by the purchase of inter-regional settlement residues; • the degree of substitution between generators in different regions; and • the importance of forward contracting decisions in encouraging plant to bid low to ensure plant is dispatched and generators receive the prevailing spot price. <p>For these reasons, the NGF is of the view the SSNIP test should not be the sole factor guiding a market definition assessment in any future competition assessment of the NEM.</p>	<p>market definition. See section 5.1 of the AEMC's draft determination.</p>
International Power	<p>Considers that using the LRMC methodology is flawed, as it presumes a number of key parameters are fixed for the life of a plant (such as capital costs, transmission connection costs, fuel costs, CO2 emission costs), while in reality, these parameters will be uncertain and will change over time. Also, the return on investment criteria when applied over the entire asset life is most likely to be front loaded. Given this high degree of uncertainty in any LRMC calculation, it is unlikely that the calculated prices would be representative of market prices over the long term.</p>	<p>The Commission considers that by definition, every model will be based on assumptions and will inherently have limitations. Despite this, the Commission is confident that the 'price vs LRMC' benchmark as applied is a good indicator as part of assessing the potential existence of substantial market power.</p> <p>Notwithstanding the above, the Commission is satisfied with its definition of market power and the consultant's reports for the purposes of its final determination.</p>

Stakeholder	Issue	AEMC response
International Power	<p>The analysis performed by NERA suggests perfect foresight and undervalues the risks faced by merchant generation investors in the NEM, where assets are exposed to market and regulatory risks, heightened by uncertainties over climate change policies, fuel costs and cost of CO2 emissions. The NERA analysis therefore led to an unacceptable approximation of the risks faced by investors considering merchant generation in the NEM, whose perspective on LRMC in the NEM will be significantly higher than LRMC costs calculated based on a theoretical approach.</p>	
ESAA	<p>Welcomes the Commission’s approach of not using a single dimensional test to determine whether substantial market power exists. Considers that, while the LRMC vs price test may be a useful part of an overall assessment of market power, it should not be the only criterion. In particular, there are a number of practical issues that mean caution will be required if and when it is used in the future:</p> <ul style="list-style-type: none"> • the Commission’s proposed test requires a regulator to form an opinion on when new investment should occur, i.e. on prices being greater than LRMC for the requisite period. What matters however is the opinion of the potential project proponent (and their financiers) that actually makes the investment; • there is a range of different methods for measuring the LRMC which means there is subjectivity in the choice of method. In addition, regulatory decisions must be made about the data inputs to be used in the LRMC calculation. While relying on a range of estimates will improve robustness of any estimate, caution will need to be exercised; and • electricity prices are the end result of the workings of a 	

Stakeholder	Issue	AEMC response
	<p>complex system, where multiple actors respond to commercial, climatic, policy, regulatory and network factors. Isolating the effect in practice from a single generator's conduct is difficult to do for historical prices and would be even more difficult to do prospectively. Any findings would be unavoidably contentious.</p>	
NGF	<p>Lists the following issues with relying on the LRMC vs price test as an analysis tool:</p> <ul style="list-style-type: none"> • There is a range of different methodologies for calculating the LRMC and each is dependent on the assumptions and cost data available at the time; • Any test that focusses on average historical prices may be misleading as, for an investor, the focus is on post-entry prices (and thus height and shape of post-entry price duration curve); • The LRMC assumes investors undertake a standard (static) net present value calculation of revenues and costs but this is no longer valid where there is uncertainty about future market outcomes and government policies, investment projects are irreversible and sunk and investment projects can be delayed. In these circumstances there is an option value attached to waiting, and it is often optimal to postpone the timing of the new investment. 	
Origin	<p>Origin cautions against future use of a methodology of comparing pricing outcomes against a range of plausible LRMC values in analysing market power. Any such analysis would be based on assumptions and would be highly imprecise (even more so than the backward looking analysis as carried out under the current process) and thus ensuing results could not be used as a means of justifying regulatory</p>	

Stakeholder	Issue	AEMC response
	intervention.	
ESAA	Considers any barriers to entry which may exist in the market should be the focus of regulatory intervention, rather than the solution proposed in the rule change. Recourse to the ACCC remains the primary avenue for competition concerns in this industry as in any other.	Noted.
UCA	Disagrees with the LRMC as an appropriate method, as LRMC can only be measured 'after the event' while consumers need regulation that operates in 'real time'. The LRMC is therefore inadequate for estimating future costs. Price setters will however set their LRMC (and prices) higher than real costs, but when real costs become known (in hindsight), there is no scope for excess prices paid by consumers to be recovered by consumers. LRMC based methodologies are consequently unlikely to deliver efficient costs for consumers, nor capacity for compensation for higher than necessary prices paid by consumers.	<p>The Commission disagrees that the focus should be on short-term price spikes and instances of transient pricing power. The Commission's reasoning and approach on LRMC is set out in the Commission's definition of market power in Chapter 3.</p> <p>This is, to a certain extent an 'after the event' analysis.</p> <p>Focus on short, but transient instances of pricing power, including 'real time' mitigation mechanisms, however would introduce a high risk of suppressing price signals that are relevant for investment in generation in the NEM. This may harm reliability of the system, to the detriment of consumers.</p>
UCA	<p>Moreover, the LRMC method is ineffective at providing a reasonable benchmark for shorter term considerations:</p> <ul style="list-style-type: none"> • long timelines for determining long-run marginal costs; • LRMC do not compare readily with spot price averages in the shorter term; • abuse of market power is only observed after the event, and so does not offer consumer protection; and • fails to identify market power in the short run. 	
SACOSS	SACOSS remains unconvinced that the SA market, particularly for small consumers, is all that competitive. It is a relatively small market, with a concentration of a few main	The Commission considers that the relevant problem is the exercise of substantial market power rather than transient pricing power. The final determination sets out the framework

Stakeholder	Issue	AEMC response
	<p>players, and interconnection that is often constrained at peak times, which results in an environment where market power has the potential to be exercised. SACOSS points to examples of economic withholding by TIPS and Northern/Playford, which have been 'well documented', and quotes a few paragraphs of the AER's State of the Energy Market 2011 report about AGL's strategic behaviour in SA.</p>	<p>the AEMC has used to assess the proposed rule against the NEO and the reasons for its determination that the proposed rule will not, or is not likely to, contribute to the achievement of the NEO. See chapter 3 and section 7.2.</p>
<p>Comments in submissions regarding the interpretation of results</p>		
<p>MEU</p>	<p>A comparison of experiences in South Australia and Victoria, with similar weather patterns (especially for hot weather), would provide the ability to demonstrate or otherwise the contention that there is no problem in SA. There is a general view that the Victorian market is the most competitive in the NEM and therefore the expectation would be that if there were no problems all regions would display similar outcomes to that seen in Victoria.</p>	<p>There are many characteristics unique to each jurisdiction which may have an influence on the competitive environment. As such, jurisdictions cannot be readily compared (see also box 4.2).</p>
<p>EUAA (incl. CME report)</p>	<p>Notes that the spot prices in South Australia in 2012 have fallen considerably from the levels in previous years. This suggests that concerns about market power in the period from 2008-2011 are not valid in 2012. It is also mentioned that electricity demand appears to be declining in South Australia, making the exercise of market power more difficult. The outcomes of 2012 to date however do not obviate deeper investigation of outcomes in previous years. The outcomes in the period 2008-2011 were 'remarkable' and merit detailed study to fully understand their cause and effect.</p>	<p>The Commission agrees that the results for 2010/11 and 2011/12 in South Australia are significantly below market modelling estimates of LRMC and the range of AIC LRMC estimates. The Commission's conclusions on the NERA analysis are set out in section 5.1.</p>
<p>Alinta - supplementary submission</p>	<p>Alinta Energy does not support the conclusions of the CME report and notes a number of issues with the analysis. Alinta does not support the assertion that unused capacity is a valid measure of market power. CME's paper does not provide any</p>	<p>The Commission notes the views held by Alinta Energy and AGL regarding CME's report. The Commission has confidence in its analysis undertaken to</p>

Stakeholder	Issue	AEMC response
	authoritative conclusions on market outcomes or the issue of market power. Alinta Energy contends the work undertaken by the AEMC is more useful in this context.	date to determine evidence of the existence of substantial market power in the NEM and the assessment of the merits of the MEU's proposed rule.
Alinta - supplementary submission	Considers, in response to the CME report for the EUAA, that the issue for consideration is not can generators withhold supply at points in time or do prices near the Market Price Cap raise yearly average prices, but is the market competitive so that it minimises total delivered costs of energy to consumers, are price risks appropriately allocated, and can participants manage these risks through available products. The answer to the latter questions are clearly yes.	
Alinta - supplementary submission	It is unclear how CME has derived its data on capacity given there is often a noted difference between nameplate capacity, available capacity and used capacity with each subject to change due to re-registration, maintenance, fuel supply and otherwise.	
Alinta - supplementary submission	The CME report fails to reflect the actuality that generators seek to maximise the value of trade to cover short-run and long-run costs and do this through both spot and contract market exposure, and additionally in the context of evolving outcomes for fuel in the gas and other markets.	
Alinta - supplementary submission	The CME report suggests that average prices undervalue the costs of maintaining a generator or generation portfolio. This is consistent with the financial outcomes of many generators over the history of the National Electricity Market.	
Alinta - supplementary submission	The CME report fails to note that, given the lumpy nature of generation investment, the market is always likely to be characterised by an oversupply or an undersupply of generation assets at any point in time which means the market	

Stakeholder	Issue	AEMC response
	<p>may operate above or below long-run marginal costs for an extended period and that would be efficient (in the absence of external interventions, not because of such interventions). This would not be the case if generation assets were perfectly divisible. Hence, it is probable that in the absence of exogenous factors that drive prices higher than underlying demand either at a point in time or generally, the current overhang in supply may continue to suppress prices in the near term.</p>	
Alinta - supplementary submission	<p>The CME report notes large percentage increases in average prices as some sort of evidence that high priced settlement periods are problematic, as if this is not part of the markets' design. Ironically, the CME report then proposes capacity payments as one possible solution to high priced events without noting that these high priced events would need to be factored into capacity charges. Alinta Energy's experience in capacity markets suggest that they introduce an additional range of complications that the National Electricity Market has done well to avoid.</p>	
Alinta - supplementary submission	<p>The CME report concludes that contract prices can predict spot prices. This is a mischaracterisation in Alinta Energy's view. The contract market provides an appropriate mechanism for managing spot market risk given that the contract market forward curve is the best interpretation of the markets view on spot price outcomes; however, it is also affected by its own dynamics. Nevertheless, the CME report fails to note that for this reason it would be foolish for large load or generators to completely expose themselves to spot as benign price outcomes will not be sustained and volatility is an efficient feature of the market design.</p>	
Alinta - supplementary	The CME report inadvertently illustrates that there are multiple	

Stakeholder	Issue	AEMC response
submission	<p>drivers for new supply in the market and that the market has effectively delivered new supply as generation continues to grow in excess of demand and hence there is a surplus of supply over demand in both average and peak that has resulted in declining average prices and limits the exercise of (transitory) market power in any case.</p>	
Alinta - supplementary submission	<p>The CME report demonstrates that there are no enduring instances of market power in the National Electricity Market:</p> <ul style="list-style-type: none"> • recent price outcomes do not reflect the contested concerns expressed in the CME report for the 2008 to 2011 period; • the apparent exercise of market power was not consistent with a pattern of behaviour by one generator but by different generators at differing points of time; and • excluding instances of high priced events, which are very rare according the CME report at 0.4% of the year, average prices are similar across regions that have similar generation profiles i.e. Tasmania was the sole outlier. 	
Alinta - supplementary submission	<p>The CME report analyses the issue of market prices underpinned by a view that high prices are inefficient and inappropriate in the National Electricity Market. This view mirrors the claims made by members of industry who with hindsight mistakenly made the decision to take on spot market exposure, in a volatile market, in a region of the world that has the hottest and driest summers. This is compounded by the fact some of these users are manufacturers and that the South Australian generation mix includes a large proportion of subsidised wind generation which is of little assistance on very hot, very dry days when the wind tends not to blow. Nevertheless, these very same users have no market power concerns when prices are low and the CME report makes little</p>	

Stakeholder	Issue	AEMC response
	reference to the multitude of negative price events that occur in South Australia on an ongoing basis where generators effectively pay for the privilege of generation. However, transparency around the contracting decisions of these participants is something that has not been raised in the debate to date but would arguably be telling.	
Alinta - supplementary submission	Further, the CME report, as has been the case with similar claims, does not consider the damage to the market of ongoing prices below long-run marginal cost and the failure to signal a need for new entry that flows from low prices. Interestingly, recent action by the Public Utilities Commission of Texas is in response to the issues that can arise when generators are not able to recover their long-run costs.	
Alinta - supplementary submission	The CME Report is one-sided in its analysis and fails to note the impact of negative price events of which there have been around 500 since 1 January 2006, the impact of an absence of transmission rights which reduces the incentives to contract, power system reliability and its impact on contracting for large plant, the role generators play in pushing down prices to match contract positions (i.e. high price incentives are matched by low price incentives depending on individual generator contract positions), the impact of drought, and the decisions of some major users.	
Alinta - supplementary submission	The CME Report is also hampered by its ability to understand the use of settlement residues to manage spot risk by market participants in South Australia, and the use of forward contracts in other regions, in particular Victoria which is closely aligned with South Australia, in place of South Australian forwards. Likewise, the use of weather insurances and other instruments by both load and generation present other ways to manage spot market risk that cannot be	

Stakeholder	Issue	AEMC response
	captured in the CME analysis.	
Alinta - supplementary submission	<p>The characterisation in the CME report of prices approaching the Market Price Cap as extreme is emotive at best. The Market Price Cap is a known to all participants including load that chooses not to contract and is a credible market outcome especially during hot high demand days in South Australia. Likewise, conclusions on individual generators profitability need to be assessed in the context of the entire life of that asset and within the context of the portfolio of assets.</p>	
AGL - supplementary submission	<p>The CME report claims that generators having spare capacity at times of high prices is evidence of the exercise of market power. Spare capacity is defined as the difference between 95% of a generators maximum output and the generators actual output in that settlement period. The author assumes that if a generator has spare capacity at times of high prices then they would want to maximise production at times of high prices and if they don't do this they are withholding capacity or offering it at high prices. The author has also failed to include a temporal dimension in the definition of market power. This conclusion ignores the impact of a generators contract position on their offers. Generators make offers to maximise revenue not necessarily production. These offers are driven by their contract position (not spare capacity). At times of low prices this generally means maximising production. Generally low offers are made up to the contract level after this generators make offers are based on a price volume trade off to maximise revenue. A generator with a low contract position, (i.e. in the absence of guaranteed annual contract revenue), is exposed to the uncertainty of pool revenues. However if demand were to exceed the total of all generators contract positions, in a region, then a generator with a low contract position can offer their plant to the pool at higher prices, at</p>	

Stakeholder	Issue	AEMC response
	<p>lower levels of production than would normally be the case. This occurred in the summer of 2008 and 2009. This is a design feature of an energy only market and allows all generators to recover a payment for providing capacity above their contracted quantities.</p>	
<p>AGL - supplementary submission</p>	<p>Notes that the CME report for the EUAA acknowledges that contract positions drive bidding behaviour but has inexplicably failed to consider the effect of contract positions in the analysis.</p>	
<p>AGL - supplementary submission</p>	<p>Prices in South Australia can be volatile. The cost of generation in South Australia under the NEM Rules is generally higher due to the high cost fuel sources employed and the pool price is also subject to extremely high temperatures in summer that drives demand up. In 2008, due to the widespread drought in Australia, the cost of energy imported into the region was also higher than in previous years. A consumer contracted either with a retailer or a generator would be protected from the volatility of prices, albeit at a higher price than the rest of the NEM as has always been the case for South Australia. The use of contracts to manage price risk is an integral part of the NEM design. The CME report suggests limiting the pool price as a means of protecting consumers but it is ignoring the more effective tools that are available to manage risks in the pool. A well contracted participant is not exposed to the high prices that are a necessary feature of the market.</p>	
<p>AGL - supplementary submission</p>	<p>Draws attention to the LYMMCo submission to the Directions Paper, which included a comprehensive analysis of contract prices over the period 2002 to 2012 which shows that higher prices occurred in all regions in all quarters' during the drought, not just in South Australia. In most regions, including</p>	

Stakeholder	Issue	AEMC response
	<p>South Australia, calendar year contract prices, after high prices in 2008 and 2009, in 2010 and 2011 were at the same level as those traded in 2003 and 2004. In real terms the contract prices for 2010 and 2011 were lower than at market start. This analysis demonstrates that the events in South Australia in 2008 and 2009 were transitory in nature. This conclusion can also be drawn from the data presented in the CME report itself (pp 14-15), although it is not made by the author.</p>	
<p>AGL - supplementary submission</p>	<p>The CME report comments that for South Australia, the first quarter variability (shown as the difference between contract prices and pool outcomes) is higher than the balance of the year. The author attributes that to a lack of competitiveness. A better explanation is that demand is higher and more variable during this time of the year leading to greater use of higher priced plant. Again, this is managed by customers contracting with generators, which makes more plant available for dispatch at and fixes the price paid by consumers via hedge payments.</p>	
<p>AGL - supplementary submission</p>	<p>The CME report suggests that contract prices can predict pool prices and that pool price inform contract prices. Generally contract prices are above pool prices, which is a price for transferring the risk to generators and reserving their capacity. Contract prices also follow pool prices (up and down) except for circumstance that are readily predictable by traders, such as the impact of drought. High price events are not readily predictable and therefore are not included in current contract prices, but will impact on future contract prices due to the higher average price that results. As discussed above, the drought (not the prediction of high prices) had increased contract and pool prices in all regions in the NEM prior to the time period covered by the CME paper. Once the drought had</p>	

Stakeholder	Issue	AEMC response
	broken, pool prices dropped to below contract prices once again. The CME report states this normal arrangement is somehow a result of participants anticipating the use of market power in South Australia. The fact that the 2008 contract price increased in all regions demonstrates that this assertion is false.	
UCA	UCA notes that Australian consumers are currently paying something like the highest electricity prices in the world.	<p>The Commission notes that electricity end prices are impacted by a large number of factors that are rooted in local circumstances and market characteristics. This makes comparison of Australian electricity prices with those in other jurisdictions extremely difficult. The Commission notes a report “Electricity Prices and Taxes” produced by the International Energy Agency in 2012 which shows Australian household electricity prices to be close to or below the average of OECD countries.¹³³</p> <p>However, the Commission considers that whilst comparative international electricity prices may be a consideration whenever a person analyses electricity prices, such consideration does not form part of the Commission's definition of market power in the NEM. The Commission's definition of market power in the NEM is set out in section 3.2.</p>

B.2 Summary of issues raised in submissions to the consultation paper

Stakeholder	Issue	AEMC Response
	Should a distinction be made between 'market power' and 'substantial market power'?	

¹³³ International Energy Agency, Electricity Prices and Taxes, 2012.

Stakeholder	Issue	AEMC Response
AER	<p>Considers that high prices are part of the NEM and are important as they signal the need for investment. The AER is not concerned with periods of high prices which are consistent with underlying supply and demand conditions. However, the AER is concerned about situations where high prices reflect systemic economic withholding by generators.</p>	<p>The Commission agrees that periods of high prices are likely in an energy-only market such as the NEM and can provide a mechanism for generators to recover their efficient fixed costs and provide a signal for investment. If a generator is able to cause price spikes by economic withholding, that may constitute an exercise of substantial market power if it occurs with sufficient frequency to cause annual average prices to exceed LRM. The Commission agrees that workable competition is a more appropriate benchmark than perfect competition when defining market power.</p>
ESAA	<p>Considers that an integral feature of the energy-only market design of the NEM is the ability to experience high priced events, which are relatively rare but necessary to provide revenue for peaking generation, enable base-load stations to bid at or under SRMC most of the time, and provide a signal for new investment. Considers that the NEM is not a perfectly competitive market by design.</p>	
International Power GDF Suez	<p>Considers that in an energy-only market, generators rely on intermittent high prices and situational market power to contribute to fixed costs and derive a return on capital. The MPC limits the impact of 'situational market power', but it needs to be high enough to incentivise new entrants.</p> <p>In practice it may be necessary to tolerate some short term price spikes in order to encourage efficient investments.</p>	
Origin Energy	<p>Considers that in an energy only market, for generators to be economic, they must have an ability to recoup LRM. Therefore a necessary and inherent feature of the NEM is the ability of the marginal generator to occasionally bid above SRMC</p>	

Stakeholder	Issue	AEMC Response
	to recover fixed costs. Imposition by MEU's proposal means generators would be at significant risk of not being able to recover LRMC.	
AER	Considers that the exercise of market power is problematic when it significantly affects average wholesale prices, with subsequent flow on effects to retail and contract prices. Although high spot prices in the NEM are transitory, the AER is concerned about the effect on average prices over a longer time period. Suggests that the effect on quarterly average prices may be an appropriate test.	The Commission agrees that the effect on average prices is a key test for assessing the existence of substantial market power. The Commission considers that annual average prices are a more suitable test than quarterly average prices.
AER - Biggar report	Rejects the argument that the exercise of market power is necessary to ensure that generators can recover their fixed costs, and considers that any exercise of market power (defined as bidding above SRMC) is harmful to the market as it results in out-of-merit-order dispatch and inefficient demand-side response.	The Commission agrees that bidding above SRMC has the potential to result in some efficiency losses including out-of-merit-order dispatch. However, the Commission considers that in an energy-only market such as the NEM, some generators are unlikely to be able to recover their efficient fixed costs if they could never offer their capacity above SRMC, and that such an outcome would be likely to result in detrimental effects on efficient investment. The measurement of SRMC also needs to have regard to the value of serving the marginal unit of demand. As a result, the Commission considers that a distinction should be drawn between transient pricing power (such as occasional bidding above SRMC) and substantial market power. This is discussed further in section 4.2 of this draft determination.
AGL	Considers that the MEU's proposal is based on an incorrect premise that NEM outcomes should reflect a perfectly competitive market, but this does not exist and is an unreal standard against which to assess actual competitive outcomes. Considers that the MEU does not recognise that the NEM is a "workably competitive market" that will not always reflect the outcomes expected in a perfectly	The Commission agrees that workable competition is a more appropriate benchmark than perfect competition when defining market power. This is discussed further in section 4.2 of this draft determination.

Stakeholder	Issue	AEMC Response
	competitive market.	
International Power GDF Suez	It is not 'perfect competition' but 'workable competition' that is important, which must be analysed on a long term basis since short term assessments are distortionary. A market should be considered to be workably competitive where new investment occurs in a timely manner in response to market signals.	
DTEI	Proposes that a key question is whether market power is a structural problem or is a transitory issue related to the generator's contract position. If the latter, it may be more appropriate to be managed under trade practices provisions.	The Commission agrees that this question is important and that a distinction should be made between structural problems (which the Commission interprets to mean persistent or ongoing problems) and transitory issues. The Commission makes the distinction between 'substantial market power' and transient pricing power (which is similar to what several submitters refer to as 'transient market power').
ESAA	Considers that competition law literature and legislation recognises that market power must be significant and durable to warrant concern. 'Significant' means prices exceed not only marginal cost but also long-run average cost, while 'durable' means able to sustain economic profits in the long run.	The Commission considers that the problem that may justify regulatory intervention is the exercise of substantial market power. The Commission considers that the appropriate cost measure is LRMC rather than long-run average cost.
Hydro Tasmania	Contends that the NEO could only justify intervention if annual average spot prices persistently exceed LRMC beyond the time-frame required for new entry.	The Commission's definition of substantial market power in this draft determination is similar to this proposal.
International Power GDF Suez	The concept of sustained/persistent behaviour assessed over time has been consistently applied by the Courts, while the concept of transitory market power has been expressly and consistently	The Commission agrees that it is appropriate to consider behaviour over a sustained period of time when assessing whether there is evidence of substantial market power. The Commission notes French J's comments in <i>AGL v ACCC</i> and has had regard to those comments in reaching the views

Stakeholder	Issue	AEMC Response
	<p>rejected. AGL v ACCC distinguished inter-temporal market power from a long run phenomenon having regard to the possibilities of new entry through additional generation capacity and the upgrade of interconnectors. French J also considered that 'success at gaming' in the market during limited periods of high demand does not reflect market power and that transitory market power is not sufficient under the CCA.</p>	<p>set out in this draft determination. However, the Commission notes that competition law decisions are only one relevant source of information to inform the Commission's approach, and the Commission's decisions on the MEU's proposed rule will be based on the NEO.</p>
MEU	<p>Disagrees with suggestions that price rises must be sustained before regulatory changes are justified. Because of the very high MPC, there only needs to be very short periods of time for the exercise of market power to achieve very large transfers of wealth from consumers.</p>	<p>The Commission agrees that the level of the MPC means that price spikes can have a significant effect on average wholesale prices. Price spikes may constitute evidence of substantial market power if they occur to such an extent and with sufficient frequency to cause annual average prices to exceed LRMC. The Commission notes that its assessment of the MEU's proposal will be based on the NEO, which relates to the efficient use and operation of, and efficient investment in, electricity services. The prevention of wealth transfers does not (on its own) promote efficiency.</p>
NEM Generators' Group - Frontier report	<p>Considers that the extent to which firms are subject to competitive constraints will vary in the real world from those faced under "perfect" competition. Accordingly, proposes that a market is considered "workably" competitive where no one firm can be said to have significant market power (as opposed to transient market power), i.e. where market power cannot be sustained over the long term.</p>	<p>The Commission agrees that workable competition is a more appropriate benchmark than perfect competition when defining market power. The Commission considers that a distinction should be made between substantial market power and transient pricing power, with the latter being similar to what several submitters refer to as transient market power.</p>
NEM Generators' Group - Frontier report	<p>Considers that any regulation of the market to prevent transient market power may be counter-productive, as it weakens the incentives for new parties to enter and erodes the ability of generators to exercise their transient market power.</p>	

Stakeholder	Issue	AEMC Response
TRUenergy	If the AEMC is to develop a test to determine whether market power exists, this should distinguish between transient and permanent market power. The exercise of transient market power is a design feature of the NEM that signals demand response, new investment and provides an incentive to contract.	
What is the appropriate definition of market power / substantial market power?		
AER - Biggar report	Considers that a firm has market power if it can, by changing its output, affect the wholesale market price that it is paid.	The Commission's definition of 'substantial market power' is set out in section 4.3 of this draft determination. The Commission considers that the ability to affect the wholesale market price in a single trading interval is not enough on its own to constitute a substantial market power problem that justifies regulatory intervention, and it is necessary to assess whether the generator has the ability to increase the annual average wholesale price to a level that exceeds LRMC.
AGL	Considers that enduring market power should be defined as the ability of generators to act without competitive constraint in the long run, such that they are able to earn long-run economic profits. Generators may earn prices in excess of SRMC in the short term, but it is the ability of the generator to earn these profits in the long run or whether these profits are reined in by new entry of generators, or expansion of existing generators, which is key.	The Commission's definition of 'substantial market power' set out in section 4.3 of this paper is similar to the definition proposed by Aurora Energy. It requires an ability to increase the annual average wholesale price to a level that exceeds LRMC, and the ability to sustain prices at that level due to significant barriers to entry. LRMC is considered to reflect the level of average prices that should exist in a workably competitive market.
Aurora Energy	Proposes that market power should be defined as the ability to raise prices above a level that is considered competitive for a substantial period, due to the absence of competition and any constraints on behaviour.	

Stakeholder	Issue	AEMC Response
Energy Action Group	Considers that the MEU's proposal appropriately addressed this issue.	The Commission's definition of 'substantial market power' is set out in section 4.3 of this paper. The Commission's approach differs from the MEU's proposal, which essentially asked whether any generator was 'pivotal' and must be dispatched in order to meet maximum regional demand. The Commission has assessed whether any generator has an ability to increase the annual average wholesale price to a level that exceeds LRMC, and sustain prices at that level due to significant barriers to entry.
ESAA	Proposed definition is sustainably raising prices above the LRMC.	The Commission's definition of 'substantial market power' set out in section 4.3 of this draft determination is similar to the definition proposed by the ESAA. It requires an ability to increase the annual average wholesale price to a level that exceeds LRMC, and the ability to sustain prices at that level due to significant barriers to entry.
Hydro Tasmania	Notes that market power has been defined in various court cases. These cases have demonstrated a number of factors relevant to the determination of market power.	The Commission has considered competition law cases as one relevant source of information in reaching its view on the appropriate definition of substantial market power. The Commission's definition of 'substantial market power' set out in section 4.3 of this draft determination reflects the factors noted by Hydro Tasmania.
Hydro Tasmania	<p>Proposes that assessments and definitions of market power must consider whether a firm has the ability to:</p> <ul style="list-style-type: none"> • raise prices above the competitive level (in this case being long-run supply cost); • sustain these higher prices beyond the time-frame needed to allow for market responses, including new entry; • profitably raise prices on a sustained basis. 	The Commission's definition of 'substantial market power' set out in section 4.3 of this draft determination reflects the factors noted by Hydro Tasmania. The Commission proposes that the relevant cost measure is the LRMC of bringing forward or adding capacity to meet a specified increment in demand.
International Power GDF	Proposes that a generator will not have market	The Commission's definition of 'substantial market power' is set out in

Stakeholder	Issue	AEMC Response
Suez	power unless it can behave persistently in a manner unconstrained by competitors, including the power to raise prices above competitive levels in a sustainable way.	section 4.3 of this draft determination. It requires an ability to increase the annual average wholesale price to a level that exceeds LRMC, and the ability to sustain prices at that level due to significant barriers to entry. LRMC is considered to reflect the level of average prices that should exist in a workably competitive market.
International Power GDF Suez	Considers that existing regulatory oversight measures act as a form of constraint on the exercise of market power that should be considered when assessing whether a generator has market power. Examples of regulatory oversight include sections 46 and 50 of the CCA and the rebidding restrictions in clause 3.8.22A of the rules.	The Commission has considered the application of these existing provisions when formulating its definition of substantial market power. The Commission considers that the exercise of substantial market power may potentially be detrimental to the achievement of the NEO in circumstances where the relevant conduct does not breach these existing provisions.
LYMMCo	Considers that the AEMC should not seek to lower or change the test under the CCA.	This rule change process cannot lower or change the test under the CCA. The Commission's role in considering the MEU's proposal is to assess whether the proposed rule changes are likely to contribute to the achievement of the NEO. The Commission considers that the exercise of substantial market power may potentially be detrimental to the achievement of the NEO in circumstances where the relevant conduct does not breach the CCA.
LYMMCo	Proposes that the analysis of long-run price options is the most likely indicator of market power, but does not in itself indicate the existence of market power.	The Commission's definition of 'substantial market power' requires an ability to increase the annual average wholesale price to a level that exceeds LRMC, and the ability to sustain prices at that level due to significant barriers to entry. The Commission considers that an analysis of long-run prices and costs is the preferable measure of substantial market power, but acknowledges that it is not on its own determinative of whether an individual generator possesses substantial market power for which additional analysis may be required.
MEU	If there is any generator that must be dispatched when the regional demand is less than that forecast for the next year or which has been previously	The Commission's definition of 'substantial market power' is set out in section 4.3 of this draft determination. The Commission's approach differs from the MEU's proposal. The Commission considers that a more

Stakeholder	Issue	AEMC Response
	recorded in a region, then that generator has the power to unilaterally set the regional spot price and has market power.	appropriate approach is to assess whether any generator has an ability to increase the annual average wholesale price to a level that exceeds LRMC, and sustain prices at that level due to significant barriers to entry.
NEM Generators' Group - Frontier report	Defines market power as the ability of an individual firm to withhold output of its product in order to increase the price of that product. The extent to which a firm can do this depends on whether it faces competitive constraints.	The Commission's definition of 'substantial market power' is set out in section 4.3 of this draft determination. The Commission's definition requires an ability to increase the annual average wholesale price to a level that exceeds LRMC, and the ability to sustain prices at that level due to significant barriers to entry.
NEM Generators' Group - Frontier report	Proposes that, given the importance of competitive constraints in limiting a firm's ability to exercise market power, the extent to which barriers to entry exist in a market is an important indicator of whether a firm holds significant market power. This is a more important indicator than whether prices are occasionally above costs.	
NEM Generators' Group - Frontier report	Notes that firms price above marginal cost in many industries, especially in industries with high fixed costs, such as electricity generation. It is during such times that firms are able to recover their fixed costs. Market power should therefore be identified and assessed with a longer term perspective in mind. The appropriate temporal definition reflects the time scale of decisions made by generators.	The Commission's definition of 'substantial market power' in section 4.3 of this draft determination and approach to market definition in section 4.5 acknowledge the importance of a longer term analytical perspective.
Origin Energy	Considers that it is observationally difficult to distinguish between scarcity pricing and market power. Higher prices during the former serve to signal the need for investment and all generators to recover their LRMC. The issue is whether there are persistent high prices over time that result in recovering revenue in excess of LRMC with no new	The Commission's definition of 'substantial market power' in section 4.3 of this draft determination reflects these issues.

Stakeholder	Issue	AEMC Response
	entry.	
What is the appropriate definition of the 'exercise' of market power?		
AER	Considers that the AEMC should focus on whether economic withholding is of a sufficient scale to be of concern to the overall efficiency of the NEM, rather than using competition law concepts from the CCA to define whether there is an exercise of market power.	The Commission's approach to the exercise of substantial market power is set out in section 4.3 of this draft determination. The Commission has chosen not to adopt the CCA concept of 'taking advantage' to define the exercise of substantial market power in the context of the NEM. Economic withholding may be evidence of the exercise of substantial market power if it occurs to a sufficient extent and with sufficient frequency to cause annual average prices to exceed LRMC. However, the Commission considers that it is appropriate to adopt a broader definition that could also cover conduct other than economic withholding.
AER - Biggar report	Defines the exercise of market power as follows: 'A generator can be said to exercise market power when it systematically submits an offer curve which departs from its true, underlying, short-run marginal cost curve in order to influence the wholesale spot price it is paid and is therefore dispatched to a price-quantity combination which does not fall on its short-run marginal cost curve'. Considers that generators exercise market power by economic withholding of capacity.	The Commission's definition of the 'exercise' of substantial market power is set out in section 4.3 of this draft determination. The Commission considers that the ability to bid above SRMC in a single trading interval is not enough on its own to constitute the exercise of substantial market power and justify regulatory intervention, and it is necessary to assess whether the generator has the ability to increase the annual average wholesale price to a level that exceeds LRMC. Economic withholding may be evidence of the exercise of substantial market power if it occurs to a sufficient extent and with sufficient frequency to cause annual average prices to exceed LRMC. However, the Commission considers that it is appropriate to adopt a broader definition that could also cover conduct other than economic withholding.
AGL	Proposes that the appropriate test to determine whether a generator has exercised enduring market power should be whether it has been able to sustain wholesale prices in excess of its costs over the long term. The relevant cost test is LRMC.	The Commission's definition of the 'exercise' of substantial market power, as set out in section 4.3 of this draft determination, is similar to the test proposed by AGL.

Stakeholder	Issue	AEMC Response
AGL	Considers that the tests for determining the exercise of market power in the NEM should not rely too heavily on competition law.	The Commission has chosen not to adopt the competition law concept of 'taking advantage' to define the exercise of substantial market power in the context of the NEM.
MEU	Considers that existing CCA tests are inappropriate here. Electricity market rules used in other jurisdictions show that generator market power must be addressed within the rules due to the unique features of electricity.	The Commission has chosen not to adopt the competition law concepts of 'taking advantage' or 'abuse' of market power to define the exercise of substantial market power in the context of the NEM. The Commission considers that the exercise of substantial market power may potentially be detrimental to the achievement of the NEO even if that market power is not 'taken advantage of' or 'abused' as those terms are defined under competition law.
NEM Generators' Group - Frontier report	Considers that the existing tests for whether market power has been exercised as defined in competition law are not appropriate. This is because the statutory regime set out in the NEL is concerned with promotion of efficiency in the market, not with competitive effects.	
TRUenergy	Considers that the current competition law tests for taking advantage of and abusing market power are the appropriate tests in the context of the rule change request.	
Energy Action Group	Considers that the MEU's proposal appropriately addressed this issue. Considers that the issue of information asymmetry also needs to be addressed. A generator's contract position also acts as a behavioural driver. Uncapped and non-transparent nature of the ancillary service payment market provides gaming opportunities. Also large scale penetration of renewable energy may favour some generators so they can exercise market power. Considers that there are inter-related issues of access and who pays for transmission extension	The Commission's definition of the 'exercise' of substantial market power is set out in section 4.3 of this draft determination. The Commission's approach differs from the MEU's proposal. The Commission has assessed whether any generator has the ability to increase the annual average wholesale price to a level that exceeds LRMC, and sustain prices at that level due to significant barriers to entry. The Commission agrees that a generator's contract position is relevant to its incentive to exercise substantial market power, and that barriers to entry are important. Issues of access and charges for transmission extensions and augmentations are outside of the scope of this rule change and are currently being considered by the Commission as part of its Transmission Frameworks Review.

Stakeholder	Issue	AEMC Response
	and augmentation. Long lead times plus barriers to entry and relatively low long term profit margins for some technologies leave incumbent generators in a position to exercise market power.	
Hydro Tasmania	Considers that matters to be considered when determining whether a participant is able to exercise market power include countervailing power and the presence or absence of constraints. Network constraints, generator availability, contract positions and co-optimisation with ancillary services can impose significant alternative costs on generators or limit their availability. Such constraints can influence a firm's ability to exercise market power.	The Commission acknowledges that some or all of these matters may affect a generator's ability to exercise substantial market power.
What is the relevant 'market'?		
AGL	Proposes that in defining the market to be analysed, the AEMC should consider all the factors that may influence a generator's decisions regarding pricing and output. The main purpose of market definition is to identify what forces act within a market and influence the decision making processes of a participant. The AEMC should err on the side of a broader market definition.	The Commission's approach to market definition is set out in section 4.5 of this draft determination. The Commission acknowledges that there is some uncertainty about the precise boundaries of some aspects of the market, particularly the geographic and temporal dimensions, but does not consider that it is appropriate to intentionally err on the side of a broader market definition.
AGL	Proposes that the product and functional dimensions of the market are the wholesale NEM, and the trading of wholesale energy within that market, consistent with the AGL v ACCC decision. The appropriate geographic market is the interconnected NEM and the temporal dimension should reflect the time necessary to earn a	The Commission's approach to market definition is set out in section 4.5 of this draft determination. The Commission considers that the relevant product is electrical energy supplied to the wholesale market and the functional dimension is electricity generation. The Commission considers the relevant temporal dimension as the timeframe under which new entry would be expected to occur in the absence of significant barriers to entry. Given the results of NERA's comparison of LRMC with annual average

Stakeholder	Issue	AEMC Response
	commercial return for their investment.	wholesale prices, it has not been necessary for the Commission to reach a firm conclusion on the appropriate market definition as part of the analysis to inform this draft determination.
Hydro Tasmania	Considers that a number of issues need to be considered for market definition and outline their views on the appropriate product, geographic, functional and temporal dimensions.	The Commission's approach to market definition is set out in section 4.5 and a description of the test for determination of the relevant market is set out in section 5.1 of this draft determination.
International Power GDF Suez	Considers that the temporal market dimension involves long-run considerations and long term substitution possibilities, as shown by CCA cases. The ACCC recognises that geographic market definition needs to consider the interrelationship between NEM regions and the effect of interconnectors. The ACCC has stated that when assessing the constraint provided by generators outside of a region, it is useful to think of an interconnector as a generator with a variable marginal cost. Considers that the consistent position of the ACCC is that, but for interconnector constraints from time to time, the geographic dimension of the wholesale market would be the whole of the NEM.	The Commission's approach to market definition is set out in section 4.5 of this draft determination. The Commission's view of temporal dimension recognises that a long term approach is appropriate. Given the results of NERA's comparison of LRMC with annual average wholesale prices, it has not been necessary for the Commission to reach a firm conclusion on the appropriate market definition as part of the analysis to inform this draft determination.
NEM Generators' Group - Frontier report	Proposes that market definition should reflect the factors that are likely to constrain the pricing and output behaviours of generators. Notes that market definition should not be considered an end in itself - rather, its main purpose should be to help identify the forces that operate in a market.	The Commission's approach to market definition is set out in section 4.5 of this draft determination. The Commission agrees that a purposive approach should be taken to market definition.
NEM Generators' Group -	Considers that the interconnected nature of the NEM suggests that the appropriate geographic	The Commission's approach to market definition is set out in section 4.5 of this draft determination. The Commission's view of the temporal dimension

Stakeholder	Issue	AEMC Response
Frontier report	<p>market should be national rather than state based and should consider the ability of generators in different regions to constrain each other's behaviour. However, binding constraints on interconnectors can limit the ability of generators in one region to supply consumers in other regions, so the assessment of the geographic market should also consider the extent of these constraints.</p> <p>Proposes that the AEMC should err on the side of a larger market definition rather than a narrower definition, especially if minor changes in the definition of the market could lead to large changes in either arguments or conclusions.</p>	recognises that a long term approach is appropriate. Given the results of NERA's comparison of LRMC with annual average wholesale prices, it has not been necessary for the Commission to reach a firm conclusion on the appropriate geographic market definition as part of the analysis to inform this draft determination.
Origin Energy	Considers that the MEU's proposal has taken an overly narrow view of the market in terms time. The focus on spot prices also discounts the critical role of the financial contracts market in managing the effects of the NEM's inherent volatility.	The Commission's approach to market definition is set out in section 4.5 of this draft determination. NERA has defined the relevant temporal dimension as the timeframe under which new entry would be expected to occur in the absence of significant barriers to entry. NERA has considered the role of the contracts market in its comparison of LRMC with wholesale prices.
Origin Energy	Notes that the MEU has taken a regional view of the market in its analysis, which may reflect price separation that occurs between markets. However, views a NEM-wide view of the market is more appropriate.	The Commission's approach to market definition is set out in section 4.5 of this draft determination. Given the results of NERA's comparison of LRMC with annual average wholesale prices, it has not been necessary for the Commission to reach a firm conclusion on the appropriate market definition as part of the analysis to inform this draft determination. The Commission has had regard to French J's comments in <i>AGL v ACCC</i> in reaching its views on market definition, but notes that French J's analysis was based on events in Victoria in 2000-2001 and a more comprehensive and up-to-date analysis is required to determine the appropriate geographic market.
TRUenergy	Proposes that the appropriate definition of the market should only include the wholesale exchange	The Commission's approach to market definition is set out in section 4.5 of this draft determination. The Commission considers that the relevant

Stakeholder	Issue	AEMC Response
	operated by AEMO. The geographical extent of the market is the interconnected regions in the NEM. The relevant timeframe is the time needed develop new investment that will compete away any excess profits.	product is electrical energy supplied to the wholesale market. Given the results of NERA's comparison of LRMC with annual average wholesale prices, it has not been necessary for the Commission to reach a firm conclusion on the appropriate geographic market definition as part of the analysis to inform this draft determination. The Commission considers the relevant temporal dimension as the timeframe under which new entry would be expected to occur in the absence of significant barriers to entry.
Should the AEMC consider 'tacit collusion' as part of the rule change process?		
Energy Action Group	Considers that the rule change should also attempt to address tacit collusion and parallel behaviour, but notes that Australia is historically not good at prosecuting such behaviour without access to a whistle-blower and appropriate documentation.	The Commission considers that tacit collusion should not be considered as part of the rule change process. The MEU's proposal does not seek to address tacit collusion, and if tacit collusion is an issue it is likely to be more appropriate for it to be addressed by the CCA.
MEU	Notes that the MEU considered tacit collusion in its examination of potential solutions, but determined that the increased complexity of addressing an issue that might not occur (other than through the declaration of second and third generators that might have market power at times of higher demand) did not warrant the inclusion of specific rules to modify the potential for tacit collusion.	
NEM Generators' Group	Considers that the threat of tacit collusion is poorly justified. If it is an issue, it should continue to be dealt with under the CCA. There should not be a separate rule for what constitutes collusive behaviour in the NEM compared to elsewhere in the Australian economy.	
MEU	Notes that the MEU's proposal addresses the potential for tacit collusion by providing that where	Noted.

Stakeholder	Issue	AEMC Response
	the AER identifies that a second generator has market power at a higher demand it has the ability to declare a second dominant generator.	
Does the AEMC have the power to make the MEU's proposed rule?		
AFMA	Considers that there are adequate existing measures in place to address market power concerns and no requirement for, or benefit in, duplication. The AEMC needs to analyse the efficiency of the NEM and whether market signals, including price volatility, are appropriate and drive investment and meet the long term interests of consumers. The MEU proposal should be discounted as soon as possible, to remove it as a threat to the market's confidence. Any concerns entities may have with market power should be directed to the appropriate regulator and dealt with in a separate process under existing legislation. Whatever the outcome of any AEMC investigation into market power, the MEU proposal would not be a suitable solution. As such, AFMA does not support keeping the proposal on the table while any such investigation is undertaken as proposed in AEMC's assessment framework decision tree.	The Commission recognised that the implementation of the MEU's proposal would to have a significant impact on some market participants and investment incentives, and that the mere existence of the proposal may have had an impact on some participants. However, because of the significant potential effects of the proposal, the Commission considered it was appropriate to undertake a thorough consideration of the proposal before making a decision.
AGL	Argues that the AEMC is limited in its power under section 34(1)(a)(i) of the NEL to making rules in relation to regulating the operation of the "wholesale exchange operated and administered by AEMO" and the "national electricity system", and it is not empowered to make rules generally regarding the	This argument is addressed in section 4.4.1 of the directions paper. The Commission does not agree with AGL's interpretation of section 34(1)(a)(i) of the NEL. The Commission considers that the MEU's proposal relates to the operation of the 'national electricity market' as defined in section 2 of the NEL, and does not seek to regulate the behaviour of generators 'within

Stakeholder	Issue	AEMC Response
	behaviour of sellers and buyers within the wider economic or wholesale market.	the wider economic or wholesale market'.
ESAA	Considers that the issues raised by the MEU's proposal come within the CCA framework and there is no case for the AEMC to be examining issues of anti-competitive use of market power.	The Commission considers that the MEU's proposal does not relate to the anti-competitive use of market power, and have not assessed whether any generators have engaged in anti-competitive conduct. Instead, the Commission has assessed whether the MEU's proposed rule, or a more preferable rule to prevent or constrain the exercise of substantial market power by generators, will promote the achievement of the NEO. The Commission considers that the exercise of substantial market power may potentially be detrimental to the achievement of the NEO in circumstances where the relevant conduct does not breach the CCA.
International Power GDF Suez	Contends that the monetary constraint on dispatch offers imposed by the MEU's proposal may be seen as a penalty, in substance if not form, and is therefore contrary to section 36(b) of the NEL, and would not fall within item 7 of schedule 1 to the NEL (setting of prices for electricity purchased through the wholesale market, including maximum prices) or section 34(3)(d) (rules may confer rights or impose obligations on a person or class of person).	This argument is addressed in section 4.4.2 of the directions paper. The Commission does not agree with International Power's interpretation of section 36(b) of the NEL. The MEU's proposed rule does not (in substance or in form) provide for a criminal or civil penalty for a breach of the rules. It proposes that a price cap (the existing Administered Price Cap) would apply to dispatch offers in certain circumstances. The imposition of such a price cap falls within items 7 and/or 8 of Schedule 1 to the NEL.
International Power GDF Suez	Contends that the stated purpose of the MEU's proposal contravenes clause 3.1.4(b) of the rules. Considers that if the AEMC proceeds with a decision to perform or confer powers on the AER to perform functions in relation to anti-competitive market behaviour by participants, then it is going beyond section 91B(1) because such a rule is not necessary or consequential to the MEU's requested rule. Considers that if the AEMC wishes to make a rule that confers on itself, the AER, AEMO or a jurisdictional regulator, powers in relation to	This argument is addressed in section 4.4.2 of the directions paper. The Commission does not agree with International Power's interpretation of sections 45 or 91B(1) of the NEL. The Commission notes that the MEU's proposal attaches a draft rule that includes an amendment to clause 3.1.4(b) of the rules. Accordingly, the Commission considers that section 91B(1) of the NEL is not relevant and an amendment to clause 3.1.4(b) of the rules is not a consequential amendment under section 91B(1). The Commission also considers that section 45 of the NEL is not relevant, particularly given that the MEU has expressly proposed an amendment to clause 3.1.4(b) of the rules. Division 3 of Part 7 of the NEL clearly authorises the AEMC to make a rule change that is proposed in a rule

Stakeholder	Issue	AEMC Response
	competition issues, the AEMC is first required to conduct a review under section 45 of the NEL and provide a report to the MCE.	change request.
International Power GDF Suez	Considers that the AEMC should separately, and prior to contemplating any rule change seeking to further erode generators' ability to achieve revenue adequacy, conduct a holistic review of the entire NEM trading arrangements in the context of recent international experience.	The AEMC is required by the NEL to make a determination whether to make the MEU's proposed rule or a more preferable rule. The AEMC does not consider that there is currently a justification to self-initiate a wide-ranging review of the entire NEM trading arrangements prior to making that determination.
LYMMCo	Considers that the AEMC is not the appropriate body to consider the issues raised by the MEU's proposal because it includes issues regarding competition laws and policies outside the AEMC's remit. Considers that the existing competition law framework provides the appropriate avenue for addressing such issues, and concerns regarding market power should be directed to the ACCC. The AEMC should confine any discussion to the existing provisions governing market power, and should be cautious about second-guessing the courts' approach.	Although competition law and policy may be one of several useful sources of information when considering the MEU's proposal, the MEU's proposed rule changes do not directly relate to competition law matters. The Commission's role is to assess whether the MEU's proposal is likely to contribute to the achievement of the NEO. The primary considerations when making that assessment relate to economic efficiency not competition law and policy. The Commission considers that the exercise of substantial market power may potentially be detrimental to the achievement of the NEO in circumstances where the relevant conduct does not breach the CCA.

B.3 Summary of issues raised in submissions to the directions paper and technical paper

Stakeholder	Issue	AEMC Response
Comparison of wholesale prices with LRMC		
AER	Considers that there is no single LRMC. The LRMC of base-load is very different to the LRMC of peaking	The Commission supports NERA's use of a least-cost combination of generation capacity to estimate the LRMC. The Commission considers

Stakeholder	Issue	AEMC Response
	plant. The LRMC is therefore likely to depend on whether an incremental change in demand is a change in energy or a change in peak demand.	that, while there is some subjectivity in determining a system cost, there would be similar subjectivity involved in deciding on the relevant technology to use and determining its associated costs. Further, deciding on a specific technology may risk overestimating the costs when, in reality, lower cost options exist.
AER	There is likely to be difficulty associated with measuring the level of LRMC. LRMC must consider factors such as capital costs, variable costs and various financial assumptions. All of these may lead to considerable conjecture.	NERA has estimated a range for the LRMC based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by market policy uncertainties. The presence of a range of LRMC estimates removes the potential for binary outcomes and give more weight to those prices that deviate from the range, i.e. prices that are below the bottom of the range and prices that are above the top of the range.
AER	The use of volume-weighted pricing would appear to be appropriate, as it would provide more weight to the periods that customers care more about and, likewise, the periods that most generators (other than pure base-loaders) care about.	The Commission agrees and considers that a volume-weighted approach is more appropriate than a time-weighted approach for calculating the annual average spot price and comparing against the estimated LRMC. This is because a generator's incentive for investment is based on its ability to recover its LRMC through revenue received in the market, which in turn is determined by the volume of energy dispatched.
AER - Darryl Biggar	A generator with market power may produce more at times of high price and less at times of low price, thereby increasing its achieved price while keeping time weighted prices relatively unchanged. Annual average time weighted spot prices are therefore not necessarily a useful benchmark against which to compare LRMC to identify the existence of market power.	
AER	AEMC should consider whether other measures such as the Lerner Index and the Pivotal Supply Index should be used that focus more on the structure of the market. Market structure is of critical importance because it dictates the potential for market power to be exercised. These other measure	NERA has applied two distinct methodologies to the estimation of LRMC for the relevant markets - an approximation approach and a market modelling approach. The two approaches have been adopted to test whether there are any significant differences and to provide further confidence in the results. The Commission has considered both

Stakeholder	Issue	AEMC Response
	may be used to complement the LRMC vs price test.	approaches in its determination.
AER - Darryl Biggar	Under the assumptions of constant returns to scale and no sunk costs, and given enough information on the available technologies, it would be possible to construct an optimal equilibrium mix of generation technologies and the corresponding price-duration curve. A comparison could be made of the actual price-duration curve and the theoretical benchmark to identify signs of market power. However, this may be difficult in practise due to the significant amount of information required and also that market power may be exercised when prices are low, not just when they are high.	Assumptions of constant returns to scale and no sunk costs are not consistent with the Commissions view of the NEM as a workably competitive market. The Commission agrees that such an approach would be highly theoretical and would require a significant amount of information.
AER - Darryl Biggar	Wholesale electricity prices are cyclical – they can be high in periods of strong economic growth and low at other times. If a few years of below-average growth is anticipated, should firms be allowed to exercise market power in those years, bringing the annual average price just up to the LRMC threshold? This may deny customers the benefit of lower prices in these years.	The Commission has considered the extent to which wholesale prices have deviated both above and below the estimated values of LRMC. The results of NERA's test do not show there to be a concern for further investigation.
AFMA	The Commission's acknowledgement that "there will be a degree of estimation required when calculating LRMC" may understate the difficulties and potential for error involved in calculating LRMC. Correctly calculating the LRMC is critical to the approach proposed by the Commission and it is essential that the inherent difficulties are clearly acknowledged.	The Commission has incorporated the results of NERA's analysis and CEG's analysis into its considerations on the rule change request in the context of the NEO. A result from NERA's analysis that showed wholesale prices to persistently exceed the competitive level over the period of the assessment would indicate the possibility of a problem and would be viewed as strong evidence of the need for further investigation. In addition, NERA has estimated a range of LRMC based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by policy uncertainties.

Stakeholder	Issue	AEMC Response
AFMA	Timeframe for assessment of two to three years should be included in the definition of substantial market power – “annual average wholesale prices” may not be sufficient to ensure that this is read as long-term. The proposed timeframe of two to three years may be on the low side considering the need for higher than LRMCs to be observed for a period of time by an investor before a decision could be confidently made to invest on the scale required and for the extra capacity to be implemented.	The Commission's definition of substantial market power refers to the ability of a generator to increase annual average prices to a level above LRMC for a sustained period of time. The Commission considers that the necessary period of time should reflect the timeframe required for new entrant capacity.
AFMA	The use of derivatives should form part of the assessment of the rule change. Derivatives play a fundamental role in managing price risk in the electricity market. A user which chooses not to utilise them is making a conscious decision to remain exposed to price risk. This should not lead to a major restructuring of the way in which the electricity industry operates.	The comparison of annual average wholesale prices to LRMC has included a consideration of both spot and contract price data. A discussion of the impacts of substantial market power and transient pricing power on consumers is provided in sections 6.1 and 6.2 of this draft determination. The methodology adopted by NERA is contained in their technical paper available on the AEMC website and the NERA report accompanying this draft rule determination.
Alinta Energy	Contract market data is readily available through the futures market. Arbitrage opportunities between futures and bilateral trades would be expected to bring prices broadly into equilibrium. Consideration should be given to the implications of drought, transmission constraints, etc when analysing contract prices.	
Alinta Energy	Determining a system wide LRMC to meet a marginal change in demand is likely to be difficult given the variability of demand forecasts, capacity factors and system reserves, options value in the face of policy uncertainty, competitors' action, risk	NERA has estimated a range of LRMC based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by market policy uncertainties. The presence of a range of LRMC estimates removes the potential for binary outcomes and give more weight to those prices that deviate from the range, i.e. prices that are below the bottom of

Stakeholder	Issue	AEMC Response
	<p>appetite of investors, and rates of return on capital. All of these are likely to have a significant bearing on the value of the LRMC.</p>	<p>the range and prices that are above the top of the range. A further explanation of the methodologies adopted by NERA is contained in their technical paper available on the AEMC website. NERA's sources for input capital costs can be found in their report on the comparison of wholesale prices to LRMC on the AEMC website.</p>
Alinta Energy	<p>A system LRMC that considers all available options including new generation, retirements, transmission and demand-side is not likely to be informative as why investment has or has not occurred.</p> <p>Irreversible expenditures which form large sunk costs are best delayed in the face of uncertainty. The LRMC used by an investor is likely to be higher than the one proposed by NERA. An investor considers the LRMC of their proposed project, not the LRMC of the market. In the current investor climate, gas turbines are favoured due to their low initial capital costs. A gas project, given its capacity factor is likely to be notably above the LRMC proposed by NERA. The LRMC that should be used is the levelised cost of investment in a single gas-fired peaking plant.</p>	<p>The Commission supports NERA's use of a least-cost combination of generation capacity to estimate the LRMC. The Commission considers that, while there is some subjectivity in determining a system cost, there would be similar subjectivity involved in deciding on the relevant technology to use and determining its associated costs. Further, deciding on a specific technology may risk overestimating the costs when, in reality, lower cost options exist. NERA has estimated a range of LRMC based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by policy uncertainties.</p>
Alinta Energy	<p>The fact that investment occurs in lumpy increments means that at any one point in time there might be a sustained over-supply or under-supply of capacity. Even if wholesale prices are in excess of LRMC new entry, this does not imply that the market is not working properly. Potential new entrants may not be able to capture enough demand at the required price to justify entry. Investors will not respond to a LRMC of the market in a 1 to 3 year timeframe. A period of 5 to 10 years would be more consistent with the nature of electricity consumption and the asset</p>	<p>The Commission has considered the results of NERA's comparison of annual average wholesale prices with LRMC over a time-frame sufficient that new entry would be expected to occur in the absence of barriers to entry.</p>

Stakeholder	Issue	AEMC Response
	base.	
ESAA	<p>There are a number of different methods that can be used for calculating LRMC and so there is an element of subjectivity in determining which one to use. In addition, regulatory decisions must then be made about the data inputs to be used. There is unlikely to be a "right answer" for many assumptions. The Turvey approach requires forecasts about when future investment should optimally occur to establish the reference point for bringing forward the capacity expansion, which is difficult to do. Further, the Turvey method measures system-wide cost. It would appear to be more relevant to use a specific technology/plant rather than system LRMC to best represent an investor's perspective.</p>	<p>The Commission supports NERA's use of a least-cost combination of generation capacity to estimate the LRMC. The Commission considers that, while there is some subjectivity in determining a system cost, there would be similar subjectivity involved in deciding on the relevant technology to use and determining its associated costs. Further, deciding on a specific technology may risk overestimating the costs when, in reality, lower cost options exist.</p> <p>NERA has estimated a range for the LRMC based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by policy uncertainties. The presence of a range of LRMC estimates removes the potential for binary outcomes and give more weight to those prices that deviate from the range, i.e. prices that are below the bottom of the range and prices that are above the top of the range. A further explanation of the methodologies adopted by NERA is contained in their technical paper available on the AEMC website. NERA's sources for input capital costs can be found in their report on the comparison of wholesale prices to LRMC on the AEMC website.</p>
ESAA	<p>Do not consider that the test's proposed comparison between a measure of annual average wholesale prices and a measure of LRMC is an appropriate way to diagnose the competitive condition of the electricity market. The AEMC's proposed test requires a regulator to form an opinion on when new investment should occur, i.e. based on prices being greater than LRMC for the requisite period. A single dimensional test that compares LRMC with average prices will not pick up all factors germane to an investor's decision-making and as such, the test could easily misdiagnose the state of competition in the market. Bureaucrats should not be determining optimal investments. This was a rationale behind the</p>	<p>The Commission has incorporated the results of NERA's analysis and CEG's analysis into its considerations on the rule change request in the context of the NEO. A result from NERA's analysis that showed wholesale prices to persistently exceed the competitive level over the period of the assessment would indicate the possibility of a problem and would be viewed as strong evidence of the need for further investigation.</p> <p>In addition, NERA has estimated a range of LRMC based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by policy uncertainties.</p>

Stakeholder	Issue	AEMC Response
	cessation of industry planning and the liberalisation of the electricity market.	
EUAA	The task of constructing and maintaining a credible and robust analysis of the market LRMC will be difficult and costly and open to dispute given the level of assumptions that will be required on the wide variety of inputs. A more credible analysis would need to use data on fuel costs and maintenance costs from generators. However, the generators will have incentive to encourage the Commission to construct an analysis that shows as high a LRMC as possible so as to reduce the prospect that the Commission will conclude that there is a market power problem to be solved.	NERA has estimated a range for the LRMC based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by policy uncertainties. The presence of a range of LRMC estimates removes the potential for binary outcomes and give more weight to those prices that deviate from the range, i.e. prices that are below the bottom of the range and prices that are above the top of the range. A further explanation of the methodologies adopted by NERA is contained in their technical paper available on the AEMC website. NERA's sources for input capital costs can be found in their report on the comparison of wholesale prices to LRMC on the AEMC website.
EUAA	The AEMC's approach in the directions paper implies that generators should be allowed to exercise market power as long as annual average prices are below the Commission's calculation of LRMC. This suggests that generators (acting alone or in collusion) should be allowed to abuse a dominant position, as long as annual average prices are below LRMC. Spot prices that rise above variable production costs to reflect scarcity allow generators to recover their fixed costs and are not problematic as long as they reflect genuine scarcity rather than withholding of capacity.	<p>The Commission has considered the extent to which wholesale prices have deviated both above and below the estimated values of LRMC. The results of NERA's test do not show there to be a concern to justify further investigation.</p> <p>The Commission is concerned with any wholesale market activity that could result in inefficient prices being paid by consumers in the long run. This includes any possible strategic behaviour that may be undertaken by generators acting alone or in collusion. This is the subject of analysis in the CEG report on barriers to entry.</p>
EUAA	One suggested approach to the assessment of market power is to examine the prices that various generators have achieved in the spot market. Where generators have achieved significantly different spot prices, this might point to the possible exercise of	The Commission does not consider the exercise of transient pricing power by an individual generator to be problematic unless that bidding results in an increase in wholesale prices to such an extent or with sufficient frequency so as to increase annual average wholesale prices above the

Stakeholder	Issue	AEMC Response
	market power. However, this does not take account of contract market outcomes and would not provide demonstrable evidence of the existence of market power. A second approach would be to undertake assessments of individual historic events where price exceeded \$5,000/MWh to test whether such prices resulted from genuine scarcity or whether it resulted from the withholding of capacity from the market by one or more generators in order to raise prices.	cost of new entry for a sustained period of time.
International Power GDF Suez	LRMC calculations should be considered against the expectation of whether the pattern of demand is likely to spread out over time or only during peak periods. The definitions of LRMC in the directions paper imply a time weighted price. Such a quantity would only be applicable to flat loads.	The Commission considers that a volume-weighted approach is more appropriate than a time-weighted approach for calculating the annual average spot price and comparing against the estimated LRMC. This is because a generator's incentive for investment is based on its ability to recover its LRMC through revenue received in the market, which in turn is determined by the volume of energy dispatched.
International Power GDF Suez	The two to three year period is not a suitable timeframe over which to measure the market based prices. There may be a range of factors not related to market power that contribute to a particular price outcomes, such as rainfall levels, transmission constraints, bushfires etc.	The Commission considers that the relevant period should reflect a sufficient time under which new entry (which could consist of new generation entry, expansion of existing generation or an upgrade of the relevant interconnectors) would be expected to occur in the absence of significant barriers to entry. The NERA analysis has taken into consideration exogenous factors that may have an influence on wholesale prices. These factors have been considered by the Commission in this draft determination.
International Power GDF Suez	LRMC definition proposed by NERA appears to be from a system perspective (e.g. generation, transmission, demand side response) A number of key uncertainties are not considered in the LRMC approach such as system reserves for reliability purposes and potential uncertainties facing a potential investor. Uncertainties and risks increase	The Commission supports NERA's use of a least-cost combination of generation capacity to estimate the LRMC. The Commission considers that, while there is some subjectivity in determining a system cost, there would be similar subjectivity involved in deciding on the relevant technology to use and determining its associated costs. Further, deciding on a specific technology may risk overestimating the costs when, in reality, lower cost options exist. NERA has estimated a range of LRMC based on

Stakeholder	Issue	AEMC Response
	<p>over time. In the face of uncertainty, investors prefer to have their returns front loaded. This approach by investors is not compatible with the currently contemplated average LRMC metric. Investors will typically give preference to lower capital cost technologies, such as open and combined cycle gas turbines in order to reduce their exposure. LRMC estimates could therefore be significantly higher in reality than LRMC costs calculated based on an optimal plant mix.</p>	<p>variations in input capital costs. The capital costs reflect different investors' risk premiums driven by policy uncertainties. The presence of a range of LRMC estimates removes the potential for binary outcomes and give more weight to those prices that deviate from the range, i.e. prices that are below the bottom of the range and prices that are above the top of the range.</p>
LYMMCo	<p>Given the range of assumptions necessary to forecast LRMC and - the Commission's own acknowledgment that a degree of subjectivity is required in interpreting the results - LYMMCO is concerned that the range of outcomes could be large, uncertain and open to interpretation such that the robustness of the results derived will be highly questionable and potentially unusable.</p>	<p>NERA has estimated a range of LRMC based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by policy uncertainties. The presence of a range of LRMC estimates removes the potential for binary outcomes and give more weight to those prices that deviate from the range, i.e. prices that are below the bottom of the range and prices that are above the top of the range.</p>
LYMMCo	<p>Concerned that the proposal in the directions paper to consider a period of one to three years is insufficient and may not adequately account for fluctuations in price due to, for example, climatic events such as droughts.</p>	<p>The Commission considers that the relevant period should reflect a sufficient time under which new entry (which could consist of new generation entry, expansion of existing generation or an upgrade of the relevant interconnectors) would be expected to occur in the absence of significant barriers to entry. The NERA analysis has taken into consideration exogenous factors that may have an influence on wholesale prices. These factors have been considered by the Commission in this draft determination.</p>
LYMMCo	<p>Greater weight should be given to wholesale contract price information than spot price information in the assessment of market power due to the fact that the majority of market participants effectively manage electricity price risk directly</p>	<p>The Commission recognises the importance of considering contract prices in the comparison with LRMC. However, in doing so, the Commission also considers there to be a number of limitations with the availability of contract price data. The Commission discusses the role of contract prices in the</p>

Stakeholder	Issue	AEMC Response
	through hedging contracts with generators. Exchange traded volumes and prices are publicly available and it is reasonable to assume that these could be used as a proxy for bilateral deals.	analysis in sections 4.4 and 5.2 of this draft determination.
LYMMCo	It is not clear how the Commission proposes to interpret, or give weight to, the various components that may contribute to a difference between annual average wholesale prices and LRMC, i.e. whether outcomes are reasonably due to a workably competitive market, transient market power, or sustained market power.	The analysis undertaken by NERA has considered the range of exogenous factors that may have had an influence on wholesale prices. These factors have also been considered by the Commission in this draft determination.
LYMMCo	Propose instead to avoid LRMC calculations and instead: <ul style="list-style-type: none"> • identify any barriers to entry and whether any have changed or arisen since market start; • monitor contract market outcomes and assess if there is any enduring divergence from historical market outcomes; • establish whether the divergences, if found, are due to barriers to entry and what measures could be used to mitigate the impact. 	The Commission engaged Competition Economists Group to undertake an assessment of conditions that restrict competition and create barriers to entry.
MEU	Comparisons should be made against annual volume weighted average spot prices rather than annual time weighted average spot prices. Annual volume weighted spot prices can be significantly increased by the actions of economic withholding.	The Commission agrees and considers that a volume-weighted approach is more appropriate than a time-weighted approach for calculating the annual average spot price and comparing against the estimated LRMC. This is because a generator's incentive for investment is based on its ability to recover its LRMC through revenue received in the market, which in turn is determined by the volume of energy dispatched.
MEU	Assessment of substantial market power should be	The Commission considers that the relevant period should reflect a

Stakeholder	Issue	AEMC Response
	made on a period of 12 months at the longest. The longer the duration for assessment, the less the impact each exercise of market power has, and there is an increasing diluting effect as the generator exercising market power is able to contract its capacity at high prices. Averaging the impact of the relative few price spikes resulting from the exercise of market power over a term any longer than 12 months has the potential to dilute the problem away.	sufficient time under which new entry (which could consist of new generation entry, expansion of existing generation or an upgrade of the relevant interconnectors) would be expected to occur in the absence of significant barriers to entry.
MEU	The directions paper does not include a consideration of risk premiums added to wholesale contracts by generators and risk premiums added to retail contracts with end users by retailers. These risk premiums increase with higher spot market volatility and the threat of the exercise of generator market power.	The Commission has based its determination, amongst other considerations, on NERA's analysis which includes a comparison of both spot and contract prices against LRMC.
MEU	Contract prices should not be used as a benchmark in the assessment of market power.	The Commission notes the difficulties associated with the use of contract price data. The Commission has based its determination, amongst other considerations, on NERA's analysis which includes a comparison of both spot and contract prices against LRMC. The Commission recognises that there are certain limitations associated with the use of contract price data. These limitations are outlined in section 5.2.2 of this draft determination.
MEU	The AEMC must consider the periodic nature of the exercise of market power. Market power may be exercised over a two or three year period and may be dormant in the following year or two.	The Commission considers that the relevant period should reflect a sufficient time under which new entry (which could consist of new generation entry, expansion of existing generation or an upgrade of the relevant interconnectors) would be expected to occur in the absence of significant barriers to entry. The Commission has not observed evidence of substantial market power in any of the NEM regions over this period.
MEU	There is no single LRMC that could be used against which to compare wholesale price outcomes. LRMC	The Commission supports NERA's use of a least-cost combination of generation capacity to estimate the LRMC. The Commission considers

Stakeholder	Issue	AEMC Response
	<p>could be calculated on the unused capacity of Torrens Island Power Station, the lowest LRM of existing base-load generators, the LRM of the existing generation mix, or an OCGT, gas or coal-fired plant. The LRM of transmission augmentation should also be considered.</p>	<p>that, while there is some subjectivity in determining a system cost, there would be similar subjectivity involved in deciding on the relevant technology to use and determining its associated costs. Further, deciding on a specific technology may risk overestimating the costs when, in reality, lower cost options exist.</p>
NGF - SFS	<p>LRM above wholesale prices does not necessarily trigger new investment because:</p> <ul style="list-style-type: none"> • investors will look at “post-entry” PDC to make a decision on investment.; • there is always an option to invest. Exercising the option is choosing to invest. There is an opportunity cost associated with this that is equal to the potential of waiting to see the resolution of uncertainty. The value of the investment must exceed its costs by an amount equal to the value of keeping the option to invest elsewhere alive – the opportunity cost of investing; • LRM should be based on new entrant investor decisions, not on system wide LRM. It is unclear how a system-wide LRM estimate would be relevant to investors that are considering investing in a specific generation technology. 	<p>NERA has estimated a range of LRM based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by market policy uncertainties. The presence of a range of LRM estimates removes the potential for binary outcomes and give more weight to those prices that deviate from the range, i.e. prices that are below the bottom of the range and prices that are above the top of the range.</p> <p>The AEMC is comparing the overall system LRM with average annual wholesale prices, so a focus on a specific technology or investors decision would not be appropriate for this part of the analysis.</p>
NGF - SFS	<p>A number of factors have impacted on prices in all regions of the NEM, including extremely high temperatures, generator limitations and outages, network outages, flooding and other incidents. Many of these events had a material impact on wholesale market prices regardless of any generator bidding strategies but may be discounted away by potential</p>	<p>NERA has considered these factors in its analysis and the Commission has incorporated these considerations into this draft determination. A discussion of NERA's results is contained in section 5.3.2 of this draft determination.</p>

Stakeholder	Issue	AEMC Response
	investors.	
NGF - SFS	A timeframe of two to three years is likely to be too short a timeframe over which new transmission and generation investment can be commissioned. Both transmission and generation investments require significant lead times, not just for the construction of the project, but also to complete planning and approval processes. In addition, the specific characteristics of generation investments in an energy-only market, namely that investment expenditure tends to be substantial, that investment is irreversible, and that there is considerable uncertainty about future market outcomes, investors have a strong incentive to delay investments. These factors mitigate a prompt investment response as a result of high prices.	The Commission considers that the relevant period should reflect a sufficient time under which new entry (which could consist of new generation entry, expansion of existing generation or an upgrade of the relevant interconnectors) would be expected to occur in the absence of significant barriers to entry. The NERA analysis has taken into consideration exogenous factors that may have an influence on wholesale prices. These factors have been considered by the Commission in this draft determination.
NGF - SFS	Other LRMC standards such as the textbook long-run incremental cost (TLRIC) method and the average incremental cost (AIC) method may provide widely different outcomes to the perturbation (Turvey) method.	The Commission supports NERA's application of two distinct methodologies to the estimation of LRMC for the relevant markets - an approximation approach and a market modelling approach. The two separate approaches have been adopted to test whether there are any significant differences and to provide further confidence in the results.
Origin Energy	Any assessment process of substantial market power should take a holistic view of the NEM. Reliability and retail pricing outcomes are two tangible indicators that warrant examination. The LRMC vs average pricing analysis should form but one facet of the overall assessment framework.	The Commission has incorporated the results of NERA's analysis and CEG's analysis into its considerations on the rule change request in the context of the NEO. A result from NERA's analysis that showed wholesale prices to persistently exceed the competitive level over the period of the assessment would indicate the possibility of a problem and would be viewed as strong evidence of the need for further investigation.
Origin Energy	In many instances it would take more than three years to effect transmission build given the required time to undertake the regulatory investment test plus	The Commission considers that the relevant period should reflect a sufficient time under which new entry (which could consist of new generation entry, expansion of existing generation or an upgrade of the

Stakeholder	Issue	AEMC Response
	the actual construction. Origin does not propose an alternative time period but suggests that the AEMC exercise a degree of flexibility in its observations of high price events.	relevant interconnectors) would be expected to occur in the absence of significant barriers to entry.
Private Generators Group	Limiting market outcomes over a period of between one and three years is insufficient and will likely misrepresent the structure of the market. A period of five or ten years is more informative given that the NEM has only been in existence for over a decade, which is not consistent with long-run measures given the nature of electricity supply and consumption.	The Commission considers that the relevant period should reflect a sufficient time under which new entry (which could consist of new generation entry, expansion of existing generation or an upgrade of the relevant interconnectors) would be expected to occur in the absence of significant barriers to entry.
Private Generators Group	Do not consider that there exists a single LRMC that justifies intervention. Suggest the AEMC needs to use the LRMC required by an investor in order to bring on the marginal plant in the NEM. This would effectively be the levelised cost of investment in a single gas-fired peaking plant. Forward-looking and historical models are of limited value in isolation. The identification of an issue in a past year through a historical model would not provide a basis for regulatory intervention and may just indicate that outcomes vary over time as expected.	The Commission supports NERA's use of a least-cost combination of generation capacity to estimate the LRMC. The Commission considers that, while there is some subjectivity in determining a system cost, there would be similar subjectivity involved in deciding on the relevant technology to use and determining its associated costs. Further, deciding on a specific technology may risk overestimating the costs when, in reality, lower cost options exist. NERA has estimated a range of LRMC based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by market policy uncertainties. The presence of a range of LRMC estimates removes the potential for binary outcomes and give more weight to those prices that deviate from the range, i.e. prices that are below the bottom of the range and prices that are above the top of the range.
SACOSS	Assessment of LRMC against wholesale price outcomes is likely to result in a relatively large window into which both acceptable and unacceptable behaviour may fall.	The Commission considers that NERA's development of a range of LRMC estimates provides more weight to prices that deviate from the range, i.e. prices that are below the bottom of the range or prices that are above the top of the range carry more significance.

Stakeholder	Issue	AEMC Response
SACOSS	Sees the approach outlined in the directions paper as attempting to define a term (substantial market power) and then test for evidence of its existence rather than focusing on the underlying conditions that favour the exercise of market power including South Australia's high peak demand and limited interconnection. An inability to prove the existence of substantial market power does not refute that there are underlying conditions in SA that assist in the exercise of market power.	The Commission engaged Competition Economists Group to undertake an assessment of conditions that restrict competition and create barriers to entry.
TRUenergy	<p>In assessing the length of time, consideration needs to be given to more than the time required to physically build an asset. For transmission, the potential need to upgrade or invest is identified, followed by internal development of options, and ultimately to a successful RIT-T outcome. For generation there is a considerable lead time required to identify sites, procure land options, and obtain planning permission before a final investment decision can be made.</p> <p>Timeframe should also be considered as a function of demand with the economic cycle leading to market power ability likely to be more prevalent in boom years. Recommend 5 years timeframe.</p>	The Commission considers that the relevant period should reflect a sufficient time under which new entry (which could consist of new generation entry, expansion of existing generation or an upgrade of the relevant interconnectors) would be expected to occur in the absence of significant barriers to entry.
TRUenergy	Calculation of LRMC needs to have full consideration of the actual costs and risks faced by organisations that actually invest in generation assets. The costs need to consider more than the "sum of the parts" from a physical build, but also allow for an appropriate risk adjusted return that reflects the needs of both debt providers and	NERA has estimated a range of LRMC based on variations in input capital costs. The capital costs reflect different investors' risk premiums driven by policy uncertainties. The presence of a range of LRMC estimates removes the potential for binary outcomes and give more weight to those prices that deviate from the range, i.e. prices that are below the bottom of the range and prices that are above the top of the range. A further explanation of the methodologies adopted by NERA is contained in their technical paper

Stakeholder	Issue	AEMC Response
	shareholders, as well as account for the current regulatory uncertainty prevalent in the current investment environment. The difference between LRM approaches used by retail regulators and that proposed by NERA needs to be reconciled.	available on the AEMC website. The Commission has provided a comparison of NERA's approach to the estimation of LRM with those used by retail regulators in section 6.1.1 of this draft determination.
Substantial market power and transient pricing power		
AER - Darryl Biggar	Rather than linking the definition of market power to a price, it should be linked to the underlying action – the economic withdrawal of capacity. A generator can be said to exercise market power when it systematically submits an offer curve which departs from its true, underlying, short-run marginal cost curve in order to influence the wholesale spot price it is paid and is therefore dispatched to a price-quantity combination which does not fall on its short-run marginal cost curve. Where a generator is systematically exercising market power, and where that market power is unlikely to be eroded within a reasonable timeframe (i.e. due to barriers to entry), some additional policy measures to mitigate that market power should be considered.	The Commission considers that in an energy-only market where the maximum price is regulated, such as the NEM, some generators are unlikely to be able to recover their efficient fixed costs if they can never offer their capacity above their SRMC curve, and that such an outcome would be likely to result in detrimental effects on efficient investment. As a result, the Commission proposes that a distinction should be drawn between transient pricing power (such as occasional bidding above SRMC) and substantial market power. This is discussed further in section 4.2 of this draft determination.
AER - Darryl Biggar	The presence of negative prices in some intervals does not require generators to bid above SRMC in other trading intervals.	The Commission agrees that the presence of negative prices in some intervals does not prevent a generator from recovering their fixed costs at other times.
AER - Darryl Biggar	There is no necessary connection between price spikes and the presence of market power. Price spikes would have no connection to market power unless at the time of high prices, some generator was producing less than it was physically able to produce. Neither does the absence of high prices	The Commission has defined substantial market power in section 4.3 of this draft determination. The Commission considers that regulatory intervention may be justified if generators exercise transient pricing power to such an extent and with sufficient frequency so as to increase the wholesale price above LRM for a sustained period.

Stakeholder	Issue	AEMC Response
	imply the absence of market power. Generators may exercise market power so as to have a substantial impact on the annual average wholesale price, even without prices ever reaching exceptional levels.	
AER - Darryl Biggar	The directions paper refers to the MEU's draft rule as a "price cap". However, the MEU's proposal places no direct restrictions on wholesale prices. It would be more appropriate to refer to the MEU proposal as an "offer cap" – in that it places a limit on the offer curves that certain generators can submit.	The Commission agrees that the MEU's proposed rule places restrictions on generator bids rather than directly on wholesale prices.
Alinta Energy	Issue is not about whether economic withholding from time to time may influence price outcomes but rather whether such withholding illustrates systemic inefficiency. For economic withholding to have relevance within the existing debate, a generator's ability to "game" could not arise if its response to an exogenous shock (e.g. high temperature) did not give rise to any counter bids or actions which muted the impact of that gaming for the duration of the shock. Further, over the longer term, sufficient barriers to entry would need to exist to impede a competitor entering the market to respond to exogenous factors and price spikes which form a valid market signal.	The Commission does not consider the exercise of transient pricing power by an individual generator to be problematic unless that bidding results in an increase in wholesale prices to such an extent or with sufficient frequency so as to increase annual average wholesale prices above the cost of new entry for a sustained period of time. The Commission considers that substantial market power is only possible in the presence of significant barriers to entry and, given the lack of firm evidence supporting the existence of significant barriers to entry, there are insufficient grounds to assume the likely future exercise of substantial market power by generators in the NEM.
Alinta Energy	The MEU proposal represents a desire to alter the dynamics of the market to minimise risk exposure for a specific category of participants. The introduction of a price cap would have the effect of replicating cover for price risk without large consumers needing to implement hedging strategies or enter the retail market. The AEMC	The Commission has provided a discussion of the impact of movements in wholesale prices on large users in section 6.2 of this draft determination.

Stakeholder	Issue	AEMC Response
	should investigate the management of price risk by major loads.	
ESAA	Occasional price spikes are an intentional part of an energy-only market. They are essential to support sufficient generation capacity at the extreme peaks of demand and to enable more regularly dispatched generators to earn sufficient revenue to cover their fixed costs, which can be a significant proportion of their total costs	The Commission considers that in an energy-only market where the maximum price is regulated, such as the NEM, some generators are unlikely to be able to recover their efficient fixed costs if they can never offer their capacity above their SRMC curve, and that such an outcome would be likely to result in detrimental effects on efficient investment. As a result, the Commission proposes that a distinction should be drawn between transient pricing power (such as occasional bidding above SRMC) and substantial market power. This is discussed further in section 4.2 of this draft determination.
MEU	High prices are necessary to signal scarcity to the market but economic withdrawal does not signal a problem of scarcity. There is no need to artificially signal scarcity (and hence reduce the efficiency of the market) if no scarcity exists.	The Commission agrees that bidding above SRMC has the potential to result in some efficiency losses including out-of-merit-order dispatch. However, the Commission considers that in an energy-only market such as the NEM, some generators are unlikely to be able to recover their efficient fixed costs if they could never offer their capacity above SRMC, and that such an outcome would be likely to result in detrimental effects on efficient investment.
MEU	A generator economically withdrawing capacity forces the market to be dispatched out of merit order and therefore the dispatch is not efficient. Costs are recovered by generators seeking higher prices from retailers, who in turn seek higher prices from consumers in both regulated and unregulated retail markets.	The Commission agrees that bidding above SRMC has the potential to result in some efficiency losses including out-of-merit-order dispatch. However, the Commission considers that in an energy-only market such as the NEM, some generators are unlikely to be able to recover their efficient fixed costs if they could never offer their capacity above SRMC, and that such an outcome would be likely to result in detrimental effects on efficient investment. A discussion of the impact of substantial market power on retail consumers is provided in sections 6.1 and 6.2 of this draft determination.
MEU	The AEMC approach to assessing “significant market power” does not address the longer term temporal impacts of the significant increase in retail	The Commission has based its determination on the an assessment of the existence of the problem that the MEU's proposed rule seeks to address - the exercise of generator market power in the wholesale market. A

Stakeholder	Issue	AEMC Response
	contract market prices subsequent to the exercise of market power.	discussion of the impact of substantial market power on retail consumers is provided in sections 6.1 and 6.2 of this draft determination.
MEU	MEU proposal does not directly cap the spot market price. The MEU proposal does not constrain the pricing of any generator that is not a dominant generator.	The Commission agrees that the MEU's proposed rule places restrictions on generator bids rather than directly on wholesale prices.
NGF - SFS	It is not the case that prices spikes based on high generator bids necessarily imply that such bids exceed SRMC. Most generators have continuous marginal cost curves, including an emergency operating range above nominal maximum output level where marginal costs increase dramatically. Determining SRMC is therefore far more complex than simpler and more conventional measures of marginal costs such as average fuel costs and variable operation and maintenance costs would suggest. This is particularly the case when a facility is operating at or near its full output and may have to take costly measures to increase output slightly.	The Commission's definition of substantial market power is outlined in section 4.3 of this draft determination. The definition reflects the ability of a generator to sustainably increase annual average prices to a level that exceeds LRMC rather than SRMC.
NGF - SFS	There are other factors that should be reflected in prices beyond SRMC such as the implicit costs of demand interruptions, low operating reserves, temporary over-loading of elements of the transmission network or voltage drops, or risky system operations more generally. The fact that SRMC are both very difficult to determine in practice and that the determination of market clearing prices does not generally account for scarcity increases the risks associated with market intervention.	The Commission does not consider that pricing above SRMC is a basis for regulatory intervention unless that pricing occurs to a sufficient extent or with sufficient frequency to sustain annual average prices above LRMC.

Stakeholder	Issue	AEMC Response
Private Generators Group	The MEU proposal is a risk management tool, rather than a proposal to address market power. The AEMC should give consideration to the role played by the risk management decisions made by the proponent's affected members.	The Commission has provided a discussion of the impact of movements in wholesale prices on large users in section 6.2 of this draft determination.
Cost/benefit of regulatory intervention		
AER - Darryl Biggar	If the level of the MPC is a material constraint on the ability of generators to recover their fixed costs, then consideration should be given to increasing the MPC at the same time as mechanisms are put in place to mitigate any market power. In the absence of mechanisms to control market power, raising the MPC alone might allow generators to exercise higher levels of market power.	The Commission considers that, while an increase to the MPC would allow for a greater recovery of costs for generators at times of supply shortage, there may be considerable implications for the financial exposure of market participants at these times. The implications of the level of the MPC are discussed in sections 4.2 and 8.3 of this draft determination.
AFMA	Commission should not have decided to proceed with rule change assessment and should be dismissed without further investigation. The contemplation of the rule change adds to uncertainty in the market and threatens the reputation of the market and the continued timely investment in infrastructure.	The Commission recognises that the implementation of the MEU's proposed rule is likely to have a significant impact on some market participants and investment incentives, and that the mere existence of the proposal may have an impact on some market participants. However, because of the significant potential effects of the proposal, the Commission considers that it is appropriate to undertake a thorough consideration of the proposal before making a decision.
Alinta Energy	Any assessment of the proposed rule needs to consider: <ul style="list-style-type: none"> • the impact on market mechanism efficiency as resources are efficiently allocated in the spot market through transparent price discovery; • the impact on outcome efficiency, which concerns societal welfare maximisation and the 	In making this draft rule determination the Commission has considered the extent to which the MEU's proposed rule would achieve the national electricity objective. The Commission considers that any rule that seeks to constrain or limit the bidding of generators, in the manner proposed by the MEU, or a similar manner, is likely to diminish incentives in the current investment environment, thereby reducing the long-term reliability of supply to consumers.

Stakeholder	Issue	AEMC Response
	<p>impact on the broader market as the primary driver of investor decision making.</p> <p>AEMC rule making does not universally cover the broader market even though any proposed rule regulating the operation of the NEM would impact it generally and possibly directly.</p>	
Alinta Energy	<p>A backward looking analysis that indicates a perceived issue in a past year does not provide a basis for intervention and is likely to indicate that outcomes vary over time as expected in a dynamic market.</p> <p>A forward looking analysis is inherently subjective and is limited by assumptions. The analysis may be informative but should not be used as the basis for intervention.</p>	<p>The Commission considers that substantial market power can be demonstrated by a combination of evidence of past prices and behaviour, expected future prices, and an assessment of the extent and effect of barriers to entry. In consideration of the lack of evidence supporting the existence of substantial generator market power, and the lack of firm evidence supporting the existence of significant barriers to entry, there are insufficient grounds to assume the likely future exercise of substantial market power by generators in the NEM.</p>
Alinta Energy	<p>Does not support the LRMC approach as the basis for intervention. Electricity markets must be allowed to develop over time without distortion and intervention. The evidential bar for reform must be set appropriately high.</p>	<p>The Commission has incorporated the results of NERA's analysis and CEG's analysis into its considerations on the rule change request in the context of the NEO. A result from NERA's analysis that showed wholesale prices to persistently exceed the competitive level over the period of the assessment would indicate the possibility of a problem and would be viewed as strong evidence of the need for further investigation.</p>
ESAA	<p>At a time when the market faces unprecedented levels of uncertainty from carbon policy and other influences, this rule change is an additional unhelpful factor clouding the outlook for the generation sector. The market would benefit from a quick resolution to the process.</p>	<p>The Commission recognises that the implementation of the MEU's proposed rule is likely to have a significant impact on some market participants and investment incentives, and that the mere existence of the proposal may have an impact on some market participants. However, because of the significant potential effects of the proposal, the Commission considers that it is appropriate to undertake a thorough consideration of the proposal before making a decision.</p>

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ESAA	. A meaningful application of the proposed test would require a forward looking assessment of electricity prices. For these forecasts, results from modelling are notoriously contestable and would be a contentious basis for regulatory intervention.	The Commission has used the results from NERA's analysis to assist in the determination of whether substantial market power has existed in the NEM in the past. The results from NERA's analysis have been considered in light of evidence regarding the existence of barriers to entry from CEG's analysis to determine the potential for the exercise of substantial market power in the future.
ESAA	All factors influencing wholesale electricity prices must be stripped out to isolate the price effects of the conduct of a particular generator. By implication, the conduct of all other generators must also be discounted. Isolating the effect of a single generator's conduct is difficult to do for historical prices and would be even more difficult to do prospectively.	The Commission does not consider that there is a need to examine the actions of individual generators to identify whether there is evidence of a problem that warrants further investigation. The Commission agrees that exogenous factors influencing wholesale electricity prices should be taken into consideration.
AFMA	The term "or is likely to be able to" is concerning as past conduct cannot conclusively imply an ongoing problem which requires intervention. A major structural change to the NEM should not be made based on predictions of future developments and their implications for the market.	The Commission considers that the term "or is likely to be able to" is relevant to the definition of substantial market power. The Commission considers that substantial market power can be demonstrated by a combination of evidence of past prices and behaviour, expected future prices, and an assessment of the extent and effect of barriers to entry. In consideration of the lack of evidence supporting the existence of substantial generator market power, and the lack of firm evidence supporting the existence of significant barriers to entry, there are insufficient grounds to assume the likely future exercise of substantial market power by generators in the NEM.
Private Generators Group	The definition of "able or likely to be able" would require significant foresight on the part of the assessor in order to be of any substantive value. It is also concerning in that it hints at pre-emptive intervention in the absence of actual evidence of the misuse of market power.	
LYMMCo	Considers that the term "or is likely to be able to" should be removed from the definition of substantial market power. The inclusion of this language is	

Stakeholder	Issue	AEMC Response
	<p>nebulous and would require subjective decision making on the part of the regulator. Substantial market power should be based solely on evidence of it being exercised.</p>	
MEU	<p>If occasional price spikes are permitted in one region because there is the ability to exercise market power frequently and persistently due to a structural problem, then why is this acceptable when, in another region where there is no such structural problem, the ability to exercise market power is limited. This implies that the AEMC accepts that less competition in one region compared to another, is acceptable, despite the principle that competition underpins the NEM market design.</p>	<p>The Commission's draft determination is based, amongst other considerations, on NERA's assessment of the existence of substantial market power in each region of the NEM. The Commission does not submit that it has accepted a greater ability to exercise market power in one region compared to another.</p>
NGF - SFS	<p>It is unclear how the Commission intends to apply the average price versus LRMC market power definition. The likelihood that a generator has market power as a rationale for intervention, even if the generator has not taken any actions to that effect in the past, represents a departure from well-established legal precedent. If the market power definition is interpreted in this way, it defines far broader circumstances as to when regulatory intervention is merited than is the case in other markets. Second, if there is a mere likelihood or if there is some evidence of past price manipulation and an expectation that this may continue, the definition then raises questions as to the substance of the one to three year time horizon, given that any intervention would be prospective.</p>	<p>The Commission does not consider that a generator only has substantial market power if there is evidence of several years of above-LRMC pricing in the recent past. The Commission's definition requires that a generator has an 'ability' to sustain prices at that level. That ability can be demonstrated by a combination of evidence of past prices and behaviour, expected future prices, and an assessment of the extent and effect of barriers to entry. In consideration of the lack of evidence supporting the existence of substantial generator market power, and the lack of firm evidence supporting the existence of significant barriers to entry, there are insufficient grounds to assume the likely future exercise of substantial market power by generators in the NEM.</p>

Stakeholder	Issue	AEMC Response
Origin Energy	Forward looking analysis to determine the likely exercise of substantial market power is likely to be limited due to the myriad of assumptions that would need to be taken into account in modelling future spot prices. The justification of regulatory intervention on the basis of forward looking analysis would therefore not be prudent. Backward looking analysis should be given a greater weighting than forward looking analysis.	The Commission considers that substantial market power can be demonstrated by a combination of evidence of past prices and behaviour, expected future prices, and an assessment of the extent and effect of barriers to entry. In consideration of the lack of evidence supporting the existence of substantial generator market power, and the lack of firm evidence supporting the existence of significant barriers to entry, there are insufficient grounds to assume the likely future exercise of substantial market power by generators in the NEM.
Origin Energy	Any perceived gains from market power mitigation mechanisms would be outweighed by the associated adverse impacts on investment and ultimately reliability.	The Commission agrees and considers that in light of the lack of evidence supporting the existence of substantial market power in the NEM, any rule that seeks to constrain or limit the bidding of generators, in the manner proposed by the MEU, or a similar manner, is likely to diminish incentives in the current investment environment, thereby reducing the long-term reliability of supply to consumers.
Relevant market dimension		
International Power GDF Suez	The NEM is, by intention, a single market. One of the roles of the NER is to ensure that this is maintained. A finding that a region needed to be treated separately in an investigation of potential market power would be prima facie evidence of insufficient interconnector capacity provision. There are a number of reasons why interconnector capacity needs to be reconsidered (relevant to Transmission Frameworks Review). However, International Power sees this as a temporary situation brought about by a gap in the transmission planning arrangements. An indication that the relevant market should be considered as less than the full NEM should be considered as due to	<p>Given the results of NERA's comparison of LRMC with annual average wholesale prices, it has not been necessary for the Commission to reach a firm conclusion on the appropriate market definition as part of the analysis to inform this draft determination.</p> <p>The Commission considers it important to note that while insufficient interconnector capacity to defeat the SSNIP may be the reason that the test points to each NEM region as the relevant market, this does not mean that the interconnector capacity is too low in reality and needs to be upgraded. Determinations on the requirement for transmission infrastructure upgrades are undertaken through the formal consultative RIT-T process.</p>

Stakeholder	Issue	AEMC Response
	temporary circumstances, and hence not relevant to this investigation.	
LYMMCo	For the purposes of defining the boundaries of the relevant geographic market, the Commission should follow French J's decision in <i>AGL vs ACCC</i> that the entire NEM should be treated as a single market.	Given the results of NERA's comparison of LRMC with annual average wholesale prices, it has not been necessary for the Commission to reach a firm conclusion on the appropriate market definition as part of the analysis to inform this draft determination.
MEU	The AEMC approach to assessing "significant market power" does not address the longer term temporal impacts of the significant increase in retail contract market prices subsequent to the exercise of market power.	The Commission has based its determination on the an assessment of the existence of the problem that the MEU's proposed rule seeks to address - the exercise of generator market power in the wholesale market. A discussion of the impact of substantial market power on retail consumers is provided in sections 6.1 and 6.2 of this draft determination.
MEU	AEMC has not considered the loss of retail competition through the exit of second tier retailers from an inability to acquire competitive hedge contract offers. In situations where the dominant generator is vertically integrated with a dominant retailer, the opportunities to exercise market power can also be observed at the retail level. The dominant generator may therefore no longer need to exercise "substantial market power". The ability and incentive to exercise market power is transferred to the dominant retailer.	The Commission has based its determination on the an assessment of the existence of the problem that the MEU's proposed rule seeks to address - the exercise of generator market power in the wholesale market. An discussion of the impact of substantial market power on retail consumers is provided in sections 6.1 and 6.2 of this draft determination.
MEU	Retailing should not be excluded from the relevant functional dimensions of electricity production.	The Commission has provided a discussion of the impacts on consumers in sections 6.1 and 6.2 of this draft determination.
MEU	The appropriate geographic dimension is at the boundary of each NEM region due to the way the NEM is operated. Electricity markets exhibit congestion and operate of necessity in short time	Given the results of NERA's comparison of LRMC with annual average wholesale prices, it has not been necessary for the Commission to reach a firm conclusion on the appropriate market definition as part of the analysis to inform this draft determination.

Stakeholder	Issue	AEMC Response
	blocks.	
MEU	NERA methodology does not account for the consequences of shifting rents downstream. NERA focuses on evidence of substantial market power if there is a sustained effect on average spot prices that is likely to cause them to exceed LRMC over the long-term. However, periods of high price spikes may not necessarily result in spot and hedge contract prices exceeding the LRMC, but the effects on retail contract prices are immediate and can apply for periods up to 3 years subsequent to the actual exercise of the market power.	A discussion of the impact of substantial market power on retail consumers is provided in sections 6.1 and 6.2 of this draft determination.
TRUenergy	The relevant market is defined in the NEL. Defining an alternative view of the market is likely to create confusion. Definitions in the NEM support the concept of a single NEM-wide interconnected electricity system.	Given the results of NERA's comparison of LRMC with annual average wholesale prices, it has not been necessary for the Commission to reach a firm conclusion on the appropriate market definition as part of the analysis to inform this draft determination.
Barriers to entry		
AER	Bidding by generators to manipulate prices, be it to lower or raise prices, be it in the shorter term or medium term, and be it in energy, contract, retail or frequency control ancillary service markets, may raise strategic barriers to entry and competition concerns in retail and generation markets.	The Commission considers that these views are supported in CEG's analysis.
Alinta Energy	The clarification of barriers to entry would illustrate that high prices are not of themselves an indication of barriers to entry and that high costs of entry, for instance building a generating unit, is not a barrier to	The Commission agrees that high prices and high costs of building new capacity are not in themselves barriers to entry.

Stakeholder	Issue	AEMC Response
	entry.	
International Power GDF Suez	<p>If substantial barriers to entry are not identified then the case for the rule change falls away. International Power asserts that there is no evidence of the existence of material barriers to entry.</p> <p>Conversely, introducing measures to further restrict competitive market behaviour, such as those proposed by the MEU will themselves act as a barrier to new investment.</p>	<p>The Commission considers that the points listed by GDF Suez are likely to assist in reducing barriers to entry but that the list is not sufficiently comprehensive to conclude that barriers to entry do not exist.</p> <p>The Commission agrees that a form of rule to constrain or remove transient pricing power, such as that proposed by the MEU, would pose unacceptable limitations on the ability of NEM generators to recover their efficient fixed costs. In the long-term this may jeopardise generators' ability to remain solvent and may risk further investment and injections of capital to the NEM.</p>
MEU	The exercise of market power is not just related to increasing prices. Generators may reduce prices to force other generators out of the market and thereby increase prices in the longer term.	The Commission recognises the MEU's concerns in this regard as a form of strategic barrier to entry. CEG's considerations on strategic barriers to entry are discussed in section 7.3.2 of this draft determination.
Private Generators Group	The NEM history of new entry needs to be comprehensively considered when reviewing the issue of barriers to entry. The NEM record on new entry seems to directly undermine arguments suggesting such barriers exist.	CEG's report provides an assessment of the NEM history of investment and the implications for the existence of barriers to entry. This is discussed in section 7.3.1 of this draft determination.