MAJOR ENERGY USERS INC

23 May 2006

Dr. John Tamblyn
P O Box H166
Australia Square
NSW 1215

Dear Dr. Tamblyn,

AEMC Rule Change Proposal: Regulatory Test

I attach a note prepared for the Major Energy Users in relation to the AEMC's proposed Rule change on the Regulatory Test.

We believe that the approach proposed by the current approach to the Regulatory Test will prevent the investment of assets in the electricity transmission system as so permit generators to continue the use of the market power to the detriment of electricity consumers

Yours sincerely

John Pike
Deputy Chairman

Australian Energy Market Commission

The Regulatory Test

What should be included?

by

The Major Energy Users Inc

May 2006

Assistance in preparing this submission by the Major Energy Users Inc was provided by Headberry Partners Pty Ltd and Bob Lim & Co Pty Ltd.

The content and conclusions reached are entirely the work of the Major Energy Users Inc and its consultants.

1. The Background

In a reference to the AEMC on 16 January 2006, the MCE in its report to CoAG stated that, amongst other things[1],

> "The regulatory framework should maximize the economic value of transmission, including through the efficient removal of regional price differences in the operation of the NEM".

Later in the same letter the MCE comments that:

> "Where a particular transmission investment option is the most effective means of facilitating competition (for example, by promoting competition between generators) the *new regulatory test* arrangements will enable the identification and approval of that option. As such, competitive transmission investment options will proceed and the long term interests of consumers of electricity will be promoted **in respect to the price of the electricity they consume**." [emphasis added]

Consumers strongly support this policy directive to the AEMC.

Consumers have over a long period consistently maintained that the Regulatory Test (RT) as developed and used by the ACCC is flawed as it does not incorporate the cash benefits to consumers arising from price differential reductions between adjacent regions by relieving a constraint between the regions. That such a reduction in price differentials will occur with relief of constraints is expected and has been amply demonstrated by augmentations, such as the SnoVic augmentation, QNI and more recently Basslink.

The directive from the MCE that there should be "efficient" removal of regional price differentials is consistent with the long-held view of major energy consumers that the economic benefit to consumers that accrue due to the relief of inter-regional constraints should be incorporated into the RT. The reference later in the letter to AEMC that investment in transmission options should have an impact on the price electricity, clearly supports the view that the price impacts on consumers should be incorporated into the regulatory test.

This submission details the Major Energy Users Inc.'s position on the RT.

[1] See appendix 1 for excerpts of the letter 16 January 2006 from MCE to AEMC relating to this issue

2. The Fundamental Propositions

There are propositions with respect to how this policy directive of MCE can be examined and put into practice.

a. **The economic efficiency approach**
Regulators (the ACCC) consider that the reduction in electricity costs to consumers resulting from the relief of a constraint is only a "transfer of wealth" between consumers and generators and therefore this transfer of wealth does not impact on the assessment of the public interest, which is the required substantiation for inclusion of a benefit in the RT.

b. **The SMO approach**
The NEL single market objective is stated as:-

"The national electricity market objective is to promote efficient investment in, and efficient use of, electricity services for the long-term interests of consumers of electricity with respect to price, quality, reliability and security of supply of electricity and the reliability, safety and security of the national electricity system."

3. The Economic Efficiency Proposition

Over 70% of all electricity produced[2] is used by industry to create wealth for the nation. Industry is geographically located (ie cannot readily move) and therefore each industrial consumer is required to pay for electricity at the price set in the region in which the industry is located when the interstate connection is constrained.

Electricity has now become an essential part of every day life – from residential uses to manufacturing, for the provision of services to communications around the country. There is no part of every day life that does not depend either on the direct or indirect provision and use of electricity in some form. Food manufacture, oil refining, communication, transport, etc, are all dependent on the provision of electricity. Thus the cost of providing electricity impacts on every person in the nation, and provides the backbone for our exports and import replacement programs.

With this in mind it is in the interests of the nation at large to ensure that there is a sustainable low cost and reliable electricity system that will continue to provide services into the future. This means a clear convergence of the "public interest" and the interests of electricity consumers. To assume in the supply of electricity that the two are independent and so identified as separate entities, is obviously inappropriate and therefore should be considered one and the same.

That electricity supply is essential for day to day living (i.e. it is an essential service) means that it should be available at the lowest possible long term cost. It is incumbent upon government to ensure that suppliers of electricity services do not exercise market power and operate against the public interest.

With these basic precepts in mind, assessing the economic approach to the inclusion of benefits into the RT delivers a different view to that espoused by the ACCC when it maintained that the cash benefit accruing to consumers by relieving network constraints, is merely a "transfer of wealth" from generators to consumers and therefore should not be classed as a "public benefit".

The validity of the ACCC assumption can be assessed under a number of different elements.

Restraint on interstate trade between generators

Economic efficiency is maximized when there is no constraint on inter-state trade. This is the underlying economic assumption behind the development of a

[2] This is assessed by AiG. However a review of the actual market demand with time would indicate that this assessment is of the correct magnitude.

number of Federal and State Acts of Parliament and specifically is now enshrined in the Trade Practices Act and the legislation for the national electricity market.

A regional constraint prevents generators in one region from selling their product into another region. This is a restraint of interstate trade between generators and consumers, as the constraint prevents a lower priced generator interstate from supplying the consumer in another region. It is an antithesis to the very concept of a national electricity market, and indeed of the Trade Practices Act. Restraint of trade is a deadweight loss for the community.

If the relief of the constraint enhances the achievement of unconstrained inter-state trade and that relief provides a benefit to others as well (in particular electricity consumers) then it must be considered in its full context.

Reduction in competition between generators

Economic efficiency is maximized when there is maximum competition. From a consumers' viewpoint, a constraint means that there is a reduction in competition when a lower cost generator is unable to supply, yet is willing to do so. The constraint grants the regional generators market power to set the regional price because there has been a reduction in competition to such a level that the regional generators are able to set a higher price for the commodity, despite the fact that there are other generators prepared to provide the same product at lower prices (but are physically prevented from providing the service).

If there is scarcity of electricity in one region, then enabling additional competitive suppliers to sell in the region ensures short run marginal cost pricing, which is an economic optimum.

Reduction in inter-state competition between consumers

A differential in the regional electricity price sets a differential of costs incurred between competing businesses operating in different regions. The higher priced region levies this higher cost on its regional business consumers, increasing their costs. It is the constraint in the electricity system that has created this input cost differential between consumers, creating distortions between consumers in different regions. As regions are based on the existing jurisdictions, the constraint between regions has led to a price differential between adjacent states, creating a lower cost environment for one consumer compared to another in the higher priced region.

Thus the constraint in the network has provided a consumer in one region with lower costs than that enjoyed by another consumer in another region. This electricity constraint has created a bias in the ability of consumers to trade equitably across interstate boundaries.

If electricity is in short supply then the price of that scarcity should be determined by competitive markets/suppliers and all users/consumers should pay the scarcity price as a resource rent. The 'law of one price' should prevail.

The public benefit

The electricity network in a region is paid for by the electricity consumers in that region[3]. Interconnection costs are paid for by the electricity consumers in the connected regions based on a cost sharing which reflects the relative benefits the consumers in the two regions receive from the interconnection. Under the electricity market Rules, only consumers pay for this interconnection.

When there is a constraint, there is a price separation between adjacent regions; the result of the dispatch of higher priced generators in the region isolated. This is despite there being generators in the adjacent region which could have been dispatched in the absence of the constraint.

The cost outcome of the constraint devolves to all inhabitants (the public) within the isolated region, both directly as a consumer of electricity and indirectly as a consumer of locally produced goods and services[4]. As the constraint has allowed the price of electricity to rise in a region, so all of the goods manufactured in the region will be higher priced compared to those produced in another region. This flow-on effect impacts all consumers in the region. A constraint between regions which causes price separation impacts on all consumers in the region isolated, and therefore on the public at large in that region. Thus it can be readily inferred that the public benefit is enhanced by a reduction in electricity costs in the region.

It must be noted that the public benefit calculation can only apply to the public in the isolated regions, and perhaps the public in the adjacent region which may have contributed to the payment of the inter-connection. As electricity can flow in both directions, it is only necessary to assess the sharing of the costs between the consumers in the adjacent regions to equitably contribute for the costs of the interconnection.

On this basis it must be assumed that the relief of a constraint is to the benefit of the public in that region. As it is electricity consumers in that region who pay for the augmentation of the network, then it is easy to see that the downstream benefits of the relief of the constraint will result in a public benefit in that region.

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[3] This can be seen from the Rules which require generators to pay only for connection costs but end users to pay for all shared network costs and their connection costs.

[4] Even the most independent of inhabitants in a region depend on electricity to some extent, whether this is just the use of electricity in delivering fuel for use in independent generators, or the manufacture and delivery of tools used in the remote outpost.

There is potential that the relief of the constraint will result in an increase in electricity price in the exporting region, and if so, then this increase in price to consumers in the exporting region should be netted off against the saving gained by the consumers in the importing region. However, examination of the outcomes of the introduction of interconnection (eg the SnoVic augmentation, QNI and Basslink) shows that the rise (if any) of the cost of electricity in the exporting region has been modest at most. In every case of interconnection or augmented interconnection, there has been a net reduction in the cost of electricity between the two regions interconnected.

Creation of national wealth

The transfer of wealth argument assumes that there is no enhanced public benefit from the transfer of lower cost electricity to a consumer when compared to the benefit a generator has by receiving higher prices.

An industrial consumer uses electricity to increase the national wealth. Electricity is a small component of the input costs, usually less than 10% of input costs, so it can be readily seen that manufacturing adds value to the electricity purchased. The generator adds no value to the electricity other than selling the same product at a higher price. Therefore the value of lower price of electricity to industry is enhanced by a multiplier effect, increasing profitability and perhaps output, a greater flow-on to the nation and a resultant increase in national wealth.

This multiplier effect works in two directions, both in increasing production (with lower costs) and decreasing production with higher costs. It is assumed that at a certain price of electricity, industry will cease production (as suggested by demand side responsiveness supporters). When this point is reached, no more electricity is generated (creating no wealth for the generator). At the same time, there is a reduction in wealth creation by industry because no product is produced. At this time the multiplier effect of the manufacturer operation also applies, reducing wealth for its employees and suppliers, as they too are impacted by the manufacturing entity reducing or ceasing production for a period. This multiplier effect on reducing wealth of industry is eliminated if the lower cost electricity is available by reducing the constraint from a lower priced source, otherwise prevented form supplying.

Transfer of wealth

Up to now, the ACCC has rejected the consumer view based on the assumption that the benefit to consumers is purely a transfer of wealth from generators to consumers, and therefore does not increase the national wealth which is the principle behind the concept of "the public interest". It would appear that the ACCC when developing its view was considering only the concept within the narrow confines of the electricity market. This narrow view is totally inappropriate

as the provision of electricity has an all pervading effect on national security and national wealth creation. In assessing the "transfer of wealth" argument the impact on the entire national needs must be addressed, not just the impacts when tightly focused on a single industry.

The transfer of wealth argument assumes that a consumer should be prevented from paying an increased cost for electricity transport to benefit from lower priced generation. Yet at the same time the argument is supported that where a constraint requires the out-of-merit order of generation, then the generators affected should be recompensed. In other parts of the Rules the costs to generator(s) for out-of-merit order dispatch due to a constraint are addressed with the view to recompensing generators, such as at clause 5.5(f)(5) where it states that a NSP and generator must reach agreement as appropriate on the:

> "compensation to be provided by the *Network Service Provider* to the *Generator* in the event that the *generating units* or group of *generating units* of the *Generator* are *constrained off* or *constrained on* during a *trading interval*;"

Rule clauses 6.2 and 6.4 allow reasonably incurred costs of NSPs to be included in the regulated revenue. Such compensation to generators could be included in the regulated revenue, and as network costs are passed through to consumers directly as charges, it is clear that consumers are in effect required to reimburse generators for the impacts of constraints.

Despite this recognition of generator rights for compensation, the higher regional cost to consumers arising from out-of-merit order dispatch caused by the constraint is excluded from the RT, and so consumers are not entitled to include for the resultant benefit of augmentation where there is an obvious benefit which is real.

4. The SMO Proposition

The SMO and generators

The SMO does not directly address the needs of generators, other than by implication in the reference to the long term needs of consumers. Thus the needs of generators are to be addressed only to the extent that their needs might impact on the long term needs of consumers.

This means that the transfer of wealth argument proposed can only apply if the needs of generators are such that any assumed transfer of wealth will impact on the long term interests of consumers.

There is no doubt that the average annual pool price for generation in each region is of the order of magnitude that is required to profitably generate electricity. That generators have to rely on the occasional high prices (spikes) for power when constraints occur is not in the interests of consumers (or the public) on two counts:-

- The fact that these occasional high prices are needed by generators to provide a reasonable return runs counter to the underlying drivers to encourage new investment in generation. It skews the entire approach to investment towards the need to provide physical hedges for these high price incidents. These infrequent yet very high price events have encouraged retailers to provide a large number of fast start gas fired generators. This trend has already been observed.

  That incumbent base load generators do require these spikes in order to get a reasonable return is seen as a significant deterrent when assessing investment for new base load generation. Base load generation is capital intensive (ranging from $1-2 million per MW installed). This amount of funding will only be provided in a private financial market if there is a high degree of certainty that the investment will provide a continuing and reasonable level of return over the life of the investment. In NSW for year 2005, 36% of the average annual price of power arose from 67 half hour periods (or 0.4% of the time)[5].

  An investor of $1-2Bn in a new base load generator would identify as excessive the risk for such a large investment being so reliant on such a large part of the expected return being dependent on such a miniscule number of very high priced events. This matter was observed when the original Loy Yang A power station owners were forced to sell their asset at a significant discount to the original purchase price.

[5] See appendix 2

- Consumers pay a very high price for the extreme volatility that is seen in the electricity market. This volatility is caused by the incumbent generators which must operate in the market as they do, in order to generate sufficient funds to remain financially viable.

  The cost of the risk premiums can be very large. For example, the South Australian energy regulator (ESCoSA), in its costing the benchmark retail price for electricity includes for risk management costs which effectively add a risk premium which is as much as 80% of the price for sourcing electricity[6].

It can be seen that the approach used by generators to recover a reasonable return on investment is not in the long term interests of consumers as

- consumers pay high retail premiums for power to manage the volatility risk, and
- investment for new base load generation is negatively impacted.

The SMO and consumers

The NEM is designed such that consumers will pay the price for the highest dispatched generator needed to meet market needs. This is stated as being economically efficient.

Where a constraint occurs, competition is reduced, and regional generators have increased market power to set the regional price. If this occurs, there is a power price separation between adjacent regions. Consumers in the isolated region pay a higher price for power even though, absent the constraint, they would pay a lower price for it.

It is therefore in the interests of consumers that they receive the lowest priced power if this is available. The constraint prevents consumers from accessing this lowest priced power. Thus the relief of the constraint will benefit consumers.

The relief of the constraint will be paid for by electricity consumers. The Rules are very explicit in that generators are not required to pay for network augmentation[7].

> "Notwithstanding any other provisions of the *Rules*, no charges will apply to *Generators* for *new network investment*."

[6] The Effect of Industry Structure on Generation Competition and End-User Prices in the National Electricity Market, Bardak P/L May 2005 Fig 5.13

[7] Rule Schedule 6.8 - Charges to Generators for New Network Investment Point 1. Charges to Generators for New Network Investment

As it is consumers that pay for the investment, then the cash benefit they receive for this investment must be balanced and included in the cost benefit analysis (the RT) with the costs they are required to pay. It is axiomatic for a business investment that the benefits which result from the investment are balanced against the cost of the investment. It is the investment in the network paid for by consumers that directly results in the reduction in the price differential between regions which in turn benefits consumers. For the "transfer of wealth" argument to have legitimacy, then generators would have to contribute to the augmentation in equal proportion to consumers. But as generators do not pay for any augmentation, they are not entitled to any benefit which underpins the "transfer of wealth" principle.

It is suggested that relieving a constraint will only reduce the price separations for a relatively short time into the future. This is perhaps true, as there is a consistent increase in demand over time. Therefore when assessing the benefits from relief of constraints in the RT, it might be necessary to assess these benefits over a shorter time period than the economic life of the assets used. The observations made by Bardak in assessing the benefit of the interconnection between Queensland and NSW (QNI) shows that the benefits of relieving a constraint accrue to consumers very quickly. Bardak calculates that the cost of QNI can be shown to be have been effectively recovered in a matter of months[8]. Thus using a shorter time frame might have less impact than one might assume.

There can be no doubt that the elimination of constraints is a benefit to consumers. This then requires the benefits accruing to consumers of the relief to be included in the RT.

[8] An assessment of the first six months of operation of the QNI Interconnection by Robert R Booth July 26th, 2001

5. Conclusions

The import of the MCE policy direction to AEMC is that there is to be, if anything, an incentive to reduce inter-regional price differentials.

The argument that the cash benefits to consumers arising from augmentation for the transmission system (and therefore reducing the frequency and impact of price separations) can be classed merely a "transfer of wealth" and so be disregarded, has been demonstrated as not complying with a wider economic view of the issue, nor is it seen as complying with the NEL market objective.

Secondly, the suggestion[9] to allow payment of compensation to generators constrained on or off is clearly at odds with the view that higher prices and costs resulting from constraints should be paid by consumers as they are only a "transfer of wealth". This is a contradiction to the single market objective.

Thirdly, not to include the benefits to consumers from the relief of constraints in balancing the cost for augmentation in order to reduce generator market power and allow lower priced generators to supply power, is contrary to the single market objective.

Based on these assessments the Regulatory Test must include the expected net cash benefit that is expected to arise by reducing the frequency and severity of price separations between adjacent regions, recognizing that:-

- The exporting region is potentially exposed to a small increase in regional price due to the greater export of generation output permitted by the relief of the inter-regional constraint, and

- It is consumers alone that will be providing for the payment of the improved service (but gaining the benefit of the less price separation), and that the costs of this improved service should be allocated between the consumers in proportion to the benefits and costs these consumers will incur.

The decision of the MCE in its reference letter of 16 January 2006 to the AEMC requiring the AEMC to

> "... maximize the economic value of the transmission network ... through the efficient removal of regional price differences ..."

is in full accord with the outworkings above that show there is every reason to recognize the cash benefits to consumers resulting from reducing constraints between regions by investing in networks augmentation.

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[9] See appendix 3

There should be no doubt that the Regulatory Test should include for the net cash benefit to consumers resulting from reducing price separations, which in turn will result from augmentations of the transmission network between regions, causing reduced inter-regional constraints.

The Regulatory Test must be modified to incorporate this benefit.

Appendix 1

Excerpts from MCE letter to AEMC published 16 Jan 2006

National Electricity Rules – Rule Change Application Reform of the Regulatory Test Principles

Despite these reforms, the Ministerial Council on Energy (MCE) recognised inefficiencies in transmission planning and investment and in its December 2003 report to the Council of Australian Governments, adopted the following principles to underpin transmission policy in the NEM:

- The transmission system fulfils three key roles — it provides a transportation service from generation source to load centre, facilitates competition, and ensures secure and reliable supply.
- There is a central and ongoing role for the regulated provision of transmission, with some scope for competitive (market) provision.
- Transmission investment decisions should be timely, transparent, predictable and nationally consistent, at the lowest sustainable cost.
- The regulatory framework should maximise the economic value of transmission, including through the efficient removal of regional price differences in the operation of the NEM.

The AEMC should draft Rules to capture the following policy intent:

1. The *regulatory test* must have as its purposes the identification of *new network investment* or non-network alternatives that:
   (i) maximise the net economic benefit to all those who produce, consume and transport electricity in the market; or
   (ii) in the event the option is necessitated to meet the service standards linked to the technical requirements of Schedule 5.1 of the Rules or in applicable regulatory instruments, minimise the present value of the costs of meeting those requirements.
2. The *regulatory test* must be used by NSPs in the assessment of all new network investment in accordance with the Rules and with a level of analysis commensurate with the scale and size of the new network investment.
3. The *regulatory test* must be based on the principles of cost-benefit analysis as a means of economic discipline, thus satisfying the overarching objective to deliver efficient transmission investment, not simply more transmission regardless of the economics.
4. The *regulatory test* must ensure that all genuine and practicable alternative options to proposed *new transmission network investment* are evaluated by NSPs without bias, regarding: energy source; technology; ownership; the extent to which the *new transmission network investment* or the non-network alternative enables intra-regional or inter-regional trading of electricity; whether the new network investment or non-network alternative is intended to be regulated; or any other factor. This is to ensure NSPs do not favour network-only investment, and that the most efficient solution for the NEM as a whole is progressed rather than the investment that is internally most efficient for the NSP.
5. To allow NSPs to recover the efficient costs of maintaining a secure and reliable power system for end-users, the *regulatory test* must reflect the requirement for NSPs to meet network performance standards linked to the technical requirements of Schedule 5.1 of the Rules or in applicable regulatory instruments, while minimising the present value of the costs of meeting those requirements.
6. To promote confidence in the *regulatory test*, and minimise avenues for legal dispute, the *regulatory test* must be transparent, robust, defensible and capable of consistent application.
7. The *regulatory test* must be consistent with the basis of asset valuation determined by the AER for the purposes of clause 6.2.3 of the Rules to ensure internal consistency within the Rules.

The proposed Rule should allow the AER to vary the *regulatory test* from time to time, but only if the AER meets certain requirements prior to the variation to ensure investment certainty in the NEM. Requirements at a minimum should include the AER publishing a notice of its intention to review or amend the *regulatory test*; inviting submissions and publishing draft and final decisions.

The proposed Rule should also impose an obligation on the AER to publish guidelines for the application of the *regulatory test*. This will clarify how the *regulatory test* should be applied and ensure it is applied consistently by all parties. The proposed Rule should also set out the various factors that the AER must address in the *regulatory test* or the associated guidelines and should include at a minimum:

1. The classes of possible benefits that may be included as benefits, and classes of possible benefits that may not be included as benefits.
2. The method or methods permitted for estimating the magnitude of the different classes of benefits.
3. The classes of possible costs that may be counted as costs, and classes of possible costs that may not be included as costs.
4. The method or methods permitted for estimating the magnitude of the different classes of costs.
5. The appropriate method and value for specific inputs, where relevant, for determining the discount rate to be applied.

The proposed Rule should require the AER to address the extent to which it uses the results of an application of the *regulatory test* by a NSP, in determining what new network investment or non-network alternative options will be included in the regulated asset base of the NSP for future revenue cap decisions.

Long term benefit to customers

Most network investment is undertaken to maintain network performance requirements, including reliability standards. Consequently, if the proposed Rule change promotes efficient investment in the manner described above, the long term interests of consumers of electricity will be promoted in respect to reliability and security of supply. Also, the reliability and security of the national electricity system will be enhanced.

Where this involves *interconnector development*, efficient investment can increase system security by allowing reserves to be shared between regions. This creates an efficiency benefit by potentially reducing region specific reserve requirements.

Where a particular transmission investment option is the most effective means of facilitating competition (for example, by promoting competition between generators) the new *regulatory test* arrangements will enable the identification and approval of that option. As such, competitive transmission investment options will proceed and the long term interests of consumers of electricity will be promoted in respect to the price of the electricity that they consume. Where transmission investment is not the most efficient means of facilitating competition, the new *regulatory test* arrangements will help to identify it as such in the long term interest of consumers.

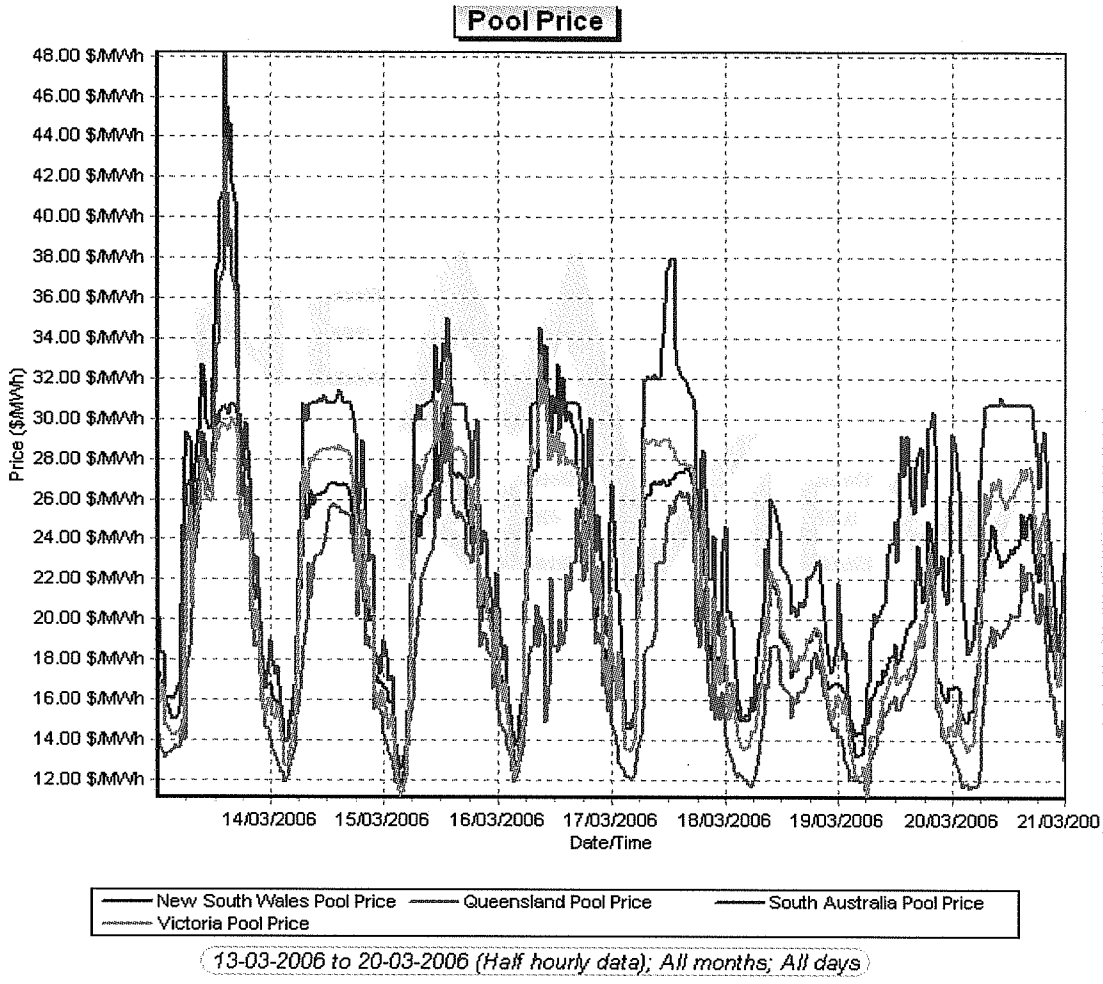
Appendix 2

Excerpt from April 2006 MEU submission to AEMC on congestion management

2.1 The NEM is a series of interconnected regions, not a national market

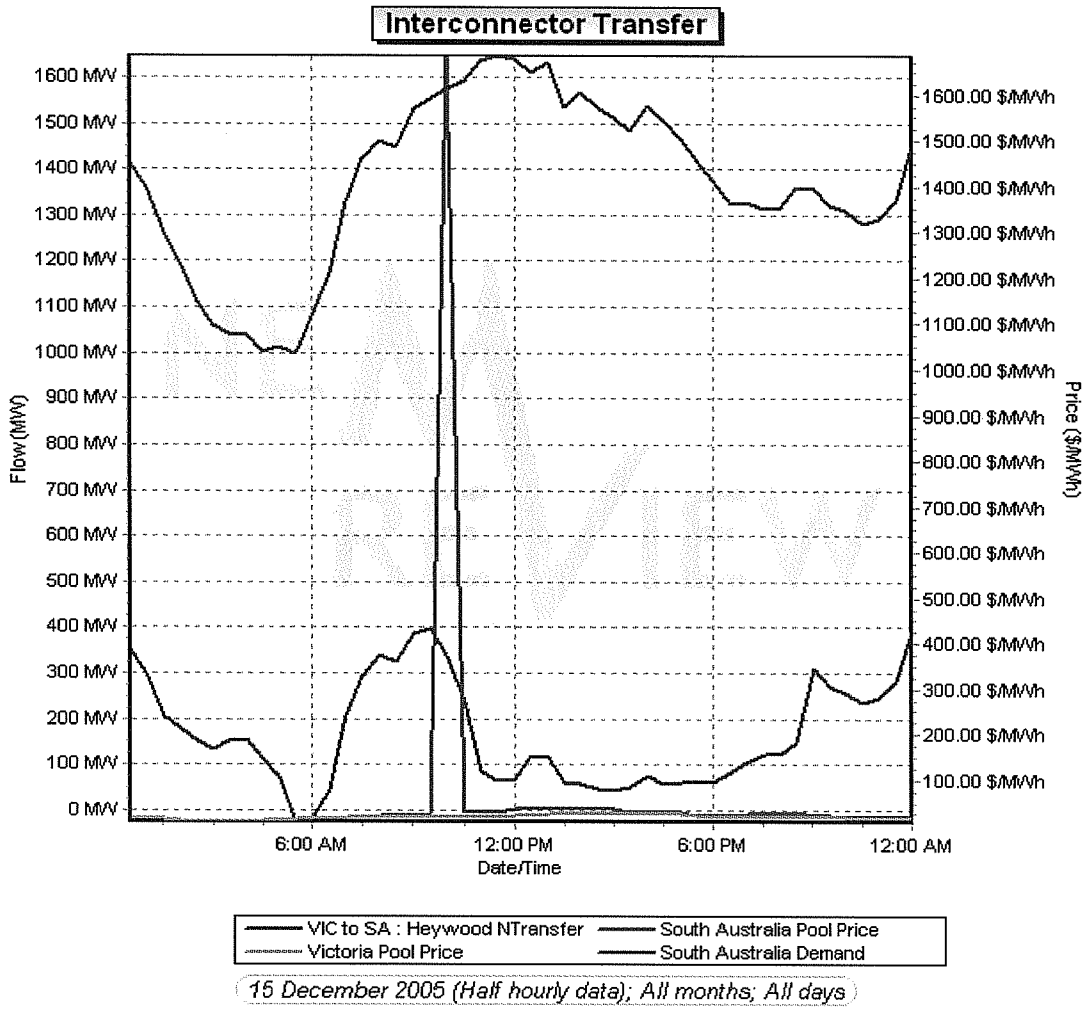
The members of MEU have been consistently disadvantaged by the extent of congestion in the NEM. Their experiences show that the NEM is not a fully integrated network, but is more a series of interconnected regions. When each of the interconnections is constrained from passing power from one region to the adjacent one, the MEU members have seen the pool price spike. Whilst most MEU members are insulated from the direct impact of these price spikes by the retailer management practices, the pricing members are faced with includes for the costs of the premiums for the risk faced by the retailers and which are passed onto each consumer. Thus the cost of the price spiking as each region is constrained is in reality passed onto consumers.

As noted above, assessing the cost of congestion intra-region is difficult but it is much easier to assess the costs to consumers of congestion between regions as there are prices set for each region. Except for line losses for transport of power between regions, essentially the same price for power will exist in each region where there is no congestion. This can be seen in the following graph of pool prices for Queensland, NSW, Victoria and South Australia for week commencing 13 March 2006. As can be seen the regional prices tend to track each other with some closer tracking between NSW and Queensland and likewise between Victoria and SA.



Source: NEM Review

When a small increase in demand in a region cannot be accommodated by increased transfer between regions, we see the regional prices "uncouple" with one spiking as the interconnector is insufficient to permit the increased flow and the regional generators use market power to increase prices. This can be seen in the following graph.



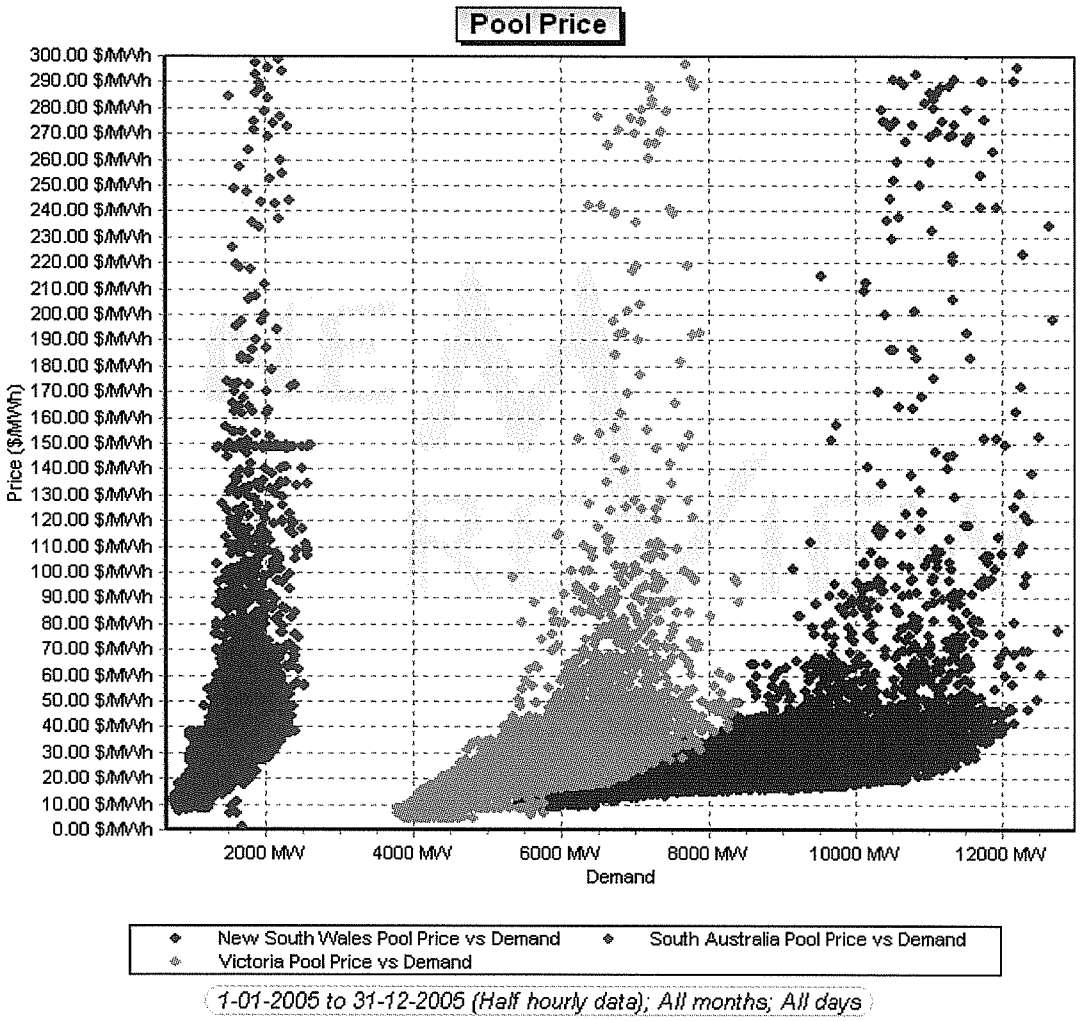
Source: NEM Review

This shows the impact of a constraint on V-SA (Heywood) where the capacity of Heywood (normally 460MW to SA) was reduced to 275MW for a short period. The five minute price in SA region was $9999.99/MWh for the period 9.55 am to 10.00 am on 15 December 2005. Both before and after this 5 minute period the SA price was less than $30.MWh. It was the short term impact of this 5 minute that spiked the half hourly price by nearly 60 times.

Analysis of the regional pool prices shows that these spikes are relatively infrequent. However, the severity of them is enormous. By selecting a benchmark price of $300/MWh as a reasonable expectation of maximum regional pool prices[10], this represents about 10 times the average pool price and a premium at which most buyers would not normally purchase a good. An expectation of price premium is necessary as in the NEM prices are not seen until ex-post.

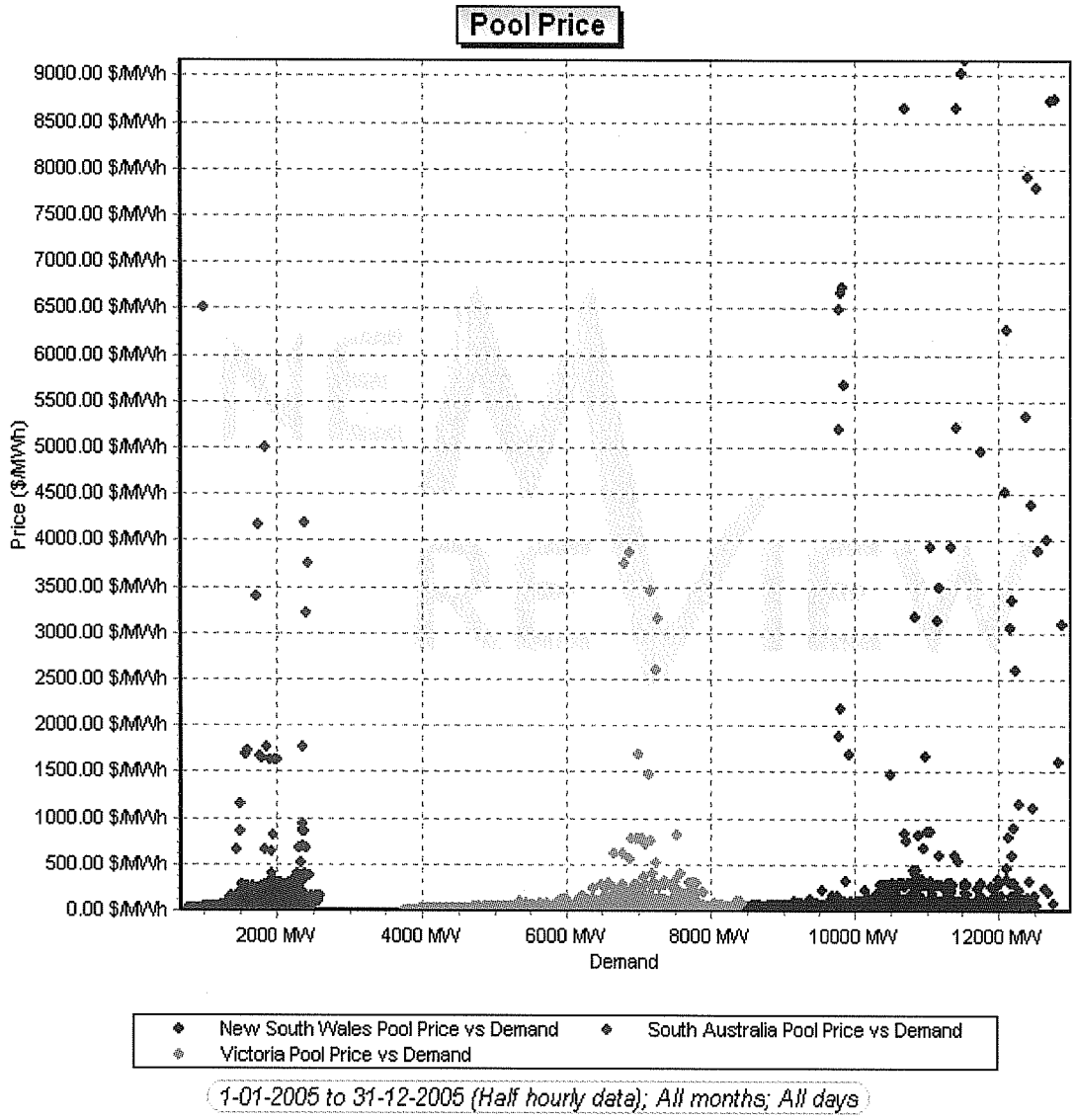
[10] This is the point up to which many retailers take "pool risk" and thereafter seek price caps from peaking generators

A review of the normal operation of the NEM shows that the relationship between supply and demand would consistently show that pricing is consistent with increasing demand up to this point. The following graph shows that the price/demand scatter is certainly consistent up to $100/MWh and less so between $100/MWh and $300/MWh.



Source: NEM Review

It would appear that using a $300/MWh cap for a price/demand indication shows a reasonable relationship between supply and demand than does capping the price at $10,000/MWh as the following graph shows.



Source: NEM Review

A review of the pool prices for 2005 shows that the price exceeded the amount of $300/MWh for only 128 half hourly periods in the four regions of Queensland, NSW, Victoria and SA. These 128 half hour periods represent less than 0.2% of all half hourly periods in the four regions. The following chart shows the impact of these 128 spikes as a proportion of the average annual price for each region.

	Qld	NSW	Vic	SA	NEM (excl Tas and Snowy)
% of average annual volume weighted price caused by >$300 price spikes	19.6%	36.6%	7.6%	10.1%	24.6%
Av annual time weighted regional price $/MWh	25.17	35.83	26.29	33.60	30.22
Av annual volume weighted regional price $/MWh	27.12	40.84	27.83	36.76	33.44
# price spikes >$300/MWh in 2005	26	67	24	35	128

Source data: NEMMCo and NEM Review

In 2002, the impact of price spikes above $300/MWh was to inflate the average pool price in the NEM by 28%[11].

In 2005, the impact of these price spikes above $300/MWh added over $8/MWh to the average annual volume weighted NEM pool price. Because of the severity of these relatively few price spikes, retailers must add significant premiums to accommodate the risks they face. Additionally generators add a risk premium to manage the risks they face when contracting with retailers.

These price spikes tend to occur when generators are aware that the interconnections between regions are constrained and so allow the regional generators to set prices. This is often achieved by the dispatched generators withdrawing capacity (effectively achieved by reallocating already bid generation into a higher price range) in an increasing demand period. The common ownership of the three large generation groups in NSW allows this practice to regularly occur in NSW.

As the total NEM (less Tasmania and Snowy) average demand is some 22 GW the cost to consumers of the 2005 price premium for constraints is over $1500m, or an annual payment of over $400 by every family in the NEM caused by constraints.

[11] The Effect of Industry Structure on Generation Competition and End-User Prices in the National Electricity Market, Bardak P/L May 2005

Appendix 3

Excerpt from AEMC Congestion Management Review Issues Paper 3 March 2006

5.3.5 Constrained-on payments

As noted previously, an issue with the current arrangements is that generators may be dispatched even though their offers are above the regional reference price at which they will be settled.

Some market participants have suggested that being 'constrained on' in this manner may encourage generators to make themselves unavailable for dispatch, which may cause dispatch to be less efficient than if those generators were available.

One option to address generators being constrained-on at prices below their offers may be to make constrained-on payments to them; that is, to pay generators an amount in addition to the regional reference price as compensation for being constrained-on. This additional amount could be determined in a number of ways. For example, it could be the difference between:

- the generator's offer price and the regional reference price; or
- a reasonable estimate of the generator's opportunity cost of generating and the regional reference price.

The former approach, which would result in generators earning their offers, may raise concerns about the exercise of market power by generators who know that they will be required to generate when a constraint binds. If the latter option were selected, some process would be necessary to determine reasonable costs, including for example assigning responsibility to a party to make the estimate. Potential parties could be the AER, AEMC, NEMMCO or an independent expert appointed by these parties. Other options for determining the level of constrained-on payments may also be available. An alternative way of viewing this is that high returns to constrained-on generators could surely attract new investment in generation, transmission, demand side participation or non-electricity alternatives to that area of the network, which would ultimately result in normal returns and a more efficient pattern of dispatch.

Regardless of how the quantum of constrained-on payments was determined, they would need to be funded in some manner. One option is for the payments to be funded by a levy on participants, similar to the ancillary services arrangements. There would need to be agreement on who would pay for the uplift. Uncertainty about the size and timing of the uplift may increase the complexity of risk management for market participants.

Alternatively, it may be preferable to address the issues of constrained-on payments through an alternative congestion management tool, such as a CSP (discussed in more detail in Section 5.4).