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John Pierce
Chairman
Australian Energy Market Commission
PO Box A2449
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Dear Mr Pierce

Submission on Draft Determination – Potential Generator Market Power in the NEM

Please find attached the Australian Energy Regulator's (**AER**) submission regarding the Australian Energy Market Commission's (**AEMC**) draft rule determination on the Major Energy User's (**MEU**) Potential Generator Market Power in the National Electricity Market (**NEM**) rule change proposal.

The AER welcomes the opportunity to contribute further to the discussion on this issue. The AER would encourage the Commission to broaden the range of evidence and analytical tools it is considering in determining how issues relating to market power should be assessed. The average price versus the *upper bound* of the long run marginal cost (**LRMC**) test proposed to be adopted by the AEMC risks understating or overlooking instances of the exercise of substantial market power.

The AER considers that an average price versus LRMC test can be a useful threshold indicator of whether or not substantial market power exists. For example, if prices were always below the best estimates of LRMC then one might conclude that there are limited concerns. However, in the case of the NEM there is a need for further analysis. For example, in South Australia, average prices stayed well above mid-point LRMC estimates and market modelled LRMC for several years in a row. The AER believes this indicates that there is a problem with substantial market power.

We would suggest that the Commission's work would be enhanced by considering a broader framework such as that which exists under a competition/antitrust law framework. A useful consideration would be to analyse the actual bidding behaviour of individual participants and how their behaviour influences average prices and the efficiency of dispatch. Analysis of Lerner Indexes and Pivotal/Residual Supply Indexes would also be beneficial.

While the CEG report analyses barriers to entry, and indicates the possible existence of barriers to entry in South Australia, the report appears to down-play the barriers to entry on the basis of the price versus upper bound LRMC applied by NERA, which reflects a degree of circularity in the approach.

The AER considers that, given the complexity of the issue of what constitutes substantial market power, and the seriousness of the harms which may arise, the work of the AEMC would benefit from a broadening of the analysis and an assessment of the costs and benefits of possible solutions to the exercise of substantial market power in the NEM.

The AER also considers that, given the difficult nature of these 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 AER would be pleased to provide further assistance to the Commission on this important area of work. If you would like to discuss any aspect of this submission please contact Tom Leuner, General Manager, Wholesale Markets, on (03) 9290 1890.

Yours sincerely

Andrew Reeves
AER Chairman

Submission

AEMC Draft Rule Determination

Potential Generator Market Power in the NEM

August 2012

AUSTRALIAN ENERGY REGULATOR

1 Introduction

The Australian Energy Regulator (AER) welcomes the opportunity to comment on the Australian Energy Market Commission's (AEMC) draft rule determination on the Major Energy User's (MEU) Potential Generator Market Power in the National Electricity Market (NEM) rule change proposal.

Among its roles, the AER monitors the wholesale electricity market and is responsible for compliance with and enforcement of the National Electricity Rules (NER). It also undertakes a range of reporting, including weekly reporting into outcomes in the NEM and reporting when the spot price exceeds $5000/MWh.

The AER believes that the issues being considered in this Rule change are critical to the ongoing efficient operation of the NEM. As the AEMC has observed, the persistent or frequent exercise of generator market power can potentially result in high electricity prices, which in the absence of appropriate conditions for promoting and allowing competition, could result in inappropriate price signals and prices which are not in the long term interests of consumers. There are also a range of inefficiencies that arise from market power which have been detailed in the AER's earlier submissions.

The exercise of market power also has the potential to affect retail competition and result in higher retail prices. All consumers, but particularly large industrial consumers, make investments based on an expectation that electricity prices will be at efficient levels in the future. The ongoing successful operation of the NEM requires that all participants have confidence that there is a robust regulatory framework for dealing with market power concerns.

Whilst the AER appreciates that the issues being considered in this review are complex and that evidence of the existence of market power can be opaque, the AER considers that the preliminary conclusions reached by the AEMC, that there is no evidence of the existence of substantial market power in any region of the NEM, would be better informed from further, broader analysis.

Section 2 of this submission highlights further approaches the AEMC might consider in addition to the price versus long-run marginal cost (LRMC) approach to determining substantial market power. The AER considers there are limitations in using a single 'bright line test' to the definition of substantial market power and that the AEMC should consider a broader framework for analysing the issue.

The AER recognises that price versus LRMC is one potentially useful tool in assessing substantial market power. However, the AER is concerned with the AEMC's proposed application of the test. Section 3 looks at the form of the test proposed to be adopted by the AEMC. In particular, it highlights how a focus on the *upper-bound* of LRMC estimates is likely to understate market power concerns. Section 4 explains how, even if the NERA LRMC data is accepted, it appears that there has been the exercise of substantial market power, particularly in South Australia.

Section 5 of this submission then focuses on barriers to entry and the CEG report. It explains how the CEG report appears to recognise that barriers to entry are a concern in South Australia. This section also highlights the circularity in the AEMC's proposed assessment

process, in that overall conclusions on barriers to entry appear to be based on NERA's price versus LRMC analysis.

Section 6 argues that the proposal for ongoing industry monitoring of the relationship between price and LRMC is inadequate.

2 The need for a broader focus for considering market power issues

In the directions paper, the AEMC defined substantial market power as "the ability of a generator 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."[1]

The AEMC's consultant, NERA, added that a generator in the NEM has substantial market power only if it:

- has the ability to increase average spot prices to such an extent that they exceed the LRMC of adding capacity; and
- is insulated from the forces of competition due to significant barriers to entry and expansion that enable it to sustain prices at that level.[2]

In our previous submissions, the AER noted that a price versus LRMC test was a useful indicator for measuring market power. However, we also raised a number of concerns with narrowing the focus to just a price versus LRMC test.

The AER argued that by focussing on a price versus LRMC test, the AEMC could be by-passing a more complete analysis utilising a range of tools. In particular, a focus only on average market price outcomes may mean the exercise of substantial market power by individual generators, which is harmful and has clear efficiency effects, is overlooked.

The AER also noted that there were significant challenges in defining a price versus LRMC test. In particular, that there was considerable conjecture around the how to determine LRMC.

Finally, in its earlier submissions, the AER questioned whether a bright-line price versus LRMC test would of itself, be sufficiently robust to capture the exercise of substantial market power. The AER encouraged the AEMC to consider whether measures of market power that focused on market structure, such as the Lerner Index and the Pivotal/Residual Supply Indexes, should be used to complement the price versus LRMC test as a measure of market power.

While the AER reiterates its broad support for a price versus LRMC tool as one useful tool for analysing whether there are market power concerns, we remain of the view that a broader suite of analytical tools is required. We consider that given the complexity of the issue and the range of circumstances that might be contemplated by an assessment of the potential for substantial market power, 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. In this respect, the AER suggests that the AEMC might wish to consider the significant insights into the exercise of market power provided by competition/antitrust approaches.

[1] AEMC (2011), *Potential Generator Market Power in the NEM, Directions Paper*, p. i.
[2] NERA (2011) *Potential generator market power in the NEM – A report for the AEMC*, June 2011, p. 14.

The AEMC has adopted the standard competition law approach for the purpose of defining markets, with the market defined in terms of its product, geographic, functional and temporal dimensions. The AEMC has also adopted the hypothetical monopolist or 'small but significant and non-transitory increase in price' (SSNIP) test commonly used in competition law to determine geographic market boundaries.

A competition law framework should also be used as part of the AEMC's further consideration of the issue of substantial market power. Of note is the fact that the CEG report did look at basic indicators of market shares and measures of concentration. Moreover, both NERA and CEG acknowledge that there are a number of measures of market power that could have been considered. For example, in its initial report NERA stated that:

> *There are also a number of other indicators of substantial market power that are not discussed in this initial report. In particular, the 'Lerner Index' and the 'Pivotal Supplier Index' are two additional measures that are commonly employed to assist in the detection of substantial market power in wholesale electricity markets. However, a detailed discussion of these methodologies is outside the scope of this initial report.*[3]

In the peer review of the NERA paper, CoRE Research discusses the fact that these other indicators of substantial market power are not discussed in NERA's initial report:

> *While recognising the bounds of the current NERA report, in our opinion, a focus on these alternative indicators will be an important part of the further AEMC analysis. The relationship between transitory and substantial market power is more subtle in electricity markets than in many other markets, and is reflected in both the sometimes volatile nature of electricity spot prices and the fact that in some periods many generators may have temporary market power even though they clearly lack sustained, substantial market power. Alternative measures, such as the Residual Supply Index, are (imperfect) ways to try and capture this relationship.*[4]

The use of these additional measures of market power will add to the AEMC's assessment. It would provide more insight into the potential exercise of market power and the market power of individual participants than an approach which relies heavily on a price versus LRMC test.

Furthermore, the AER considers that the review by the AEMC would profit from more detailed analysis of the behaviour of market participants. In our view, an assessment of whether or not participant exercise substantial market power requires a detailed analysis of their bidding behaviour and what this reveals about their ability to exert control over longer-term average prices. Earlier AER submissions have included detailed analysis of participant behaviour, and Section 4 of this submission explores certain outcomes in South Australia.

[3] NERA (2011) *Potential generator market power in the NEM – A report for the AEMC*, June 2011, p iv.
[4] CoRE Research (2011) *Review of NERA report,* p.2.

3 Issues with the Price v LRMC test adopted

While the AER broadly supports the development of a price versus LRMC test as one useful potential indicator of the exercise of market power within a broader suite of measures and analysis, we consider that the AEMC's test as currently proposed has a number of shortcomings.

In the draft determination the AEMC has developed a range of LRMC estimates using the approximation approach. This approach of developing a range of LRMC estimates is understandable given the difficulties of deriving LRMC. However, 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. In practical terms, the upper bound is the most conservative price versus LRMC test that could be applied from the range of LRMC estimates, and as such it may fail to detect a market power problem.

The impact of the conservative choice of the upper bound of the range is demonstrated by the significant difference between the lower bound and upper bound estimates of LRMC in all states in all years. For example, there is a $23.3/MWh difference between the upper bound and lower bound LRMC estimates for South Australia for 2010/11. This equates to a 36 percent difference between the top-end and bottom end estimates of LRMC. With such a broad range of LRMC estimates, a test which compares price to the top-end estimate of LRMC carries with it a significant risk of failing to detect market power concerns. As with all assessments that rely on single tests and thresholds, the inflexibility and arbitrary nature of the threshold is best illustrated when prices that fall marginally short of that threshold are taken as an indication that there is no evidence of a problem.

The AER notes that prices that fall within this upper bound estimate of LRMC are variously described throughout the draft determination as prices 'that would prevail in a workably competitive market', 'competitive' prices, and 'efficient prices'. 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 reflect non-competitive prices.

The AER also questions the AEMC's preference for the upper bound LRMC estimate given the AEMC's assessment that a more accurate LRMC estimate is available. For each NEM region, the LRMC is calculated for two years using a market modelling approach, which the AEMC acknowledges is generally considered to be "the closest to a true approximation of LRMC."[5] In each instance, the LRMC calculated using the market modelling approach is less than upper bound LRMC estimate.

It is also not clear for how many years price would need to exceed the top-end estimate of LRMC to constitute significant market power. The draft determination notes that that the "Commission has considered the results of NERA's comparison of annual average prices with LRMC over a time-frame sufficient that new entry would be expected to occur in the absence

[5] AEMC (2012) *Potential Generator Market Power in the NEM, Draft Rule Determination*, p.19.

of barriers to entry."[6] As this time frame is a fundamental component of the definition of substantial market power, it needs to be further clarified. It appears from the AEMC's analysis that price would need to exceed LRMC for a number of successive years. This could lead to some very extreme prices not being captured by the test. For example, it appears that the under the AEMC's proposed test, the substantial market power threshold will not be breached provided that for one year in every three, price does not exceed the top-end estimate of LRMC, regardless of how extreme prices are in the other two years. The AER considers such an approach may not capture the exercise of substantial market power.

The AER considers that there are significant issues with the price versus LRMC approach outlined in the draft determination. Notwithstanding the AEMC's suggestion that the use of a range of LRMC estimates overcomes the issue of a single 'bright line' test, the AER considers that the issues it identified in its previous submission about adopting a single test remain of concern. The bright line test in the draft determination involves comparing price to the top-end estimate of LRMC. All other estimates in the range of LRMC estimates developed using the approximation and market modelling approaches are not given significant weight. The AER considers that this detracts from the robustness of the framework for considering substantial market power.

[6] AEMC (2012) *Potential Generator Market Power in the NEM, Draft Rule Determination*, p.16.

4 Analysis of the extent of Market power

The previous sections have identified issues with the price versus LRMC analytical framework applied in the draft determination. This section highlights that even if this framework is adopted and the modelling assumptions employed by NERA are accepted, the results do not support "a conclusion that there is no evidence of market power."[7]

Price versus LRMC approach results for South Australia

The AER has particular concerns with the analysis that has been conducted for South Australia. In the submission in response to the directions paper, the AER referred to the high prices in South Australia from 2007/08 to 2009/10 and noted that while there are significant challenges for the AEMC in defining LRMC, "it is difficult to see how such price outcomes could be less than a market LRMC."[8] While the AER notes that NERA's analysis suggests that prices in South Australia only exceeded the upper bound estimate of LRMC for one year, the AER is not convinced by this analysis.

Table 1 illustrates price versus LRMC estimates in South Australia for the four years, 2006/07 to 2009/10. The table reproduces data provided in Table 4.5 of NERA's report, except for the midpoint estimates of LRMC which have been developed by the AER.

Table 1 – South Australian Prices and Estimates of LRMC – 2006/07 to 2009/10

	2006/07	2007/08	2008/09	2009/10
Price ($/MWh)	58.8	101.2	68.6	82.5
LRMC (upper) ($/MWh)	61.2	64.3	68.7	87.0
LRMC (lower) ($/MWh)	45.5	47.8	50.7	63.6
LRMC (middle) ($/MWh)	53.4	56.1	59.7	75.3

To put some of these prices into context, the prices in 2007/08 were the highest average prices in any region since NEM commencement, the prices in 2009/10 were the second highest and the prices in 2008/09 were the third highest.

NERA's analysis demonstrates that for 2007/08, price is 57 percent higher than NERA's top-end estimate of LRMC, and over double the estimate of LRMC using the market modelling approach (which the AEMC recognises as the most accurate measure of LRMC). For 2008/09, prices are 10 cents/MWh from the very top-end of the range of LRMC estimates, while for 2006/07 and 2009/10 prices are close to the top-end of the range of LRMC estimates. Expressed another way, prices for 2008/09 are in the top 1 percent of the range of LRMC estimates, prices for 2006/07 are in the top 15 percent of the range of LRMC estimates, and 2009/10 prices are in the top 20 percent of the range of LRMC estimates.

[7] NERA (2012) *Benchmarking NEM Wholesale Prices Against Estimates of Long Run Marginal Cost, A Report for the AEMC*, p. iv.

[8] AER Submission, p.7.

As indicated earlier, 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.

Even if prices were compared to the top-end estimate of LRMC over the four years 2006/07 – 2009/10, average prices over the 4 years would appear to exceed the top-end estimate of LRMC. This reflects the fact that prices were significantly above the top-end estimate of LRMC for 2007/08 and close to the top-end of the range for each of the other three years.

Results such as these indicate that even under the analytical framework that has been developed there is an issue that warrants further investigation.

The AER also notes that an average price in South Australia of $82.50/MWh in 2009/10, which as stated earlier was the second highest annual price in the history of the NEM, was deemed by the AEMC to be within the range of LRMC estimates. This largely reflects the 'step change' in the LRMC estimates from 2008/09 to 2009/10 – the top-end estimate of LRMC in South Australia for 2009/10 was $18.70/MWh higher than the estimate for 2008/09. The AER has not critiqued NERA's modelling or the assumptions it employed. Nonetheless, the AER questions whether this analysis supports a conclusion that prices were not above LRMC, or whether it indicates issues with the analytical framework that has been used.

Approximation and market modelling approaches to calculating LRMC

The AEMC notes that it has adopted two distinct methodologies of calculating LRMC – an approximation approach and a market modelling approach. The AEMC notes that the approximation approach provides a relatively quick and effective means of estimating LRMC, but acknowledges that the "market modelling approach is generally considered to be the closest to a true approximation of LRMC."[9] The AEMC notes that it has adopted the two separate methodologies of calculating the LRMC to test whether there are any significant differences and to provide further confidence in the results.

As noted earlier, in each instance the LRMC calculated using the market modelling approach is less than upper bound LRMC estimate using the approximation approach.

For Queensland, it appears that the market modelling approach provides estimates of LRMC that are towards the top of the range of LRMC estimates using the approximation approach, while for New South Wales and Victoria the estimates of LRMC using market modelling are about the midpoint of the range of LRMC estimates using the approximation approach.

For South Australia, however, the story is not so straightforward. Table 2 reproduces data provided in Table 4.5 of NERA's report.

[9] AEMC (2012) *Potential Generator Market Power in the NEM, Draft Rule Determination*, p.19.

Table 2 – South Australian Estimates of LRMC – 2007/08 and 2010/11

	2007/08 ($/MWh)	2010/11 ($/MWh)
LRMC (Market modelling)	47.4	72.7
LRMC High (Approximation)	64.3	87.5
LRMC Low (Approximation)	47.8	64.2

This demonstrates that of the two estimates of LRMC for South Australia using the market modelling approach, one estimate sits below the bottom of the approximation LRMC range and one sits beneath the midpoint of the approximation LRMC range.

In the case of South Australia, the AER considers the use of the two methodologies does not provide further confidence in the results, indeed it does the opposite. One reading of the data in the table is that the top-end LRMC estimates developed by NERA using the approximation approach may fundamentally overestimate the 'true' LRMC in South Australia.

The implications of this issue should be readily apparent. As noted earlier, price in South Australia exceeded the top-end estimate of LRMC in 2007/08 and was near the top-end estimate in 2006/07, 2008/09 and 2009/10. If the LRMC estimates developed by NERA using the approximation approach in any way overestimate 'true' LRMC in South Australia, the outcomes of the price versus LRMC test adopted by NERA could be providing a 'false negative' result.

It also raises the question of why price should be compared to the top-end of an LRMC range, when this top-end estimate may significantly overestimate LRMC. For example, for 2007/08 it is not clear why price should be compared to the top-end estimate of LRMC, when this top-end estimate is 35 percent higher than the estimate obtained using a methodology the AEMC acknowledges is likely to provide a more accurate approximation of LRMC.

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.

NERA analysis of high priced outcomes

In discussing its findings, NERA provides its views on factors contributing to price outcomes. The AER considers that NERA fails to recognise key reasons for high prices.

NERA's report does not appear to acknowledge that any of the high prices that have been observed in the NEM may reflect the exercise of generator market power. For example, when discussing the NERA report, the AEMC notes:

> *The high observed spot prices in 2007-08 are predominantly as 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*.[10]

As you would be aware, the AER is required under clause 3.13.7 (d) of the National Electricity Rules to publish a report whenever the spot price exceeds $5,000/MWh. In these reports, the AER is required to describe the significant factors contributing to the spot price exceeding $5000/MWh (including factors such as withdrawal of generation capacity, rebidding and network availability). These reports are all available on the AER's website.

The AER's report into the high South Australian prices of 5 – 17 March 2008 noted:

> *This report suggests that there were a number of contributing factors to the high priced events in South Australia. At the time, South Australia was in the midst of an extended heatwave which created unprecedented levels of electricity demand. Electricity demand peaked at 3077 MW on 17 March, the highest demand ever recorded in South Australia.*
>
> *However, the report finds that bidding behaviour by AGL significantly contributed to the high priced events. On 5, 6, 7, 12 and 13 March, AGL was the only participant who offered significant amounts of capacity at over $5000/MWh. In fact, around 80 per cent of capacity at AGL's Torrens Island power station was priced above $5000/MWh.*[11]

Table 3 provides more detail on each of these 26 half hour periods in March 2008 where prices exceeded $5,000/MWh. The table shows for each of these half hour periods: the spot price; the output from AGL's Torrens Island Power Station; the total capacity offered (availability) from Torrens Island; and, the capacity that was offered at greater than $5000/MWh (in MW and as a percentage of the total capacity offered for that trading interval).

The table highlights a number of key points. As can be seen in the last column of the table (and as noted above in the AER's report into the high prices), on 5, 6, 7, 12 and 13 March, AGL offered the majority of Torrens Island capacity to the market at prices over $5,000/MWh. In each of the 24 half hour periods where prices exceeded $5,000/MWh, AGL offered around 80 percent of its capacity from Torrens Island to the market at prices over $5,000/MWh.

Further, on 5, 6, 7, 12 and 17 March, as highlighted in the availability column, AGL did not present a significant amount of the Torrens Island capacity to the market. On these five days, of 1280MW in Torrens Island capacity, the amount of capacity offered ranged from 910MW to 1140MW. Only on 13 March was the full capacity of Torrens Island offered to the market. The AER's report into the events suggests that only on 12 March did there appear to be a technical reason for some capacity (in this case a 200MW unit) being unavailable.

Finally, the table demonstrates the very low output of Torrens Island during these high priced periods. In only two of the 26 half hour periods where price exceeded $5,000/MWh was more than 700MW of the Torrens Island's capacity dispatched (Torrens Island Power Station's total capacity is 1,280MW). In over a third of these half hourly periods, *under 300MW* of the total capacity of Torrens Island was dispatched.

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[10] AEMC (2012) *Potential Generator Market Power in the NEM, Draft Rule Determination*, p. 28

[11] AER, *Spot prices greater than $5000/MWh, South Australia: 5 - 17 March 2008*, p.1

Table 3 – South Australian prices over $5,000/MWh – 5-17 March 2008

Date/ Time	Spot price ($/MWh)	TIPS output (MW)	TIPS Availability (MW)	TIPS capacity offered at >$5000 MWh	
				MW	as a % of total available capacity
5/03/2008 3:00 PM	$9,252.07	217.7	910	720	79%
5/03/2008 3:30 PM	$9,949.52	228.89	910	720	79%
5/03/2008 4:00 PM	$9,975.23	290.53	910	720	79%
5/03/2008 4:30 PM	$9,967.00	283	910	720	79%
5/03/2008 5:00 PM	$9,950.40	249.73	910	720	79%
5/03/2008 5:30 PM	$8,299.86	209.52	910	720	79%
6/03/2008 3:00 PM	$9,717.35	269.19	1030	810	79%
6/03/2008 3:30 PM	$9,950.42	290.94	1030	810	79%
6/03/2008 4:00 PM	$9,950.75	326.11	1030	810	79%
6/03/2008 4:30 PM	$9,950.66	308.03	1030	810	79%
6/03/2008 5:00 PM	$9,950.25	267.95	1030	810	79%
7/03/2008 3:30 PM	$6,979.01	339.78	1030	810	79%
7/03/2008 4:00 PM	$7,004.20	393.52	1030	810	79%
12/03/2008 4:30 PM	$9,999.72	644.76	950	740	78%
12/03/2008 5:00 PM	$9,999.72	699.39	950	740	78%
12/03/2008 5:30 PM	$9,999.72	599.67	950	740	78%
12/03/2008 6:00 PM	$9,999.72	548.58	950	740	78%
13/03/2008 2:30 PM	$8,352.48	544.46	1280	1000	78%
13/03/2008 3:00 PM	$9,999.72	527.96	1280	1000	78%
13/03/2008 3:30 PM	$9,999.72	566.92	1280	1000	78%
13/03/2008 4:00 PM	$9,999.72	588.88	1280	1000	78%
13/03/2008 4:30 PM	$9,999.72	592.12	1280	1000	78%
13/03/2008 5:00 PM	$9,999.72	577.2	1280	1000	78%
13/03/2008 5:30 PM	$9,999.72	531.84	1280	1000	78%
17/03/2008 4:00 PM	$7,570.31	1110.06	1140	310	27%
17/03/2008 4:30 PM	$7,894.49	1055.75	1140	310	27%

The AER would also like to emphasise that this is just one example of where AGL's behaviour contributed to the high priced outcomes. The following $5,000/MW reports also comment on the contribution of AGL's bidding behaviour on high priced outcomes in South Australia:

- 4 and 10 January 2008
- 1 and 19 February 2008
- 13 January 2009
- 19 January 2009
- 28 and 29 January 2009
- 10-13 November 2009
- 19 November 2009
- 8 January 2010
- 11 January 2010
- 8-10 February 2010

The AER believes that the NERA assessment did not adequately take account of the significant role that economic withholding by AGL played in exacerbating the high-prices observed in South Australia over a number of years.

Implications of possible NEM-wide approach to AEMC analysis

While it does not appear to be its preferred approach, NERA also conducted price versus LRMC analysis on a NEM-wide basis.

The implications of applying the NEM-wide approach is that for 2010/11 prices could have doubled across the NEM and not reached NERA's upper bound estimate of LRMC in the NEM for 2010/11. The AER questions whether this is an appropriate conclusion or whether it potentially highlights issues with the framework that NERA has developed.

It would also appear that if a NEM-wide analysis was adopted, prices in South Australia could have been much higher and still not breached the price versus LRMC analysis across the NEM as a whole. For example, as noted earlier, prices in South Australia for 2009/10 averaged $82.5/MWh. However, prices across the NEM averaged $46.9/MWh. Holding prices constant in other states, but increasing average prices in South Australia by an extra $200/MWh would not appear to cause the price across the NEM as a whole to breach the upper bound estimate of LRMC in 2009/10. In such circumstances, a price versus LRMC test clearly fails to capture market power concerns at the regional level. The AER considers that the results of NERA's work confirm that the analysis needs to be conducted on a regional basis, not a NEM-wide basis.

5 AEMC's analysis of barriers to entry

In order to determine the ability of generators to sustain substantial market power, the AEMC commissioned CEG to undertake an analysis of the existence of barriers to entry in the NEM. The AEMC argues that the CEG report suggests there is a 'lack of firm evidence supporting the existence of significant barriers to entry.' The AER does not agree with the AEMC's conclusion, particularly for South Australia.

Under the AEMC framework, ineffective levels of competition are a necessary condition for the exercise of substantial market power. Therefore, CEG assessed effective levels of competition through an analysis of market concentration, investment and capacity utilisation.

Market concentration

A high degree of concentration of market share may indicate that a generator could profitably withhold capacity in order to raise prices above LRMC without the threat of other smaller generators taking market share. CEG's analysis of individual generators' market shares in NEM regions suggests that concentration levels are below that which is consistent with ineffective competition except for Tasmania, and to a lesser extent in South Australia.

For South Australia, CEG notes that "AGL's position in South Australia is relatively large and hence that position does warrant further consideration."[12] It also notes that evidence on concentration suggests that AGL's position in South Australia is "borderline" on the basis of market share evidence alone and refers to "the greater potential for less competitive outcomes" in South Australia, compared to the other mainland states of the NEM.[13]

Investment

CEG also considered overall levels of investment in each of the NEM regions to determine if there are any significant barriers to entry preventing investment by new entrants. In particular, CEG considered the extent to which investment has been undertaken by new entrants rather than incumbent generation firms.

For South Australia, 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."[14]

Capacity utilisation

CEG also states that capacity utilisation is a significant factor as it measures the extent to which incumbent firms are using the capacity they have available or withholding capacity from the market as they are of the belief that their actions would not induce new entry. 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

[12] CEG (2012) *Barriers to entry in electricity generation*, p.28
[13] CEG (2012) *Barriers to entry in electricity generation*, p.34
[14] CEG (2012) *Barriers to entry in electricity generation*, p.46

regions where there are smaller reductions or increases. CEG examined the reasons for the fall in South Australian capacity utilisation when prices are above $250/MWh. It concluded that:

> *The primary driver of the fall in South Australian capacity utilisation when prices are above $250 is AGL Energy's operation of the Torrens Island A power station. When prices were above $250 this plant operated, on average, at a capacity that was 45% lower than its capacity when prices were between $100 and $250.*[15]

The above analysis of lower capacity utilisation at high prices clearly reflects the exercise of market power by AGL.

The AEMC draft determination then discusses a range of other structural and strategic barriers to entry.

Structural barriers to entry

CEG notes that in the presence of sunk and irreversible costs associated with entry or expansion (as is the case for electricity generation in the NEM), market prices can potentially be held permanently above the costs of efficient new capacity without attracting competitive new entry. In particular, this could be the case if the post-entry competitive dynamic (e.g. level of coordination) differs to the pre-entry competitive dynamic that gave rise to the pre-entry price level.

CEG notes that:

> *Potentially, this situation could apply currently in SA at least with respect to new large scale entry by, for example, a CCGT plant. Demand in South Australia is not growing at a strong rate and the 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.*[16]

Strategic barriers to entry

CEG suggests 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 suggests that expansions of existing capacity by incumbents in South Australia have so far been consistent with this theory. 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.

[15] CEG (2012) *Barriers to entry in electricity generation*, pp. 63-64
[16] CEG (2012) *Barriers to entry in electricity generation*, p. 43

CEG also considers that another form of pre-emption by incumbent generators in South Australia may arise from the significant vertical integration between generators and retailers, the consequence of which may raise the costs of hedging for independent new entrants. CEG notes that South Australia persistently demonstrates a lower level of contract market liquidity than other NEM regions. It adds that a lack of liquidity in the hedge contract market has the potential to act as a significant deterrent to new entry.

CEG reached the following conclusions about barriers to entry in South Australia:

> *For South Australia, the evidence is less clear. AGL has a significant market share in South Australia and concentration is relatively high (although the market has been getting less concentrated over time). We found evidence consistent with capacity being withheld to drive up prices and that vertical integration may be creating a barrier to entry by independent non-vertically integrated generators. On the other hand, pricing evidence from the NERA/Oakley Greenwood report suggests that competition among incumbents is effective and/or barriers to entry are not significant.*[17]

Views on CEG report

The AER believes that the information highlighted above, across a broad range of indicators, suggests that barriers to entry are a problem in South Australia. The AER believes that in particular the analysis on capacity utilisation, which confirms some of the analysis the AER has undertaken into high priced events in South Australia, is persuasive.

The AER appreciates that in many of the areas discussed in the previous paragraphs, CEG qualified its findings in relation to South Australia or put forward alternative explanations of observed conduct. However, the AER believes these qualifications and possible alternative explanations do not support the AEMC conclusion that "CEG has found no strong evidence to support barriers to entry in any NEM region."[18]

The nature of issues surrounding barriers to entry will often be subject to considerable debate. This means that there will generally be no totally conclusive evidence on barriers to entry issues. The AER notes that a conclusion that there are 'significant barriers to entry' is required before the AEMC's proposed threshold for a generator having substantial market power can be met. If, when faced with competing views on the nature and extent of barriers to entry, the AEMC adopts a finding of 'no strong evidence', it may mean that by definition the substantial market power threshold outlined in the draft determination cannot be met.

Finally, as highlighted in the quote above, the AER notes that the conclusions of the CEG report rely heavily on the NERA analysis. In essence, the CEG report outlines a range of barriers to entry in South Australia, but appears to defer to pricing evidence from the NERA report which suggests that competition among incumbents is effective and/or barriers to entry are not significant. Indeed, while it has not attempted to critique the findings of the NERA report in any way, CEG notes that "significant weight should be attached to this evidence as the most direct way to assess whether there are any competition problems."

[17] CEG (2012) *Barriers to entry in electricity generation*, p. 7.
[18] AEMC (2012) *Potential Generator Market Power in the NEM, Draft Rule Determination*, p.43

There is significant circularity involved in this approach. In the draft determination, the AEMC stated that in order to avoid the risk of relying on a single bright line test, it would consider a broad range of evidence, including barriers to entry through the report by CEG. However, the CEG report fundamentally relies on the results of NERA's price versus LRMC test in order to reach its conclusions.

This approach means that the outcomes of the NERA report, in effect, become determinative on the issue of barriers to entry in South Australia. The AER highlighted concerns with the NERA analysis and findings earlier in this submission. Therefore, 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.

6 Future Monitoring and possible solutions

The AEMC proposes that its analysis provides a basis for stakeholders to monitor market power, and approach the AEMC in the future if the LRMC versus price test is breached. Whilst the AER supports continued monitoring of markets, given our concerns with the LRMC versus price test in the draft determination and reliance on a single test, the suggested solution would appear insufficient.

Furthermore, the experience in electricity markets worldwide is that market power problems can arise very quickly. In the NEM, this has been demonstrated in the past, particularly in South Australia. 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. By the time that has occurred, there is the potential for the market power problem to have caused significant harm and placed NEM customers at risk.

The AEMC also notes that it may be the industry structure in a particular region that creates the substantial market power, and states that a rule change may not be the most effective way to address the issue. The AER agrees that industry structure is a key determinant of market power. However, the AER believes that the AEMC should consider a range of possible solutions given that, in the AER's view, analysis of past market outcomes indicates that there is a significant problem. The AER is not suggesting that the benefits of possible solutions will necessarily outweigh the costs, but is suggesting that the AEMC needs to explore these costs and benefits.

7 Conclusions

The AEMC argues that substantial market power is the ability of a generator 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. The AEMC has concluded that there is a lack of evidence of sustained periods of pricing above LRMC. The AEMC has also concluded that there is a lack of firm evidence of barriers to entry.

The AER does not agree with these conclusions.

In particular the AER is concerned that a price versus *upper-bound* of LRMC test applied in isolation of other possible tests and analytical tools, is not a sufficiently robust framework for testing for the existence of substantial market power. As proposed, the test has a conservative bias and thus is more likely to find that there is insufficient evidence of a market power problem. Even applying this test, the AER considers that the NERA data demonstrates that there is a problem with substantial market power in South Australia. Also, the AER does not agree with the conclusion that there is insufficient evidence of barriers to entry, particularly for South Australia. The AER considers that there is a problem which warrants further consideration.

The AER considers that there is a significant risk of not considering these market power issues further. In the Directions Paper, the AEMC highlighted a number of concerns associated with the exercise of substantial market power. The AEMC noted that substantial market power:

> *... is likely to reduce efficient investment in electricity services and result in less efficient use of those services by customers. The exercise of substantial market power is likely to result in sustained inefficiently high wholesale spot and contract prices. Substantial market power may also result in productive inefficiency and a reduced incentive on generators to minimise their costs, which is likely to increase the overall cost structure of the sector. It may also restrict competition in retail and hedge markets and result in higher retail prices.*[19]

The AER considers that there is a risk these types of market outcomes will not be captured under the substantial market power thresholds proposed by the AEMC. This is a critical issue for the ongoing confidence in the operation of the market and therefore requires further consideration. We consider that the AEMC should either undertake more work on assessing whether there is evidence of the exercise of substantial market power, or take the next step of assessing the costs and benefits of possible solutions to the exercise of substantial market power in the NEM.

The AER also 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.

[19] AEMC (2011), *Potential Generator Market Power in the NEM, Directions Paper*, p.10