

Our Ref: 41782-D11/2116098  
Contact Officer: Tom Leuner  
Contact Phone: 03 9290 1890

27 May 2011

Mr Richard Owens  
Australian Energy Market Commission  
PO Box A2449  
Sydney South NSW 1235

Dear Mr Owens

**Submission to Potential Generator Market Power in the NEM Major Energy Users Rule Change Proposal (Ref: ERC0123)**

The Australian Energy Regulator (AER) welcomes the opportunity to comment on the Major Energy Users (MEU) Potential Generator Market Power in the NEM Rule Change Proposal.

The AER monitors the wholesale electricity and gas markets and is responsible for compliance with and enforcement of the National Electricity Rules and National Gas Rules. These roles leave the AER well placed to comment on market power issues in the National Electricity Market (NEM). The substantive part of our submission is attached as an Appendix, which addresses the questions raised by the AEMC in the 14 April 2011 consultation paper.

The AER has been concerned about market power in the NEM for a number of years and made public statements to this effect in \$5000/MWh reports<sup>1</sup> and in the *State of the Energy Market Report*<sup>2</sup>. However, in energy only markets short periods of high prices are necessary to signal the need for investment. The AER is not concerned with high prices which are consistent with underlying supply and demand conditions and recognises that these are necessary to sustain a functioning market.

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<sup>1</sup> <http://www.aer.gov.au/content/index.phtml/itemId/714860>

<sup>2</sup> <http://www.aer.gov.au/content/index.phtml/tag/aerPublications>

Concerns arise when high average prices reflect systemic economic withholding by generators with market power rather than scarcity pricing. The potential for sustained market power could arise in any NEM region and there is evidence that market power is exercised in all regions at times.

It is, however, necessary to determine the scope and extent of the problem before policy responses can be appropriately prescribed. Accordingly, the AER supports the ‘first principles’ approach adopted by the AEMC in assessing this issue. A similar approach was adopted by the AER in 2010, when work was commissioned to assess the definition of market power in an energy market context, the barriers to entry that exist in the electricity sector and the production costs associated with economic withholding.

Three consultant reports commissioned in 2010 are attached as follows:

- Attachment 1—Darryl Biggar—the paper focuses on definitions of market power and evidence of market power in the NEM, using South Australia and Queensland as examples (recently updated so is dated 26 April 2011)
- Attachment 2—Intelligent Energy Systems (IES)—this paper focuses on short-term electricity production costs associated with economic withholding
- Attachment 3—SFS Economics—the paper is a more qualitative analysis focusing on barriers to entry.

While the consultants’ reports do not necessarily represent the views of the AER, given that the issues they discuss are germane to the AEMC consultation paper, it has been decided to make them publicly available.

Fundamental changes to the market design need to be carefully assessed to ensure that any solution does not cause more harm than the problem it is seeking to fix and is commensurate with the size of the problem being addressed. Should the AEMC determine that the existing mechanisms cannot address the problem and the potential market inefficiencies warrant a policy response, the AER considers that alternatives to the MEU’s rule change should actively be considered.

In particular, the AER suggests that the AEMC explores the following alternatives:

- structural reform of the generation sector – while challenging to implement, structural reform of the generation sector would be the best solution to any market power problem.
- alternative behavioural solutions – the MEU has presented one form of behavioural solution seeking to address market power, but other approaches should be considered, particularly drawing upon international experience.
- changes to the Administrative Price Period (APP) mechanism in rule 3.14.2 of the National Electricity Rules – such changes may assist in lessening the potential harm to the market when market power is exercised.

If you have any questions regarding the information in this submission please contact Tom Leuner on (03) 9290 1890.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Andrew Reeves', with a stylized flourish at the end.

Andrew Reeves  
Chairman

## Appendix

### **AEMC Question 1—What is market power in the context of the NEM?**

*1.1 What is an appropriate definition for the relevant market in which to examine whether market power is being exercised? What are the relevant product, functional, geographic and temporal dimensions?*

*1.2 How should market power be defined in the context of the NEM?*

*1.3 Do barriers to entry in the market exist such that the exercise of market power would not be constrained by potential entrants?*

### ***Market power***

The NEM is an energy-only market in which generators submit offers to the wholesale spot market and are paid the market-clearing price for their output. Under this design generators recover their fixed and variable costs through energy sales and secondary products such as hedges or insurance products. The NEM has been designed to encourage generators to bid in at their marginal cost and then receive revenues based on the market clearing price (set by the marginal producer).

The forward contract market is closely tied to the spot market. Outcomes in the spot market affect forward contract prices, and flow on to retail prices. Wholesale and forward prices tend to increase as supply and demand tightens, which in turn encourages new investment. To ensure that scarcity price signals are free to emerge the spot market cap is set at a high level of \$12 500/MWh.

Short periods of high prices are expected at times of scarcity in an energy only market and are not necessarily evidence of the exercise of market power. Short periods of high prices signal investment. The AER is not concerned with high prices which are consistent with underlying supply and demand conditions and recognises that these are necessary to sustain a functioning market.

However, the AER is concerned about situations where high prices reflect systemic economic withholding by generators (see discussion of ‘economic withholding’ below). The AER considers that the exercise of market power through economic withholding is concerning when it significantly affects average prices. In particular, it is concerning where, for example, one generator has had the ability to increase quarterly average prices to high levels, in situations where there were no apparent supply shortages.

The NEM has characteristics different to most markets, such as an inability to store the product; inelastic demand; extreme fluctuations in demand and supply; and the need for very significant spot market price variations to accommodate an efficient mix of generation technologies. However, the underlying principles used to analyse market power are the same as for other markets. If the market is functioning properly and is competitive, suppliers are price-takers, not price-makers.

### ***Market definition***

The AER considers that while defining the market is important in competition law matters, the AEMC should be cautious in focusing too much on attempting to define the relevant market when considering market power issues from a rule making test perspective. The AEMC correctly notes “a sustained ability to influence the market

price may drive a wedge between efficient costs and prices, leading to persistent inefficiencies in the market.”<sup>3</sup> As such, it is possible that action should be taken to protect the long term interests of consumers, due to the negative efficiency implications of the exercise of market power in the energy sector, even if competition law may not have been breached. Focusing too heavily on attempting to define the relevant market, particularly if relying on competition law cases to provide guidance, can abstract the analysis away from the underlying problem of generators raising the market price above competitive levels.

During 2010, the AER commissioned SFS Economics—see Attachment 3—to look into barriers to entry in the South Australian generation market. The qualitative analysis conducted suggests that the possible barriers to entry affecting the electricity market in South Australia are:

- The large increase in wind generation and the likelihood that it will increase the prevalence of negative prices, reduce average prices, increase price volatility and worsen intra-regional network congestion. All these factors reduce the case for investment in mid-merit and baseload generation as the relative inflexibility of this type of plant means that it is likely to be running most of the time and will be exposed to the lower and negative prices that wind generation brings about.
- The relatively illiquid contract market in South Australia caused by the high level of vertical integration might make it difficult for prospective generators to secure contracts with retailers. As this is usually necessary for securing finance for generation projects, this could create barriers to entry.

The report also discusses potential strategic barriers to entry. For example, if an incumbent announces an expansion of its plant, this may discourage potential entrants.

The AER is concerned about reliance on potential entrants as the ‘solution’ to market power. A decision to enter the market (or a decision to underwrite generation entry by providing a long-term hedge) will be based on an assessment of expected spot prices and contract prices post entry. High prices driven by market power are not arising because of tight demand-supply balances, but rather because of the behaviour of incumbent generators. It is likely that any business case for a new entrant based around price signals caused by the exercise of market power would be a risky proposition. This is because the behaviour of the incumbents will change post entry and the entry itself may lead to such a high over supply that prices remain muted for a long period.

In the AER’s view, since NEM commencement, generation investment has generally reacted to a tight supply-demand balance rather than high prices driven by market power<sup>4</sup>. Although it would be very difficult to establish this empirically, the AER’s view is based on a simple analysis of when market power has been exercised and comparing this to when generation investment has occurred.

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<sup>3</sup> AEMC 2011, Potential Generator Market Power in the NEM, Consultation Paper, 14 April 2011, Sydney, pg 23.

<sup>4</sup> Information on investment in registered generation capacity can be found in the State of the Energy Market 2009 report page 61 <http://www.aer.gov.au/content/index.phtml/itemId/730609>

**AEMC Question 2—What is 'exercise' of market power in the context of the NEM?**

2.1 Are the existing competition law tests for 'taking advantage' or 'abuse' of market power an appropriate test in the context of this Rule change request?

2.2 Alternatively, should the Commission develop a different test for assessing whether market power has been exercised in the context of generation in the NEM? If so, what elements might it contain? For example, should it contain the concepts of sustained price rises above the competitive level and/or profitability?

***Section 46 of the CCA – Misuse of market power***

In terms of the legal and regulatory context, the AER agrees with the AEMC that there is no specific provision in the Electricity Law or Rules relating to the exercise of market power. Clause 3.8.22A of the Rules requires that offers and rebids be made in good faith. Although this provision attempts to improve the timeliness of information and the accuracy of dispatch, it does not address market power.

As the AEMC's consultation paper notes, while section 46 of the *Competition and Consumer Act 2010 (CCA)* addresses the use of substantial market power for an exclusionary purpose (i.e. to exclude or deter competitors or competitive conduct), it does not prohibit monopoly pricing, or more broadly the exercise of market power to charge prices that are above competitive levels.

***Economic withholding***

In the context of the NEM, the AER typically refers to 'economic withholding' as the process or method by which market power is exercised. By 'economic withholding' the AER is referring to situations where generators bid or rebid capacity which is normally at low prices into much higher price bands. It is distinguished from 'physical withholding', where a generator removes capacity from the market (e.g. by announcing that several units are off-line)<sup>5</sup>.

Economic withholding has been acute at times in the NEM, particularly over the last several summers. There is little doubt in the AER's view that individual generators have raised spot prices, causing significant increases in average prices and with flow on effects to forward contract prices. As was noted earlier, the AER considers that the exercise of market power through economic withholding is concerning when it significantly affects average prices, with the subsequent flow on effects to contract and retail prices.

The AER considers the AEMC should focus on whether the economic withholding is of sufficient scale and frequency to be of concern to the overall efficiency of the NEM, rather than using competition law concepts from section 46 of the *CCA* to define whether this is an exercise of market power. However, a concept from competition law that may be useful when analysing whether the degree of economic withholding is of concern, is the concept of a SSNIP, or "small but significant non transitory increase in price". Although traditionally an analytical concept used to assist the process of market definition, the AER considers it is also a concept which

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<sup>5</sup> The AER does not generally see evidence of 'physical withholding' that raises concerns. However, the AER has commented on physical withholding of Hydro Tasmania's non-scheduled generators at times of high prices in its \$5000 reports.

provides, from a policy perspective, an indication of when the exercise of market power becomes more concerning.

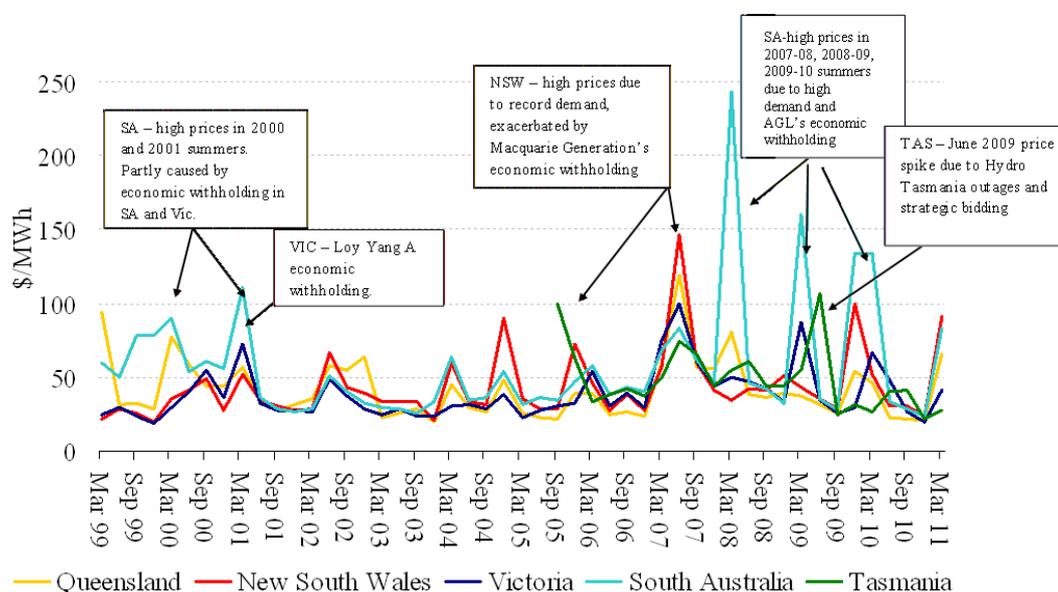
Economic withholding in the NEM can be considered transitory in one sense, in that it typically occurs and has a major effect for only a few hours during periods of high demand. However, when it occurs frequently, and has a major effect on average prices, the AER considers that it is no longer just transitory in nature. In these circumstances, it is likely to increase contract and retail prices.

In terms of materiality, the AER notes that each time the spot price reaches \$12 500/MWh in a half-hour trading interval, it adds around \$2.80/MWh to the quarterly average spot price.

High prices associated with the exercise of market power through economic withholding have been observed in the NEM from time to time since its inception. For example, Loy Yang A economically withheld capacity and drove up prices in the summer of 2001. The AER in its *State of the Energy Market Reports* has reported on similar behaviour by Macquarie Generation in 2007, AGL in South Australia in 2008, 2009 and 2010 and Hydro Tasmania in June 2009.

Price trends over the last decade and key events are presented in figures 1 and 2. Figure 1 presents the quarterly average spot price (volume weighted) in each region of the NEM since the start of the market. High price events and the associated instances of economic withholding are noted in the text boxes.

**Figure 1: Quarterly volume weighted average prices by region**



The AER is required (under clause 3.13.7 (d) of the National Electricity Rules) to publish a report whenever the spot price exceeds \$5000/MWh<sup>6</sup>. That report should:

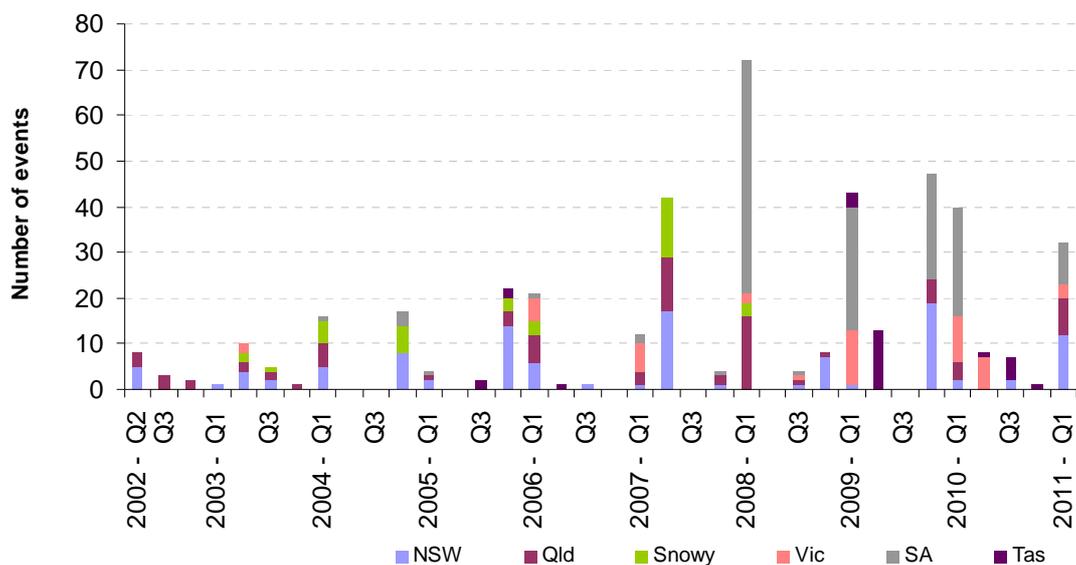
- describe significant factors contributing to the spot price exceeding \$5000/MWh, including withdrawal of generation capacity and network availability;

<sup>6</sup> <http://www.aer.gov.au/content/index.phtml/itemId/714860>

- assess whether rebidding pursuant to clause 3.8.22 contributed to the spot price exceeding \$5000/MWh;
- identify the marginal scheduled generating units; and
- identify all units with offers for the trading interval equal to or greater than \$5000/MWh and compare these dispatch offers to relevant dispatch offers in previous trading intervals.

Economic withholding is often found to exacerbate price rises associated with high demand or network congestion. The frequency of price intervals above \$5000/MWh has increased since 2007 and was particularly high in the first quarter of 2008, 2009 and 2010 in South Australia. Figure 2 presents the number of trading intervals in each quarter since 2002 where the spot price exceeded \$5000/MWh.

**Figure 2: Number of spot prices greater than \$5000/MWh**



The impact of a greater number of \$5000/MWh events in recent years is evident in the rise in first quarter volume weighted average prices, particularly in South Australia (\$243/MWh, \$161/MWh and \$134/MWh from 2008 to 2010, compared to less than \$70/MWh for the previous five years). The significant price rises associated with an increase in economic withholding indicate that significant changes to medium-term average prices can arise when prices frequently rise to near the market cap.

While it is not clear that the entirety of price rises are caused by economic withholding, significant movements by generators between price bands indicate that economic withholding clearly does take place. Generators are often open about their reasons for rebidding into high prices, and historically have often quoted ‘price/volume trade off’ as a reason for rebidding. In other words, the generator is saying that it is rebidding some capacity into higher price bands in order to raise the market price, but in doing so its volume will fall. Overall, if the strategy is successful, the increase in price outweighs the loss of volume.

**AEMC Question 3—What impact is the exercise of market power likely to have on efficiency?**

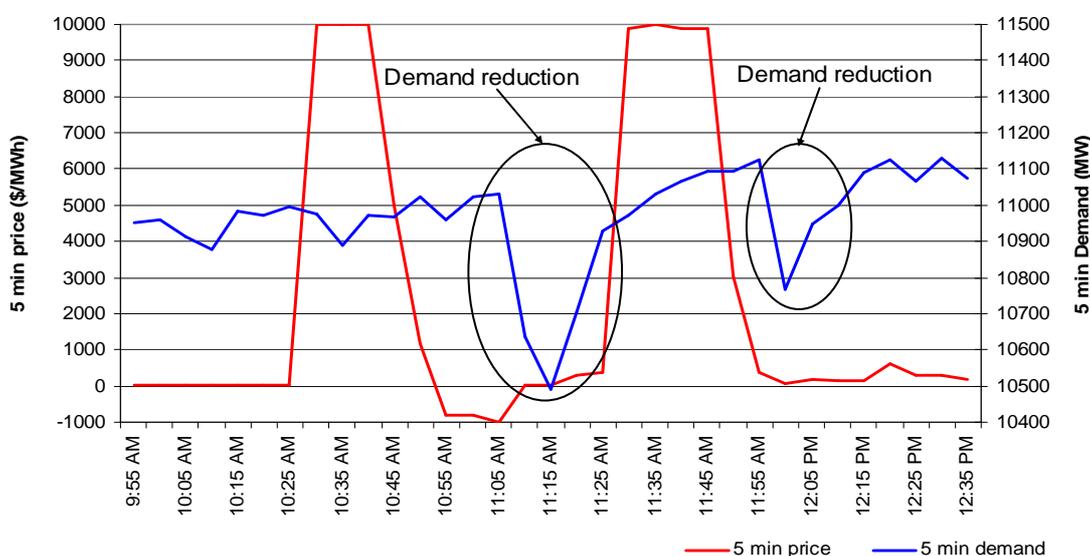
- 3.1 How might the exercise of market power impact on allocative efficiency in the NEM?
- 3.2 How might the exercise of market power impact on productive efficiency in the NEM?
- 3.3 How might the exercise of market power impact on dynamic efficiency in the NEM?
- 3.4 What other impacts might the exercise of market power have on efficiency and/or the long term interests of consumers?

The exercise of market power is likely to have a number of efficiency impacts. The AER considers that the categorisation of the potential efficiency impacts in the AEMC’s consultation paper is an appropriate approach to breaking down the problem.

**Allocative efficiency impacts**

As the AEMC notes, allocative inefficiencies arise due to the existence of a deadweight loss when market power is exercised. In 2010, the AER commissioned consultants to attempt to measure the scale of this deadweight loss in the short-term. To measure the short-term deadweight loss requires knowledge of the demand curve in the short-run. If the demand-curve is fully inelastic (i.e. vertical) there will not be a deadweight loss. However, if there is some demand-side response, this will give the demand curve a slope (or possibly “steps”), which creates the potential for deadweight loss.

**Figure 3: Five-minute price and demand – New South Wales 4 February 2010**



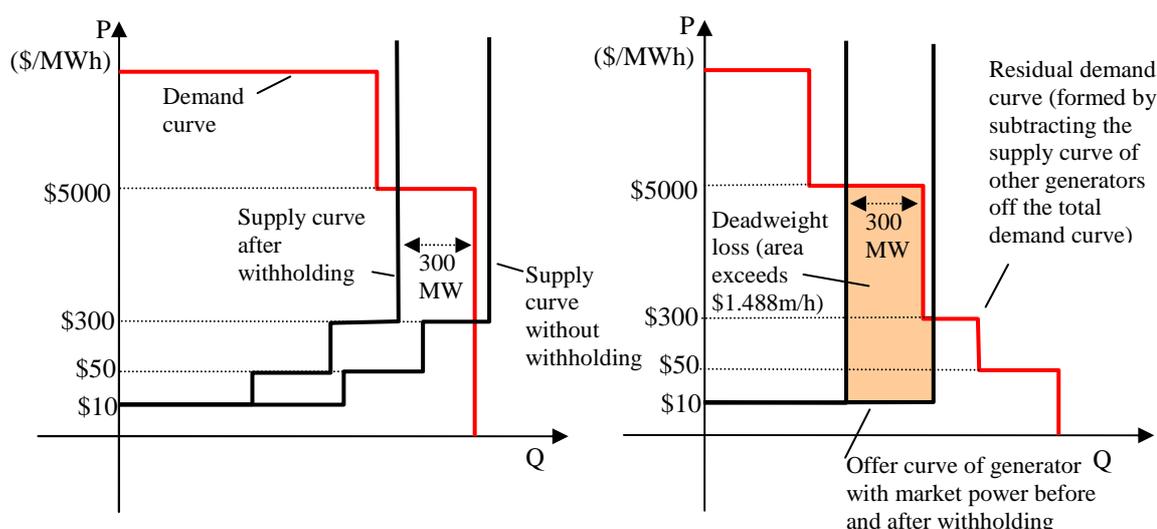
Demand-side response is difficult to measure as only aggregate demand information is available and smaller demand-side response is likely to be lost in the overall increases in demand that occur at peak times. In its report (see Attachment 2), IES attempted to measure the magnitude of demand response on the 11 sample days specified by the AER,<sup>7</sup> but lacked sufficient data. The AER has previously observed,

<sup>7</sup> The AER requested IES analyse 11 days where the AER considered economic withholding, or the exercise of market power, is likely to have occurred.

as part of its analyses of \$5000 events,<sup>8</sup> significant reductions in demand at peak-price times, indicating a likely demand-side response. Figure 3 shows price and demand on a five-minute basis, and highlights the apparent demand side response to the high prices in New South Wales at 11 am and midday on 4 February 2010, as an example.

Although demand-side response is difficult to measure, Darryl Biggar's paper—Attachment 1—provides a theoretical example of the potential costs associated with this form of deadweight loss. The deadweight loss is also shown in the figure 4 below. In the example, load reduces when the wholesale spot price reaches \$5000/MWh. The market price prior to the economic withholding is \$300/MWh. If a base-load generator with a variable cost of, say, \$10/MWh, economically withholds and successfully raises the wholesale spot price above \$5000/MWh, inducing a 300 MW load to shut down, there is a loss in economic value of at least  $(\$5000 - \$10) \times 300 = \$1,487,000$  per hour. Another way of thinking about this is to think about the "gains from trade" that are being foregone. There is a generator with a variable cost of \$10/MWh, which, due to economic withholding, is not supplying the market. There is also a load which values the electricity at \$5000/MWh, which due to the economic withholding, is not being supplied. There is a loss of \$4990/MWh for each MW that is not being traded due to the economic withholding strategy.

**Figure 4: Illustration of the computation of the deadweight loss (short-term allocative inefficiency) arising from the exercise of market power**



### *Productive efficiency impacts*

As the AEMC notes, losses in productive efficiency will occur where a generator with higher unit costs is dispatched in place of a generator with lower unit costs. In 2010, the AER also commissioned IES to analyse the short-term productive efficiency impacts of economic withholding on the same 11 days selected by the AER (see Attachment 2). The AER chose specific days where it believed economic withholding took place. IES compared actual dispatch quantities to dispatch quantities

<sup>8</sup> \$5000/MWh Reports for: 15 January 2009 (NSW); 10 June 2009 (Tas); 20 November 2009 (NSW); 4 February 2010 (NSW); 22 April 2010 (Vic.); 7&8 August 2010 (Tas.); 10 August 2010 (NSW) <http://www.aer.gov.au/content/index.phtml/itemId/714860>

based on revised offer prices. Revising the offer curves of generators that economically withheld changed the merit order and clearing price, and changed the amounts by which all generators were dispatched (the offer curves of other generators were held constant).

The offer curves were revised back to those seen just before economic withholding took place. The assumption was that these revised offer curves were likely to reflect supply and demand conditions around that time but without the premium associated with economic withholding. The dispatch quantities in each scenario were multiplied by the short run marginal cost developed by ACIL Tasman for its report to AEMO ‘*Fuel resource, new entry and generation costs in the NEM*’<sup>9</sup>. IES’s approach to calculating costs of inefficient dispatch is summarised in the table below.

Base case	Counterfactual
Actual dispatch quantities multiplied by theoretical short run marginal costs.	Dispatch quantities based on offer curves with economic withholding ‘removed’, multiplied by theoretical short run marginal costs.

IES’s analysis suggests that the estimated costs associated with inefficient dispatch vary, with an average of \$1.9m per day on selected days and a maximum of \$4.8m. The analysis showed that the costs for New South Wales and Queensland are fairly consistent and are at least \$1m each day. The costs in South Australia were more sensitive to assumptions and were less consistent. These results should be read with some caution as it is difficult to accurately estimate the short run marginal costs of generators (particularly hydro electric generators).

Notwithstanding the challenges in modelling short run marginal costs, the costs associated with short run production inefficiency arising from economic withholding appear to be material. These production inefficiencies do not reflect wealth transfers but are instead losses to the industry as a whole, which are ultimately paid for by consumers.

### ***Dynamic efficiency impacts***

The AEMC consultation paper notes that there may be a loss of dynamic efficiency, if for example there is inefficiently high level of investment entering into the market in response to market power.

Analysing dynamic efficiency impacts is difficult, particularly because, as was noted earlier, high prices at times of scarcity are required in order to provide a signal for new entry.

The earlier discussion in the AER’s submission on barriers to entry is relevant to the discussion of dynamic efficiency impacts. In the earlier discussion, the AER stated that generation investment has generally reacted to tight supply-demand conditions, rather than high prices driven by market power.

<sup>9</sup>ACIL Tasman, *Fuel resource, new entry and generation costs in the NEM*, April 2009  
<http://www.aemo.com.au/planning/419-0035.pdf>

On the one hand, if the AER's assessment about new entrants not responding to market power is correct, then the dynamic efficiency impacts are unlikely to be significant, as an inefficiently high level of investment would not be entering in response to market power. On the other hand, if the AER's assessment is not correct, and new entrants are likely to respond to market power by entering, then this does create dynamic efficiency impacts. The new entry is excess to the underlying requirements of the market and creates an inefficiency which is likely to be borne by the industry as a whole.

### ***Broader impacts***

The AEMC has also asked about other impacts the exercise of market power might have on efficiency and/or the long term interests of consumers. The AER considers that there are broader price impacts, not captured in the discussion of allocative, productive and dynamic efficiency above, that effect the long term interests of consumers of electricity.

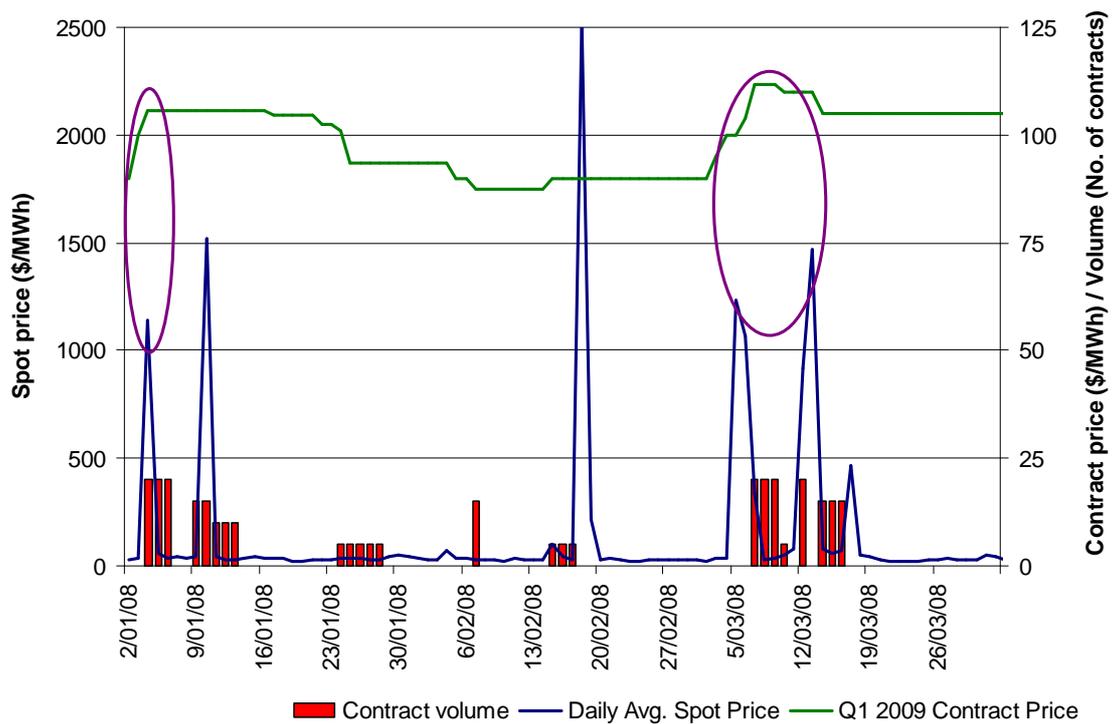
As noted previously in this submission, the AER considers that the exercise of market power has had a significant effect on average spot prices. The AER believes that this has had flow on effects to contract/hedge prices that must ultimately flow on to impact retail prices. Measuring the impact on retail prices is inherently difficult and would require analysis of how retail price regulation is undertaken in each jurisdiction (where there is such regulation), and an analysis of retailers' cost structures and hedge portfolios.

Changes in current spot prices will alter expectations about future spot prices, so there is an obvious link between the outcomes in the spot market and the price of hedges. Sustained high spot prices significantly increase average spot prices and also flow on to future contract prices. Examples of the link between spot and future contract prices are shown through figures 5 and 6. These figures show the average daily spot prices for South Australia over January to March 2008, and New South Wales over January to March 2011, respectively. The daily average spot prices are compared to daily close prices for base contract futures on the SFE<sup>10</sup>, for the first quarter of the following year. The figures highlight a relationship between high daily average spot prices and increases in the price of daily closing base futures for the same quarter the following summer. The vertical bars show the volume traded each day. No volume indicates that no trades in that futures product occurred on that day. Similar examples exist for all other mainland regions, noting that there is no public information on the contract market for Tasmania.

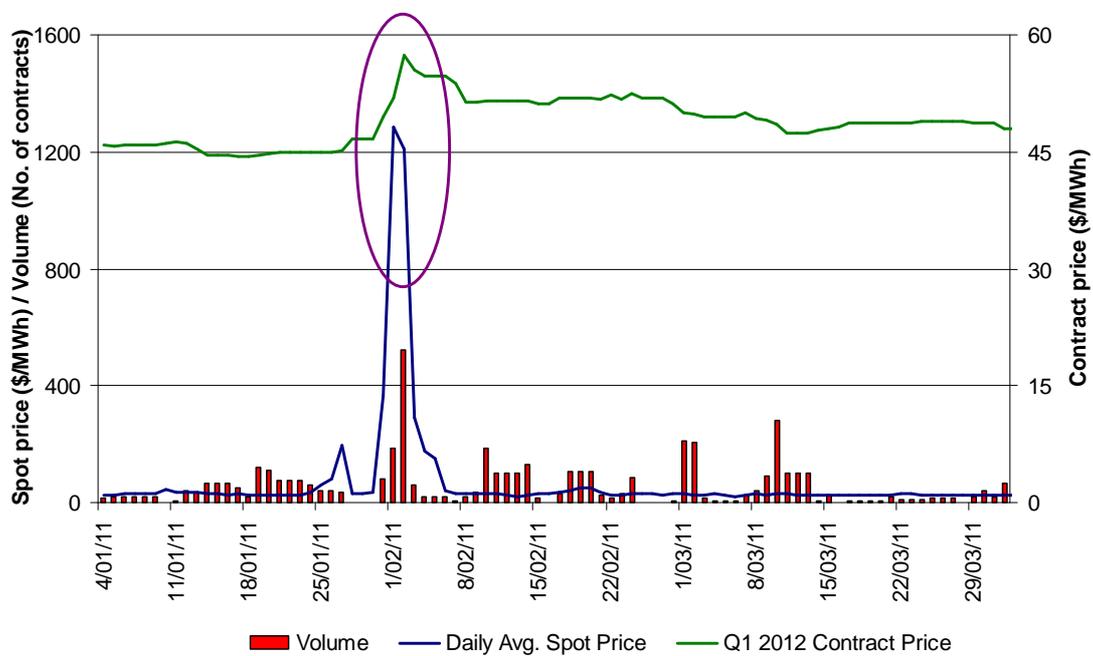
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<sup>10</sup> Source d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**Figure 5: South Australia Q1 2008 spot prices and Q1 2009 base futures prices**



**Figure 6: New South Wales Q1 2011 spot prices and Q1 2012 base futures prices**



**AEMC Question 4—Is there evidence of the exercise of market power by generators?**

*4.1 Is there evidence that one or more generators in any region of the NEM has market power and has exercised that market power to increase the wholesale price? Please provide specific examples and evidence to support your response.*

*4.2 Do you agree with the Proponent that the conduct referred to in the Rule change request constitutes an exercise of market power? If so, do you consider that this conduct is currently continuing and is likely to continue in the future?*

*4.3 Do you consider that the CCA adequately addresses the exercise of market power by generators, or do you consider that specific Rules provisions are required to supplement the CCA provisions?*

The AER believes that opportunities and incentives for economic withholding will continue at least to some extent in the future. Whether such economic withholding will constitute a concerning exercise of market power (i.e. it is systemic and significantly effects average prices), or whether it will instead be ad-hoc and infrequent, and therefore of less concern, is a difficult issue.

The issue of market power in an energy only market is complex. In analysing this issue, there is a range of uncertainties, including uncertainties about levels of peak demand, transmission development uncertainties and uncertainties about new generation investment, particularly given the potential for a carbon price, and demand side response.

Economic withholding is more likely to occur on high demand days, as the margin between supply and demand decreases in proportion, making it easier for pivotal generators to increase the price. Over 2008, 2009 and 2010 the NEM experienced three hot summers, resulting in sustained periods of high demand. This coincided with significant economic withholding. Less frequent periods of sustained high demand may lessen economic withholding in future.

Expansion of transmission may also ameliorate conditions for economic withholding. The AER notes that the AEMC's Transmission Frameworks Review covers issues which relate to economic withholding in some respects. In particular, the management of network congestion, changes to network charging and network access may impact on real and perceived barriers to entry and location decisions for new generation capacity. The AER has raised concerns in the past, and again raised them in its submissions to the AEMC's Transmission Frameworks Review, that generators are sometimes located in sites that are not efficient from a broader network perspective. In particular, some generators have located in sites that effectively reduce interconnector capacity.

In 2010 the AER released the regulatory investment test for transmission (RIT-T), which is designed to identify the most efficient transmission investment option. The RIT-T permits competition benefits from transmission investment—being market benefits arising from changes to participant bidding behaviour—to be incorporated into the analysis.

While transmission investment is clearly relevant to the ability and incentive for generators to exercise market power through economic withholding, the AER is of the view that transmission policy developments or initiatives to address generator location

signals are unlikely to change the specific problems associated with economic withholding in the medium-term.

The structure of the generation sector is the most critical factor influencing the likelihood of and incentive for generators engaging in economic withholding. A structure that involves having only a few large generators in a region (particularly a region with limited in-flow interconnector capacity) is likely to create concerns. The NEM design relies on a competitive market. However, a level of concentration that may lead to competitive outcomes in many markets, may create concerns in the NEM, due to the NEM's susceptibility to the exercise of market power through economic withholding.

Clearly changes in generation portfolios and/or new entry in generation in the future has the potential to reduce the likelihood of economic withholding. In addition, significant changes to the short run marginal costs of generators due to the introduction of a carbon price, or movements in gas prices may lead to changes in the merit order and entry and exit in the market.

In summary, the AER considers that the circumstances that enable generators to successfully engage in economic withholding are likely to remain in the future. While the AER considers that the opportunities and incentives for economic withholding will continue, there is no clear picture on whether the future economic withholding will be ad-hoc and infrequent, or alternatively be the type of systemic economic withholding by generators which leads to sustained higher prices. The investigation of this question is central to the AEMC's assessment of the rule change.

**AEMC Question 5—Will the proposed Rule effectively address the exercise of market power?**

*5.1 Do you consider that the proposed Rule is likely to prevent or constrain the ability of generators to exercise market power in a manner that reduces efficiency in the NEM and adversely affects the long term interests of consumers (if there is evidence of any such exercise of market power)?*

*5.2 How are other generators that are not declared to be a 'dominant generator' likely to change their behaviour if the proposed Rule is made?*

*5.3 Should any Rule change that seeks to address the exercise of market power by generators also address tacit collusion or parallel behaviour by generators, or is it appropriate to limit the Rule change to the unilateral exercise of market power?*

**AEMC Question 6—What other options could effectively address the exercise of market power?**

*6.1 Do you consider that there are other options that could prevent or constrain the ability of generators to exercise market power in a manner that reduces efficiency in the NEM and adversely affects the long term interests of consumers (if there is evidence of any such exercise of market power)?*

*6.2 If so, are those options likely to better contribute to the achievement of the NEO than the proposed Rule, and why?*

**AEMC Question 7—What are the likely impacts of the proposed Rule on the achievement of the NEO?**

*7.1 What impact is the proposed Rule likely to have on wholesale electricity prices?*

*7.2 What impact is the proposed Rule likely to have on efficient investment in generation, in particular incentives for efficient entry of new generation?*

*7.2 What impact is the proposed Rule likely to have on the efficient operation of the wholesale electricity market?*

*7.3 What impact is the proposed Rule likely to have on the efficient use of electricity services?*

*7.4 What impact, if any, is the proposed Rule likely to have on the market for electricity derivative products and/or the retail electricity market?*

*7.5 Do you consider that the proposed Rule is likely to have any other impact on the achievement of the NEO?*

The AER has considered the AEMC's Questions 5, 6 and 7 together in the section below.

***Comments on Rule Change***

The AER considers that in certain circumstances the proposed Rule would prevent or constrain the ability of some generators to exercise market power. However, there are potentially some significant issues associated with the operation of the proposed Rule.

For example, using bidding restrictions to constrain market power can have significant consequences on the operation of the market, particularly by dampening price signals. An energy only market, such as the NEM, relies on price signals to drive investment in capacity. Any muting of these price signals may therefore limit the ability of the market to secure necessary increases in investment. However, if the bidding restrictions are well above cost, this dampening effect may not be significant.

Further, significant change to the operation of the market, such as imposing a bidding restriction, will increase market participants' perception of the risk of regulatory intervention. This has the potential to create investment uncertainty. Given the long

lives of generation assets, investment is likely to be more attractive where it is perceived that key market design settings are unlikely to fundamentally change.

Finally, the proposed bidding restriction creates an incentive to temporarily reduce capacity (i.e. physical withholding of capacity). For example, a generator may claim a unit is not operational, or just be slow to repair a unit, as a method of withdrawing supply and therefore forcing up the price. Physical withholding may create reliability problems and would be difficult to police, as it is extremely difficult for any agency to determine whether a generator which has declared plant unavailable for technical reasons was actually able to run. Furthermore, if physical withholding did occur to a significant extent, then it may defeat the objective of the rule change.

However, physical withholding would be a more challenging form of market power manipulation than economic withholding. At the moment, economic withholding is simple and precise for generators. Generators are often open about the reason for their rebidding/bidding and can bid precisely the amount of capacity (subject to minimum loads) that they wish to higher prices. They also change their strategies during the course of the day. In other words, the generators' strategies can be quite refined in an attempt to extract the maximum possible economic rent. On the other hand, physical withholding is generally likely to be a "rougher" more approximate method of exercising market power. The generator will have to hide the activity and will be more restricted in its options. For example, the generator might have to take a unit out for the whole day, in the hope that this is approximately the right amount of withdrawal that extracts the maximum economic rent. The AER notes that if a generator has many small generators in its portfolio, then a physical withholding strategy will be easier.

### *Alternatives*

In the event that the AEMC determines that market power in the NEM is a problem and that the existing mechanisms are inadequate, the AEMC should also explore other alternatives.

As was noted earlier, the structure of the generation sector is the most critical factor influencing the exercise of market power. The AEMC should recognise that structural reform of the generation sector would be the ideal solution, albeit practically challenging.

The AEMC should also consider alternative behavioural solutions to the MEU's rule change proposal. For example, in some overseas markets restrictions on contracting behaviour have been considered. Although such solutions may face their own significant challenges, particularly enforcing such a requirement, they should be considered.

In the event that no structural or behaviour solutions are considered appropriate, then the AER considers that proposals that limit the damage of market power should be considered. In particular, the AER suggests that changes to the Administrative Price Period (APP) mechanism in rule 3.14.2 of the National Electricity Rules should be investigated. Such changes may assist in lessening the potential harm to the market when market power is exercised.

The APP mechanism is an existing tool within the NEM designed to manage the risk associated with high price events whatever the cause, including those caused by systemic economic withholding. The aim of the APP mechanism is to limit participants' financial exposure to the wholesale spot market during significant periods of high prices, while preserving as far as possible the market's ability to use price signals to provide supply reliability<sup>11</sup>. The current APP is triggered when the cumulative spot market price over a seven day period exceeds the Cumulative Price Threshold (CPT) of \$187 500. Administered pricing caps the spot price to \$300/MWh. The CPT trigger for the APP was first introduced in 2002 and has been breached on five occasions: three times in South Australia (in 2008 and twice in 2009); once in Victoria (at the same time as one of the South Australia events in 2009); and once in Tasmania (in 2009).

The CPT has been breached in the past following multiple days of high spot prices. A weekly average spot price of \$30/MWh would see the weekly rolling sum of prices total \$10 080. This means that for an average week, 15 spot prices at the price cap of \$12 500 would be required to see the cumulative price exceed the CPT. In New South Wales in February 2011, the cumulative price reached \$170 000 (just short of the CPT), as a result of 12 spot prices above \$5000/MWh over three days together with a number of other high spot prices during the week.

In theory, prices could average \$558/MWh and administered pricing would not occur as the current CPT would never be breached. During the extreme price events in South Australia during the first quarter of 2008, the cumulative price stayed just below the CPT for most of the period between 18 February and 20 March.

The AER has separately recommended<sup>12</sup> reviewing the effectiveness of the APP mechanism in two recent rule change proposals. The APP mechanism only takes effect in specific circumstances based on short-term prices. Opportunities exist for generators to manipulate the price such that the cumulative weekly price comes very close to, but does not exceed, the CPT for a number of days. This suggests that generators are structuring their bids in order to maximise returns without triggering a breach of the CPT. This behaviour arises because of the CPT settings in the existing APP mechanism, which are calculated using only one week's worth of data.

The AER considers that changing the APP mechanism, such that it operates on a longer time horizon (i.e. a limit based around a 90 day rolling cumulative price), may ensure that it achieves its stated purpose of limiting participants' financial exposure to the wholesale spot market during significant periods of high prices, while preserving as far as possible the market's ability to use price signals to provide supply reliability. Varying the APP mechanism may protect market participants, and the market as a whole, from the type of systemic economic withholding which raises significant concerns for the efficiency and viability of the market.

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<sup>11</sup> Reliability Panel - VOLL and the cumulative price threshold Final report 2005  
[http://www.neca.com.au/Files/RP\\_Final\\_Report\\_on\\_VOLL\\_Mar2005.pdf](http://www.neca.com.au/Files/RP_Final_Report_on_VOLL_Mar2005.pdf)

<sup>12</sup> Submission to Application and operation of Administered Price Periods Rule Change Proposal (Ref: ERC0121) and Response to Draft Rule Determination: Reliability Settings from 1 July 2010 (Ref: ERC0115)

The AER notes that varying the APP mechanism is likely to alter investment incentives, as the price received by all generators in the region will change during periods in which the administered price is applied. Notably, varying the APP mechanism will alter the returns expected by peaking generators who rely on price spikes to recover long and short run marginal costs. Therefore, any change to the APP mechanism would need to be considered carefully.