Applications for Authorisation

Amendments to the National Electricity Code

Changes to bidding and rebidding rules

3 July 2002

Authorisation nos:	**Commsioners:**
A90797	Fels
A90798	Jones
A90799	Martin
	Cousins
	Bhojani

File no: C2001/1261

Contents

Glossary

AGL	AGL Energy Sales and Marketing Limited
Bardak	Bardak Ventures Pty Ltd
BCA/EWG	Business Council of Australia Energy Working Group
Code	National Electricity Code
Commission	Australian Competition and Consumer Commission
Delta	Delta Electricity
Duke	Duke Energy Australia Pty Ltd
Edison	Edison Mission Energy Australia Limited
EnergyAustralia	EnergyAustralia
Enertrade	Enertrade
Eraring	Eraring Energy
Ergon	Ergon Energy
EUAA	Energy Users Association of Australia
FCAS	Frequency Control Ancillary Services
guidelines	Draft Guidelines- *Ensuring the efficient, economic and reliable operation of the national electricity market*
Hydro Tasmania	Hydro Tasmania
IES	Intelligent Energy Systems
InterGen	InterGen (Australia) Pty Ltd
Loy Yang	Loy Yang Power Management Pty Ltd
Macquarie	Macquarie Generation
MMA	McLennan Megasanik Associates Pty Ltd
MW	megawatt
MWh	megawatt per hour
NECA	National Electricity Code Administrator
NEM	National Electricity Market
NEMMCO	National Electricity Market Management Company Ltd
NGF	National Generators Forum
NRG Flinders	NRG Flinders Operating Services Pty Ltd
NSW Treasury	New South Wales Treasury
OFGEM	Office of Gas and Electricity Markets (UK)
Origin	Origin Energy Electricity Limited
Panel	Code Change Panel
Pareto Associates	Pareto Associates Pty Ltd
PASA	Projected Assessment of System Adequacy
Report	Code Change Panel- *Generators' bidding and rebidding strategies and their effect on prices*- Volume 1- Report
SAIIR	The Office of the South Australian Independent Industry Regulator
SA Treasury	South Australian Department of Treasury and Finance
Snowy Hydro	Snowy Hydro Trading Pty Limited
Southern Hydro	Southern Hydro
SPD	Scheduling, pricing and dispatch algorithm
Tarong	Tarong Energy Corporation Ltd
TPA	Trade Practices Act 1974
Tribunal	National Electricity Tribunal

Foreword

The rebidding code changes put forward by NECA attempt to address concerns of market power in the NEM. The code changes respond to particular bidding behaviour that influenced spot market outcomes during the summer of 2000-01.

More recently, price spikes have been observed in the spot market that appears to have been the result of a strategic withdrawal of capacity, increasing year average prices significantly. The Commission is concerned by the ability of generators to affect spot prices seemingly at will, and is troubled about the relative lack of competitive generator response that has been witnessed over this period. The Commission believes that this type of behaviour while currently allowed within the market rules requires further investigation.

The Commission has found the true extent of market power in the NEM difficult to gauge because much of the evidence presented has concentrated on the spot market which represents a small portion of total financial market trading. Most revenue in the NEM is earned through the contract market and market power is harder to detect in this market because of the relative lack of publicly available information about prices and volumes of contracts being offered and purchased. Nevertheless, all of the Commission's consultants concluded that market power is present in the NEM and can be used, although there is some differences of opinion of whether the incidences of the use of market power is increasing or reducing.

The Commission believes that market power is fundamentally linked to market structure and the first best solution would be to address market power through further structural reform of the NEM. Absent this reform there will remain an ability for strategic behaviour to impact on wholesale market prices and in turn this outcome is undesirable if it results in inefficient market outcomes. In that context behavioural rules may have a role to play in enhancing the efficiency of the market through reducing the use of market power.

The code changes proposed by NECA are assessed under Part VII of the Trade Practices Act which requires the changes to result in a net public benefit before they can be given immunity from sections of the Act. In making its decision, the Commission must assess the public benefits and anti-competitive detriment that are likely to result from the proposal before it. The Act does not require the Commission to decide whether the code changes are the most effective way to address the issue of market power in the NEM, but rather, it requires the Commission to determine whether the changes, or parts thereof, will result in a net public benefit. On this basis the Commission has found that the proposed rule changes, except for one, do not deliver a net public benefit. However, the Commission has made some suggestions to NECA on alternative approaches that may be considered.

1. Introduction

1.1 The applications

On 13 September 2001, the Australian Competition and Consumer Commission (the Commission) received applications for authorisation (A90797, A90798 and A90799) of changes to the National Electricity Code (code). The applications were submitted by the National Electricity Code Administrator (NECA) under Part VII of the *Trade Practices Act 1974* (TPA).

Forecasts of future electricity demand enable market participants in the NEM to provide information to NEMMCO relating to their available capacity, daily energy constraints, dispatch inflexibilities and ramp rates of generating units and scheduled loads. Due to fluctuations in demand, forecast projections are made to assist generator operators to plan the operation of their plant. These projections are called Projected Assessments of System Adequacy (PASA) and are published by the National Electricity Market Management Company (NEMMCO).

Information submitted by generators enables NEMMCO to establish PASA projections, which feed into predictions of price and quantities of energy likely to be traded in each dispatch interval.

The code places restrictions on changes that market participants can make to their inputs to the short-term PASA and central dispatch processes. Daily bids must be received by 12.30pm the day prior to the supply being required, and rebids can be submitted any time after the 12.30pm cut-off and up until approximately five minutes prior to dispatch. Each bid can specify amounts of capacity available in up to ten price bands. The rebidding provisions of the code allow participants to vary the total availability of their plant, and amounts of energy that they choose to offer at nominated prices, however prices cannot be changed in a rebid.

NECA have identified aspects of generators' bidding and rebidding strategies that are of concern, and that are claimed to have been the cause of short-term price spikes experienced in the NEM. Consequently, NECA has applied for authorisation of code changes that are intended to address these concerns.

NECA proposes that the implementation of the code changes will enable them to work with NEMMCO and the market to begin to address:

- inefficiencies that have contributed to the very short-term price spikes experienced in the market;

- generators' bids[1] and rebids, and require them to be made in good faith and therefore represent their genuine intentions at the time they are made;

- those aspects of generators' bidding and rebidding strategies that may prejudice the efficient, competitive or reliable operation of the market. For example, curtailing bids or rebids that withhold or withdraw capacity and succeed in artificially raising prices, exploit network constraints or reductions in capacity, or manipulate other aspects of the market design.

1.2 Statutory test

The applications were made under sub-sections 88(1) and 88(8) of the *Trade Practices Act 1974* (TPA).

Applications made under sub-section 88(1) of the TPA are for authorisation to enter a contract or arrangement, or arrive at an understanding, a provision of which would have the purpose, or would or might have the effect, of substantially lessening competition within the meaning of section 45 of the TPA; and to give effect to a provision of a contract, arrangement or understanding where the provision is, or may be, an exclusionary provision within the meaning of section 45 of the TPA. Further sub-section 88(6) provides that an authorisation made under sub-section 88(1) has effect as if it were also an authorisation in the same terms to every other person named or referred to in the application.

Applications made under sub-section 88(8) of the TPA are for authorisation to engage in conduct that constitutes, or may constitute, the practice of exclusive dealing in accordance with the provisions of section 47 of the TPA. Further, sub-section 88(8AA) provides that where authorisation has been granted under sub-section 88(8) and this particular conduct is expressly required or permitted under a code of practice, the authorisation applies in the same terms to all other persons named or referred to as a party or proposed party to the code. Authorisations may also apply to any corporation who becomes a party in the future.

The TPA provides that the Commission shall only grant authorisation if the applicant satisfies the relevant tests in sub-sections 90(6) and 90(8) of the TPA. While sub-section 90(6) and sub-section 90(8) relate to different types of anti-competitive behaviour, the tests are essentially the same.

Sub-section 90(6) provides that the Commission shall grant authorisation only if it is satisfied in all the circumstances that:

- the provisions of the proposed contract, arrangement or conduct would result, or be likely to result, in a benefit to the public; and

[1] The term 'bid' in this Determination refers to supply side offers unless otherwise specified. Technically speaking, generators submit 'offers' to NEMMCO. However, the term 'offer' has largely been replaced by the term 'bid' which initially referred to demand side bids only.

- that benefit would outweigh the detriment to the public constituted by any lessening of competition that would, or would be likely to result from the proposed contract, arrangements or conduct.

Sub-section 90(8) provides that the Commission shall grant authorisation only if it is satisfied in all the circumstances that the proposed provision or conduct would result, or be likely to result, in such a benefit to the public that the proposed contract, arrangement, understanding or conduct should be allowed.

The detriment to be considered is limited to detriment caused by a lessening of competition. However, consideration of public benefits is less restricted and public benefits recognised in the past include:

- fostering business efficiency;
- industry rationalisation;
- promotion of industry cost savings;
- promotion of competition in industry;
- promotion of equitable dealings in the market;
- expansion of employment;
- development of import replacements;
- growth in export markets; and
- arrangements which facilitate the smooth transition to deregulation.

In considering whether or not to grant authorisation the Commission must consider what the position is likely to be in the future if authorisation is granted and what the future is likely to be if authorisation is not granted.

If the Commission determines that the public benefits do not outweigh the detriment to the public constituted by any lessening of competition, the Commission may refuse authorisation or grant authorisation subject to conditions.

The value of authorisation for the applicant is that it provides protection from action by the Commission or any other party for potential breaches of certain restrictive trade provisions of the TPA. It should be noted, however, that authorisation only provides exemption for the particular conduct applied for and does not provide blanket exemption from all provisions of the TPA. Further, authorisation is not available for misuse of market power (section 46).

For more detail about the Commission's authorisation process and the statutory test that the Commission applies please see: *Guide to authorisations and notifications*, Australian Competition and Consumer Commission, November 1995.

1.3 Public consultation process

The Commission has a statutory obligation under the TPA to follow a public process when assessing an application for authorisation.

The Commission received the applications for authorisation of the changes to the code on 13 September 2001. Notification of the applications and a request for submissions were advertised in *The Australian Financial Review* on 20 September 2001 and posted on the Commission's web site. Interested parties were asked to make submissions to the Commission regarding their views on the issues of public benefit and anti-competitive detriment arising from implementation of the proposed changes.

The Commission received submissions from 22 interested parties (see Appendix A). All submissions have been placed on the Commission's public register and are also available on the Commission's web site www.accc.gov.au.

1.4 Commission processes

The Commission has produced this draft determination outlining its analysis and views on the code according to the statutory assessment criteria set out in section 1.2 of this draft determination. The Commission now invites the applicants and other interested parties to notify it within 14 days of 5 July 2002 as to whether the applicants or other interested persons wish the Commission to hold a conference in relation to this draft determination.

If the applicants or an interested party notifies the Commission in writing within 14 days of 5 July 2002 that they want the Commission to hold a conference, the Commission will appoint a date, time and place for the holding of the conference and notify all interested parties. The applicant, interested parties who receive a copy of the draft determination and any other interested parties whose presence the Commission considers appropriate are entitled to participate in the conference[2].

Following the conference, the Commission will take into account issues raised at the conference, and any related submissions, and will issue a final determination. If no pre-determination conference is called then this draft determination will become the final determination.

A person dissatisfied with the final determination may apply to the Australian Competition Tribunal for its review.

1.5 Commission's approach

The Commission has prepared this draft determination outlining its analysis and views on the application for authorisation of code changes relating to bidding and rebidding in the NEM. This is not the first time that that changes to the rebidding rules have been brought to the Commission. Chapter 2 of this determination examines the National Electricity Code Authorisation 1997, and subsequent code changes relating to bidding

---

[2] For the purposes of the conference, an interested person is a person who has notified the Commission in writing that the person, or a specified unincorporated association of which the person is a member, claims to have an interest in the applications and the Commission is of the opinion that the interest is real and substantial.

and rebidding in the NEM. Chapter 2 also outlines the rules for bidding and rebidding as contained in the current version of the code.

Chapter 3 introduces the proposed code changes and summarises general comments from submissions. Chapters 4, 5 and 6 cover the specific changes that NECA propose, and include comments from submissions concerning particular aspects of the changes.

As the existence and exercise of market power is fundamental to the analysis of bidding and rebidding behaviour in the NEM, a chapter has been devoted to investigating market power in the NEM, including findings from commissioned consultants reports. This is contained in Chapter 7.

The Commission's analysis of the code changes is set out in Chapter 8. Chapter 9 contains the Commission's draft determination.

2 History of the rebidding debate

2.1 The National Electricity Code authorisation 1997

Rules for rebidding were authorised by the Commission as part of the original National Electricity Code authorisation 1997. During the public consultation process for the authorisation of the code, it became evident that most generators did not support any restriction on rebidding, insisting that the rebidding function was crucial for generators to be able to respond to physical problems such as unexpected outages. Conversely, market customers supported restrictions on rebidding, citing concerns that some generators held considerable market power and would use this to manipulate spot market prices through their ability to rebid. The Commission also considered other issues in 1997 that are similar to those being considered in the current debate on further bidding and rebidding code changes.

Draft determination (1997)

In the public consultation process for the original authorisation, concerns were raised that the proposed rebidding rules would provide generators with a number of avenues through which to game the market, and therefore could contribute to anti-competitive market outcomes. Such outcomes were thought to be physical and economic withholding of capacity, and last minute shifting of megawatt (MW) quantities to higher price bands.

Physical withholding of capacity occurs when serviceable plants are shut down in either the short term (such as within a day), or in the longer term. Physical withholding can have system reliability implications, as demand may exceed available supply in the short-term. In extreme cases, load shedding (blackouts) may be required to balance supply and demand.

Economic withholding of capacity involves bidding part of a generator's capacity at very high prices such that the capacity is effectively withdrawn from the market in normal circumstances, and is only dispatched at the nominated high price if demand rises to such an extent that that capacity is required.

Some submissions argued that allowing rebidding to continue right up until the time of dispatch would create an opportunity for generators to manipulate the pool price in a time frame within which the customer side of the market could not respond[3].

The draft determination made in 1997 imposed a condition that rebidding should be prohibited within three hours of dispatch. The aim of this condition was to discourage the use of rebidding by generators to manipulate market outcomes. At the same time, it still provided generators with a rebidding function, and consequently, the flexibility to respond to changing market conditions up to three hours prior to dispatch. This

[3] National Electricity Code Determination, 10 December 1997, p.63.

condition proved contentious and considerable debate ensued as to whether the rebidding restrictions would contribute to, rather than relieve, the occurrence of short-term high prices in the NEM.

However, generators strongly argued that rebidding should be allowed, particularly for rebids of total quantity, in order to advise the market operator of unexpected outages. Generators claimed that spot prices could be forced higher if rebidding was not allowed at the time of an outage. Further, if a generator withdrew capacity, an inability to rebid would restrict other generators from responding to the fall in supply and could therefore contribute to higher spot market prices. They argued that such price spikes could arise not only from a total inability to rebid, but also in the case of restricting rebidding within a three-hour period prior to dispatch.

Rebidding was argued to be most important for peak gas-fired and hydro generators. Such plants rely on expensive or limited resources and use the rebidding option to optimise their energy production. These generators argued that a restriction on rebidding would have a more significant impact on their type of generation technology and thus make it difficult for them to compete against baseload generators in the NEM.

In addition to the proposed three-hour restriction on rebidding, the restriction was proposed to have applied to demand side bids. At the time it was argued that restricting demand side responses would have the perverse effect of reducing the markets' ability to respond to high prices and would be anti-competitive.

At the Pre-Determination Conference (PDC) that followed the draft determination, some market participants argued that the TPA provisions would be sufficient to address the use of market power in the NEM.

Following the release of the draft determination, the Business Council of Australia Energy Working Group (BCA/EWG) proposed a compromise solution that would allow rebids if they resulted in lower prices, but disallow rebids that resulted in higher prices. It was proposed that this requirement would apply to changes to total capacity made available as well as to changes to the MWs offered in each price band.

Final determination

Options considered by the Commission in its final determination were:

1. To maintain the three hour restriction on rebidding MW into different price bands as proposed in the draft determination;

2. To maintain the three hour restriction for rebidding that resulted in higher prices but allow rebidding within the three hour period prior to dispatch if the rebid resulted in lower spot prices;

3. Allow all rebidding for bona fide technical reasons; or

4. Allow all rebidding with market monitoring.

Although the first option was incorporated into the draft determination, it was ultimately excluded from the final determination due to the previously discussed concerns of inefficiencies arising from such restrictions.

The second option, as proposed by BCA/EWG, was rejected by the Commission in the final determination because it was likely to discriminate between different types of generation. The restriction would not have enabled gas fired peaking generators or hydro facilities to optimise their energy production, that is, produce electricity to be utilised at times of peak demand. Effectively a compromise solution, this option would also have had the perverse effect of restricting demand side responses to high prices within the three-hour period before dispatch and would still allow generators to offer higher initial bids.

The Commission was sceptical about administration of the third option - allowing rebidding for bona fide technical reasons only, because of the difficulty in verifying the legitimacy of technical reasons given as justification of rebids. The final determination remarked that the Commission's expertise did not extend to being able to competently determine what was a genuine technical reason. Further, concerns were raised as to whether the third option would provide generators with an incentive to manufacture technical reasons to advance their commercial interests.

Due to the magnitude of problems identified with each of the first three options, the fourth option was ultimately adopted. The Commission noted in the final determination that the likelihood of generators using rebidding to manipulate market outcomes would be mitigated by the degree of spot market exposure of market participants. That is, if generators were considering engaging in capacity withdrawing to drive prices up, they would need to be mindful of being dispatched at sufficient capacity to meet their contractual obligations. In addition, to profitably engage in economic withdrawing of capacity, prices would need to be driven sufficiently high so that the revenue earned from the lower production (and higher price) would exceed the revenue that could be earned from the higher production (and lower costs).

However, the Commission mentioned that the direction of movement in the spot price would have a corresponding influence on contract prices, saying that the higher the spot price, the higher the strike price for contracts.

The Commission's final determination in 1997 read as follows:

> "The Commission's concerns with imposing restrictions include introducing distortions to the market, imposing costs on the market, introducing inequities in the treatment of generating plant, and introducing perverse incentives regarding demand side participation. Further the Commission accepts the generators' and applicants' statements that restriction on rebidding will be ineffective to the extent that market power and the will to manipulate price outcomes exist. The Commission also considers that the benefits of strategic rebidding by generators will also be limited by the extent of their exposure to the spot price.
>
> For similar reasons the Commission also has concerns regarding both the actual impact of strategic rebidding behaviour on market customers. Currently exposure to the spot price is limited, and although this may not always be the case (either for given participants or generally into the future), the Commission considers that at market commencement it offsets the risks of high spot prices to some extent.

> Therefore the Commission has decided to remove the condition imposed in the draft determination, and allow the rebidding provisions of the Code to stand. However, the Commission will impose a condition of authorisation regarding market monitoring…."[4]

2.2 Market monitoring

A number of submissions to the original authorisation claimed that inappropriate behaviour by generators was best addressed through market monitoring or regulatory arrangements other than restrictions on rebidding. It was said that such methods would be less costly and cause less distortion to the market outcomes while achieving a better result.

In the final determination, the Commission stressed the importance of market monitoring to the assessment of market behaviour. Consequently, a condition of the final determination prescribed the inclusion of a clause requiring NECA to undertake a market monitoring role with respect to price variations.

Under clause 3.13.7 of the code, NECA is obliged to monitor variations in prices, and prepare quarterly reports for the Commission and the public, identifying and reviewing any significant price variations, including occasions where spot prices are above $5000/MWh, over the related period. More recently, NECA has reported market activity on a weekly basis.

The price cap, termed Value of Lost Load (VoLL) is the maximum price at which generation can be dispatched. Up until April 2002, VoLL was $5000. The current value for VoLL is $10000, and generators are able to submit bids for dispatch at prices up to the value of VoLL. In addition, NEMMCO can instigate VoLL pricing in place of the spot market operation where supply has been interrupted.

The reports must state why NECA considers that the significant price variation occurred and in the case of spot prices exceeding $10 000/MWh, NECA must determine whether rebidding contributed to that high spot price.

Since the beginning of the ancillary services market operations, NECA has also reported on any ancillary market outcomes where the price of ancillary services in a region has significantly exceeded the relevant spot price for energy in that region, as well as instances where the price for ancillary services in a region has reached $10 000/MWh.

On a number of occasions NECA has investigated the reasons for, and impact of, behaviour as it relates to price spikes, to determine whether there has been any breach of the Code. In all but one of these cases[5] NECA has concluded that no breach has occurred.

---

[4] ACCC Determination 10 December 1997: *National Electricity Code*

[5] NECA has recently taken action against Macquarie Generation for a breach of the 'must run' provisions in the Code. The Tribunal found Macquarie Generation had breached the Code and was order to pay

2.3 Subsequent changes to the rebidding rules

On 19 October 1998 the Commission was presented with a large body of code changes that included proposed changes to the rebidding rules. In relation to rebidding, the Commission was asked to authorise changes that would:

- Allow the bidding and rebidding of certain generator and customer inputs into the spot market dispatch process, including ramp rates of change, fixed loading levels and the daily energy available for energy constrained plant;
- Revise off-loading price bidding rules to be consistent with rules for other price bids; and
- Require prices for bid and offer price bands to increase for higher load levels.

The proposed changes were designed to allow more flexibility within the rebidding rules. However, there were concerns about the inefficiencies of ramp rate constraints, and the ability of non-complying generators to free ride on the back of high prices set by generators that did meet ramp rate standards. Therefore, interested parties questioned whether there were sufficient incentives for generators to meet the standards if they were likely to benefit just as much by not meeting the standards.

A second concern was the risk of tacit collusion between generators to allow plant that complied with the standards to set inefficient prices. Interested parties argued that such risk would be exacerbated if ramp rates could also be bid and rebid.

The Commission was not convinced that the proposed changes would add any material benefit to the market and believed that the benefits of increased flexibility through allowing the market operator to dispatch generation with different ramp rates would be realised without additional changes to the rebidding rules. The Commission stood by its previous decision to rely on NECA's market monitoring to identify the impact of bidding and rebidding ramp rates on spot market outcomes.

On 15 March 2000, NECA applied for authorisation of further code changes to rebidding rules. In this case the code changes required participants to provide the reasoning behind any rebid made, and also provided for these reasons to be published by NEMMCO. The proposed rebidding rule change specified that:

- the participant must, at the time a rebid is submitted to NEMMCO, also provide to NEMMCO a brief, verifiable and specific reason for the rebid and the time of the event or other occurrences that led to the rebid;
- NEMMCO must publish the time of, and reason for, the rebid;
- NECA can, in accordance with guidelines, request information from the participant to substantiate the reason for the rebid; and

---

civil penalties of $10 000. See *Report of NECA's investigation into the events of 19 and 20 December 2001*, NECA, May 2002.

- Market participants may no longer request NEMMCO to provide them with information gathered to substantiate rebids.

The proposed code changes were to apply when market participants notified NEMMCO of dispatch inflexibilities.

NECA argued that rebidding was essential to ensure that the market was fully informed of any rebids which would allow other participants (on the demand or supply side) to respond. NECA concluded at that time that conditions or restrictions on rebidding were not warranted, but that NECA would encourage participants to submit voluntary statements of ethics regarding their use of rebidding.

NECA argued that the requirement to disclose a specific and verifiable reason for each rebid would deter the misuse of the rebidding provisions to the extent that the original bid might be viewed as providing potentially misleading information. NECA added that the specific alterations also minimised the cost of compliance, and thus the costs to the NEM.

The Commission authorised these code changes.

2.4 Current rebidding rules

Generators and others must submit bids for a 24 hour period to NEMMCO by 12:30pm each day for the following trading day. Bids can be made in up to ten price bands from -$1000 to $10 000. Prices of bids must remain firm but generators are able to rebid the amount of capacity offered in any of the price bands subject to the bidding rules contained under clause 3.8.22 of the code. Rebids are accepted up until approximately five minutes prior to dispatch.

The rebidding rules require participants to submit a brief, verifiable and specific reason to NEMMCO at the time of the rebid, and provide any other substantiating information as required by NEMMCO. NEMMCO must publish the timing and reason for a rebid. However, the rebidding rules do not specify the type of reason that is considered appropriate, simply that a reason is supplied.

NECA produces a weekly market analysis if the market's performance, specifically price, demand and forecast difference arising during the week, For each trading interval, it compares the spot price to that week's average price, and the average for the last quarter. In its analysis, NECA highlights any significantly high prices arising during any trading intervals - they define a high price as one that is at least three times the average weekly price.

3 Introduction to current code changes

The rebidding code changes were developed by NECA after criticism of price outcomes that arose during the summer of 2000-2001. Record high summer temperatures were recorded in Victoria and South Australia, which culminated in some very high price outcomes in associated regions of the NEM over sustained periods. Government intervention followed and in some instances load shedding in the southern states occurred.

NECA began consultation on the code changes in May 2001 with the release of an issues paper analysing bidding and rebidding and their effect on price outcomes in the NEM. The May issues paper was followed by draft proposals for change which were published in July, and culminated with the release of a report by the Code Change Panel (Panel) in September that recommended changes to the code rules governing bidding and rebidding in the NEM.

3.1 Proposed code changes

Concerns have been raised that generators are able to take advantage of rebidding to obtain financial benefits from price spikes. NECA claims that the inflationary impact of price spikes on the spot price is detrimental to the operation of the market. NECA also argues that because price spikes arise suddenly and are short term in duration, competitive responses are rare.

NECA has proposed code changes in response to these concerns. The intention of the code changes is to increase the effectiveness of market monitoring by prohibiting bids and rebids that result in unjustified price spikes.

NECA draws attention to instances where it claims rebidding has led directly to higher prices. However, in their report, NECA states that the number of bids and rebids that give cause for genuine concern is currently comparatively very small. In addition, NECA points to their own analysis that demonstrates that most rebids are benign.

NECA also emphasises the importance of rebidding to the effective operation of the NEM. NECA claims that rebidding provides essential flexibility to generators to enable them to respond to changes in physical and commercial circumstances. Efficient prices arise from the efficient operation of markets, and NECA advocates that efficient prices are essential signals for much-needed new investment and demand-side responses in the NEM.

Whilst articulating the importance of rebidding, NECA says that controlling the use of rebidding and thus the incidence of price spikes will benefit the public. NECA argues that inappropriate bidding and rebidding strategies have no place in the market, and blames the incomplete state of the market and the existence of market power for their occurrence.

NECA envisages that the proposed code changes will give the market rules more strength to contest those aspects of generators' bidding and rebidding strategies that

they are concerned with, without removing the essential flexibility required for efficient bidding outcomes.

General comments from submissions

The Commission received 22 submissions on the rebidding code changes. The majority of the submissions did not support the need for code changes. Of the submissions that did support the need for code changes, few agreed that the approach chosen by NECA was appropriate. This section summarises the general comments made in submissions. Specific comments on each clause in the NECA proposal are included in the relevant sections below.

Lack of evidence

There was some support shown for NECA's intentions in drafting the code changes. Energy Australia agrees with NECA that the current rebidding rules provide a means by which generators manipulate price outcomes, and believes that in some instances, the use of rebidding can prevent the market from achieving efficient price signals.

InterGen criticises NECA for an apparent unwillingness to articulate what offensive behaviour the proposed code changes are actually intended to alleviate. They point to the process of authorisation, and the fact that the onus is on the applicant to satisfy the Commission that the public benefit arising from the conduct (in this case the effect of the code changes) outweighs any detriment that the changes would cause.

Loy Yang believes that NECA has failed to provide a substantive case for the implementation of the package of changes put forward and that further work needs to be done to demonstrate where and how the market is inefficient. Eraring agrees that NECA has not provided supporting evidence to prove that these code changes will provide any public benefit.

Macquarie Generation questions NECA's reasoning for the changes, and using its own analysis of rebidding in the NEM, Macquarie argues that rebidding acts to force prices down rather than drive them above forecast levels. Similarly, Loy Yang referring to NECA's own market analysis argues that rebidding more often results in lower rather than higher prices.

Data from Loy Yang's own analysis of rebidding suggests long run contract prices are below new entrant price and therefore represent the workings of an efficient market. They claim that an inefficient market would be one in which long run prices lay above the new entrant price. On a similar note, the NGF contends that NECA has not provided sufficient evidence that recent price spikes have had any impact on consumer prices, and they point to the minimal or non-existent effect that price spikes have had on year average contract prices. The NGF claims that price spikes only affect market participants to the extent that they are exposed to the pool.

Loy Yang argues that the detriment that NECA has identified and are seeking to eliminate through these changes, would be outweighed by a decrease in public benefit arising from increased risk, uncertainty, and resulting lack of investor confidence. Loy Yang says that the type of market regulation proposed by NECA will create uncertainty

and risk for market participants in bidding and rebidding because the changes lack clarity and are ill defined, and are subject to arbitrary changes by NECA.

Structural issues

In their submission, NSW Treasury argues that it is onerous to place an obligation on market participants not to bid in certain ways, but argues that NECA should attend to the design or structure of the market as a means of addressing market inadequacies:

> "Attempting to address design or structural problems though behavioural rules or 'guidelines' risks creating serious uncertainties and inefficiencies and in effect, defeats the purpose of implementing a market."[6]

In their report on behalf of the EUAA, Pareto Associates suggests that the rebidding code changes are not an effective solution to the problem of price spikes. They contend that the problem of price spikes has arisen as a result of inadequate ownership structures within the NEM. They suggest limiting generators' ownership of total capacity so as to reduce the ability of generators to abuse market power.

Investment signals

Enertrade is concerned that eliminating rebidding behaviour that is targeted by the proposed changes will eliminate price outcomes from the market that may form an integral part of the market's essential investment signals. Enertrade illustrate the importance of price signalling when there is a lack of interconnection, generation capacity, or other structural issues. Similarly, Edison believes that the changes, if introduced, will only detract from the attractiveness of the NEM as an investment prospect.

Eraring suggests that concern about the potential for high pool prices could be addressed through the maintenance of VoLL at its current level rather than proceeding with the raising of VoLL to $10 000, which occurred in April 2002.

Higher prices through less flexibility

Origin states that the new rules would lead to more conservative rebidding strategies by generators, translating into fewer offerings of financial contracts, or offerings of contracts at higher prices. Origin believes that this will ultimately result in higher costs for end users and/ or a significant drop in retail competition.

Origin claims that the proposed changes do not promote the NEM as a competitive, transparent and clearly codified market. As such, Origin claims that participants will shy away from competitive bidding for fear that in the event of questionable pricing outcomes, NECA may accuse them of acting inappropriately.

---

6 NSW Treasury- submission, p 4, October 2001.

Hydrological issues

Hydro Tasmania believes the proposed changes are discriminatory, saying that they place an additional burden on renewable energy generators who make greater use of rebidding due to the unpredictable nature of their fuel resources. They point out that the short run marginal cost of hydro-electric generation (the opportunity cost of using water) is dependent on the state of any storage, and the forecasts and uncertainties regrading market opportunities. Because the opportunity cost of using water constantly changes, Hydro Tasmania explains that rebidding is essential for effective water management.

Due to the volume of rebidding by hydro powered generators, Hydro Tasmania is concerned that under the proposed changes, behaviour of hydro generators may be falsely perceived as taking advantage of market conditions. Hydro Tasmania clarifies that in reality, this behaviour is simply aimed at optimising the use of its scarce water resource - behaviour that is to be expected in a competitive market.

Competition law

Loy Yang believes that from the definitions of "reliable" and "reliable operating state", as contained in the code, operation of the NEM is NEMMCO's responsibility. Therefore, Loy Yang say that it is not appropriate for NECA to attempt to regulate outcomes through the code, which pertain to technical aspects of the NEM, and which are administered by NEMMCO. They believe that the conduct prejudicial clause as proposed by NECA would shift part of this responsibility to market participants, and potentially require them to contact their competitors and NEMMCO to discuss and agree upon the consequences to system reliability of their bids.

Chapters 4, 5 and 6 set out the specific arguments for the code changes proposed by NECA and those against the code changes taken from submissions. The Commission's considerations of the code changes are included in Chapter 8.

4 Variation of offer, bid or rebid

Generators in the NEM are required to indicate to the market the volume of electricity they are prepared to produce for specified prices. The code currently stipulates that initial bids must be 'firm', and that price cannot be varied. Apart from daily bids which must be received before 12.30pm the day before supply is required, generators can rebid quantities of supply into the fixed price bands up until approximately five minutes prior to dispatch, subject to code requirements. Rebidding after this time is not accepted because of the time required by SPD (the scheduling, pricing and dispatch algorithm) to compute clearing prices in readiness for dispatch.

4.1 What the applicant says

Bids and rebids to be made in good faith

NECA says that the requirement for generators' bids to be 'firm' is rendered meaningless by the flexibility allowed by the rebidding function. Whilst NECA's analysis demonstrates that most rebids are benign, they argue that a minority of rebids create price spikes that have a significant impact. NECA has identified some rebidding strategies that it says result in unfavourable market outcomes, and which it believes changes to the code will help alleviate:

- instances where rebids are made too close to dispatch for competitive or demand-side response- specifically those cases where rebids are made in response to information or events about which the relevant parties have significant prior knowledge; and

- instances where great price volatility has arisen in response to relatively small changes in demand, which NECA says, have led directly to significant price spikes.

NECA believes that the current arrangements regarding flexibility of rebidding can be reinforced by an addition to the code specifying that bids and rebids are to be made in good faith. Thus, the proposed addition to the code of clause 3.8.22A(a) states:

> Market participants must make dispatch offers, network dispatch offers, dispatch bids and rebids in good faith[7].

NECA's intention is that generators must be able to prove that their bids and rebids represent their genuine intentions at the time they are made:

> It represents no more or less than fair and honest dealing. It is essential to accurate and reliable predispatch. This is central to the market design and is in turn essential to informed competitive and demand-side responses.[8]

[7] NECA Code Change Panel Report, Volume 1, pages 8, September 2001.

[8] NECA Code Change Panel Report, Volume 1, pages 8, September 2001.

The Panel does not consider that the term "good faith" needs to be defined in the code. The Panel believes that it is a commonly used term in legislation and contractual arrangements, and therefore claims that there is a significant body of precedent as to its meaning.

> The Panel considers that any attempt to define good faith would significantly detract from the effectiveness and scope of the proposal.[9]

Reverse onus of proof

To enforce the requirement for market participants to act in "good faith", a change to clause 3.8.22A(b) proposes to shift the onus of proof to generators. Accordingly, in the case of a possible code breach, a generator would be required to satisfy the National Electricity Tribunal that its bid or rebid was indeed genuine, that is, made in good faith, and not contrary to code rules. This contrasts with the current situation where the onus is on NECA to establish that a bid or rebid has breached the code.

The Panel argues that the shift in onus of proof is precedented in section 51A(2) of the TPA in relation to misleading and deceptive conduct. NECA argues that it is not seeking a direct equivalence between section 51A and its proposal. Rather, it is simply claiming that section 51A provides a precedent for shifting the onus of proof.

4.2 Submissions to the Commission

The majority of submissions were received from generators, none of which supported the changes. Only a few submissions mentioned that they supported the code changes in principle.

Bids and rebids to be made in good faith

Definition and compliance costs

Many submissions from participants criticise the proposal, as they believe the requirement that offers, bids and rebids are to be "made in good faith" is imprecisely defined.[10]

AGL says that insufficient explanation of the term will fail to provide market participants with adequate guidance as to its application for day to day use. AGL states that compliance will be difficult, if not impossible, given the subjective meaning of the term "good faith" as it relates to bidding behaviour. NSW Treasury considers that given the number of factors that could contribute to the making of a bid or rebid, requiring generators to show that they acted in good faith will place a substantial burden on them.

---

[9] NECA Code Change Panel Report, Volume 1, pages 9, September 2001.

[10] Opponents include AGL, Delta, Eraring, Enertrade, InterGen, Loy Yang, Macquarie, NRG Flinders and Snowy Hydro.

Delta and Eraring claim that without further clarification of the intended application of the clause, it may be subject to different interpretations by market participants, including NEMMCO and NECA. Delta argues that the ambiguity and uncertainty surrounding the term may lead to increased compliance costs and delay the submission of rebids, which may in turn threaten the reliability of the market during times of system stress.

Loy Yang contends that the term imposes some sort of moral standard and Macquarie believes that is inappropriate to simply rely on a moral standard such as "good faith", the interpretation of which is likely to be subjective:

> Further, legal standards applied in the context of competition and fair trading regulation ordinarily adopt objective standards or criteria which are capable of assessment and application on an *ex ante* basis in order to facilitate compliance.[11]

Loy Yang and the NGF argue that it is inappropriate to apply the term "in good faith" to transactions between competitors, as it has only been used in the legal system in relation to consumer transactions. As such, Tarong submit that it is assumed under vigorous competition that one person's gain will be another person's loss, and argue that the opportunity for profits, and fear of losses, is supposed to drive efficient market outcomes.

As a general consensus, the submissions express concerns that the term "good faith" will impose substantial risks and increased compliance costs on market participants. Subsequently, they claim that any increase in uncertainty and risk will be detrimental to the market, as it is likely to adversely affect investment.

Reverse onus of proof

Inconsistencies with the Code

Snowy Hydro contends that the code does not afford NECA the power to make laws with respect to anti-competitive behaviour, therefore they argue that NECA does not have the authority to propose a reverse onus of proof. Snowy Hydro and the NGF refer to clause 3.8.22A(b) of the proposed changes as an attempt by NECA to regulate anti-competitive behaviour which, they say, is contrary to the intention of clause 3.1.4 (b) of the code:

> These market rules are not intended to regulate anti-competitive behaviour by Market Participants which, as in all other markets, is subject to the relevant provisions of the Trade Practices Act, 1974 and the Competition Codes of participating jurisdictions.[12]

Furthermore, the NGF, Delta and Snowy Hydro claim that the proposed reverse onus of proof is contrary to code objectives, clause 1.4(b)(1), which are:

> (1) to provide a regime of "light-handed" regulation of the market to achieve the market objectives;[13]

---

11 Macquarie submission- *Gilbert & Tobin Memorandum of Advice*, p 10, October 2001

12 National Electricity Code, clause 3.1.4(b)

Precedent

Both Macquarie and the NGF argue that the use of section 51A of the TPA as a precedent is inappropriate. They contend that section 51A shifts only the procedural or evidentiary burden or proof, not the legal burden of proof as the code changes intend.

Both Macquarie and the NGF contend that under section 51A, if the defendant can provide evidence clearing itself of the charge, it is then up to the complainant or prosecutor to satisfy the legal burden of proof. A business has only to provide evidence that it had reasonable grounds for making a representation. In contrast, under the proposed changes, the complainant or prosecutor (in this case NECA) is not required to make out a case. Rather, it is up to the accused to prove its innocence.

NSW Treasury states that section 51A(2) refers to proceedings concerning representations made by a corporation in respect to future matters. They quote Miller's *Annotated Trade Practices Act* regarding section 51A(2), saying that it does not apply to a representation as to a person's present state of mind. Finally, NSW Treasury do not believe it is appropriate to require a corporation to have reasonable grounds for an intention other than profit maximisation.

Denial of natural justice

AGL claims that reversing the onus of proof is contrary to the general philosophy of the market and the Australian Legal System, and that the onus of proof should remain with NECA.

Delta, Enertrade, InterGen, NRG Flinders and Snowy Hydro all believe that the reversal conflicts with the basic legal principle that one is innocent until proven guilty.

The NGF goes further in suggesting that the changes embody the subversion of natural justice and they argue that the code should not place a harsher burden on a participant than a Court would. Origin contends that with a reverse onus of proof, participants will shy away from competitive bidding for fear that after the event they may be accused of acting inappropriately, and not be able to defend their actions.

Southern Hydro states its support for the recommendation that bids and rebids should represent participant's true intentions at the time of the bid or rebid, but does not support the reversal of the onus of proof. They believe that the clause effectively makes any bids and rebids illegal unless the participant can prove its innocence, placing an undue burden on participants.

Similarly, in Loy Yang's opinion, according to the changes NECA will treat every transaction as if it were performed in a prohibited manner, or for a prohibited purpose. They believe that the changes have been proposed without any justification, denoting them to be draconian.

---

[13] National Electricity Code, clause 1.4(b)(1)

Enertrade says that to justify the reversal, NECA must show that NECA themselves will have difficulty proving that bids have not been made in good faith.

Unworkable

Origin contends that reversing the onus of proof would be simply unworkable, as its effectiveness depends on the extent to which the resulting market outcome could be linked to the exclusive actions of one individual. Origin asserts claims NECA is more focused on effect rather than intent. They believe that participants simply may not be able to prove after the event that the resulting effect was not intended.

Edison contends that it is often more difficult to prove something than disprove it. It questions what degree of proof would be required to prove a generator's innocence, whether it is proof beyond reasonable doubt, or if the balance of probabilities would suffice, or whether the decision would rest with the discretion of the arbitrator.

Regulatory uncertainty

Edison and Enertrade both refer to the added administrative and legal costs that would be incurred by market participants when seeking advice for bidding and rebidding actions, costs that may ultimately affect end-user prices.

Similarly, a presentation given by Pareto Associates Pty Ltd (Pareto Associates) for the Energy Users Association of Australia (EUAA) states that NECA's proposed changes will result in a "poorly conceived market experiment". They believe that as a consequence of the changes, a greater need for Frequency Control Ancillary Services (FCAS) will arise due to less flexibility, leading to a rise in retailers' operating costs that they presume will ultimately be borne by the consumer.[14]

Enertrade agrees that uncertainty surrounding the application of the clause will unnecessarily raise generators' exposure to regulatory risks, and pose as a potential deterrent to new market entry.

Finally, the NGF believes that "good faith" and the reverse onus of proof are intertwined, as the purpose of clause 3.8.22A(b) relies on clause 3.8.22A(a). Therefore, the NGF contends that should one of the clauses be rejected, this would necessitate the rejection of the other, as the remaining clause would be meaningless of its own accord.

[14] Pareto did not make a formal submission to the Commission. However, their views are not supportive of the code changes despite representing views of end users.

5 Conduct prejudicial to the market

NECA's initial proposed code changes[15] included a prohibition on rebidding within three hours of dispatch, with exceptions for specified circumstances connected to the physical operation of the plant. The prohibition was directed at mitigating the adverse effects of inappropriate rebidding whilst at the same time still allowing for a demand-side response.

However NECA acknowledges that by effectively locking-in the results of less optimal bids, rather than allowing the resulting prices to be bid down by a competitive response, the changes would risk enhancing and exaggerating the effects of such bids. Such a significant prohibition on rebidding would remove generators' ability to legitimately respond to changing physical and commercial circumstances in the market.

5.1 What the applicant says

Ensuring the efficient, competitive or reliable operation of the market

Rather than promoting a prohibition on rebidding, NECA is instead proposing to instigate a prohibition on bids or rebids that have the purpose, or have or are likely to have the effect, of materially prejudicing the efficient, competitive or reliable operation of the market.

This more recent proposal by NECA was made in response to concerns raised by generators over the proposed three hour prohibition on rebids, and is based on proposals for changes to the UK electricity market put forward by the UK Office of Gas and Electricity Markets (OFGEM).

NECA believes that the clause will reinforce the market objectives of efficient, competitive and reliable market operations, whereas it concedes that a blanket prohibition on rebidding may risk these aims.

NECA is satisfied that the inclusion of a prohibition on the types of bids, rather than on the bids themselves, will provide a substantive regulatory influence.

Draft guidelines

Clause 3.8.22B(b) refers to draft guidelines published by NECA which outline how NECA will enforce the provisions under clause 3.8.22B(b) and investigate possible breaches of the provision.

The draft guidelines explain that NECA will investigate any potential or alleged breach of the code in consultation with the relevant market participant before deciding whether to refer the matter to the National Electricity Tribunal.

---

[15] NECA Code Change Panel, *Consultation Paper,* July 2001.

The guidelines also list examples of conduct for which it may find reason to investigate:

- *Generators withholding capacity* - NECA states that withholding capacity may lead to artificially increased prices, which do not reflect the true dynamics of the market, and increased risks to the reliability and security of supply.

- *Sleeper bids* - Such a practice entails bidding significant proportions of capacity at high prices, whilst ensuring that the capacity is available to the market. Whilst this ensures that reserve levels remain appropriate, NECA says that the market is exposed to the risk of inefficient and uneconomic outcomes.

- *Exploiting network constraints, reductions in capacity or increases in demand* - If a rebid is tendered in response to interconnector constraints, unplanned reductions in generating or network capacity, or increases in demand, NECA says that the market price can be affected disproportionately to changes in actual or opportunity costs. NECA acknowledges that whilst high prices arising under such circumstances can and will reflect the dynamics of the market, they are concerned with determining whether or not the market behaviour that leads to those prices has breached clause 3.8.22B.

- *Manipulating dynamic capability* - Generators are able to rebid ramp rates, the maximum rate at which they are prepared to vary their output. NECA believe that ramp rates below good industry practice can artificially force the dispatch of high priced capacity.

5.2 Submissions to the Commission

Ensuring the efficient, competitive or reliable operation of the market

Interpretation - "has the purpose, or has or is likely to have the effect"

Both Macquarie and Enertrade claim that the UK licence provisions on which this clause is based, stated that contravention would only occur if a generator were to "knowingly or recklessly" act in a manner likely to materially prejudice the safe, economic and efficient operation of the market. Enertrade believes that NECA's changes go further than the UK proposals, which were also considered too harsh to implement.

Due to the wide variety of factors affecting the NEM, Enertrade, Loy Yang, Macquarie and Southern Hydro do not believe that a generator in the market is able to accurately predict or assess how their bidding conduct is "likely" to affect market operations.

Similarly, Enertrade and Origin contend that a breach of clause 3.8.22B(a) may occur inadvertently, as a breach simply requires a generator's bid being deemed as "likely to have the effect" on market operations. Enertrade says that:

> So long as a generator's bids are "likely" to have the prescribed effect on market operations, and regardless of whether the generator could have foreseen that likelihood, it will breach the Australian prohibition.

Southern Hydro suggests that the clause should only apply to offers, bids or rebids that have the *purpose* of lessening competition.

Interpretation - "materially prejudice"

Eraring, Enertrade and Tarong are all concerned with the potential uncertainty surrounding the meaning of behaviours that would "materially prejudice" the market.

Eraring contends that what constitutes material prejudice may require a close analysis of the bid or rebid and its impact on a number of factors, which may prove almost impossible to consider in the available time frame leading up to a rebid decision.

Interpretation - "efficient, competitive or reliable operation"

In support of clause 3.8.22B(a) AGL accepts that it needs to be complex and broad in its effect to capture the variety of poor behaviours that may arise in the operation of the market.

In contrast, Macquarie criticises the complexity of the clause, saying that each of the requirements for generators' bids not to prejudice "efficient", "competitive" and "reliable" operations of the market may work counter to each other. For example, they say that to ensure reliability, market participants would potentially be required to deliberate on individual bidding actions to ensure shortages do not prevail. Macquarie argues that this would run counter to the competitiveness requirement and have an ambiguous impact upon "efficiency".

Enertrade, Macquarie and Southern Hydro argue that generators should not be compelled to consider the impact of their offers or rebids on system reliability, given that this is the responsibility of NEMMCO as set out in the code. In any event, Enertrade contends that generators will rarely be in a position to assess the likely impact of their bidding conduct on market reliability because they do not have access to all the information about factors affecting it.

Interpretation - "reasonable cause"

Eraring believes that under the requirements of the proposed changes, there is considerable uncertainty as to what would constitute a market participant having "reasonable cause" in relation to a bid or rebid that they make. Eraring says that reasonable cause could mean simply that the generator held an honest belief regarding a bid or rebid and the likely effect on the market. They contend that an honest belief may not be sufficient defence if it were proved that the market participant knew how to take steps to prevent the contravening bid or rebid from occurring in the first place. As an example, Eraring indicates that such an interpretation may require generators suffering breakdowns to have taken steps to prevent such breakdowns, and therefore may not be able to rely on the defence of reasonable cause.

Origin contends that the changes are retrospective in nature in that they rely on the interpretation by outside parties of what was intended by the participant at the time of the bid:

> To look back retrospectively and hold accountable a particular participant for a market outcome is not only impractical but also likely to be unprovable.[16]

In addition, Enertrade and Macquarie question from whose perspective must the cause for bidding be considered "reasonable", whether it is from the perspective of a market participant, NECA, NEMMCO or another party.

Ergon is concerned that Clause 3.8.22B(a) may not be workable in this form, because the standard for triggering the clause is too high. Conversely, when the clause is alleged to have been triggered, Ergon believes that the onus for satisfying the clause "…unless the market participant has reasonable cause for the dispatch bid, network dispatch offer, dispatch offer…" is too easily satisfied.

Consequently, Ergon suggests the clause be amended such that the reference to "has reasonable cause" be replaced with:

> A Market Participant must demonstrate that the conduct was not for this purpose, or did not or was not likely to have this effect.[17]

Draft guidelines

The SAIIR is supportive of NECA changing the market rules to expose rebidding more clearly to anti-competitive scrutiny and enforcement under the TPA. Furthermore, it sees the need for guidelines to be developed that accurately define anti-competitive behaviour. AGL also supports the idea of guidelines that establish how NECA is to apply clause 3.8.22B(a), although not in their current form.

Authorising the guidelines

Edison, Enertrade and NRG Flinders believe that the proposed code changes and the guidelines are inextricably bound, and as such, suggest that the guidelines should be considered as part of the code change proposal, rather than lie outside the authorisation process. As a solution, AGL suggests the guidelines be included as a schedule to the chapter.

Loy Yang suggests that the guidelines should be the subject of a separate authorisation procedure and that this procedure should be undertaken before the current code changes are considered. Loy Yang believes there is evidence that the guidelines themselves could breach sections 45 and 47 of the TPA in their own right. If this were the case, then having them lie outside the code is problematic for generators who have to comply with the TPA as well as the code.

InterGen suggests that reference should not be made to the guidelines until they are in their final format. They further quote NECA's admission that the guidelines are a "first draft" and were rushed, and that they will need to be amended.

---

[16] Origin- submission, p 2, October 2001.

[17] Ergon- Submission, p. October, p 2, October 2001.

Origin is concerned that if adopted, the code changes will give NECA the power to modify the guidelines without consultation with market participants. Ergon suggests that clause 3.8.22(c)(3) should be amended to state that the guidelines can only be modified in accordance with code consultation procedures, and not "from time to time" as NECA have suggested in their submission.

Compliance

InterGen and Macquarie criticise the current format of the guidelines, saying that they should provide objective rather than subjective criteria to assist market participants to comply with the code, rather than identifying only a limited type of circumstance in which NECA would investigate behaviour. Origin recommends that rather than focus on undesirable outcomes, NECA should define what behaviour is inappropriate based on specific actions. They say that it is not "reasonable or in fact practical to focus on effect rather than actions".

EnergyAustralia believes that the code changes must be supported by adequate penalties that will serve as a deterrent. They are critical that there is no reference to penalties that such anti-competitive behaviour will attract, either within the proposed changes to the code, or the guidelines. Furthermore, EnergyAustralia claims that it is not aware of any instances to date where NECA has found a market participant to have breached the code.

Content

Loy Yang believes that the guidelines discriminate between different energy sources and say that this is contrary to the code objectives.

Regarding specific issues mentioned in the guidelines, Enertrade objects to the rule against sleeper bids for two reasons. Firstly, they claim that the rule is discriminatory because it would apply to offers and rebids of baseload generators, but not to offers and rebids of peak generators and argue that this runs counter to market objectives that forbid discrimination between one source of generation and another. Secondly, Enertrade sees no economic justification in deterring sleeper bids, arguing against NECA's claim that they produce "inefficient and uneconomic outcomes."

Loy Yang similarly argues that sleeper bids are neither inefficient nor uneconomic, citing that the market clears at the settled price as ultimately determined by NEMMCO.

Enertrade objects to the rule planned to target the exploitation of network constraints, saying that its requirements impose a vague standard with which generators must comply. Similarly, Enertrade says the lack of clarity applying to the rule against manipulating dynamic capability creates regulatory uncertainty.

Reliability

Eraring argues that reliability hinges on the existence of a robust system operating on known principles that produce predictable outcomes. They quote the definition of reliable as contained in the code:

> The expression of a recognised degree of confidence in the certainty of an event or action occurring when expected.

Eraring believes that the overall code changes, being based on non-codified and easily changeable guidelines, will not add to the reliability of market operations.

6. Principles for power system security

Section 3.11.3 of the code governs the procedures for determining quantities of non-market ancillary services. NECA proposes to supplement the clause by including a reference to the effect these procedures should enhance the value of spot market trading.

As follows, the proposed clause 3.11.3(b) stipulates that:

> … NEMMCO must develop and publish a procedure for determining the quantity of each kind of non-market ancillary service required for NEMMCO to have to achieve the power system security and reliability standards *and to enhance the value of spot market trading.*

Section 4.2.6 of the code- *General principles for maintaining power system security* explains how NEMMCO is to manage instances where the power system becomes constrained. Section 4.2.6 currently stipulates that following a credible contingency or significant change in power system conditions, the system must be restored "as soon as practical to do so, and, in any event, *within thirty minutes*".

The proposed change to clause 4.2.6 proposes a requirement that the system be restored "to a secure operating state *within at most thirty minutes*".

6.1 What the applicant says

NECA and the Code Change Panel have proposed these changes as part of a broader programme addressing what they have identified as current inefficiencies in the market. The changes to clause 3.11.3 and 4.2.6 are specifically intended to address the occurrence of short-term loading constraints, and the handling of non-market ancillary services.

Clause 3.11.3

Clause 3.11.3 governs procedures for determining the quantities of non-market ancillary services required for NEMMCO to achieve power system security and reliability standards. The changes specify that NEMMCO must also consider the value of spot market trading when developing the procedures. NECA believes that the changes will maximise the value of spot market trading.

Clause 4.2.6

NECA believes that NEMMCO interprets the current requirements of clause 4.2.6 to mean that the system must be restored, wherever possible, within a single (five-minute) dispatch interval. NECA considers that this interpretation is too strict, and that a more flexible approach to restoring the system to a secure operating state needs to be taken. They argue that the current use of the clause leads to the inefficient and expensive short-term dispatch of additional unnecessary plant.

NECA believes NEMMCO's interpretation of the clause is stricter than that applied before the launch of the market. Previously, predicted delays arising in the start-up of gas turbine plants were taken into account in times of system security restoration.

NECA proposes these changes so that NEMMCO can adopt a more flexible and pragmatic approach whilst still being able to ensure that they restore system security within the overall half-hour constraint.

NECA admit that the changes only partially contribute towards addressing the wider issue of short-term loading constraints, and say that these changes are part of resolving the issue rather than a complete solution. NECA states that further refinements should be made to the dispatch algorithm and associated operating procedures, but this would require further consultation. In making a case for the current proposals, NECA argue that it is not necessary or sensible to delay the first stage of these improvements.

6.2 Submissions to the Commission

Clause 3.11.3

Origin believes that NECA must establish a clear set of rules defining NEMMCO's actions under the proposed specifications of section 3.11.3(b) of the code. Origin says that NEMMCO operates under a defined set of rules so as to ensure market participants of surety in their operations. As such, Origin believes that NEMMCO should not be afforded such discretion as may exist under the new arrangements of clause 3.11.3(b).

Clause 4.2.6

NEMMCO advises that it does not oppose the proposed change to clause 4.2.6. They interpret the changes to mean that NEMMCO has an obligation to restore the system to a secure operating state "in as gradual a means as allowable so as to minimise the level of any price spikes".

However, NEMMCO stress that such a policy approach inevitably decreases the security of the power system as the risk of a major system disturbance is increased as the power system remains in a vulnerable state for a longer period. NEMMCO considers that such an increased risk may be regarded as an acceptable trade-off for reduced spot prices, but they believe that such a decision should not be left for them to make alone. NEMMCO believes that any such decision needs to be made in explicit terms by the Reliability Panel in a more formal review process.

Similarly, Origin proposes that the removal of the words "as soon as practical to do so" places an inappropriate financial decision making process in the hands of NEMMCO, as NEMMCO will be afforded the responsibility to make any system security versus price trade-off judgments. Origin does not believe that it is appropriate for NEMMCO to have to make such decisions, and criticises the lack of any guidelines as to how NEMMCO would make such a judgement.

Ultimately, NEMMCO believes that the proposed changes to clause 4.2.6 will not address real concerns regarding price spikes and their effects on the financial markets. As such, they oppose these code changes unless they are introduced as part of a more comprehensive package of changes.

Finally, Southern Hydro believes that the changes are likely to compromise system security and reliability, and have the potential to cause NEMMCO to run foul of the new clause 3.8.22B.

The code changes proposed by NECA have been designed to curb the exercise of market power in the NEM. A discussion of market power is included in the following chapter.

7. Market Power

The code changes put forward by NECA are an attempt to address the issue of market power in the NEM through changes to the market rules and regulation of participants' behaviour.

This section discusses market power and tries to identify the extent of it in the NEM. It covers consultants' reports written for the Commission and reviews some of the economic theory about how, when and why market power can lead to anti-competitive and therefore inefficient outcomes. Through this discussion the Commission hopes to elicit the link between market power and the code changes. It will also provide a basis from which the Commission can analyse whether the code changes are likely to have the effect of improved efficiency and therefore lead to public benefits.

Much of the analysis and discussion included in this chapter focuses on market power in the spot market. A complete understanding of market power in the NEM requires consideration of the spot and forward markets together. However, data on contract volumes and prices is relatively difficult to obtain because such information is commercially sensitive.

7.1 Market power in the NEM

The existence and exercise of market power is fundamentally linked to market structure. In the NEM, each region is characterised by a small number of very large generators. While some generators comprise a single large power station (mainly the case in Victoria and South Australia), many generators control large portfolios of power plants (NSW, Queensland). The limited number of players in the market for generation means that there is limited competition in generation within regional boundaries. Despite the fact that the NEM has been designed as a national interconnected market where generators in all States compete with each other, in reality, circumstances can arise that force the national market to operate as separate State markets in which competition is much more limited.

Since the summer of 2000-01 there has been criticism of market outcomes and allegations that some market participants have taken advantage of their position in the market to influence price outcomes. The Commission received a number of complaints of this nature. In order to obtain definitive analysis on the issue and to determine whether such behaviour had in fact breached the Trade Practices Act, the Commission called for tenders to undertake a review of generator bidding and rebidding behaviour in the NEM. The resulting reports have contributed to the Commission's analysis of the code changes put to it by NECA on 13 September 2001.

Consultancies: IES and Bardak

The Commission engaged Intelligent Energy Systems (IES) and Bardak Ventures Pty Ltd (Bardak) to undertake the review of generator bidding and rebidding behaviour. The terms of reference stipulated that both consultants choose and analyse a set of incidents where the spot price for electricity had reached extreme levels. The

consultants were asked to determine the factors affecting such price outcomes, analyse any rebidding activity and patterns of behaviour leading up to those trading intervals, and quantify the impact of the resulting price spike on average prices in the NEM.

Summary of findings

Through their analysis, both Bardak and IES established that some generators in the NEM exhibit substantial market power, and through bidding and rebidding, exercised this market power to increase prices in the NEM. IES claimed that generators currently have only limited opportunities to exert market power, with these opportunities becoming less frequent over the last year. Alternatively, Bardak found that several features inherent in the design of the NEM allowed generators to exercise market power with the resultant effect of higher than normal pool prices.

The IES report determined that extreme prices occur following an initiating event such as tightening of supply and demand within a region or group of regions, an outage of a generator or interconnector, or exceptionally high load forecasts. The report also found that where an initiating event was present, bidding and rebidding tended to greatly amplify extremes in price outcomes. Contrary to IES, Bardak claimed that in high price outcomes, an initiating event was only present some of the time. They argued that generators often withhold capacity through their bidding and rebidding behaviour in order to create artificial price spikes. IES conceded that a small number of large portfolio generators attempted to affect prices through their bidding and rebidding behaviour, however, they believed that such attempts only resulted in moderate price increases.

Both IES and Bardak agreed that the bids of generators that had reduced their volume of contract cover were generally much higher than other bids. Bardak calculated that the average pool price was effectively 13 per cent lower when the 20 highest dispatch prices of 2000 were eliminated.[18]

IES concluded that bidding and rebidding contributed to between $3-$11/MWh, or 9-26 per cent, of the annual average pool price.[19] However, IES believed that the increase in prices was justifiable, as it encouraged much needed investment in the relevant regions without being prompted by high prices resulting from blackouts. A more detailed summary of both reports is included in Appendix B. The reports themselves are available on the Commission's website www.accc.gov.au.

[18] This calculation may not represent the real price impact to end users as it does not take into account the volume of contracts. If contracted volume was at 90 per cent, only one tenth of the 13 per cent price rise would be retained by generators. However, price spikes and their frequency may influence forward contract prices.

[19] As mentioned above, the level of contract cover will influence the extent to which average pool prices affect end user prices.

7.3 Appropriate benchmarks for measuring market power

The results of the IES and Bardak reports raised questions for the Commission about the appropriate way to measure market power. To seek more information and a consensus on this issue, among others, the Commission hosted an industry forum in Melbourne on 22 February 2002 to discuss the relationship between market power and the code rebidding rules. Much of the discussion focussed on the appropriate use of SRMC as opposed to LRMC to measure the extent of market power in the NEM. Other issues such as the role of game theory in the market were also raised.

The forum provided a platform for stimulating discussion but there remained general disagreement as to whether price spikes to date were evidence of systemic abuse of the market arrangements, or whether they simply represented the genuine workings of the market.

The Commission engaged a third consultant, McLennan Magasanik Associates Pty Ltd (MMA) to undertake analysis of the benefits of rebidding to the market place and to determine the likely cost to the market of changes to the rebidding rules. MMA presented its draft results at the forum. Chris Short of ABARE also presented results of an ABARE study into the extent of market power in the NEM.

The following section examines issues raised at the rebidding forum. Its purpose is to reach a consensus from which the Commission has attempted to identify the extent of market power and determine its materiality in the NEM. This information has assisted the Commission in its assessment of whether the proposed code changes are likely to address the source or manifestation of market power. The section also outlines MMA's findings and provides a brief discussion of relevant economic theory.

The relevant benchmark: SRMC, LRMC or LRAC

Market power can be defined as the "ability to alter profitably prices away from competitive levels"[20]. A measure of the extent of market power can therefore be gained by assessing how far actual market prices are marked up above the costs of production. The costs of production are both long term and short term in nature so establishing the appropriate benchmark from which to begin is important in determining the answer. This section briefly summarises the arguments put by NECG (on behalf of NGF) and ABARE in presentations made at the rebidding forum.

[20] Stoft, S. *Power System Economics*, Feb 2002, Ch 4

The Relevant Benchmark

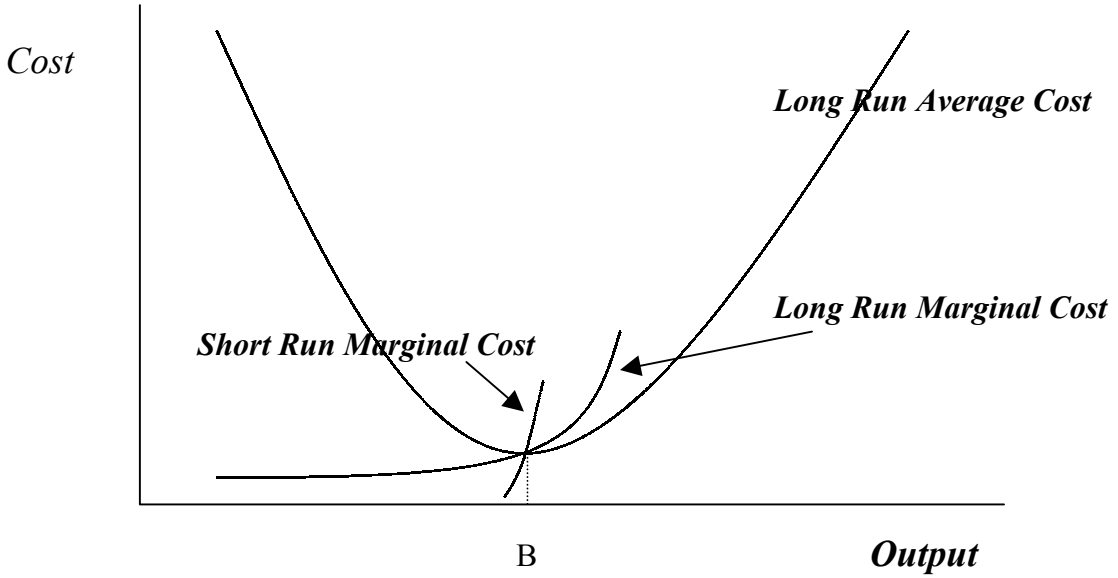


Figure 1[21]

Market power can be exercised in a variety of ways. One method involves charging a higher price for the same level of output. Another way is to reduce capacity offered (ie withhold capacity) and charge the same or a higher price.

Figure 1 shows short run marginal cost (SRMC) and long run marginal cost (LRMC) intersecting with long run average cost (LRAC) curve at its minimal point. It can also be shown that when capacity falls (moves to the left of point B) that a generator's cost per unit (MC) decreases as output decreases. If output is reduced below the optimal capacity of a generator (ie below point B) then estimations of the presence of market power will be highly dependent on the cost benchmark used. For example, Figure 1 demonstrates that at points below B, LRMC will be higher than SRMC. Furthermore, LRAC will be significantly higher than both LRMC and SRMC. As output is reduced below the minimum point of the LRAC curve, where all the benchmark costs converge, the SRMC curve becomes the most stringent benchmark (the lowest), followed by LRMC and then LRAC. Therefore, when analysing a generator's bid the extent of any market power present will appear as significantly lower if LRAC is used as the benchmark, as opposed to a case where SRMC is chosen.

The individual marginal cost for the withholding generator decreases as it withholds capacity which leads to a greater difference between its costs and the system marginal price. However, the difference will only be an accurate measure of market power if the withholding generator sets the marginal price. Where another generator sets the marginal price, the difference may over-estimate the extent of market power of the withholding generator. Where another generator sets the marginal price, market power

[21] These curves are for an individual generator and will look different for different technologies.

will be indicated by the cost relative to the bid made by that generator. This approach is similar to that used by ABARE in their recent study.

ABARE, in their study of market power in the NEM, used SRMC as the basis from which to assess the extent of market power in the NEM. ABARE compared a marginal cost curve, derived from the lowest bids offered by generators for capacity over a month[22], with the actual market outcomes for those months. By calculating a Lerner index (comparing profits with costs) for each regional market, ABARE concluded that in most regions, market outcomes displayed prices that were significantly above the competitive outcomes (ie SRMC). ABARE estimate that the cost to the Australian economy of market power exercised in the NEM through above SRMC bidding was $412million for 2001.[23] The report stated that,

> "Generators have been successful in structuring their behaviour in a way that results in higher prices than would be expected under truly competitive conditions"[24]

However, the paper acknowledges that this cost is relatively small compared with the benefits of electricity reform, calculated to be worth $1.4billion in 2001 alone.

NECG, on behalf of the NGF, has also undertaken analysis on market power in the NEM. NECG agrees that in a perfectly competitive market, prices will be set at SRMC.

> "However, markets in which firms operate subject to fixed costs cannot be perfectly competitive. This is because fixed costs and uniform linear prices set at Short Run Marginal Cost will, under quite general conditions, be insufficient to cover total costs, so that no equilibrium with non-zero output is sustainable.
>
> For this reason, the benchmark of Short Run Marginal Cost is seen to be irrelevant to assessing the performance of electricity markets."

NECG claim that feasible and sustainable prices in such markets will almost inevitably involve a mark-up over marginal cost even at the margin of supply. They claim that the marginal generator must expect to receive more than the SRMC if it is to invest in capacity. As a result, NECG states that

> "Even in equilibrium, the relevant comparison is not between prices and SRMC, but rather between average realised price and the higher of LRMC and LRAC."[25]

These two conflicting views demonstrate the difficulties in determining the appropriate benchmark for measuring the extent of market power. ABARE has applied a

---

[22] Bids for each turbine were adjusted to remove negative bids from the average and were adjusted to reflect transmission losses. ABARE *Current Issues: Competition in the Australian national electricity market*, January 2002.

[23] This figure does not explicitly take contracts into account. $412m may overestimate the gain to generators. If a generator is fully contracted it will not benefit directly from higher spot prices.

[24] ABARE *Current Issues*, Jan 2002, p11.

[25] NECG Presentation to Rebidding Forum, February 2002.

conservative methodology but their use of SRMC leads to a higher estimate of the impact of market power than does the work undertaken by NECG.

Chris Short of ABARE believes that it is appropriate to use SRMC because generators that bid at their SRMC will be able to recoup part of their fixed costs whenever their SRMC is below the marginal clearing price. During peak times, the marginal generator is likely to be a peaking generator that will set the clearing price based on its own higher costs.[26]

Of course, in the presence of effective competition, generators must compete to be dispatched, and are therefore forced to offer capacity at the lowest price possible while still covering costs, at least in the short term (ie SRMC). However, generators have an incentive to bid above marginal cost whenever they can in order to cover their fixed costs. Where a generator has the ability to exercise its market power, and is not disciplined to bid at SRMC through competitive pressures, it will bid to ensure its fixed costs are covered instead of relying on peaking plant to set the price sufficiently high on enough occasions to enable generators to recover fixed costs.[27]

Assuming that prices must support a return on capital investment (fixed costs), comparing different sectors of the market with actual price duration curves in the spot and forward markets may be the best way to identify systemic exercise of market power. IES in their study analysed price outcomes and compared them to prices that would be necessary to sustain new entrant, based on the costs of a new gas turbine. As mentioned above, IES found some evidence of market power but concluded that the opportunities for exercising market power were becoming less frequent (see Appendix C.)

Using new entrant prices as a benchmark avoids the discussion of the relative merits of SRMC and LRMC or LRAC, all of which are affected by the level of demand uncertainty.[28]

MMA

To help determine the materiality of market power existing in the NEM, the Commission engaged McLennan Magasanik Associates Pty Ltd (MMA) to provide an assessment of the impact of rebidding on price outcomes in the NEM.

---

[26] A peaking generator must recover all of its costs; both fixed and variable, during the periods that it operates (ie as little as 15 periods per year). A peaking generator's bids will not be based on SRMC.

[27] Competition by higher priced generation including peaking generation will provide some competitive pressure on generators. The level of competition in the market will determine the amount above SRMC that a generator can sustain whilst still being dispatched.

[28] If demand is very predictable, an additional high capital cost baseload power station may be the best incremental option and the long term incremental costs may be very low. If demand is very uncertain, a cheap stand-by generator or demand side response may be the beset option, in which case the incremental costs per MWh will be much higher. The lack of cost effective storage in electricity markets and the high capital cost of baseload generation make future uncertainty more likely and more critical than for most commodities.

The terms of reference required MMA to undertake the following:

- a review of market outcomes;
- an assessment of market power in the NEM and each of the regions;
- a review of rebidding to determine the degree to which rebidding impacts on market outcomes and whether rebidding provides generators that have market power with greater flexibility to use that market power to the detriment of the market; and
- an assessment of the public benefit and anti-competitive detriment of rebidding in the context of resultant market outcomes if rebidding was not permitted at all; or alternatively if gate closure was moved ahead of dispatch.

MMA: key findings

MMA's analysis is based on simulations of generator behaviour in the market. The model simulated the bidding strategies of generators behaving in a profit maximising manner subject to the market and rebidding rules.

In their analysis, MMA indicate that incentives exist for generators to bid above SRMC to maximise profits. Generators are able to do this if system or other constraints exist, and if they possess a significant level of market power. However, MMA predict that the opportunities to bid above SRMC will be more limited in the next five years due to increased investment in generation and improvements to interconnection. The report states that prices are likely to be limited by generators' LRMC because sustained prices above this level will indicate potential returns to new investment and thus encourage its development. Further, MMA considers that the competition from new entrants for contracts with retailers will limit the ability of incumbent generators to exercise the market power they may currently hold.

The findings suggest that rebidding does allow generators to use their market power to increase profits in the NEM by bidding above SRMC. However, MMA strongly believes that any restrictions to rebidding, or abolition of rebidding would not affect the market power that is exercised because generators can exercise market power through other mechanisms (ie higher initial bids).

In their analysis of bidding behaviour in scenarios where rebidding had been restricted or abolished[29], the results showed a small but significant efficiency cost to the market over ten years of $284m in the scenario where rebidding was not allowed at all, and $54m where rebidding was just restricted (ie gate closure was moved some hours ahead of dispatch).

[29] MMA represented inflexibilities in rebidding through a 3 hour time delay between gate closure and dispatch or in the extreme case where rebidding was restricted altogether. The code changes can be equated with the model to the extent that they will have the effect of imposing inflexibilities to rebidding.

In the scenarios where market power was modelled in the responses, the costs to the market were slightly lower at $267m where rebidding was abolished, and $49m where rebidding was restricted.

The modelled price forecasts were mixed. As MMA states

> "There are two countervailing impacts. First, by restricting rebids, higher cost options will be dispatched more often causing higher prices. But the restrictions could also limit the exercise of market power putting downward pressure on prices.
>
> … if no other change apart from restrictions on rebidding and altered bidding strategies, the projections indicate higher prices are possible. But at the higher prices, it is economic to bring back some of the mothballed units or bring forward entry of new units, particularly in the earlier years. Where this occurs prices are marginally lower by between 1% lower for restricted rebidding and about 3% lower for no rebidding.[30]

Thus MMA's price forecasts were highly dependent on their initial assumptions regarding existing but currently unused generation facilities. MMA point out that price reductions brought about by bringing back mothballed plant may not be an indication of economic efficiency. In fact, it simply represents a transfer of wealth from suppliers to consumers and may in fact indicate inefficiency of bringing investment forward due to artificially high spot prices.

MMA's conclusions were more straightforward.

> "Our judgement based on this analysis is that the influence of restricting rebidding on prices is small, with either higher or lower prices possible depending on the motives of the generators…
>
> The analysis does indicate, however, that restricting rebidding does not annul the incentive to bid above short-run marginal cost… prices are still above those based on short run marginal cost pricing – at best restricting rebidding dampens but does not prevent the exercise of market power."[31]

MMA reports that generators would continue to have the incentive to bid above short run marginal cost where possible even if rebidding was abolished (ie by submitting higher initial bids). The report states that this incentive "appears to be more a function of the underlying structure of the market rather than caused by trading procedures."[32]

This supports the Commission's view that market power is fundamentally linked to market structure.

Game Theory and Auction Design

MMA's comments about advancing investment, particularly in terms of bringing back mothballed plant; leads to questions concerning the strategic use of installed capacity. This introduces game theory strategies, and examines the inherent design of the NEM

---

[30] MMA Draft Report, April 2002, p vi-vii

[31] ibid p vii.

[32] Ibid p ix.

auction process. This section looks at the interaction of players in the market and analyses how participant behaviour can lead to inefficient outcomes.

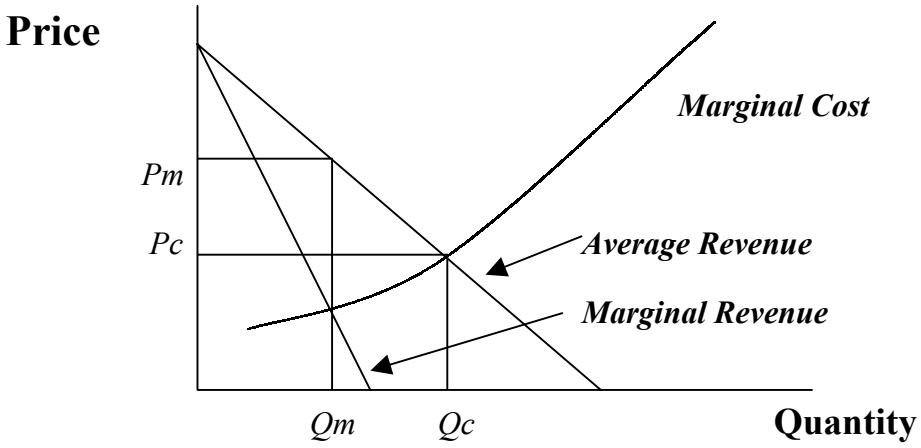


Figure 2

Figure 2 depicts prices and quantities in markets that fall within the two extreme conditions of a perfectly competitive market outcome, and that of a monopolistic market.

Extreme One: *Perfectly Competitive Market*

In a perfectly competitive market, there are a sufficient number of suppliers in the market so that all suppliers are price takers and no single supplier can influence the price. The price will be equal to the cost of producing the final unit of supply to meet demand (ie SRMC). In Figure 2 above, this will be where marginal cost equates to average revenue (demand), and the price is the 'competitive price' at Pc.

Extreme Two: *Monopolistic Market*

When there is only one supplier in the market, that supplier is a monopolist and will set the price at the level that maximises its revenue. To maximise revenue, the monopolist will continue to supply additional quantities to the market until the cost of supplying the last unit is equal to the revenue obtained from selling that additional unit. In Figure 2, this occurs where the marginal cost curve equates to the marginal revenue curve. The 'monopoly price' is derived by supplying this quantity with respect to the average revenue (demand) curve, Pm.

There are no examples of perfectly competitive markets for any commodity. To assume that the NEM produces prices that reflect the short run marginal costs of the relevant plant in operation would be a naive assumption.

Pricing at SRMC leads to efficient economic outcomes. Where prices are above SRMC inefficiencies may result if the rise in price causes consumers to change their behaviour. When such a change occurs, consumer surplus is reduced and wealth is transferred from consumers to suppliers. The degree to which the final price that the

supplier is paid is above short run marginal cost will depend on the behaviour of other suppliers in the market.

When there exists more than one supplier and fewer than the necessary number of suppliers to ensure a competitive price outcome, price and quantity outcomes will lie somewhere between the two extremes just described. In such cases, interaction between different suppliers in the market is important to determine final prices and quantities.

The interaction between suppliers in the market place will ultimately reflect the profit maximisation goal of the supplier. Given the quantity and prices that a supplier expects from its competitors in the market, what strategy should it pursue to maximise profits?

'Game theory' is the process by which one ascertains the best strategy a supplier should pursue given the behaviour of other suppliers. In the NEM, a game of strategy is played between generators because the revenue one generator can earn is affected not only by its own actions but also by the actions of rival generators.

It should be noted throughout this discussion that the impact of spot market outcomes on the market as a whole is only relevant to the extent that generators are not contracted. Where contracts exist, volatility is likely to be smoothed and gaming behaviour may become less attractive. While this analysis concentrates on the spot market, it is important to ensure contract markets are also considered when applying this economic analysis to the NEM.

Figure 3 below depicts the situation in the spot market.

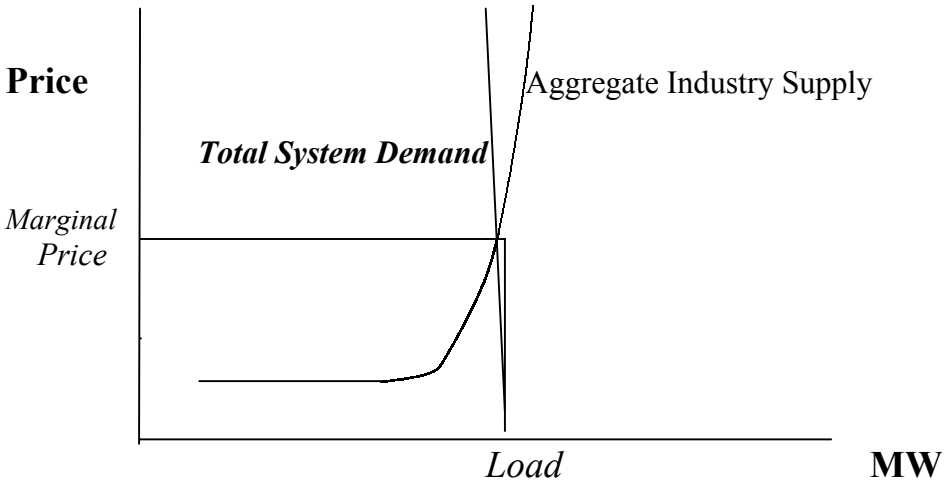


Figure 3

The load required for every five minute dispatch is derived where the total system demand schedule intersects with the aggregate industry supply schedule. The price that the last generator bids for the last increment of capacity demanded becomes the marginal price paid to all generators regardless of the extent to which their individual bids lie below the marginal price. Any bids above the marginal price will not be dispatched. A generator who bids in capacity at a price equal to SRMC and finds that the marginal price is above this level therefore collects higher revenues. This does not imply an inefficient outcome. On the contrary, as long as the marginal price reflects the

short run marginal cost along with the capacity cost[33] of the last unit of generation capacity dispatched then prices will reflect an efficient market outcome (ie a competitive price).

Leaving generator contract volumes aside for the time being, a generator's revenue from the spot market in each half hour period will be the product of the amount of capacity supplied and the marginal price for that half hour. Higher marginal prices benefit all generators that are dispatched, but marginal prices are a function of available capacity whereby the lower the available generating capacity, the higher will be the marginal price. In pursuing its goal of profit maximisation, a generator will withdraw available capacity if its expected revenue from receiving a higher price for less output in a half-hour period increases. Assuming for the moment that generators are all of equal size, an incentive exists for each to withhold capacity and therefore increase the spot price thereby earning greater revenues for all suppliers. In the next period, pursuing the same strategy would also produce higher supply side profits and so on for the duration of the asset lives. During each period however, each generator has the incentive to 'cheat' and increase its capacity so as to gain greater margins. However this will only occur if all other generators continuing to pursue a capacity withholding strategy.

Generators in the NEM play a "capacity" game in every five minute period in their pursuit of profit maximisation. It is a repeated game with an infinite horizon as it is repeated with no known ending.[34] [35]

If one generator cheats and increases capacity during one five minute period, the other generators may 'punish' this generator by also increasing capacity leading to overall lower revenues for each subsequent period after the initial cheating period.[36] This is the same result as would arise from a one-off game.

If the discounting factor, which equates future revenues with the present, is low enough then by cheating in one period the initial cheating generator will hurt its own profits by being punished by other generators during future repeats of the game. However, generators generally would prefer higher revenues today than tomorrow. Therefore, if the discounting factor were low enough so that future revenues were not discounted as much, then pursuing a cooperative strategy and continuing to withhold capacity would be a dominant strategy for each generator.[37]

---

[33] Capacity cost is synonymous with average fixed costs.

[34] We can make the assumption that the game is repeated within the working lives of the assets. The special class of games with infinite horizons is known as a supergame.

[35] The presence of contracts will dampen the nature of the repeated game because a contract effectively removes capacity from the game for a period. For the contracting generator, the game does not begin again until the contract expires.

[36] Note that punishment of this kind will not be effective if the offending generator is fully contracted.

[37] The presence of contracts may make it harder for generators to develop a cooperative strategy.

Generators differ in size and technology in the NEM and this introduces further complexities. The impact on revenues from generators pursuing strategies of capacity holding or cheating is greater the greater their capacity to supply. Similarly, the ability to punish smaller generators who cheat is also increased as smaller generation, which is typically peak-load, can be easily displaced from the merit order stack and punished if it does not cooperate in the capacity withholding strategy. Smaller generators may not have the capacity to pursue capacity withholding and may be forced to bid their capacity at higher prices than necessary to cover capacity and running costs due to pressure from larger more powerful players. By increasing the prices offered by the marginal generator, spot prices will rise. In this case, prevailing total system demand must be at a level high enough to justify the use of peaking plant. If small peaking plant do not bid prices high, larger generators with large capacity may punish smaller generators who have cheated in previous periods by bidding lower thus pushing them further up the merit order.

The discussion so far has focussed on the structural design of the industry in the absence of contracts. Generators have different capacities, and their ability to punish cheaters is directly proportional to their size. The game is repeated every five minutes, with prices set over the half hour period, so a punisher can view the behaviour of a cheater in the previous period to make sure it has cooperated and make a decision as to whether it should punish the cheater in subsequent periods. A small generator that is contemplating a cheating strategy must weigh up whether the punishment invoked will be harsh enough to hurt its profits both now and in the future. If the discounting rate it faces individually is low then cheating is unlikely to be a dominant strategy it should pursue.[38]

The auction design of the gross pool and its trading rules will influence how punishment is carried out in subsequent trading periods. But the fact remains that the fundamental game of strategy will still be played out regardless of the type of auction design.

The decision to release information on the previous day's bids and rebids provides information that forms the basis of the repeated game. A punishing generator can view whether a smaller generator deviated from the capacity withholding strategy in the previous day, and punish it in the current period. It could continue to do so until the smaller generator reverted back to the capacity withholding strategy.

The marginal generator sets the marginal price that all dispatched generation is paid. Where a generator is large and consists of portfolio plant of different technologies, profits will consist of revenues from different forms of generation but profits will

[38] Each individual business faces its own discounting rate which is derived by the return it could achieve if revenue received today was invested. Discount rates differ between businesses as different businesses have different appetites for risk and therefore will receive different returns from their chosen investment in stocks, bonds, property etc. Where a discount rate is low, the value of revenue earned tomorrow is high and therefore valuable and worth maintaining. A business will therefore choose not to cheat today in order to receive high revenues in the future. On the other hand, where a discount rate is relatively high, revenues earned tomorrow are heavily discounted and therefore revenues earned today will be more valuable. In this case, the business will choose to earn more today and has an incentive to cheat because cheating will maximise its revenue today.

ultimately depend on the marginal price set by the marginal generator relative to the costs of production. The greater the influence a generator has in setting the marginal price, whether that be by being the marginal generator itself through holding a diverse portfolio or forcing certain behaviour from the marginal generator, the more profit can be maximised.

This discussion is relevant in as far as it demonstrates the potential for strategic behaviour. In reality, the presence of a forward contract market means that focussing on the spot market in isolation tells only half the story. Contracts may make it more difficult for a withholding generator to discipline a generator that fails to abide by a tacit agreement. More importantly, high contract coverage lowers incentive to game spot market outcomes.

The FCC auctions in the US

Insight can be gained from the Federal Communication Commission (FCC) Spectrum Auctions in the United States that began in 1994. These auctions were conducted on a simultaneous basis (participants did not take turns in bidding) and there was full information available regarding the identity and bid of each participant during every subsequent bidding round.

The FCC auctions worked as a 'simultaneous multi-round auction'. Participants could choose to bid in a particular round, with the highest standing bid in the initial round the standing bid for the next round. This process continued until there were no further bids in a round, and the standing bid would win the particular frequency for the bidder.

Even though the auctions were run simultaneously and were open, the design facilitated tacit collusion. Bidders were able to observe each other's bids and could cooperate through a collusive agreement and enforce the agreement by punishing deviations from the agreed behaviour. As an example, bidders signalled other bidders through code bidding. This involved attaching market numbers in the trailing digits of their bids to tell another bidder where it would be punished if it continued its bidding on a certain spectrum[39]. Bidders also withdrew bids on a particular spectrum to signal the intention to punish if a bidder deviated from the agreement.

To mitigate collusion, the FCC limited bids to three significant digits to eliminate code bidding. Bidder identities were also withheld to stop punishment in the form of retaliatory bids. In responding to tacit collusion, the FCC instigated changes to the auctions, introducing "click box" bidding in which bidders simply clicked on the licenses they wished to bid for. This reduced coded signalling that existed in the first auction design.

In an attempt to ensure that bids reflected actual intentions, new design specifications placed restrictions on withdrawing bids, and a requirement to specify reserve prices was also instigated so that the auction proceeded smoothly. Through these mechanisms,

[39] Not all companies sought spectrum rights in every region. Through signalling, businesses were able to identify regions in which they wanted spectrum access and identify regions for which other businesses sought access. If a business wanted to punish another, it could participate in an auction for spectrum in a region it was not interested in to drive up the prices paid by those businesses.

the FCC tried to address incentives to collude, which it recognised were greater the lower prices were relative to bidder valuations.

Information disclosure in the NEM

The experience of the FCC is useful to the Commission as it seeks to assess code changes designed to address alleged tacit collusion and market power. It is clear that information disclosure can play a pivotal role in the exercise of market power. The amount of bidding information that should be revealed to bidders, and the timing and method of disclosure are questions the Commission assessed in its original authorisation of the code in December 1997. Many of the arguments still apply. However, it is important to reassess the current arrangements given the continued concern regarding market power.

There are several options that NEMMCO could pursue in revealing information to the market. At one extreme is a fully transparent bidding process where all bids and the identity of the bidders are known in real time (ie as soon as they are made). Such a process has advantages because it gives participants the maximum amount of information in preparing their own bids. The information reduces bidders' uncertainty by facilitating price discovery that can lead to benefits of improved efficiency. Auction revenues are reduced because more certainty leads to more aggressive bidding in the market. A fully transparent process also allows any interested party to verify that the auction is being run in compliance with the auction rules.

However, the release of information can be used to facilitate tacit collusion or to aid the exercise of market power, particularly where bidder identities are revealed or can be inferred. A group of bidders may establish a collusive supply schedule that maximises the largest generator's profits. If colluding bidders know the bidder identities they are able to enforce the collusive agreement because deviations from the agreed strategy can be detected. If no information is revealed apart from settlement information such as prices and aggregate quantities dispatched, tacit collusions may not be as easy to organise or enforce.

The NEM arrangements for information disclosure fall between these two extremes. The secrecy of individual bids is maintained because it is seen as essential for effective competition in a NEM auction design (ie the ideal being where generators bid in at marginal cost and are dispatched in lowest cost merit order). System-wide results are made public, as are estimates of total generation and total reserves. This aggregate information is considered important for system security and planning of maintenance etc. Aggregate bid schedules are also made public. Bidders can use this information to prepare bids for the next day as it can indicate what the likely consequences of changing the quantities bid may be in the next auction. However, this information is not essential for competition because a supplier whose bid was rejected yesterday will know that its bid needs to improve tomorrow in order to be dispatched.

Unlike the FCC spectrum auctions, the electricity auction is repeated every five minutes.[40] Recent history can (and does) provide a good indication of the future. The

[40]While the auction is repeated every five minutes, only a small percentage of total revenue is attributed to spot market trading. The rest is under contract.

price discovery process relies, in part, on past transactions. In the daily electricity market that is characterised by a small number of very large participants, the risk of collusion may be large enough to outweigh efficiency gains of disclosing information beyond market prices and total quantities. This is more likely to be the case in markets without robust demand-side bidding. In such markets, the delayed release of such information may actually be a better mechanism for curtailing collusion. For this reason, a policy to restrict information disclosure was adopted by the California ISO.

When the Commission first authorised the NEM arrangements in 1997, it considered that the efficiency benefits outweighed the potential impact of ongoing collusive behaviour (albeit tacit) likely to result from transparent bidding arrangements. However, since that time, NECA has developed several code changes to the rebidding rules in response to concerns of market power. The series of code changes are outlined in Chapter 2. Clearly, despite changes to the rules of operations, market power continues to be of concern. The Commission suggests that changes to the information disclosure arrangements should be investigated as a possible alternative mechanism through which to mitigate against tacit collusion in the marketplace into the future.

7.4 Use of Contracts

Contracts have been largely left aside in this discussion, but the strategic use of them by generators plays an important role in the manifestation of market power.

The level of contracts sold by generators affects bidding in the NEM. In general, the more forward contracts that are sold by a generator, the more will pool prices be subdued. This occurs because by selling contracts into the market place, generators are in effect guaranteeing capacity. Furthermore, capacity that is contracted is more likely to be bid in at the SRMC of supply.[41]

Generator profits are made up of revenues from both the spot market and the contract market, but in the NEM, most revenues are made through the contract market. A generator can contract for greater amounts than its capacity, but in doing so it becomes a net purchaser from the pool and therefor has an incentive to keep pool prices down. On the other hand, if there is thought to be a level of market power in the spot market, there may also be concerns of market power being exercised in the contract markets as well. A generator may exercise its market power by choosing not to sell contracts and therefore not guarantee capacity. This implies a greater portion of generator revenue is coming from the spot market and that the generator is likely to have an increased incentive to game market outcomes.

Contracting by generators can perform a strategic role. By contracting, a generator is committing capacity into the pool in an attempt to gain a greater market share. This will raise a given generator's output, but will also result in a reduced output by other generators and a lower pool price overall. The strategic role lies in that the level of

[41] A generator may still bid above SRMC if it thinks it can influence future contract prices. It may also bid below SRMC in order to stay committed or because it is over-contracted and in a position to profit from spot price reductions.

contracts encourages generators to bid a greater quantity into the pool. Generators gain a strategic benefit in pre-emptive contracting but this inevitably harms profits. Generators would prefer not to commit to contract,[42] but analogous to the Prisoner's Dilemma, generators do contract and this in turn harms overall industry profits.

The strike price of contracts will reflect future expected pool prices, and therefore is a signal for new investment. However, offering contracts can have the effect of depressing pool prices which can then defer entry. A potential entrant will only enter the market if the expected post entry profits are greater than its sunk entry cost and are sufficient to manage its downside risk. If pool prices are depressed, contract strike prices are also likely to be lower leading to lower post-entry profits. If the fixed cost of entry is very high, as would be the case for large capacity base load generation, then the presence of a highly contracted market could deter entry. But these outcomes are consistent with a competitive market.

Contracts on the whole are beneficial to the market because they allow participants to smooth the volatility inherent in electricity markets. In smoothing volatility, they provide certainty of supply and reduce price risk and thereby protect retail businesses and in the end, consumers.

Contracts are also essential for underwriting new investment. A contract guarantees a market for the product but most importantly guarantees future payments, which is of paramount importance to lenders and investors.

As mentioned above, contracts can provide a disincentive to game market outcomes. When a generator is contracted, most of its revenue is earned through that contract and less of its revenue is earned through the spot market. With less capacity sold through spot prices, the ability to influence spot prices falls and the rewards for doing so are smaller.

Problems can arise if contracts are used to deter entry in an anti-competitive manner. If a firm plans to enter a market and the response of an incumbent firm is to offer contracts at prices below new entrant price for the purpose of eliminating the new competitor or deterring its entry, the behaviour is likely to be considered a misuse of market power under section 46 of the TPA. In most cases however, the threat of entry into a market will produce a competitive response from the incumbent firms.

The effectiveness and the frequency of the threat of entry will depend on the barriers to entry. Markets with high barriers to entry are those that require large costs up front that are not recoverable upon exiting the market. In electricity markets such costs can be large and a lack of available contracts can compound the difficulties for a new entrant to successfully enter the market.

Allegations of market power in the contract market were prevalent during the summer of 2000-01 but for the more recent bidding behaviour since May 2002 appear to have

[42] This ignores the fact that risk management will also be an important factor influencing a generator's decision to contract. Investment in new generation would be unlikely in the absence of contracts, as guaranteed cash flow is a crucial consideration for lenders.

largely dissipated since that time. Generators were accused of not offering contracts or of offering contracts at unreasonably high prices. If market power were being exercised in the contract market during this time, contract prices above the new investment price would have been expected without any sign of new investment. However, the evidence in the NEM suggests that contract prices remain below new entrant prices in the main and that where prices have been high in the past, such as in South Australia and Queensland, there is investment occurring.

Much of the information used for assessing behaviour in the contract market is hearsay. Accurate information on contract prices and volumes is hard to obtain because such information is considered to be commercially sensitive. The Commission believes that consideration should be given to a regime of contract information disclosure where contract information is submitted in a confidential form to NECA. Such a mechanism could maintain the commercial sensitivity of the information while revealing the information to the market monitor in order to allow it to effectively monitor market behaviour in a more complete fashion.

7.4 Options for deterring the exercise of market power

One approach to deter the exercise of undue market power is to regulate the activities of producers in the market. The code changes that are the subject of this determination are an example of that approach. However there are other alternatives, at least in principle. These could include changes to the market design that reduce barriers to trade and thus enhance competition, that remove perverse incentives and gaming opportunities which encourage inefficient behaviour, and that remove barriers to entry to the market. Other alternatives would involve structural changes to the industry itself. This section explores the options available in the case of the NEM and considers their relative merits.

Regulating generators' behaviour

As already noted, the rebidding code changes fall into this category. The challenge with this approach is to target the undesirable behaviour without introducing unwanted side effects.

Suppose for example that a ban was imposed on rebidding to higher priced bands in order to counter concerns that generators were exploiting the market through such rebids. Conceivably, generators might respond by pitching their initial offers higher so as to retain rebidding flexibility. As a result, the original intent of the restriction might be circumvented and the pre-dispatch information computed from the initial offers could be systematically distorted.

Similarly an outright ban on late rebidding might reduce the scope for opportunistic exercise of market power but might also prevent beneficial responses. For example, it could prevent a generator from returning a generating unit to service in response to an unpredicted supply shortage.

More generally, the introduction of restrictions may create a perception of regulatory risk which may deter new entrants, thereby reducing competition and increasing the opportunity for exercising undue market power.

Thus in assessing the proposed rebidding code changes it will be necessary to consider not only whether they are likely to achieve their desired effect but also whether they are likely to have a detrimental effect on the efficient operation of the market.

Removing barriers to trade in the forward markets

To some extent a customer can insulate itself from the opportunistic exercise of market power in the spot market by increasing its level of contract cover. Similarly, the more heavily a generator is contracted the less incentive it will have to exercise any market power it may possess in the spot market. Thus it is desirable from the viewpoint of discouraging the exercise of market power that any unnecessary barriers to trade in the forward markets are removed. Two areas in which there may be significant barriers relate to trade across the network, and short term forward trading.

There are some barriers to trade across the network in the NEM. Market participants are denied access to hedges against intra-regional constraints and losses and hedges against inter-regional constraints leave participants with outage-related risks that they are not well placed to manage. As a result there are barriers to long distance trading in the NEM which facilitate the exercise of local market power. It should be possible to reduce these barriers by increasing the number of regions or moving to full nodal pricing. The market design should also ensure that market impacts are considered when setting interconnection limits and scheduling network outages.

The forward markets rely predominantly on bilateral negotiation. It is possible that bilateral trading may not support a liquid and informed market in the particular case of short term forward trading, ie trading which takes place over the hours or days preceding the spot market. In the case of electricity, short term trading is likely to be important for two reasons. Much demand is weather-related and reliable weather forecasts only become available a day or so ahead of spot trading. Also many supply side decisions such as the commitment of a generating unit or a decision to cut short or defer a maintenance outage must be made 12 to 24 hours before spot trading. If there turns out to be material barriers to short term trading, it may be useful to introduce a facilitated day-ahead exchange, as is done in many overseas electricity markets.

Removing barriers to demand side participation

The present retail market designs deny effective participation to many participants because of the absence of half-hour metering and automated response mechanisms. These barriers to demand side participation are likely to enhance the opportunities for generators to exercise undue market power. The situation might be improved by refining the design of the retail markets.

In most jurisdictions vesting contracts have expired but in some cases new arrangements have been introduced which have a similar effect of managing risks faced by retailers that supply customers that are contestable but that choose to remain on regulated tariffs. The Commission is concerned that risk management arrangements introduced to protect such loads may be having a dampening effect on demand side

management and have the potential to encourage distortions in generator bidding behaviour.

For instance these arrangements may have the effect of discouraging retailers from marketing innovative and flexible contracts because they face the challenge of managing their own risks when customers move off safety net tariffs. Further, the presence of such arrangements may also have the effect of reducing liquidity in the contract market which further challenges retailers wanting to pursue better demand side management.

The Commission sees few options through which to pursue demand-side participation in the absence of more widespread use of interval metering. The distortionary impact of some non-market arrangements is likely to stifle the development of effective demand side solutions.

Removal of gaming opportunities

At present the spot price is determined as the average of six five-minute dispatch prices. In principle, this is a reasonable approach however at present no services are actually transacted at the five-minute prices. This invites producers to game the five-minute prices for the purpose of manipulating the spot price to their own advantage. It may also mean that producers have inadequate incentives to offer high rate of change capabilities to the market.

The problem might be overcome by introducing an optional five-minute market in which those who chose to participate would be paid at the five-minute prices for their unders and overs in each five minute dispatch period. This would effectively be a form of FCAS that might replace four of the existing eight FCAS services, thus simplifying the existing FCAS arrangements. It could be appropriate for the costs of the five-minute market to be borne by those who chose not to participate in it.

Summary

In summary, the imposition of rebidding restrictions is not the only mechanism by which market power might be tackled. In assessing the proposed restrictions, it will be necessary to consider both whether they are likely to achieve their intended purpose and whether they may have any unwanted side effects. If a clear net benefit cannot be demonstrated, it may still be possible to achieve useful gains through other means, eg some of the options presented in this section. Careful investigation would be needed before proceeding in order to determine the materiality of the problem being addressed and the efficacy of the proposed solution.

7.5 Conclusions

The Commission has collected a significant amount of evidence about the NEM's operation, particularly in terms of spot prices, and concludes that it points to a presence of significant market power. As mentioned above, there is limited information available on contract behaviour but evidence that is available suggests a more limited use of market power in the contract market.

The consultants hired by the Commission have made differing assertions about the basis for measuring market power. However, nearly all conclude that market power exists in the NEM, and is being used. Most consultants agree that at the time their reports were completed, opportunities for exercising market power were becoming less frequent.

The Commission is concerned that any changes to market rules or market design to specifically target offending behaviour should not introduce further distortions into the market's operations. Before changes are put forward, the market should also consider other mechanisms which might also deter the exercise of market power such as removing barriers to trade, removing gaming opportunities and/or changing the structure of the industry.

The Commission's considerations of NECA's proposed code changes and suggestions for other changes are included in the following chapter.

8 Commission's considerations

8.1 Market power

The Commission is of the view that some generators in the NEM possess substantial market power. Further, the Commission recognises that under some circumstances, the current market rules enable such generators to take advantage of that power in their pursuit of profits. To date such behaviour has fallen within the market rules.

Studies undertaken for the Commission have helped to identify the extent of market power in the NEM and the impact it has on market outcomes.[43] This has provided insight into the extent of the problem. However, some issues remain unresolved. The extent of market power and the impacts attributed to it depend on the parameters used to identify whether market power is present. The Commission considers that some of the outcomes that have been attributed to market power in the past may not have been the result of systemic exercise of market power but rather are outcomes consistent with a cycle of market development inherent in all new markets. Nevertheless, the Commission concedes there is evidence of behaviour that appears to have no economic justification and which has a greater than proportional detrimental impact on competitive market outcomes.

The consultants' reports show that the dollar increase in price that is due to behaviour that may represent an exercise of market power is not insignificant in the spot market. However, some consultants say that the ability to exercise market power is decreasing due to increased competition and a decrease in constraints in the NEM. This is attributable to increased competition through new entrants, the use of soft constraints on interconnectors. Mild weather conditions also played a role in the more stable prices experienced this past summer, in comparison to those realised during the previous summer.

It should also be noted that only a small percentage of energy is exposed to spot prices. Most is contracted. The Commission is less clear as to the extent of market power being exercised in the contract market but suspects it is more limited.

[43] Bardak, IES and MMA consultant reports. Also refers to materials discussed in Ch 7 from ABARE and NECG.

8.2 Code changes - general comments

The current code changes have clearly evolved from concerns following the extreme price outcomes during the summer of 2000-01. The behaviour of some generators was earmarked as inappropriate, despite the fact that such behaviour fell within the bidding rules of the market.

The Commission acknowledges that the proposed code changes try to address concerns of market power, yet at the same time maintain some of the flexibility necessary for an energy only market. Rebidding is a crucial component of this flexibility. The code changes reflect the inherent difficulty in determining the difference between good and bad spikes – price spikes that are the result of legitimate physical network or market supply constraint, and price spikes that are not justified by underlying economic factors. The motivation behind the two types of spikes is very different, but the resulting bids and price outcomes are potentially identical, hence the difficulty in distinguishing between them.

The Commission agrees with submissions that NECA has not adequately identified or quantified the problem in its application, and is concerned that the uncertainty surrounding the interpretation of the code changes may give rise to significant compliance costs.

The Commission believes NECA has designed code changes that are broad ranging and that will require ongoing clarification through the courts. Therefore, the Commission has doubts that the code changes as drafted will adequately target the issue of market power in the NEM that they are designed to address.

Further, the Commission is concerned that market efficiency may be compromised if rules are introduced to prevent inappropriate bidding behaviour as any general disincentive to rebid could lead to a decrease in flexibility of generators to respond to new market information and rebid in legitimate circumstances.

That said, recent bidding behaviour has led to high priced events on most days since 18 May 2002 in most regions of the NEM. The Commission suspects that these market outcomes do not represent efficient outcomes and questions the value that such spikes have in terms of investment signals. The Commission is currently assessing these events and is of the view that such behaviour lends support to the need to introduce a solution to ensure that the efficiency of the market is preserved.

8.3 Variation of offer bid or rebid

Good faith

The Commission supports NECA's intention to restrict behaviour that deliberately takes advantage of market power and games market outcomes. In proposing a requirement that bids and rebids must be made in 'good faith' the code changes implicitly question the accuracy of the information currently used to calculate the PASA and pre-dispatch forecasts.

The Commission supports the intent of the 'good faith' clause because the design of the electricity market auction relies on accurate information being submitted by generators in the form of bids and rebids. The Commission is of the view that if accuracy of data being submitted by participants cannot be relied upon, serious questions about the market design and its workability may need to be addressed.

Participants that have full contract cover are shielded from any impact of inaccuracies in PASA or pre-dispatch projections. Moreover, PASA projections become less important as forward markets work more effectively. However, while barriers to forward market trade or retail trade may exist that prevent participants from obtaining contract coverage at effective prices, the Commission believes the accuracy of PASA should be preserved.

Role of forecasts

NEMMCO's PASA and pre-dispatch forecasts provide an insight into the underlying dynamics of the market and assist market participants in making decisions regarding the appropriate amount of capacity to offer based on predicted demand and any network constraints. Subsequent rebidding information, released to the market in the form of new forecasts assist generators in refining the capacity offered in each price band in order to maximise profits and thus provide an efficient and competitive dispatch merit order.

Participants benefit from the accuracy of the PASA information. However, each generator has an incentive to withhold information about their real intentions so that they hold more complete information than their competitors. A generator with better information than its competitors may be able to structure bids to take advantage of the superior amount of information they hold and ensure their capacity offered was optimal.

The withholding of accurate information by one generator imposes an efficiency cost to the market because not all participants have full information and therefore cannot compete equally. If all generators withhold accurate information, the cost to the market is magnified because the pre-dispatch and PASA forecasts are devalued. Each generator has an incentive not to disclose their true intentions, but if all generators take a similar course of action, the information they rely on to determine optimal bids is rendered useless, leading to a worse outcome for the market as a whole.

The larger the generator, the more important its price and capacity offers are in determining forecast prices. Thus withholding information for a large generator is likely to have greater benefits to that generator than the benefits likely to accrue to a small generator that withholds information. Such strategies could have detrimental impacts for smaller generators, particularly if they are peaking generators that start turbines in response to high price forecasts only to find they are displaced at dispatch time due to subsequent rebids of large amounts of lower priced capacity.

The Commission thinks it prudent to introduce a requirement that bids and rebids be made in good faith and therefore represent the true intentions of generators. Each bid should represent a generator's optimal price/capacity trade off based on the information it has to hand. This is consistent with the principles put forward by Lew Owens, the South Australian industry regulator in his paper on rebidding distributed at the

Commission's forum on rebidding and market power held in Melbourne in February 2002.

The SAIIR proposal is based on the tenet that the initial bid made by a generator should be firm and should embody each generator's honest intentions at dispatch based on the information available at the time the bid is lodged. Subsequent rebidding should be restricted unless it is in response to a meaningful change in information, and that the resulting rebid should be in proportion to the new information.

As mentioned above, the Commission supports the principle advocated by both SAIIR and NECA that bids should represent the honest intentions of generators and thus be made in good faith. The Commission believes that there is a net public benefit associated with the improved accuracy of forecasts and believes that this provision may have a dampening effect on gaming behaviour in the NEM.

There were a number of comments included in submissions that criticised the use of the term 'good faith'. The Commission has some reservations of the term 'good faith' being used in conjunction with the guidelines.

The Code Change Panel is of the view that there is no need to define the term 'good faith' in the code as there is sufficient legal precedent to make the term workable in the context of rebidding.

'Good faith' is typically used where businesses interact with consumers. Some submissions argued that the term good faith is not appropriate for business to business transactions. However, the Commission believes there is sufficient legal precedent to make the term work in this context. Nevertheless, to avoid problems of uncertainty the Commission would encourage NECA to develop a clear definition as to what behaviour constitutes bidding in good faith.

The requirement to submit bids and rebids that represent a generator's true intention is intended to give generators the incentive to submit initial bids that are meaningful and accurate rather than bids that are generic and that rely on the ability to rebid.

Reverse onus of proof

The Commission does not support NECA's proposal to reverse the onus proof for generators. Such a clause would require generators to prove themselves innocent to the satisfaction of the Tribunal if their behaviour was questioned by NECA. While the Commission believes that the term good faith can be made to work in the rebidding context, it is of the view that having to prove that one acted honestly is very difficult.

The Commission is concerned that the power to accuse a party of acting without good faith has the potential to impose significant costs being imposed on participants that are called upon to defend themselves. The Commission supports the principle that an accused party should be required to justify its actions if called in to question. However, it believes that it is not unreasonable to require the Code Administrator to undertake such investigations as are necessary to build a substantive case before making such allegations.

The Commission is concerned that the overall effect of the provision might be to deter new entry and legitimate rebidding, thus diminishing competition and exacerbating the problem it was intended to solve.

The Commission does not accept the argument put by NECA that Section 51A of the Trade Practices Act (Act) is a precedent for reversing the onus of proof in this case. Section 51A was included in the Act as a special case to prevent parties from making unsubstantiated representations regarding future events. 51A requires a party to base claims of future matters on reasonable grounds. The section deems a party to have no basis for making claims unless it adduces evidence to the contrary. A failure to produce such evidence can result in the representation being deemed as misleading and thereby a breach of the Act.

The point made by Gilbert and Tobin on behalf of Macquarie Generation was that 51A reversed the onus of evidentiary proof (ie that the reversal onus only applies to evidence to base future claims). This is significantly different to being required to satisfy a legal burden of proof and prove oneself innocent of allegations, which is what is envisaged under the proposed code change.

The Commission also agrees with submissions that reversing the onus of proof would not be consistent with the code objective "to provide a regime of "light-handed" regulation of the market …".[44] Whilst supportive of the concept of light-handed regulation, the Commission believes that if the current market framework is proving not to produce competitive market outcomes and evidence is produced to support this view, more heavy handed regulation may need to be implemented in the absence of structural change. This issue is discussed in more detail in following sections.

Powers to gather information

While not supportive of the reverse onus of proof clause proposed by NECA, the Commission believes that NECA should be given all powers necessary to build a case to prosecute behaviour that breaches the good faith clause. In order to assist NECA to effectively mount a case, participants must provide NECA with information as requested including commercially sensitive information such as levels of contractual coverage and details of when they expire. This information should be kept confidential.

The code already bestows on NECA and the Tribunal significant information gathering powers. Clause 8.5.1(a) of the code states that:

> A Code Participant must, if requested by NECA or the Tribunal, supply it with information relating to any matter concerning this Code in such form, covering such matters and within such reasonable time as NECA or the Tribunal may request.

Clause 8.5.1(d) states that:

[44] Clause 1.4(b)(1) of the National Electricity Code (NEC).

> Any report or other documentation referred to in this clause 8.5.1 may be used in any proceeding involving the Tribunal under the National Electricity Law or for the purpose of commencing any such proceeding.

The Code goes on to clarify the use of information provided to NECA or the Tribunal under Clause 8.5.1(a) in Clause 8.6.1 which requires that NECA, deemed to be a code participant for this purpose, "…must use all reasonable endeavours to keep confidential any confidential information which comes into [its] possession or control …"

The Commission believes that the current information gathering powers are sufficient to enable NECA to build a case.

The Commission has also considered replacing the reverse onus of proof with a clause that provides NECA with an ability to infer a purpose (of bad faith) from surrounding events. This is similar to an approach that already exists in the TPA for section 46. Section 46 prohibits the abuse of market power in certain circumstances.

Section 46(7) states the following:

> Without in any way limiting the manner in which the purpose of a person may be established for the purposes of any other provision of this Act, a corporation may be taken to have taken advantage o its power for a purpose referred to in subsection (1) notwithstanding that, after all the evidence has been considered, the existence of that purpose is ascertainable only by inference from the conduct of the corporation or of any other person or from other relevant circumstances.

However, the Commission believes that the likely effectiveness of such a mechanism needs to be tested.

Contract information is likely to help NECA and the Tribunal in forming their views as to the purpose of a bid suspected to be in bad faith. As mentioned in Chapter 7 of this document, the Commission recommends that the market consider the compulsory disclosure of contract information on a confidential basis to NECA in order to enhance its market monitoring ability. The Commission acknowledges the commercial sensitivity of such information but believes its confidential disclosure to NECA could provide substantial public benefits because such information is likely to provide a clearer and more complete picture of motives behind participant behaviour and thus lead to more effective market monitoring by NECA.

8.4 Conduct prejudicial to the market

The wording of NECA's proposed code change set out below has met with substantial criticism from market participants. Clause 3.8.22B(a) states that:

> "A *Market Participant* must not submit a *dispatch bid, network dispatch offer, dispatch offer* or *rebid,* if such conduct has the purpose, or has or is likely to have the effect, of materially prejudicing the efficient, competition or reliable operation of the *market* in accordance with the *market objectives* and the purpose of the market rules as set out in clause 3.1.2, unless the *Market Participant* has reasonable cause for the *dispatch bid, network dispatch offer, dispatch offer* or *rebid*."

The prohibition of bids that could prejudice the market is a broad ranging clause that, in the Commission's view, would be difficult to comply with because it links individual actions to market outcomes that are the culmination of actions and reactions of all market participants. Targeting individual entities on the basis of market outcomes is not straightforward and such allegations are likely to be difficult to prove, or disprove if the reverse onus of proof were instituted. As Origin Energy stated in its submission, the effectiveness of guidelines depends on the extent to which the resulting market outcome could be linked exclusively to the actions of one individual. Given the amount of information in the market and the unlimited ways in which new information can be interpreted and responded to within the market, it is not certain that the code change will be workable.

The conduct prejudicial clause refers to the guidelines but the clause does not provide any explanation as to the status of the guidelines. It is not clear whether behaviour must breach the guidelines to breach the good faith provision, or whether additional behaviour not specified in the guidelines can also breach the good faith provision. The clause also fails to detail how the guidelines can be changed. Given that they are proposed to stand outside the code, it is not clear whether normal code change consultation procedures will apply. The Commission is concerned that the guidelines could be changed without due consultation and consideration.

The guidelines

The Draft Guidelines written by NECA are in NECA's own view, a first draft with further development likely to be needed. Technically, the guidelines stand outside the authorisation process, however as they are important to the Commission's analysis of the code changes, they are discussed in this section in some detail.

The guidelines are broad ranging and, in the Commission's view, will require significant clarification through the legal processes before they are made definitive. Interpretation of the guidelines is uncertain and for this reason is likely to lead to increased compliance costs. Firms that apply a less conservative approach to rebidding are likely to incur significant compliance costs if their behaviour is called into question by NECA, and if they are forced to prove themselves innocent of the allegations to the satisfaction of the Tribunal. This may compel firms to apply a more conservative approach to rebidding, leading to less flexibility in the market and on occasions, a reduction in competition.

The Commission considers rebidding to be a key element of the market design because it allows the market to balance supply and demand efficiently to ensure demand is met by efficiently priced supply. The Commission notes the statements made in most submissions that point to significant costs to the market's operational efficiency if restrictions to rebidding are introduced. Restrictions or a ban on rebidding could require the introduction of a separate balancing market into the market design or increased and more extensive use of ancillary services. More importantly however, restrictions to the ability to rebid, or the imposition of incentives not to rebid, could lead to less efficient outcomes and potentially higher prices, as compliance costs are recouped through generator's bids. Restrictions on rebidding could produce a wedge between actual and competitive price outcomes, leading to less efficiency. On the other hand, inefficient dispatch of generation is not in the long-term interest of the market.

The question for the Commission is whether the change in behaviour targeted by the rebidding code changes (including the guidelines) would be effective in reducing the exercise of market power, and whether the guidelines are likely to lead to more competitive outcomes in the market. For there to be a net public benefit associated with the code changes, the anti-competitive detriment resulting from the restriction on the competitive actions of generators would have to be less than the anti-competitive detriment that is inherent in the current situation. The Commission remains unconvinced that the proposed code changes achieve this.

The guidelines intend to target market power. They outline specific behaviour in the market that NECA considers inappropriate. However, market power can manifest itself through mechanisms other than the ability to bid and rebid. The guidelines therefore encompass outcomes and behaviour that go beyond the bidding and rebidding mechanism.

The wording of the guidelines has met with specific criticism by market participants. NECA claims that the wording is based on licence conditions that were proposed for, but not implemented in, the New Electricity Trading Arrangements (NETA) which were introduced in the UK market as a response to market power concerns. NEM participants debate the similarity.

A document produced by the Office of Gas and Electricity Markets (OFGEM)[45]lists examples of actions that OFGEM considered might breach the Licence Condition (mentioned earlier), including the following:[46]

- "Exploiting transmission constraints or creating virtual constraints"- on which NECA has based its arguments referring to exploiting network constraints, reductions in capacity or increases in demand.

- "Withholding output from the forwards and spot markets in order artificially to increase system buy prices in the Balancing Mechanism". NECA have adopted some of the arguments made by OFGEM in drafting the guidelines, specifically the section dealing with withholding capacity. However, OFGEM make a point that they are not concerned with high prices, or price spikes, resulting from competitive operation of markets - only price spikes that may be the result of gaming of trading rules.

- "Engineering the calling of high priced sleeper bids". OFGEM specify that in cases where placing sleeper bids reflects the opportunity cost of reducing demand, they are not a problem. However, in cases where there has been no change to a participant's underlying cost structure, sleeper bids that bring about system short falls, thus causing the System Operator to accept the

---

45 OFGEM-*Guidelines to Proposed Modifications to Licence Conditions- A Consultation Document*, August 2001.

46 OFGEM-*Guidelines to Proposed Modifications to Licence Conditions- A Consultation Document*, August 2001, p.10

sleeper offer, are of concern to OFGEM. OFGEM further state that it is not the posting of a high price that is objectionable, when there is a genuine capacity shortage, rather it is the combination of withdrawing output to create a shortage with the posting of a highly prices offer that would potentially be problematic.

The wording of the proposed licence conditions for the UK market were as follows:

> The Licensee shall not knowingly or recklessly, and without reasonable cause, act in a manner (either alone with some other person) which is likely materially to prejudice:
>
> - the safe, economic and efficient operation by a transmission company of its transmission system; or
>
> - the economic and efficient balancing by a transmission company of its transmission system.

Enertrade argues that contravening the proposed UK provisions would have required a generator to "knowingly or recklessly" act in a manner likely to materially prejudice the safe, economic and efficient operation of the market." It argues that a breach would only have occurred if a generator had some sort of intention to negatively affect the operations of the market. Enertrade, among other participants, claims that generators could inadvertently breach a clause that included the wording "likely to have the effect" as is proposed by NECA. Enertrade question how a generator would know whether their actions are "likely" to affect the market operations given the vast amount of information in the market.

The Commission agrees that given the dynamic nature of the market, it may difficult for a generator to be sure of how its actions would impact on the market. The Commission believes that the use of wording such as "likely to have the effect" is too broad to be effectively applied to the prohibition of bidding and rebidding. In the Commission's view, the possible interpretation of the guidelines is subjective and would be difficult to apply with consistency.

The Commission is somewhat sympathetic to the argument put that it is inappropriate for generators to be forced to consider the impact of their offers or rebids on system reliability given that system reliability is the responsibility of NEMMCO in the code. Enertrade, Macquarie and Southern Hydro argue in their submissions that generators will rarely be in a position to assess the likely impact of their bidding conduct on market reliability because they do not have access to all the information about factors affecting it. While this is true to an extent, the Commission is cognisant of recent action taken by NECA against Macquarie and Delta in regard to rebidding 'must run' capacity on the 19-20 December 2001. In this case, the Tribunal found that both Macquarie and Delta had used the provisions inappropriately. In their report, NECA stated that:

> "It is crucial to the efficient, and indeed ultimately the security, of the market that the 'must run' provisions are used only in response to genuine technical operating requirements…abuse of

those provisions could potentially threaten the safe and/or secure operation of the power system."[47]

This action demonstrates to the Commission that the code already provides some remedies where deliberate abuse of provisions that cater for technical factors can be shown. The Commission believes that the guidelines' implicit requirement for generators to consider system security when bidding for non-technical reasons may complicate the existing code security operations which appear to be working successfully.

The Commission is not convinced that the guidelines will successfully target offending behaviour. It believes that the guidelines in their current form are likely to be cumbersome to administer and for the reasons outlined below, considers the guidelines themselves should be replaced with black and white prohibitions that are easier to comply with and easier to enforce. This approach would minimise the scope for uncertainty concerning legal interpretation. In the absence of other options, the Commission makes the following assessment of the guidelines.

Uncertainty

The Commission agrees that there is certain behaviour that is unacceptable because it has a detrimental affect on the market's operations and effectively games the market outcomes. However, there are circumstances where the application of these strategies will be legitimate. Identifying the difference between a set of bids that leads to a legitimate outcome and a similar set of bids that leads to an unacceptable outcome makes well targeted code changes difficult to draft.

For example, the first guideline bans 'economic withholding', described to be when a generator places a significant amount of capacity in one or more very high price bands thus removing that capacity from the likelihood of dispatch. This can lead to an overall fall in supply and typically results in higher spot prices. However, a generator's decision to offer capacity of a plant in a high price band could be because the asset owner would rather not use the unit, due to maintenance requirements, or other technical limitations. If there is a price that is sufficiently high the asset owner may risk using the unit. Where the price is not high enough to cover the risk, the generator is likely not to use the unit. In the Commission's view, this would appear to be a legitimate strategy and could actually work to the benefit of the market in contributing capacity to the reserve margin.

A similar explanation could be mounted for the second guideline that prohibits 'high priced sleeper bids'. Sleeper bids, although not defined by NECA, are thought to refer to capacity that is placed in very high price bands and remains there (ie is not rebid down to lower priced bands closer to dispatch). A generator that places a sleeper bid hopes to take advantage of a possible tight supply situation that may result in high priced capacity being dispatched. Most of the time sleeper bids are priced way above

[47] *Report of NECA's investigation in to the events of 19 and 20 December 2001*, NECA, May 2002 http://www.neca.com.au.

the marginal bid and are not dispatched, but for a generator it could be worth taking a punt, particularly if it was not recovering its fixed costs.[48]

The guidelines also identify the manipulation of dynamic capability as something it aims to curb. NECA has not provided information to demonstrate how ramp rates being bid in at lower standards than good practice is detrimental to the market or how it could facilitate an exercise of market power. The Commission believes that substandard ramp rate offers below a generator's registered capacity is similar to capacity withholding but on a smaller scale. It effectively prevents the dispatch of cheaper capacity in favour of higher priced capacity that has the effect of driving spot prices higher.

Finally, the guidelines seek to prohibit behaviour that exploits network constraints. This guideline is of greatest concern to the Commission because it fundamentally questions whether generators should profit maximise. NECA is concerned that price outcomes can sometimes spike due to network constraints, with no change in the underlying costs of producing electricity. While this is an understandable concern, the logical conclusion of this argument questions the market framework of the NEM. It is economically rational for a generator to structure its bids to deliberately exploit a constraint in the market, or take advantage of a sudden surge in demand, or another generator trip. To fail to take advantage of such opportunities would not be profit maximising behaviour.

Economic withholding

The Commission believes that withholding of capacity to deliberately force a tight supply situation may not be conducive to efficient market outcomes in markets that are not perfectly competitive. However, the Commission is cognisant of a range of scenarios where economic withholding could be considered as appropriate behaviour.

While concerned about the potential impacts of economic withholding, the Commission is of the view that flexibility must be built in to any code change that prohibits such behaviour to allow a reprieve for generators where there is a legitimate basis for such bids. The Commission is concerned that the potential anti-competitive detriment of deterring investment could outweigh the public benefits of prohibiting economic withholding where it is undertaken to game market outcomes.

Having made the comments above, the Commission is concerned by recent bidding and rebidding behaviour in the NEM that has been characterised by economic withholding. Since 18 May 2002, several base load generators have moved large amounts of capacity into high price bands which has led to a fall in supply in more reasonably priced price bands. In some instances, expensive gas fired turbines met the demand while low cost base load was priced too high for dispatch.

Spot market outcomes in recent weeks have had a significant impact on the year average pool prices with some commentators claiming that average prices have risen from $29.20 to $32.70 to $36.30/MWh within a matter of three weeks[49].

---

[48] High priced sleeper bids and economic withholding could be synonymous if the volumes placed in high priced sleeper bids are large enough to cause a supply shortage.

Despite the impact on average pool price rises, the actual impact on market participants is less clear due to the fact that levels of contract coverage are not known. However, the spate of recent high spot prices throughout the end of May and the beginning of June has flowed through to forward peak contract prices for July 2002. Figure 1 in Appendix C demonstrates that the NSW forward peak contract price for July 2002 jumped over $15MWh[50] in the first three weeks of daily price spikes. This means that market participants were prepared to pay a premium of $15MWh on top of the price of the same contract offered prior to 18 May 2002. A similar price rise has occurred for July 2002 peak contracts in both Victoria and Queensland. Figures 2 and 3 in Appendix C illustrate the impact. Interestingly, the impact in South Australia has been limited. This may be explained by the large amount of peaking capacity present in that region. Also noteworthy is the fact that despite significant changes to year average spot prices brought about by this behaviour, medium-term and longer-term contract prices have not moved.

The Commission believes that if contract information was known, the impact of such behaviour on participants would be quantifiable and the motives behind such behaviour would become clearer. Disclosure of contract information may go part way to addressing the difficulty in determining the difference between economic withholding undertaken for genuine reasons and economic withholding undertaken to produce a shortage in supply and influence spot prices.

The Commission recommends the serious consideration of compulsory disclosure of contract information on a confidential basis to NECA in order to bolster its market monitoring role. The Commission believes that this information would make it easier for market monitors to determine whether a bid had legitimate grounds or not.

In terms of the current code changes, the Commission maintains that NECA's proposal to prohibit bids that represent economic withholding is too uncertain in its application and therefore will result in any public benefits being significantly outweighed by the potential detriment of less effective competition. The Commission believes that a black and white clause that prohibits the anti-competitive aspects of economic withholding may be more likely to pass the authorisation test.

The Commission believes that the introduction of a prohibition on types of bids such as those proposed will significantly change the nature of bidding in the pool. To date, all bidding strategies have been acceptable provided they fall within the rules. A rule prohibiting economic withholding would change this fact and could be the first step in a more interventionist approach to the spot market. The Commission is generally opposed to intervention in markets but recent behaviour in the NEM could indicate the need for intervention in the future to preserve the efficient operation of the market.

---

[49] Figures taken from correspondence with Robert Booth dated 2 June 2002.

[50] AFMA Data 2002.

Sleeper bids

The Commission has not received sufficient evidence to suggest that sleeper bids have had a detrimental impact on the market to date and believes that a prohibition on such bids or rebids could deter new entrants and have an adverse impact on competition. For example, generators that face significant competition at or around SRMC may use a high priced sleeper bid as a legitimate strategy to achieve a return to cover fixed costs when there is a supply constraint and prices rise. A prohibition on such bids could deter new entrants because it removes one mechanism through which they may be able to cover fixed costs in a competitive market. On the other hand, a high priced sleeper bid could indicate the exercise of undue market power with resultant detriment to the market. The proposed guideline does not discriminate between these two scenarios.

There is concern about high priced sleeper bids being used strategically to deter entry into the market because they can reduce reasonably priced supply but can be rebid at short notice if there is a threat of new entry. The Commission believes that if high priced sleeper bids are dispatched on an ongoing basis, they are more likely to signal to new entry rather than be a deterrent. In most cases, the threat of new entry will force a generator to rebid any high priced capacity down to more reasonable prices to ensure dispatch.

Ramp rates

Assuming that generators have the ability to exercise market power through specifying ramp rates, the Commission believes that minimum ramp rate standards should be enforced through a direct mechanism if the practice is proved to have detrimental impacts on the market. Ramp rates bid below registered normal ramp rate capability will be easy to identify and to investigate. Should NECA believe ramp rates to be an issue that requires specific action, the Commission suggests that a code change directed at this behaviour would be a better way of addressing the issue. By imposing black and white rules, the uncertain interpretation inherent in the guideline approach is likely to be avoided.[51]

Network constraints

Behaviour that deliberately exploits constraints effectively punishes the market for under-investment or lack of development. Price spikes identify investment opportunities in transmission or generation. Without these signals the energy-only market would cease to work effectively. The Commission believes that the fact that such constraints can be used signals the inadequate treatment of constraints and congestion in transmission pricing in the NEM. The Commission believes that investment opportunities would be more effectively signalled if there were more regions or if nodal pricing was introduced to the NEM. In their absence, the Commission believes that pricing signals on the supply side should be maintained. Any muting of these signals will raise questions about the market's design and its ability to develop into the future.

[51] The introduction of a five minute market could help to ensure generators do not have the perverse incentive to under-offer rate or change capabilities (see discussion in section 7.5).

There is some evidence to suggest the market is already addressing constraints. Investment in base load generation in Queensland and peaking generation in South Australia and Victoria could be an indication of the market's reaction to higher energy prices. Similarly, there are proposals to upgrade and build new interconnectors to take advantage of price differences between regions. This is the market at work.

Due to the lead times involved in the commitment of large scale investments like electricity transmission or generation facilities, and the lumpiness of such investment due to economies of scale, there will always be a delay between the time that prices signal the need for further investment and the time that such investment is brought on line to relieve the constraint. In the meantime, the market will have to sustain the higher prices but is likely to be compensated for this during low priced periods in the future.

These outcomes are common to deregulated electricity markets. The danger the Commission sees in focussing on the price outcomes over a short period of time is that it can lead to biased conclusions. The Commission has taken a longer term view in its analysis of these code changes and believes that the high priced periods of 2001 that raised initial concerns are largely part of the cycle of development for the NEM. While recent bidding behaviour lends support to the view that changes should be made to prevent contrived price spikes, the Commission is wary of short term solutions that could impact negatively on the long term development of the market. Having said this, the Commission believes that there are opportunities for the NEM framework to be refined and considers there may be room for specific rules to be introduced to target specific anti-competitive behaviour.

Initial bids

The requirement to make bids and rebids based on the generator's honest intentions at the time of dispatch will not stop generators from bidding above marginal cost in their initial bids. As stated in the MMA report, generators have an incentive to bid above marginal cost and will do so whenever they can. The code changes proposed by NECA do not target market power in this context.

Effective competition occurs in the absence of market power - where there is a sufficient number of competitors that compete with each other for dispatch in various sectors of the market and where none of these generators are able to influence the price above the competitive level.[52] This scenario is unlikely to occur in the NEM as the size of individual units and portfolios is very large and the number of competitors is relatively small. Without divestiture or some other fundamental changes to the market structure, intrusive regulation may need to be present to recreate competitive market outcomes. International markets have followed different routes to address market power. Some of these mechanisms are outlined below.

[52] The competitive level in the electricity market is not necessarily SRMC as prices that only cover marginal costs could lead to under investment because there is limited return to cover fixed costs especially where economies of scale exist. SRMC pricing is unlikely to be sustainable or desirable in this context.

International efforts to address market power

Powers to audit generator costs in order to scrutinise bids have been given to the market regulator in the Greek electricity market. In that market, generators are expected to bid at average variable cost. When an offer is made, this information is compared to the registered and declared information that generators are obliged to provide to the market manager. The Greek regulator for energy can audit this information if it is felt there is any discrepancy between the unit's average variable cost and the value of the offer.

In the PJM[53] market, generators must satisfy the regulator that they have taken steps to limit their market power before they are able to bid generation into the wholesale market. Generators are also required to submit market power analysis reports twice a year.

Mitigating market power in the Albert electricity market is partly aided by the operation of Power Purchase Agreements (PPA). The three major generators in Alberta remain state-owned, but a non-affiliated party can buy their capacity at a PPA auction. The winning bidder at a PPA auction obtains the rights to sell a certain amount of the generation capacity of a state-owned generator to the Power Pool, or to one or more distributors through a hedging contract. This mechanism facilitates the state-owned generators' participation in the Power Pool while also diluting the market power they hold. A similar strategy was put forward for NSW earlier this year.

Concerns of market power have been of such significance in overseas markets that some regulators have introduced further structural separation and/or heavy handed measures to curb market power. Such changes may not be an option for the NEM at this time. However, the Commission recommends that such mechanisms be more seriously considered if concerns remain about generators' ability to use market power.

Two of the three consultants' reports to the Commission have concluded that market power in the NEM is not a systemic problem. The Commission has noted this advice. Generally, the Commission's disposition is to favour market solutions over regulatory intervention. However, when market power is present, even if transient, caution needs to be exercised and the performance of the market closely monitored. If sufficient evidence is presented to show that market power is increasingly detrimental to market outcomes, the Commission believes that some action should be taken. In the Commission view, the types of structural reforms mentioned above are more likely to have a lasting beneficial effect on market behaviour than continued refinement of the rebidding rules, although it concedes that in the absence of structural reform, reform of bidding rules may be the only option available.

Market Review Forum

During consultation on the rebidding code changes and resulting from the success of the forum the Commission held to discuss the issues of rebidding and market power, a number of industry participants have proposed that the Commission facilitate an industry based Market Review Forum to review evolving market behaviour on an

[53] Pennsylvania, New Jersey and Maryland (PJM)

ongoing basis. The proponents argue that this Forum would contribute to a deeper understanding of how the market operates and propose that it function as a body for analysis and advice to regulators and government on NEM issues.

The proponents believe the Forum should have a particular emphasis on identifying, reviewing and reporting on factors, including those related to conduct, that affect the NEM's efficiency and overall performance. The Market Review Forum will require the application of specific economic criteria that will encourage rigorous debate and the development of sound market principles.

The proponents of the Market Review Forum suggest that it be in addition to, and not replace, any of the existing roles undertaken by the regulatory institutions in the NEM such as NECA, the ACCC or the jurisdictions. It is not proposed that the Forum be able to make decisions, but would simply aim to reach consensus through rigorous evaluation of the efficiency of the market's behaviour. Such consensus could lead to recommendations for code changes being lodged with NECA or could provide initial consultation on topical issues.

The proponents suggest that the Commission is the appropriate body to facilitate the Market Review Forum because of its interest in efficiency and competition in all markets, but the proponents suggest that the Forum be chaired by someone that is independent of both the Commission and the other NEM institutions.

The Commission welcomes this innovative and consultative proposal. At present there are limited avenues through which behaviour within the market can be discussed without accompanying concerns of enforcement action. The Commission sees merit in a forum that is inclusive and participant oriented and that could potentially generate consensus in identifying important issues and directions for development.

The Commission believes that this Forum would provide a mechanism for effective and ongoing market monitoring by participants as an addition to the monitoring work currently undertaken by NECA. It would provide industry participants with a structured mechanism to provide advice and analysis about a wide range of market behaviours and topical issues, and would also engender a sense of contribution and input into NEM development.

The Commission proposes to facilitate the Market Review Forum for an initial period and proposes to hold a Forum every six months beginning at the end of this code change process. The Commission suggests establishing a consultative working group to organise operational details and an agenda for the first Market Review Forum to be held later in 2002.

8.5 Power system security

NECA proposes that NEMMCO's procedures for determining the quantity of non-market ancillary services should achieve the power system security and reliability standards but should also refer to the enhancement of the value of spot market trading (clause 3.11.3).

Firstly, the Commission believes that the actual meaning of the clause is not clear. The Commission interprets it as meaning that NEMMCO should undertake actions that enhance the value of spot market trading where that can be achieved through the purchase of non-market ancillary services. For example, NEMMCO could pursue greater amounts of interruptable load in South Australia to ensure that the constraints on the Heywood interconnector could be relaxed.

The Commission supports the intent of this code change because it is of the view that it could lead to increased public benefits. However, the Commission is concerned that the meaning of the clause is not clear. The Commission believes there to be value in providing additional clarification that NEMMCO should only attempt to enhance the value of spot market trading when it can be done without prejudicing system security and when it is cost effective to do so.

The Commission supports the intent of the further change proposed by NECA to apply a more flexible approach to remedying the secure state of the power system while preserving the inherent need for security. The code currently requires NEMMCO to bring the power system back to its steady state as soon as is practicable and in any event within half an hour. These arrangements are interpreted in a conservative manner and have the potential to impose significant costs on the market to cover the small possibility of a second contingency occurring when the system is already in a vulnerable state. While essentially a small probability, the Commission acknowledges the serious repercussions that a second contingency could produce such as a regional power system collapse and therefore recognises the need to maintain an appropriate standard of system security.

The Commission is of the view that if the cost of ancillary services required to meet the code's conservative approach to system security is of significant cost to the market, and the market identifies a way to reduce this cost, then such action should be taken provided that essential system security principles are preserved.

Allowing a more flexible timeframe within which NEMMCO can bring the power system back to its steady state will provide more opportunities for slower start gas plant to enter the market for ancillary services, thus widening the number of competitors and potentially leading to services being offered at lower prices. Furthermore, the more flexible timeframe would also allow NEMMCO discretion as to the type and time period in which it purchases the necessary ancillary services, thus leading to potential fall in prices if NEMMCO was able to wait to purchase services at a time where costs were minimised.

While supportive of the intent of the change, the Commission is sympathetic to NEMMCO's comments in its submission that the code change will introduce a level of discretion that NEMMCO has not exercise to date and fails to give sufficient guidance as to how such discretion should be exercised. NEMMCO is understandably reluctant to undertake this role without guidance.

The Commission considers that NEMMCO is very well placed to undertake this role because it would be consistent with its current role of maintaining system security and therefore has the technical skills to understand the issues involved in changing the way ancillary services are purchased. NEMMCO is an independent body and faces no

financial rewards from its decisions to purchase ancillary services. This means that NEMMCO's choices are likely to be dispassionate and not subject to compromise or bias through vested interests.

However, in consultation with NEMMCO, the Commission believes that it is appropriate that the Reliability Panel sets the parameters in which NEMMCO should exercise its discretion by determining the appropriate trade off between risk and the cost of ancillary services needed to secure the system. The Commission agrees with NEMMCO that these decisions are policy decisions and therefore should not be made by the system operator.

The Commission agrees with NEMMCO that NECA's proposed changes could leave NEMMCO significantly exposed to challenge if either security risks were deemed too high or costs of ancillary services were thought to be higher than necessary. However, the Commission believes that NEMMCO's liability would not increase significantly from its current level if NEMMCO were to act according to guidelines set by the Reliability Panel about how it should exercise discretion. The Commission believes that these guidelines should be developed in consultation with NEMMCO and other market participants.

In further discussions with NEMMCO, NEMMCO raised issues concerning the timing of these particular code changes. NEMMCO informed the Commission that the methodology it would recommend be used would depend on the Reliability Panel's decision on whether soft network constraints are introduced to the market. According to NEMMCO any methodology used to optimise the trade off between ancillary service cost and system security risk would be extremely complex and time consuming to develop. NEMMCO state that they are unable to expend resources developing two distinct methodologies. Instead it requests that any development of a methodology be postponed until the Reliability Panel's decision on network constraints. Furthermore, NEMMCO believes that regardless of the methodology chosen, a significant testing period would be required to ensure that during times of system stress, the more flexible standards could be used effectively. The result of NEMMCO's comments is that the introduction of the changes to the power system security provisions could be delayed considerably.

In summary, the Commission believes that there is merit in the power system security code changes put by NECA but believes that clarification should be added to clause 3.11.3(b) and that guiding principles and specific guidelines need to be developed to make the provision in clause 4.2.6(b) effective.

The Commission therefore imposes conditions of authorisation to ensure that the public benefits resulting from the code changes outweigh the potential detriment resulting from its operation. The Commission intends to impose conditions to the effect that:

- The wording of clause 3.11.3(b) be altered to include clarification that NEMMCO should only attempt to enhance the value of spot market trading when it can be done without prejudicing system security and when it is cost effective to do so;

- The wording of clause 4.2.6(b) be altered to include the following changes:

- The Reliability Panel must establish guiding principles and guidelines that determine how NEMMCO should maintain system security while keeping the cost of ancillary services to an acceptable level;

- The guidelines referred to above must be developed using the appropriate consultation process and must take into account:

    - the need for transitional arrangements to allow for development and testing of an appropriate methodology by NEMMCO; and

    - take into account the results of any decision by the Panel to revise network constraints.

- Until the Reliability Panel publishes guidelines and an appropriate testing period has been completed, the current system of preserving system security will continue to apply.

- NECA should review and report on the way NEMMCO has used its new powers and whether the more relaxed standard of system security has led to market benefits over all. This review should take place 2 years after the guidelines have come into effect.

8.6 Conclusions

On the basis of consultants' reports and research analysis undertaken separate from, and as part of, the code change consultation process, the Commission has concluded that there is evidence of market power in the NEM. The Commission believes that the evidence of recent investment such as peaking generation in the southern states and increased investment in base load capacity in Queensland, supports the contention that prices in the spot market have encouraged new entry.

The Commission believes that there are fundamental limitations in what market rules can deliver in a market where participants are large in size and often have diversified portfolios. Nevertheless, the Commission supports the principle of requiring bids and rebids to be made in 'good faith'.

The Commission does not support the reverse onus of proof proposed by NECA but believes that NECA should use its existing powers to gather information and enforce the relevant code provisions. The Commission is also open to NECA developing an alternative clause if this would assist the enforcement of the good faith provision.

The Commission considers that the guidelines are wide-ranging and open to interpretation. The Commission does not believe that the guidelines are sufficiently certain in their application that they will be able to clearly address unacceptable bidding and rebidding activities. Instead, the Commission believes that the guidelines will bring uncertainty into the NEM arrangements and disincentives to rebid capacity in legitimate circumstances. This in turn may introduce inefficiencies in the market's operations and further jeopardise the potential for efficient price outcomes in the spot market.

The Commission believes that the ancillary services code changes as proposed by NECA have merit but would be improved if they were reworded to require the Reliability Panel to determine the acceptable trade off between system security and cost of system security. The Commission also believes that guidelines are essential to allow NEMMCO to undertake this function and that consideration of timing of other Reliability Panel decisions on network constraints and appropriate testing periods should be taken into account.

The Commission remains concerned about economic withholding undertaken deliberately to tighten supply and influence prices upwards. However, the Commission is aware of a range of reasons that could justify such bids. The Commission believes that any prohibition of economic withholding should be substantiated with quantified evidence outlining the detriment to the market of such behaviour and if possible be drafted in such a way as to only prevent bids that are being used for the purposes of gaming market outcomes.

The Commission also plans to facilitate a NEM wide industry Market Review Forum to provide a formal and ongoing mechanism for industry participants to discuss market behaviour.

In addition to the formal draft determination outlined in the following chapter, the Commission makes the following suggestions to NECA. The Commission believes that the draft determination in combination with these suggestions will deliver the beneficial outcomes of the guideline approach while minimising the legal uncertainty of interpretation.

Suggestions:

- **NECA consider drafting a specific code change to prohibit economic withholding where it is used to deliberately tighten supply and raise prices;**
- **NECA consider specific restrictions on bidding of ramp rates if the ability to exercise market power through ramp rates remains a concern;**
- **NECA consider compulsory but confidential disclosure of contract volume and price information for all generators;**
- **NECA consider delaying the release of aggregate bidding information, currently released one day after dispatch, to a period of several weeks or months; and**
- **NECA contribute to the Market Review Forum as a mechanism for NEM participants to contribute to debate on topical issues.**

9 Draft Determination

This determination is made on 3 July 2002. The Commission considers that authorising elements of the proposed arrangements and conduct set out in the bidding and rebidding strategies code changes:

1) is likely to result in a benefit to the public which outweighs the potential detriment from any lessening of competition that would result if the proposed conduct or arrangements were made, or engaged in; and

2) is likely to result in such a benefit to the public that the proposed conduct or arrangements should be allowed to take place or be arrived at.

For reasons outlined in Chapters 4-8 of this determination, the Commission proposes to authorise elements of the amendments to the code contained in application numbers A90797, A90798 and A90799. In its review of these code changes, the Commission has identified a number of provisions that will detract from the public benefit or increase the level of anti-competitive detriment attributable to the implementation of these arrangements. Authorisation is therefore granted subject to the conditions and deletions below. The Commission proposes to limit the period of the authorisations to 31 December 2010.

Conditions of authorisation

C1 Clause 3.8.22A(b) that contains the reverse onus of proof must be deleted.

C2 The proposed provision 3.8.22B of the code relating to 'conduct prejudicial to the market' must be deleted including all references to guidelines under this clause.

C3 The wording of clause 3.11.3(b) be altered to include clarification that NEMMCO should only attempt to enhance the value of spot market trading when it can be done without prejudicing system security and when it is cost effective to do so.

C4 The wording of clause 4.2.6(b) be altered to include the following changes:

- **The Reliability Panel must establish guiding principles and guidelines that determine how NEMMCO should maintain system security while keeping the cost of ancillary services to an acceptable level;**

- **The guidelines referred to above must be developed using the appropriate consultation process and must take into account:**

  - **the need for transitional arrangements to allow for development and testing of an appropriate methodology by NEMMCO; and**

  - **take into account the results of any decision by the Panel to revise network constraints.**

- **Until the Reliability Panel publishes guidelines and an appropriate testing period has been completed, the current system of preserving system security will continue to apply.**

- **NECA should review and report on the way NEMMCO has used its new powers and whether the more relaxed standard of system security has led to market benefits over all. This review should take place two years after the guidelines have come into effect.**

Appendix A- Submissions

AGL Energy Sales and Marketing Limited

Delta Electricity

Duke Energy

Edison Mission Energy Australia Limited

EnergyAustralia

Enertrade

Eraring Energy

Ergon Energy

Hydro Tasmania

InterGen (Australia) Pty Ltd

Loy Yang Power Management Pty Ltd

Macquarie Generation

National Electricity Market Management Company Ltd

National Generators Forum

NRG Flinders Operating Services Pty Ltd

New South Wales Treasury

Origin Energy Electricity Limited

The Office of the South Australian Independent Industry Regulator

South Australian Department of Treasury and Finance

Snowy Hydro Trading Pty Limited

Southern Hydro

Tarong Energy Corporation Ltd

Appendix B – Summary of IES and Bardak Consultant Reports

Bardak Ventures Pty Ltd

Bardak Ventures Pty Ltd (Bardak) claimed that in the early period of the NEM, capacity was being physically withheld in South Australia and Queensland. Units were not being started up, and the capacity physically being offered to NEMMCO was generally sculpted to make sure that a tight balance was maintained between supply and demand.

By mid 2000, Bardak suggests that the practice of bidding large proportions of capacity in each Region at exceptionally high prices – typically $4,000/MWh or above became prevalent, initially in NSW and then in the other States. This is what Bardak understands NECA to mean when they use the term "sleeper bids".

Bardak contends that these types of bidding and rebidding practices now occur frequently in the NEM. Any underestimation of the demand by NEMMCO increases the probability of a fortuitous price spike occurring. Bardak considers this to be a direct form of economic withholding of capacity.

In early 2000 a new and more aggressive form of economic withholding began in Victoria. After first reducing the volume of capacity offered to the contract market, Loy Yang began to rebid large quantities of capacity from their normal price levels (less than $20/MWh) to over $4,000/MWh almost every day during the peak periods during the summer.

When the flow on the Snowy-Victoria interconnection exceeded approximately 1000MW, this rebidding was sufficient to constrain the line, separating the pool price in Victoria and South Australia from that of NSW, and leading to periods of very high prices as blocks of capacity which had been bid at high price levels in Victoria and South Australia were called upon to be loaded.

In early 2001 it was only Loy Yang which was rebidding capacity in the manner outlined above. However, later in the summer Loy Yang altered its approach, bidding blocks of capacity above $4,000/MWh in the day-before offers and moving smaller blocks down to normal levels as the day progressed.

While Bardak does not draw any conclusions as to the reasons why Loy Yang altered its bidding pattern, it does speculate that the purpose of the strategy was to alert other generators that Loy Yang perceived an opportunity to generate high pool prices. Accordingly, rebidding by Hazelwood Power in Victoria, Macquarie Generation in NSW and NRG-Flinders in South Australia did have the affect of raising the pool price at various times.

Later in 2001, Bardak claims that several new players including AES, Yallourn Energy and Eraring Energy also joined Loy Yang, Hazelwood, Macquarie and NRG-Flinders in bidding and rebidding that resulted in price spikes.

Bardak states that this shows that as time goes on new techniques and strategies are developed and designed to raise pool prices and are adopted by more and more generators.

Conclusions

Bardak reached the following conclusions:

1. While physical withholding continues to take place in South Australia, Queensland and New South Wales, economic withholding of capacity has become the most common form of capacity withholding to create artificial price spikes unrelated to market dynamics or underlying cost structures.

2. A number of generators engage in this type of behaviour - including Loy Yang Power, Hazelwood Power and Yallourn Energy in Victoria; Macquarie Generation and Eraring Energy in New South Wales; each of the Queensland generators; NRG-Flinders, Optima Energy and Synergen in South Australia – the most aggressive being Loy Yang Power, Macquarie Generation and more recently Eraring Energy.

3. Bardak concludes that while in some high priced incidents examined, there is an initiating event, such as a loss of generator, interconnection limitations or exceptionally high load forecasts, the major factor contributing to the price spike is the bidding and rebidding practices of the generators.

4. The timing of rebids varies, sometimes capacity is rebid to higher cost bands very close to dispatch, allowing very little time for any competitive responsive. At other times, the initial bidding appears to serve the purpose of alerting other generators that one has seen an opportunity to raise the pool price – for example on the following day.

5. Given the number of rebids (NECA have reported an average of 800/day), their magnitude and their timing, there is little opportunity for a competitive response, by either another generator inclined to seek to counter the effect that the rebidding generator was seeking or a demand side response.

6. Bardak concluded that generator bidding and rebidding practices have a material effect on the average annual pool price. Using the year 2000 as an example, eliminating the 20 high priced events identified in the review reduced the NEM average annual pool price by $912 million dollars or $5.7/MWh, a reduction of 13%.

7. While Bardak acknowledges that the generators behaviour always remains within the authorised rules of the NEC, the design of the NEM contains several features which, while intended to achieve other purposes in the main, greatly facilitate the exercise of market power. Where generators decide to make use of their market power the resultant effect is often higher pool prices than would normally be expected.

Intelligent Energy Systems

The conclusions drawn by Intelligent Energy Systems (IES) during their analysis of 29 high priced episodes, where spot prices reached $1000/MWh in a trading interval were as follows:

1. Bidding and rebidding of generators to achieve extreme price levels has been the predominant cause of extreme prices in the NEM to date.

2. Generally, bidding and rebidding operates in two modes – "normal' and "extreme". The extreme bidding is almost always triggered by a tightening of supply and demand within a region or a group of regions due to either high loads, or to an outage or de-rating of a generator or inter-connector. The bidding and rebidding tends to greatly amplify the price outcomes from these conditions. However, the windows of opportunity for such behaviour are relatively narrow and have narrowed further in the past nine months, with new generation and inter-connection commissioned.

3. Bids that trigger high prices are often set early in the day by one or more generators. However, the trend of rising prices appears to encourage some other generators also to lock in that outcome by rebidding close to dispatch time with increased bids. As a counter to this, peaking plant tend to increase output greatly, thereby reducing the extent and duration of the market impact. This desirable and expected behaviour removes dispatch from the high-bidding generators and no doubt discourages them from bidding in this way except when supply and demand are in close balance.

4. Generators that have persistently used this tactic have sometimes lost 50% or more of their dispatch, strongly suggesting that they were less than 50% contracted at the time.

5. Persistent examples of this behaviour have been:

    - South Australian generators when the Victoria/SA link is de-rated due to lightning, a not infrequent occurrence;

    - Victorian and South Australian generators over the 2000-2001 summer, and especially in January and February 2001.

6. IES quantified the price impact of such behaviour in each region and each year since the start of the NEM. IES concluded that bidding and rebidding behaviour contributed about $3-$11/MWh to the annual pool price in recent times, depending on the region. This represents between 9% and 26% of the average energy price. While the impact has led to above new entrant prices in Queensland and South Australia for a time, there has since been new entry in those regions and the price effect has been lessening. IES consider that the price increment is consistent with that required to justify new reliability plant (gas turbines) in those regions where such plant is considered necessary.

7. While the analysis in IES's report clearly supports the view that generators can and do exert market power through limited windows of opportunity, the outcome has

been a pattern of prices that is not inconsistent with what is required to maintain system reliability through the market.

Appendix C – Forward Peak Contract Prices

Figure 1 shows the impact of recent extreme spot market outcomes on NSW forward peak contract prices.

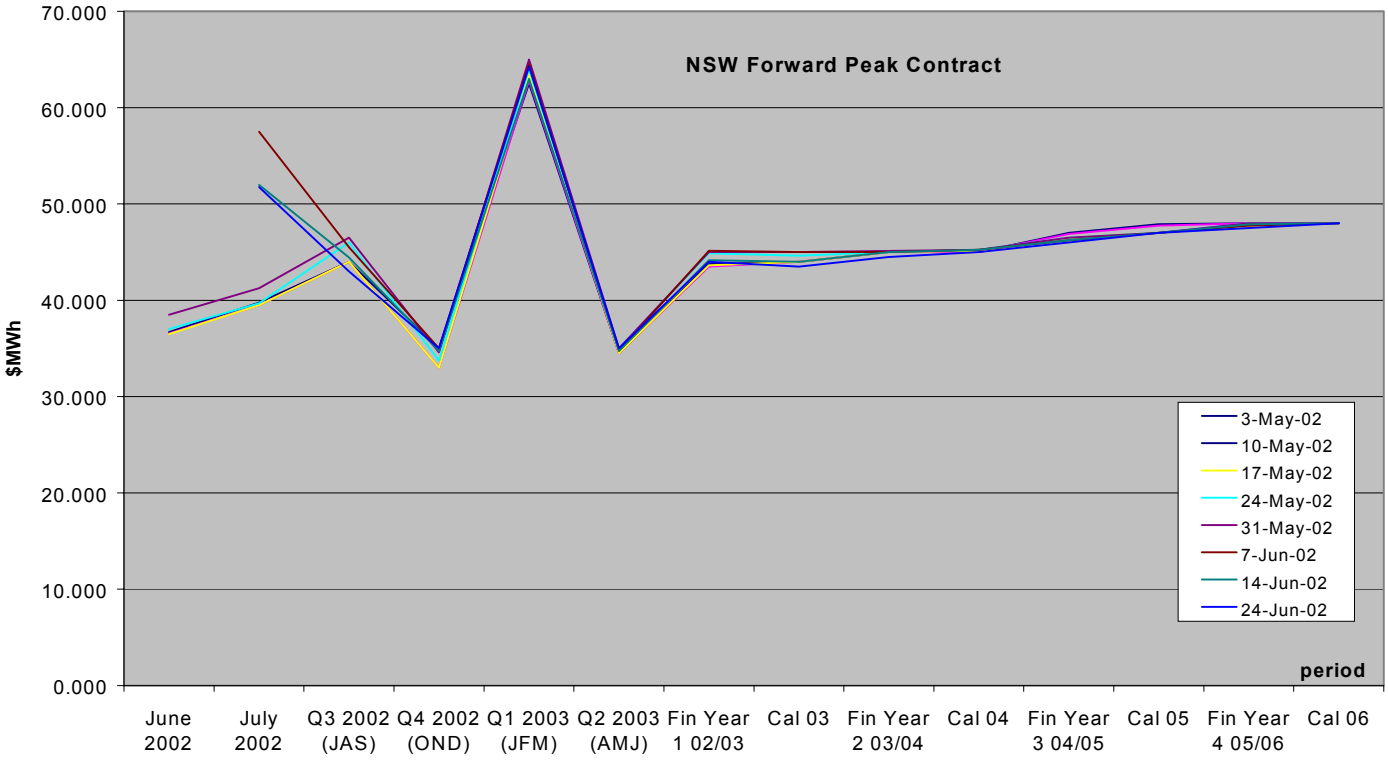


Figure 1: NSW Forward Curves for May and June 2002[54]

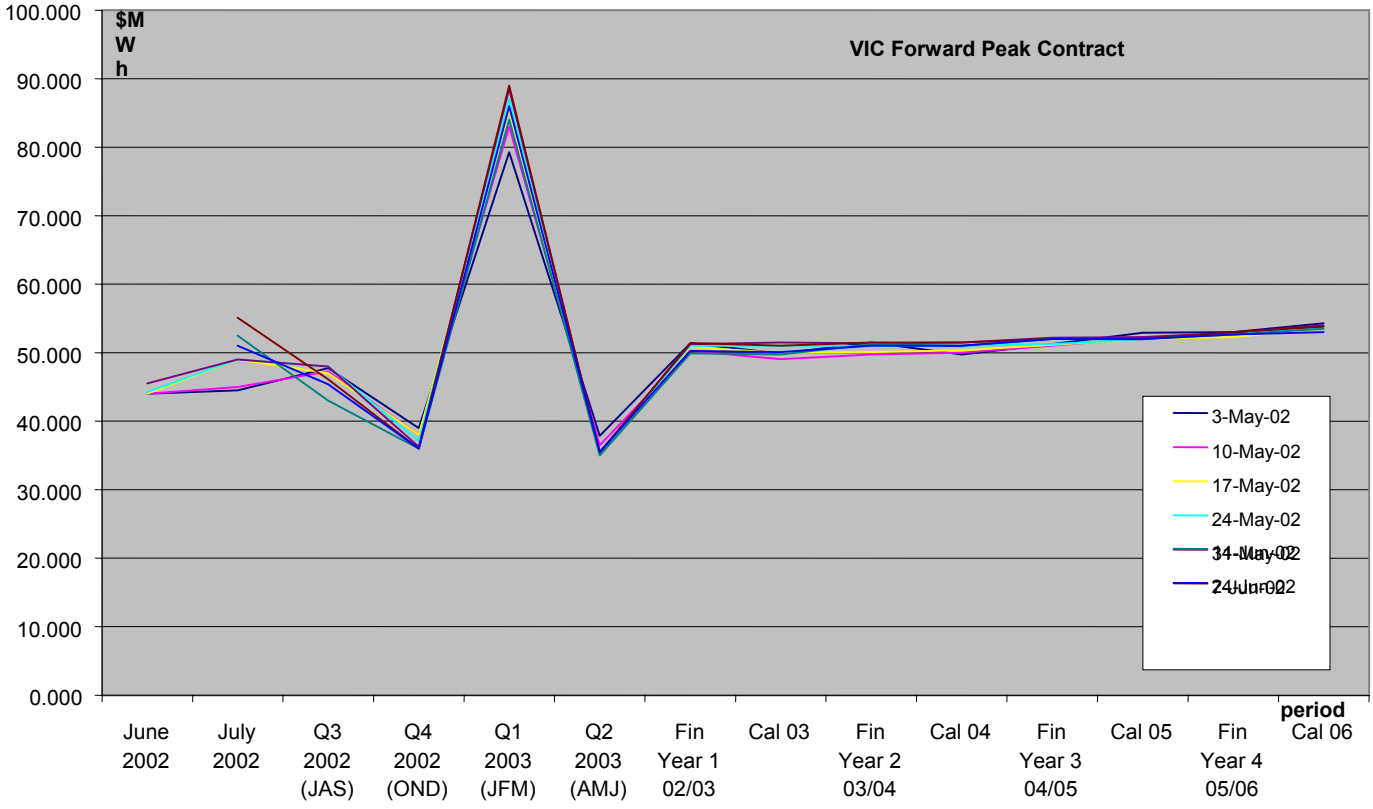
Figure 1 shows the sharp increase in July 2002 peak contract prices for NSW during the month of May. This indicates that buyers of contracts were willing to pay a premium of over $15MWh on 7 June 2002 for July contracts compared to what they were willing to pay for them on 3 May 2002.

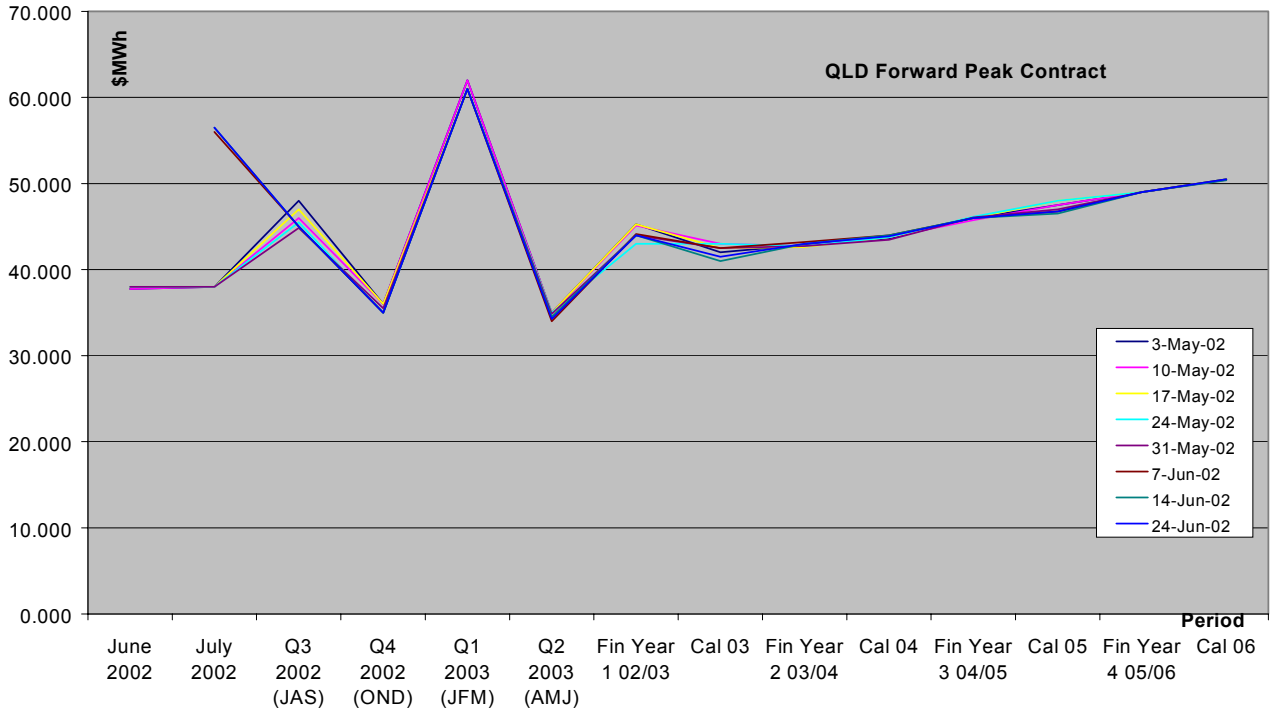
The premium would indicate that participants such as retailers who are susceptible to sharp swings in the spot price were prepared to pay higher strike prices to hedge the volatile spot market.

A true picture of the efficiency impacts on the market of generator behaviour like this cannot be obtained without knowing the full costs passed on to retailers. Of critical importance is the amount of MW contracted in that trading period where prices peak at high values.

[54] AFMA Data 2002

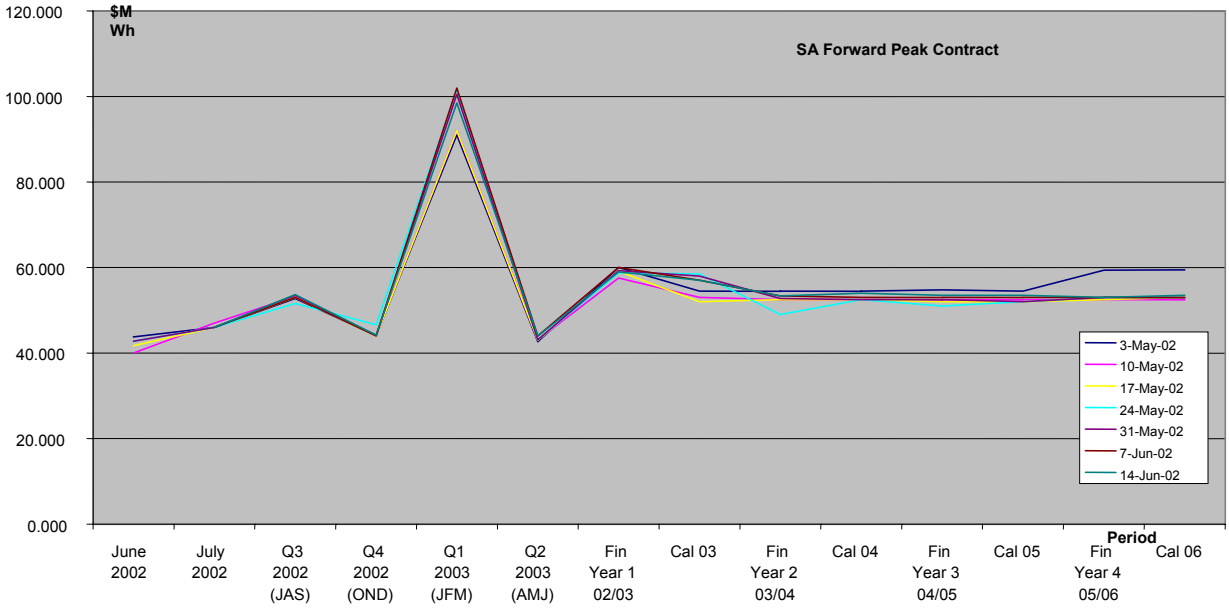
A similar pattern of peak contract prices is evident in the other regions except South Australia.





[55] AFMA Data 200

[56] AFMA Data 2002


$M
Wh
SA Forward Peak Contract
120.000
100.000
80.000
60.000
40.000
20.000
0.000
3-May-02
10-May-02
17-May-02
24-May-02
31-May-02
7-Jun-02
14-Jun-02
June 2002
July 2002
Q3 2002 (JAS)
Q4 2002 (OND)
Q1 2003 (JFM)
Q2 2003 (AMJ)
Fin Year 1 02/03
Cal 03
Fin Year 2 03/04
Cal 04
Fin Year 3 04/05
Cal 05
Fin Year 4 05/06
Cal 06
Period