Australian Energy Markets Commission

Congestion Management Review

Comments on the

Issues Paper

by

The Major Energy Users Inc

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

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Executive Summary

The single market objective of the National Electricity Law is:-

> *"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."*

However, the analysis of congestion management in the Issues Paper entirely overlooks the single market objective! The only party whose interests are apparently ignored are those of consumers – TNSPs, generators, retailers, NEMMCo are all referred to, but there is no reference to the costs consumers will bear as a result of constraints.

The initial view of the national electricity market was one where there was to be free flowing power to all parts of the network. This could be created by strongly reinforcing interconnections between all regions so that there is to be a true national market. What the NEM comprises at this time is a series of regions connected by relatively weak interconnections which are regularly constrained.

The effectiveness of the current approach to constraints is that congestion has been addressed as a technical problem, rather than a commercial one which has a high impact on consumers. What is seen is that a major proportion (over 25% nationally and 36% in NSW) of the average annual regional pool prices is attributable to a very few but excessively severe price spikes caused mostly by price separation between regions resulting from congestion.

The main challenge facing the NEM is the extreme volatility of pricing and the severity of these prices when compared to the average of prices throughout the regions. That many of these price spikes are associated with constraints in the NEM clearly demonstrates that as a first step, these constraints must be addressed before refinements to the NEM processes as proposed in the Issues Paper are considered.

As the largest component of risk mitigation faced by generators and retailers relates to the price spikes caused from inter-regional price separations, then the risks faced by consumers must be of a larger magnitude than those faced by either generators and/or retailers. The costs to consumers must be greater than the sum of the individual risks faced by the other parties.

Consumers are obliged to pay the risk margins set by retailers to provide a hedge against the risks the retailers face. As retailers by and large have

remained in business then consumers are paying all (if not more) than the costs of risk mitigation incurred by retailers. Retailers in turn purchase power from the generators who also incorporate their costs of risk mitigation into their supply prices.

The assumption throughout the Issues Paper is the need for certainty for the NEM Participants. What is totally absent from the assessment is the need for consumers to have certainty that they are receiving the lowest reasonable pricing, that pricing will not be increased unnecessarily and that the NEM does not provide excessive profits for Participants.

The Issues Paper considers that there are a number of options which are acceptable, yet the outcome of these options will be to increase costs to consumers. What is not considered at all is that the rules behind the operation of the Regulatory Test (RT) which, if varied, would permit many of the constraints to be removed. This option is not even considered for review; nor is it compared to the options being countenanced in the Issues Paper. This approach then raises strong equity issues. The market objective is that the market should work to the benefit of consumers. Excluding real cash benefits of reducing constraints from assessments of the RT, and yet proposing that consumers pay for generator losses caused by these constraints, is simply absurd, and negates the market objective.

It is accepted that constraints will be present in the NEM. If the main constraints are addressed by modifying the Regulatory Test to include the costs of constraints to consumers, the impact of those remaining constraints might well be more easily addressed by using such approaches and refinements suggested in the Issues Paper.

The lack of clarity in the Rules to permit the resolution of constraints creates a real risk for consumers. There is an apparent lack of concern by regulators that the party bearing the bulk of the risk (the consumer in the electricity prices it pays) is not permitted to include in the RT the cost of this risk as an offset the cost of mitigating the risk (by the consumer in transmission prices).

This submission highlights the need for the RT to be modified to allow the costs to consumers of constraints to be included in the assessment of augmentations.

The MEU is firmly of the view that, as a first step, constraints which would be reduced in frequency and severity by modifying the RT must be resolved before the refined approach to addressing the remaining constraints.

MEU conclusions about congestion in the NEM

1. There is no doubt that congestion causes an increase in the cost of electricity to consumers, both directly by adding to the average annual price and indirectly by the addition of risk premiums by retailers and generators to accommodate the infrequent but severe price spikes.

2. The fact that congestion is relatively infrequent belies the fact that the monentary impact of congestion can be extremely severe, and infrequency should not be used as the basis to ignore the congestion (or its costs) that do occur.

3. Generators use congestion as a tool to increase regional prices, and so increase profitability. The fact that average annual electricity prices (including the impacts of congestion) might appear to be reasonable outcomes for electricity pricing should not be seen as an excuse not to address the impacts of congestion.

4. Some generators are better able to use the constraints in the transmission network to their advantage than others, even though this ability might be a locational hangover from the days before the advent of the NEM. This is inequitable for fair competition in the NEM and must be addressed.

5. The Regulatory Test as currently structured will prevent much of the augmentation needed to minimize congestion. The RT needs to be expanded to include for the benefits arising from reduction in regional prices resulting form the augmentation. Failure to do so will perpetuate the continuation of the market power exerted by generators to the detriment of consumers. In this regard the “consumer benefit” and “public benefit” must be seen as coincident.

6. There is an absolute need for there to be a national planning body over-sighting the NEM in its entirety. This body would coordinate the actions of the jurisdictionally based planning bodies and would be responsible for preparing the applications of the RT benefits test for all inter-regional augmentations, and ensuring that each augmentation is appropriately backed by the necessary supporting augmentations[1] within the regional networks. The MEU considers that as NEMMCo is an adviser in relation to the outcomes it would have a conflict of interest if it is to be involved in the detailed costing and resolution of constraints.

[1] A classic example of this lack of coordination is the conversion of Murraylink to regulated status. Murraylink has been assumed to transfer 220 MW, yet for times when such a transfer is required, the capacity of the networks in SA, NSW and/or Victoria are incapable of permitting this magnitude of transfer.

1. Introduction

The MEU

The Major Energy Users (MEU), which comprises some 20 major energy using companies in NSW, Victoria, SA, Tasmania and Queensland, welcomes the opportunity to provide comments on the Review of Congestion Management. In particular, the submission represents the views of the Energy Markets Reform Forum (NSW), Energy Consumers Coalition of South Australia and the Energy Users Coalition of Victoria.

Analysis of the electricity usage by the members of MEU shows that between them they consume about 5% of the electricity generated in the NEM. Many of the members are located in regional parts of Australia, some distance from the regional nodes. As such they are highly dependent on the transmission network to deliver the electricity so essential to their operations. Being regionally located, those members also have an obligation to represent the views of their local suppliers and of the regionally based workforce on which the companies are dependent. With this in mind, the members require their views to not only represent the views of large energy users but also those of smaller power usage facilities and residences located near to their regional operations.

The companies represented by the MEU (and their suppliers) have identified that they have an interest in the **cost** of the energy networks services as this comprise a large cost element in their electricity and gas bills.

Although electricity is an essential source of energy required by each member company in order to maintain operations, a failure in the supply of electricity or gas effectively will cause every business affected to cease production, and members' experiences are no different. Thus the **reliable supply** of electricity and gas is an essential element of each member's business operations.

With the introduction of highly sensitive equipment required to maintain operations at the highest level of productivity, the **quality** of energy supplies has become increasingly important with the focus on the performance of the distribution businesses because they control the quality of electricity and gas delivered. Variation of electricity voltage (especially voltage sags, momentary interruptions, and transients) and gas pressure by even small amounts now has the ability to shut down critical elements of many production processes. Thus member companies have become increasingly more dependent on the quality of electricity and gas services supplied.

Each of the businesses represented here has invested considerable capital in establishing their operations and in order that they can recover the capital costs

invested, long-term **sustainability** of energy supplies is required. If sustainable supplies of energy are not available into the future these investments will have little value.

Accordingly, MEU is keen to address the issues that impact on the **cost, reliability, quality** and the long term **sustainability** of their gas and electricity supplies.

The members of MEU have identified that congestion (be it in electricity or gas supplies) leads to lower reliability of supply and resultant increased costs. Members have been both constrained off due to congestion of supply. They have seen higher prices result from inadequacies in the energy delivery systems and have observed and experienced a number of perverse outcomes resulting from the application of the rules and regulations over allocations of limited supplies of energy over the past decade.

One such perverse outcome has been the limitation (and even exclusion) of national wealth creating industries from essential energy supplies, in order to provide energy supplies to those who have created the shortage, but are not required to pay any premium for these limited supplies.

The MEU appreciates the opportunity to review and comment on the extent of congestion in the NEM and the impact it has on consumers.

2. Views of MEU and Members relating to Congestion

Congestion in the NEM is a direct result of the incapacity of the transmission networks to transfer all of the needed energy from one area of the NEM to the next. Whilst this is a clearly a deficiency in the infrastructure, it also a result of the historic approach to jurisdictional management of electricity supplies. When this is compounded with Rules which actively have prevented sensible augmentation of the networks to reduce congestion and has actively encouraged generators to use their undoubted market power, the resultant has been excessively high costs to consumers due to high base prices for electricity and very high retail premiums to address volatile and severe pricing spikes.

Within a region, congestion can and does occur but the costs of congestion are not readily seen, as the out of merit order generation is not clearly identified. One of the reasons intra-regional congestion is not readily identified is that regions are based on the original state based jurisdictions, except for the Snowy region. Changing from state based jurisdictional regions to sensible “electrical regions” would enable a clearer picture of the needs of intra-regional congestion. This would result in a power price for each of the internal regions, ready identification of the impacts of congestion, and signals for the easing of congestion observed.

Between regions, the costs of congestion can be readily identified by reviewing the regional power prices. This theme is more clearly developed throughout this section.

A key aspect of congestion that is frequently overlooked is that as consumers are the parties levied almost all of the costs of transmission[2] (generators are only levied with the costs of “shallow connection” to the NEM). As congestion causes costs to consumers augmenting the networks to reduce the costs of congestion provides a key benefit to consumers, but unfortunately the Regulatory Test does not recognize this. An un-congested NEM results in the lowest cost of power generation to all consumers. On the other hand, generators can and do use congestion in the NEM to increase the price of power.

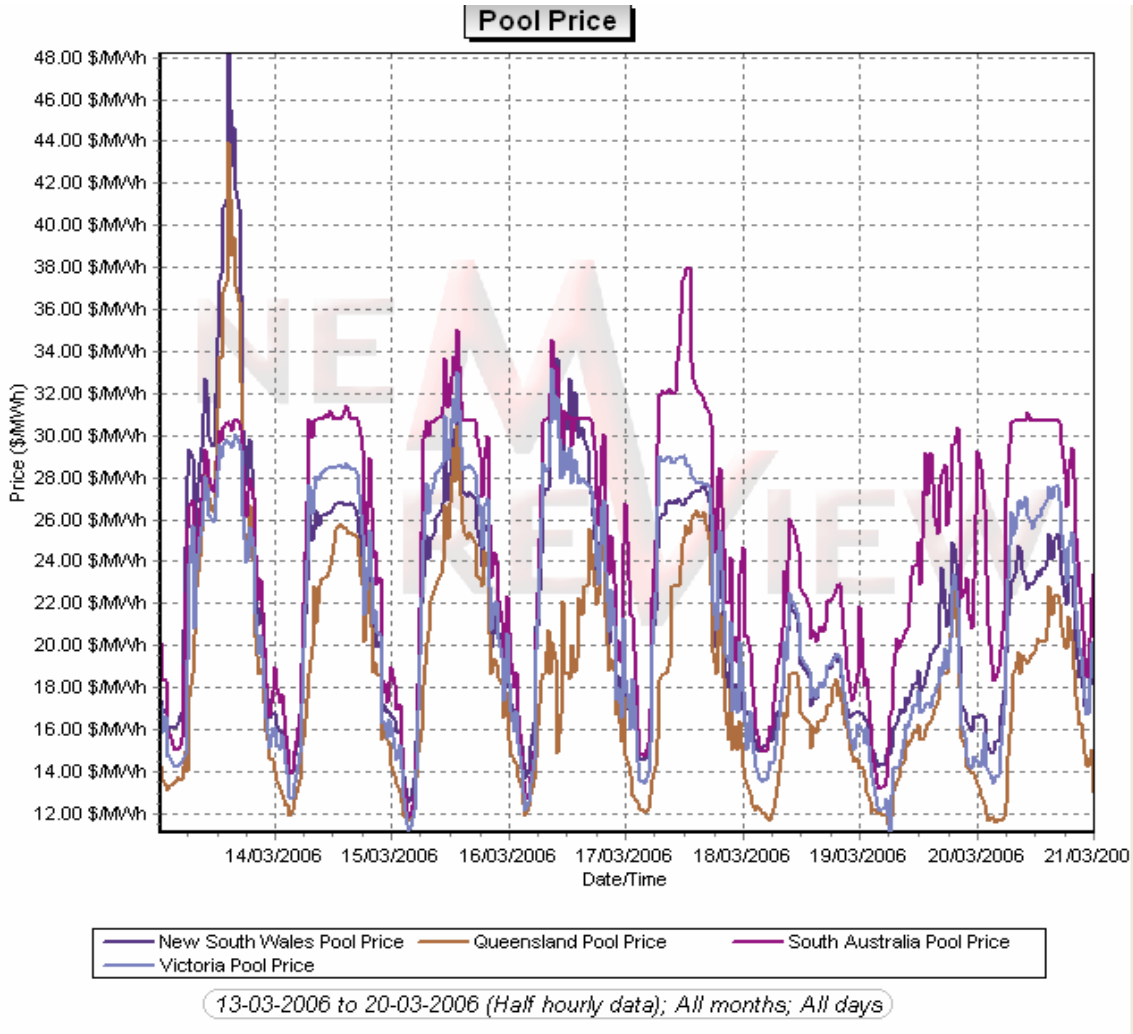
As the transmission network is essentially paid for by consumers, then it should be the mechanism by which consumers can minimize the costs of supplying power, and for reducing the exercise of generator market power to increase prices.

[2] For instance TransGrid has publicly declared that more than 92% of its revenue is directly sourced from consumers.

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

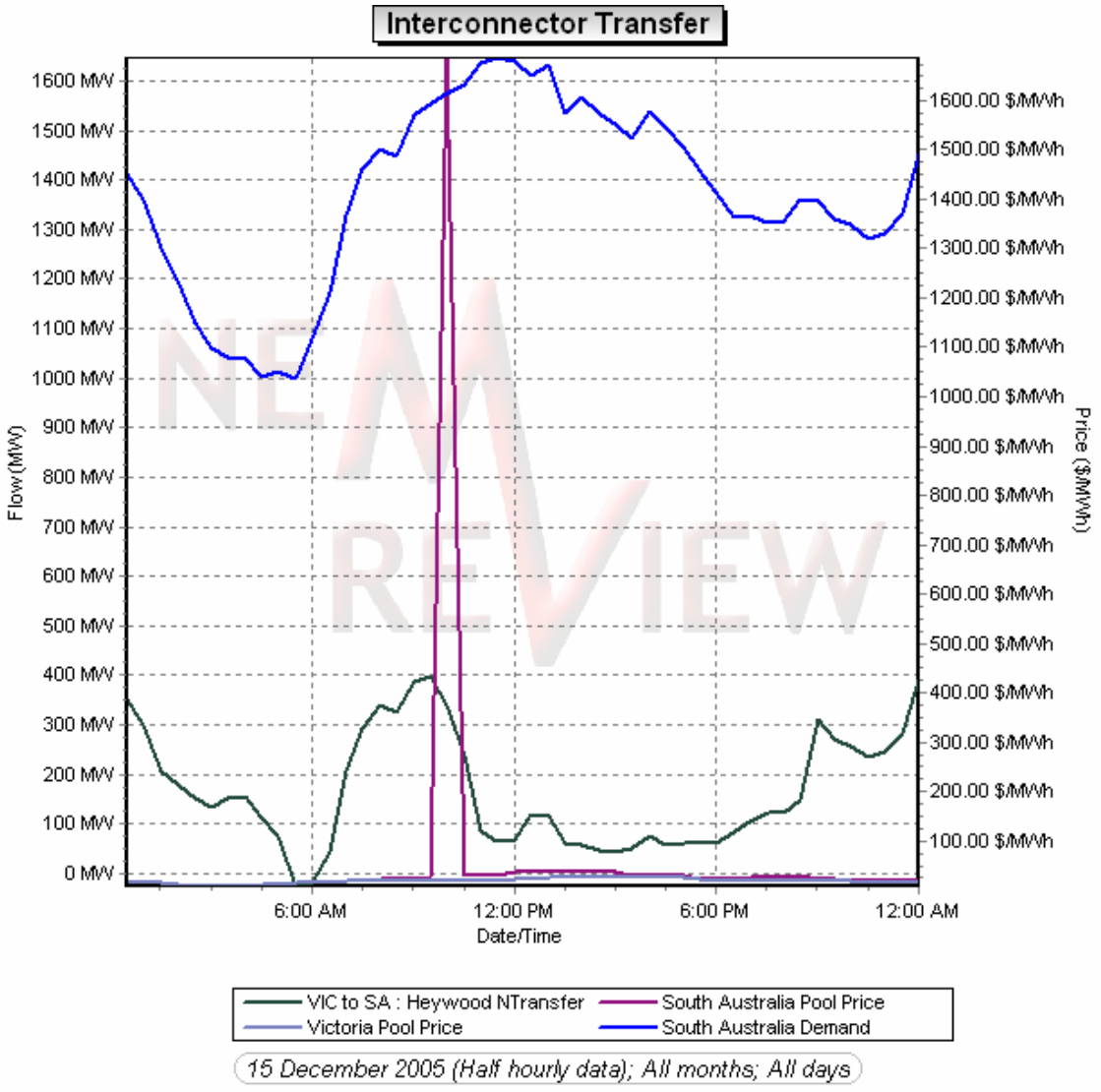
The members of MEU have been consistently disadvantaged by the extent of congestion in the NEM. Their experiences show that the NEM is not a fully integrated network, but is more a series of interconnected regions. When each of the interconnections is constrained from passing power from one region to 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.



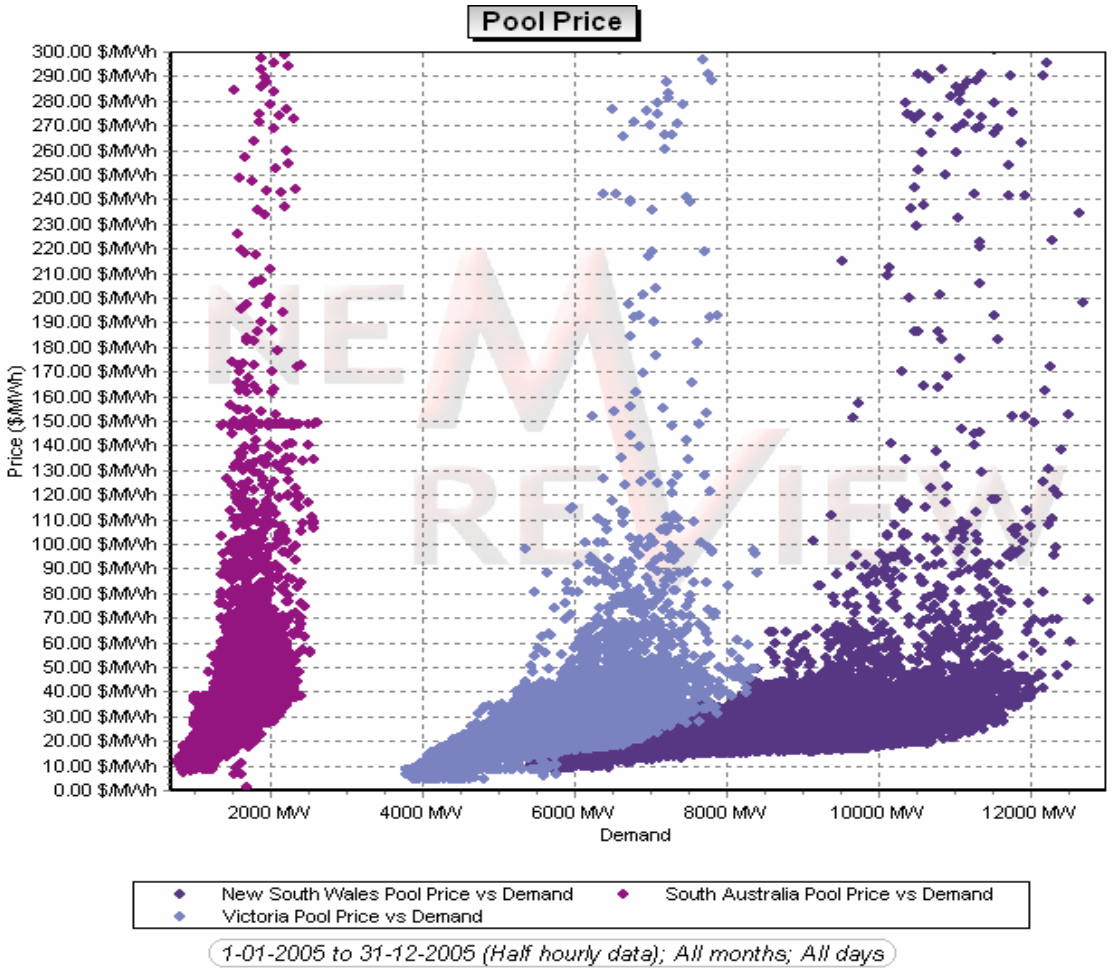
Source: NEM Review

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[3], 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.

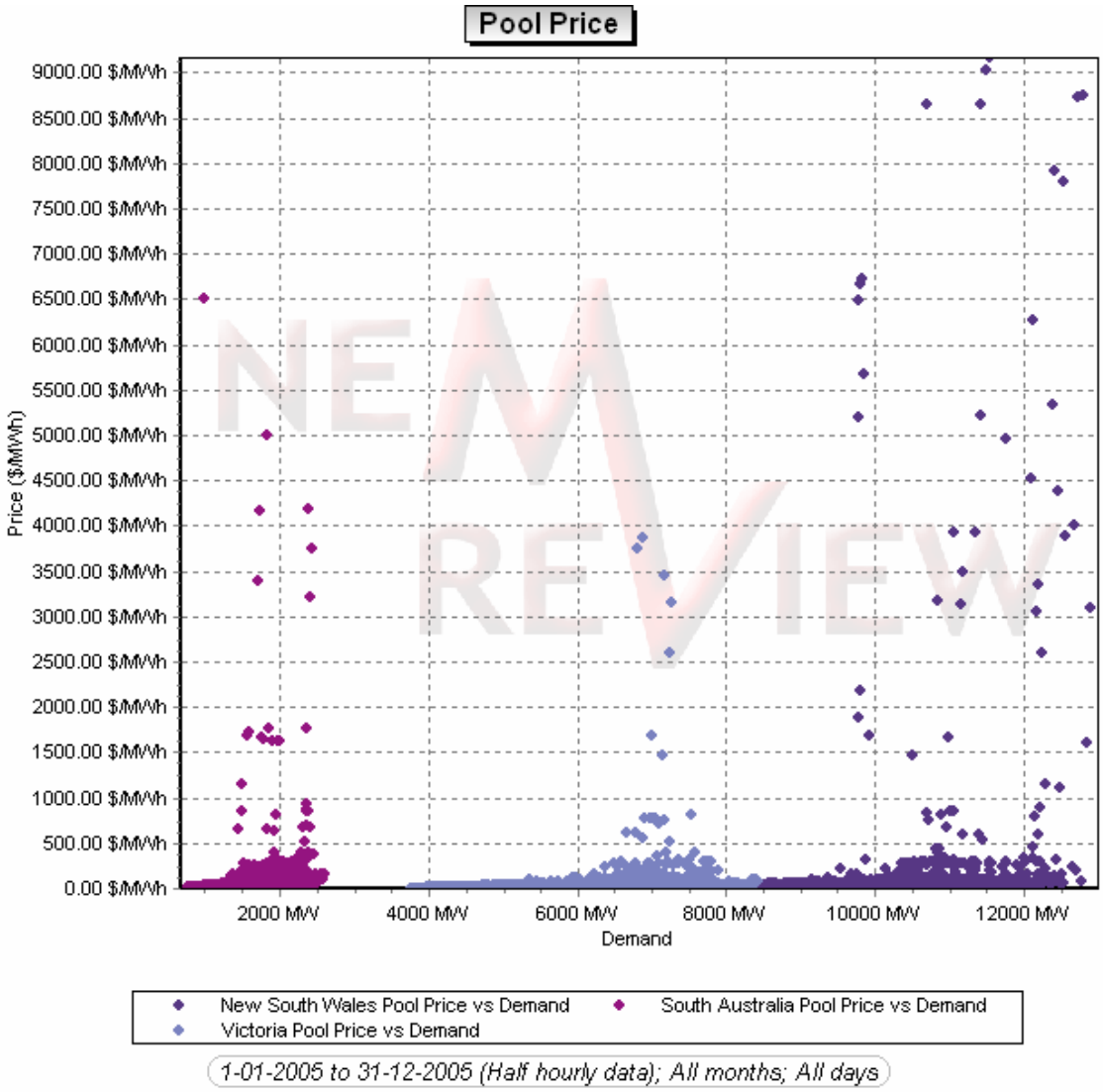
A review of the normal operation of the NEM shows that the relationship between supply and demand would consistently show that pricing is consistent with increasing demand up to this point. The following graph shows that the price/demand scatter is certainly consistent up to $100/MWh and less so between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

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



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%[4].

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.

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

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.

2.2 The attempts by ACCC/AER to identify the costs of congestion and find a service standard to encourage reduction in congestion

The ACCC (now AER) attempted to identify a service performance standard for transmission which provided a clear signal to the TNSPs of the best times to take transmission elements out of service. In doing so there was hoped to be an ability of earning bonus/penalties which would provide funding for carrying out transmission service maintenance in periods of low usage of the transmission network. This would impact on the generators' ability to use constraints in the network to increase regional prices.

The ACC/AER commissioned NEMMCo to carryout a detailed study of the cost impacts of both intra- and inter-connections being constrained. The result has been a range of cost impacts, but there is no doubt that constraints in the transmission network do lead to higher regional prices than would otherwise occur. This work is referred to in the ACCC draft decision on Statement of principles for the regulation of transmission revenue - Market impact transparency measures (28 July 2004).

This draft decision is still under review but it is important to note that the ACCC/AER recognizes that there a number of methods to measure the cost impact of constraints in the NEM. In section 4 they report

> # "4. Evaluation of proposed transparency measures
>
> Several proposals for incentive schemes and transparency measures have been presented to the working group for discussion. The various ideas can be classed into two groups.
>
> The first group contains suggestions that focus on the market impact of transmission.
>
> There are four proposals in this group:
>
> - **Marginal constraint cost (MCC) of outages measure.** This proposal is to publish the MCC of transmission outages. This measure is the sum of the marginal value[14] as estimated by NEMDE for transmission

constraints associated with transmission outages. The NEMDE marginal value represents the amount by which the total energy cost[15] would be reduced if the particular constraint was relaxed by a small amount.

- **Two dimensional incentive**. This is a proposal to develop an incentive to maximise the capacity of NEM interconnectors. It is based on the combination of the accumulated price separation across interconnectors (on the x-axis) and the number of hours of binding constraints in excess of an allowed amount (on the y-axis).
- **Transmission maintenance scheduling incentive.** This proposal was based on of the ability of the TNSP to influence the supply and demand balance and the resultant spot price. The proposal aimed to use base load generation plant margin as a proxy for the concentration of generator market power. The TNSP would then be given incentives to prevent increases in market power through its practices in scheduling outages.
- **Total constraint cost (TCC) measure.** This is a proposal to publish the market impact of all transmission constraints based on the cost of being forced to deviate from the least cost dispatch that would otherwise have occurred if the network was unconstrained.

The four proposals are described in appendix A and evaluated against the criteria established in the previous section.

The second group of proposals focuses on reporting transmission constraints and on other transmission-specific factors affecting the market. There are three proposals under this category:

- **Tracking of transmission constraints.** A proposal to improve NEMMCO's tracking of transmission constraints.
- **Publication of line ratings.** This proposal would require TNSPs to publish details of how they rate their transmission assets.
- **Publication of nature of transmission constraints**. This proposal gives a suggestion regarding analysing the nature of transmission constraints on the TNSP's network."

Whilst there appears to be a number of methods for measuring and/or monitoring the impact of constraints in the NEM, it is important to note that the ACCC/AER has calculated that the costs of constraints to NEM users is significant, although perhaps not as great as that implied in section 2.1 above.

Notwithstanding this lesser cost impact using the ACCC/AER approaches, the ACCC/AER still considers that it is essential that a cost constraint measure be monitored over the coming period, with potential for this measure to become the

basis of a bonus/penalty arrangement for TNSPs to use as a basis for investment in the future to reduce constraints.

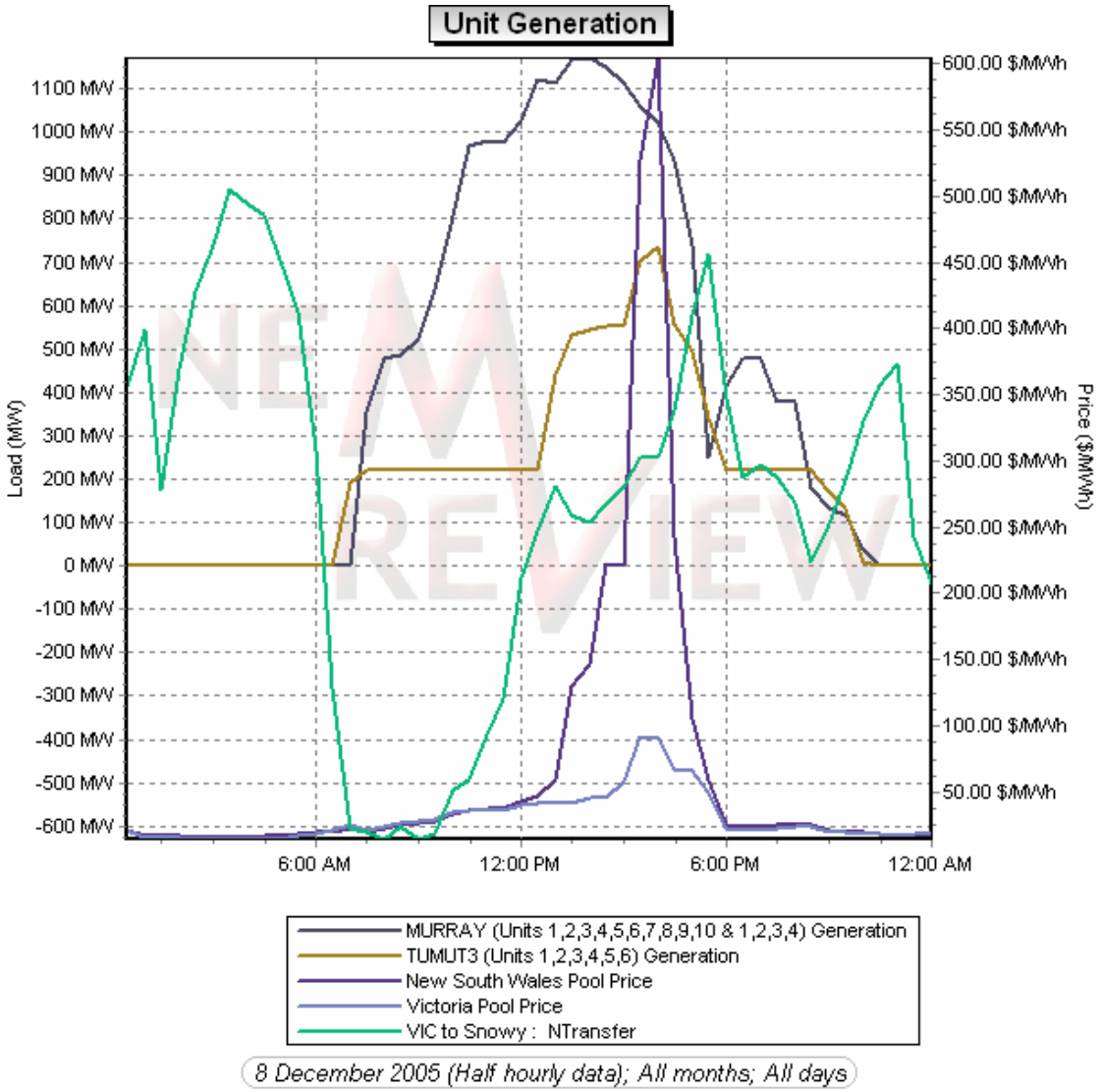
2.3 Regarding the operation of Snowy Hydro

In a similar vein to the general inter-regional constraints, the location of the two large Snowy Hydro groups (Tumut and Murray), being integral with the interconnection between NSW (Tumut) and Victoria (Murray), allows Snowy Hydro to effectively control the interconnections between NSW and Victoria, and so impact on the regional prices for these two regions which have the largest demand in the NEM.

This unique arrangement, whilst very appropriate when Snowy assets served the needs of the vertically integrated electricity providers in NSW and Victoria, now provides Snowy Hydro with an ability to control the regional prices in NSW and Victoria. With the planned floating of Snowy Hydro by its three governmental owners to become a private entity, this provides the new Snowy Hydro owners the ability to not only control environmental water releases into the two states, but to also have a major impact on the prices paid for electricity by NSW and Victorian electricity consumers.

The NEM is designed to allow free flow of electricity between regions. The principle behind the NEM is that generators will compete for dispatch and in doing so competition will provide a downward pressure on electricity generation prices. In the case of Snowy, it only requires for a high demand in either NSW or Victoria, for Snowy to be able to dispatch its generation in a particular fashion to prevent the flow of power between the two regions, and so allow Snowy to set the pool price in the high demand region.

This can be seen in the flowing graph, which shows that on 9 December 2005. On this day Snowy operated its Upper Tumut assets for much of the day, and during the afternoon noticed a rising demand for power in NSW, although the demand in Victoria was flat.



Source: NEM Review

As can be seen, Snowy commenced dispatching its Murray assets into Victoria, and the impact of this can be seen as reversing the early morning flow from Victoria to NSW so that Victoria was importing from Snowy at a low price. Snowy increased dispatch from its Tumut3 assets during the afternoon and peak export from Tumut3 assets coincides with the NSW peak price. The Victorian price commenced to climb and Snowy eased back on Murray generation allowing greater flow from Victoria to NSW. As this flow increased so the two regional prices tended to merge.

This ability of Snowy to set prices in a region operates in both directions.

The ability of Snowy to dispatch its generation to constrain the connection between NSW and Victoria as so allow Snowy to set a regional price must be addressed.

There have been proposals that this Snowy Hydro issue could be addressed by adjusting the regional boundaries. However whilst Snowy has assets which could be used in one region (say Victoria) to prevent flows from Victoria into NSW when Snowy Hydro uses its assets in the other region (NSW) to maximise the NSW regional price, then adjusting the regional boundaries would have little merit.

The main benefit of adjusting regional boundaries is to prevent some of the absurdities that have been introduced in the NEM in the interests of simplification or a fixed regional price for political reasons. Such absurdities include:-

- power generated in the far south east of SA being assumed to be received at the regional node at Adelaide, and then sent back to SE of SA for consumption
- the price for power in Cairns (with little generation of its own) being the same as at Gladstone (where there is generation and an export of power).

The NEM and its transmission backbone needs to be assessed as a single national entity without regionality and be assessed on the physical limitations inherent in its design, rather than to allocate generation into one region or another in an attempt to solve the problems being faced.

2.4 The relationship between congestion, allocation of transmission costs and the Regulatory Test

The Regulatory Test (RT) as determined by the ACCC in August 2004 prevents the economic benefit of reducing market power of generators by the augmentation of transmission from being seen as an element of the RT. The reason for this is the view that the public benefit of increased augmentation should not include for the transfer of wealth between one sector of the electricity market (in this case from consumers) to another (the generators). The ACCC sees that the costs to augment the transmission network should be neutral with regard to the parties to the NEM.

The only way to reduce congestion is to:-

1. locate generators to be closer to consumers (this is prevented by the Rules as discussed by MEU in its submission to the AEMC on the Chapter 6 proposed draft Rules),

2. move consumers closer to generation (this view is seen as inappropriate as the costs of electricity to most consumers does not commercially warrant such a radical step for a relatively low input cost)
3. require consumers to reduce demand when congestion occurs (this will reduce national wealth creation and so is seen as inappropriate), or
4. augment the transmission network (this is constrained by the RT).

The approach of options 1 & 2 is impacted by commercial considerations. The major cost input to generation (other than capital) is the cost of fuel, implying the lowest cost option for generation is to be close to the fuel source. Except in a very few instances, the cost of electricity for major energy consumers is not the driving cost, whereas raw material inputs, labour or transport are usually much higher cost inputs, implying that location with respect to electricity will not be the determining driver for location.

Option 3 changes the whole balance of electricity from being a service input to being a controlling input. Electricity supply is only a service to consumers (albeit an essential service) and does not provide any national wealth creation in its own right. It is the use that others put electricity to that creates national wealth. Without consumers there is no electricity supply industry, yet consumers can exist without an electricity supply, although not as effectively. Electricity supply allows consumers to maximize the national wealth creation. Thus to observe the electricity supply industry in isolation is to create an artificial barrier which can result in a short sighted view which will lead to a reduction in Australia's national wealth.

To expect industry to reduce its output because there is an increase in electricity costs is short sighted in the extreme and fails to address the central problem, by focusing on the wrong issue.

Option 4 is the optimum solution to reducing constraints, yet the absurd proposition that augmentation of the transmission network must be constrained because of an incorrect and narrow sighted economic principle must be addressed as a key element of the review of constraint management.

The RT precludes the inclusion of the cost benefit from reducing regional prices by network augmentation as this is seen (in the exclusive context of the electricity market) as a transfer of wealth. This principle is flawed at its very basis.

The ACCC refers to the public benefit as not being enhanced by the inclusion of the regional price reduction. Almost every member of the public is a consumer of electricity and those that aren't are indirect beneficiaries of the consumption of electricity. To all intents and purposes there can be little doubt that the term "public" and "electricity consumers" can be considered as the same. Even

generators are consumers of electricity as most need supply of electricity to provide the service, even if only to start up their facilities.

Electricity consumers (the public) pay directly for the provision of the transmission network. The costs of the transmission network are "passed through" to all distribution networks and added to the cost of delivering electricity. This cost is clearly shown on a typical bill from a retailer which show that the costs for electricity supply comprises a cost element for each of the following charges:-

Energy consumption
- Peak electricity
- Off peak electricity
- Data forwarding
- Ancillary services
- Pool fees
- Account management fees

Network usage
- Peak
- Off peak
- Contract demand
- Supply charge
- TUoS supply charge

A review of the cost allocation by TNSPs following on from a regulatory review shows that the bulk of all transmission charges are levied on consumers. Generators are required only to pay directly for identifiable connection costs which are related to the assets needed to connect the generator to the shared services network.

Thus it is quite clear that the overwhelming share of the costs of electricity transmission is paid by consumers (the public). Therefore, that the cash benefit of network augmentation which reduces the regional price for power should be excluded, is clearly flawed logic. If the costs of the network augmentation were equally shared by consumers and generators then the RT logic has validity, as the benefit would then be a transfer of wealth based on a sharing of the costs of its provision. However this is not the case, as consumers pay over 90% (as estimated by TransGrid) of all transmission network costs.

If consumers want to pay for less congestion and the augmentation results in the regional price for power falling, then this benefit that must be balanced against the cost of the augmentation. A failure to do so prevents consumers from being

able to use one of the tools available to them to control the exercise of market power by generators.

The MEU considers that the RT must include for the regional price benefits which results from the reduction of congestion when assessing the cost/benefit of augmentation under the RT.

2.5 MEU conclusions about congestion in the NEM

1. There is no doubt that congestion causes an increase in the cost of electricity to consumers, both directly by adding to the average annual price and indirectly by the addition of risk premiums by retailers and generators to accommodate the infrequent but severe price spikes.

2. The fact that congestion is a relatively infrequent belies that fact that the impact of congestion can be extremely severe, and the infrequency should not be used as the basis to ignore the congestion that does occur.

3. Generators use congestion as a tool to increase regional prices, and so increase profitability. The fact that average annual electricity prices (including the impacts of congestion) might appear to be reasonable outcomes for electricity pricing should not be seen as an excuse not to address the impacts of congestion.

4. Some generators are better able to use the constraints in the transmission network to their advantage than others, even though this ability might be a locational hang over from the days pre-NEM. This is inequitable for fair competition in the NEM and must be addressed. The result of inter-regional congestion is a barrier to inter-state trade.

5. The Regulatory Test as currently structured will prevent much of the augmentation needed to minimize congestion. The RT needs to be expanded to include for the benefits arising from reduction in regional prices resulting form the augmentation. Failure to do so will lead to the continuation of the market power exerted by generators to the detriment of consumers. In this regard the “consumer benefit” and “public benefit” must be seen as coincident.

3. Congestion management

The NEM has exhibited a number of constraints and the impact of these constraints has led to increased costs for consumers and to out of merit order dispatch for generators. Section 2 above provides the MEU views as to the efficiency of the NEM as it currently operates and the outcomes of the constraints extant in the NEM.

In the NEMMCo dispatch engine there are many constraint equations. These are all “hard limit” equations (eg such as the transport capability on the SAVic interconnector through Heywood is a maximum of 460 MW). In fact many of these “hard limit” equations do not accommodate the actual abilities of the assets to operate for limited times at much higher ratings. The use of these short term ratings (“soft limits”) can provide sufficient time at these soft limit ratings to bring in additional generation without the excessive ramp rates implied by the “hard limitations”.

NEMMCo has advised that it would introduce these soft (short term) limits providing the TNSPs permit the use of them. However there is no clear advice as to whether these soft limits have been utilized, what additional stress on assets has been introduced by their use and whether they have resulted in more efficient management of the NEM. This issue needs to be more deeply investigated.

The AEMC Issues paper provides an indication that risk management from congestion can be managed by retailers either financially or physically. The matter of physical reduction (ie by the building by retailers of peaking generation near fuel sources, or by consumers reducing demand) has been addressed at some length in section 2 above and is not seen as a satisfactory solution to congestion. The best and most effective physical solution is the augmentation of the network.

With regard to the financial solution of purchasing the IRSR this, whilst mitigating the financial risk still does not eliminate the financial outcomes of the physical risk. With regard to the option of entering into a contact with a generator across a regional boundary, generators will not bid for such options due to the severity of the risk.

This has resulted in retailers only sourcing contracts from generators within the region of the consumer, as this minimizes the risks for both retailers and generators.

Until there is a clear ability to prevent the severe differential inter-regional pricing that can eventuate when congestion occurs at regional boundaries, there will be very limited inter-regional trading occurring.

3.1 Existing congestion

1. Do existing constraints have a material effect on the efficiency of the NEM?

There is no doubt that existing constraints do have a material impact on the efficiency of the NEM. The costs to consumers are excessive and some generators are not dispatched due to congestion.

The impact of the relative few price spikes caused by congestion is excessive and the severity of the price spikes increases the risk of operating in the NEM.

What is the nature and materiality of these constraints?

The nature and materiality have been detailed in section 2 above.

Why is it that these constraints have not been addressed to date?

The last time this issue was examined in detail was in 2001 when the ACCC carried out a review of the rebidding guidelines. In 2003 the ACCC held a forum to look at competition benefits but there was no outcome to the forum other than retain status quo. In 2005 the ACCC examined whether “competition” benefits should be included in the RT and agreed that they should. However the “competition” benefits that were included were not those which include the benefits to consumers by reducing regional pricing and increased competition.

In its current review of the service standards and transparency measures for transmission, the ACCC/AER has accepted there are costs borne by consumers as a result of congestion. It has attempted to quantify these but has stated that as yet it unsure as to whether these service standards are suitable for using as an incentive mechanism for TNSPs. This would indicate an uncertainty as to the quantum of the costs associated with the measure.

At the time of the rebidding debate the ACCC stated it was not convinced that generators use their market power to raise prices, despite the advice from NECA to the contrary.

The ACCC has not investigated the issue of Snowy Hydro and its ability to constrain the NSW and Victorian markets.

> Are there specific points of congestion that should be addressed in advance of the establishment of a new congestion management regime?

Currently the major causes of major price differentials lie with the inter-regional connectors, especially that between NSW and Victoria via Snowy.

There would appear to be very little financial indications as to cost impacts of the intra-regional constraints, although these should be addressed by the regional representatives for each region. A measure is required to quantify the financial impact of these constraints.

3.2 Transmission

> 2. Given the development of the NEM and the recommendations of reviews undertaken to date, what are the significant priority issues for this Review?

The MEU is of the view that there are four essential activities that need to be addressed.

1. The Regulatory Test must be changed to include the benefits arising from the regional price adjustments that a reduction of congestion would bring.

2. The infrequent but severe price spikes must be addressed as these add significant cost premiums due to the risks for retailers and generators. These spikes are also a deterrent to new base load generation entrants and the emergence of a secondary market.

3. Market power of the generators must be examined and an attempt made to reduce the power they hold. This can be in part addressed by augmenting the transmission network.

4. As a result of the high risk premiums for retailers, many are becoming large generators in their own right in order to provide a physical hedge against the risks. This is resulting in a vertical reaggregation of retail/generator and reducing competition. The impact of this reintegration must be assessed

4. Assessment criteria

There have been many attempts to quantify the impacts of congestion in the NEM. This submission includes for one such holistic approach, whereas the ACCC/AER has attempted to use the data available from NEMMCo and develop extremely complex quantitative analysis.

The UK regulator (Ofgem) has approached the issue on a wide basis examining the outcomes and attributing the whole of the outcome benefits to incentivising the National Grid Company.

There would appear to be no "right" answer to the method to quantify the benefits. However if the result of there being no "best" answer developed is there will be no action, this is totally inadequate.

The MEU has provided some approaches which are independent of quantifying the size of the problem, and in addressing these approaches the problem may well diminish.

4.1 Quantitative analysis

3. What are the key questions the Commission should seek to examine quantitatively as part of the Review?

The key questions that need to be asked are:-

- Is there a problem with congestion? *Yes there is.*
- Is there a market power issue? *Yes there is.*
- Is the problem large enough to warrant attention? *Yes, regardless of which assessment method is used, all demonstrate there is a significant problem.*
- Do the Rules provide clear guidance to eliminate the problem? *No*.
- Is there a clear pathway to address the problem? *Yes, there is.*

What key factors should the Commission take into account in this modelling analysis?

The MEU has provided its views on addressing the problem in the sections above. In particular:-

- The use of "soft limit" constraint equations in the NEM dispatch engine should be reviewed and analysed.

- The solution that will provide a greater impact on the NEM is acceptance that:-

- Consumers pay for the provision of the transmission network.
- All members of the public are direct users (ie consumers) or the beneficiaries of the use of electricity and its transmission network.
- The Regulatory Test which is intended to provide the basis of augmentations of the transmission network for the benefit of those paying for the network.
- The Regulatory Test excludes the financial benefit of the impact of reducing inter-regional price separations.
- Consumers do pay for these price separations through inflated pool prices (the basis of the wholesale electricity price) and retailer risk premiums added to prevent financial risks to the retailers.
- Failure of the Regulatory Test to recognize this financial impact on those paying for the transmission network (ie consumers) continues to cause an avoidable financial burden on consumers.
- Here has been no attempt by regulators to balance the costs of augmentations against the incurred costs by consumers of these price separations. For example:-

> "Reduction in interconnector constraints, average pool price differentials and in pool price volatility also helps overcome the problem which the NEM has in contracting across interconnections — a particular problem for South Australia. One could make a very reasonable argument on these figures that the expenditure on QNI has already been recouped in its first six months of its operation — a powerful argument in favour of regulated interconnections." [5]

Of concern is that the AEMC could follow the ACCC/AER approach used in developing the transparency approaches to measurement of congestion costs to the extent that years have been wasted in attempting to address the fundamental problem – that of reducing constraints by sensible augmentation which would provide a demonstrably positive benefit to cost if the true impact of the benefit was permitted into the calculation.

There is a way forward without having to carryout extensive modeling.

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

5. The effectiveness of the current approach

The effectiveness of the current approach is that congestion has been more addressed as a technical problem, rather than the commercial one which shows a high adverse monetary impact on consumers. Further discussions about constraints (such as included in section 2.4 of the Issues Paper) tend to examine the frequency of constraints. It must be accepted that it is not the frequency of constraints that is the problem but more so it is the severity of the outcomes when constraints occur.

Thus, effectiveness of the current approach should be assessed in terms of the NEM objective which is:

> *"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."*

What we see is that a major proportion of the average annual regional pool prices is attributable to a very few but excessively severe price spikes caused mostly by price separation between regions caused by congestion. This has two major pricing impacts on consumers:

1. The average regional pool prices are inflated by the impacts of a small number of severe price separations.

2. The severity of these price separations is so great that the risk premiums added to pool prices are very large. For example, the SA energy regulator (ESCoSA) effectively considers that the risk premium is as much as 80% of the price for sourcing electricity[6].

Between these impacts, the economic efficiencies (productive and dynamic) identified in the Issues Paper are not being fulfilled as a result of the inattention to reducing congestion.

Whilst NEMMCo produces the SoO and ANTS reports, there is no national approach to addressing inter-regional congestion. The regionally based TNSPs and planning groups (ESIPC and VENCorp) have no mandate to address the needs of the NEM on a national base. This is not a function of NEMMCo as it is the system operator and should not be involved in assessing the various options

[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

for reducing congestion – it should only be involved with advising the costs of congestion which are identified.

Currently TNSPs have, if anything, a negative incentive to reduce congestion.

- There is no benefit (and probably a cost) to carryout maintenance when expected loading on the network is the least,
- There is no benefit (and probably a cost due to earlier replacement and increased maintenance) for them to allow the network to be stressed when a short duration over load is technically feasible and would reduce costs in the NEM
- There is little incentive on the regionally based TNSPs to assess the consumer benefits of stronger interconnection.
- The SRA surpluses which are related to the costs of congestion are not available to TNSPs but must be returned to consumers. There is no attempt to identify in the Issues Paper whether these surpluses would be better used as a source of funding for congestion reduction.

The Regulatory Test does not focus specifically on reducing congestion or incorporating the costs of congestion into its assessments. It is a tool for addressing which option (if any) for an investment will provide the least cost for a given outcome. To be useful for assessing congestion, the RT needs to be expanded as noted earlier.

Examples where congestion has been apparent but where the existing approach to reducing congestion has failed are:-

- The Sydney Haymarket augmentation where a high priced network augmentation was selected over a much lower cost generation option[7].
- Murraylink was assessed as a 220MW regulated interconnector, yet the networks feeding into Murraylink do not have the ability to allow Murraylink to operate at this level for the critical times needed to reduce congestion.

5.1 Constraint formulation and system security

The constraint equations are provided to NEMMCo for inclusion into the NEMDE by TNSPs. Thus there is a bias for the constraint equations to be conservative and to prevent the networks from operating even for short periods in an over capacity mode.

[7] As suggested by EMRF in its responses to the ACCC during the TransGrid Revenue Cap review in 2004

In particular, thermal limitations are dependent on a wider range of inputs than just the carrying capacity of the network. The impacts of ambient temperature, wind velocity, duration as to the time the current is flowing are but a few of the inputs which constrain the capacity of an element of the network. These can provide periods of time where the element can be used at over capacity. Constraint limitation should address these other matters rather than just the "nameplate" rating.

An example of this is the SAVic interconnector via Heywood. For many years this interconnector operated at 500MW capacity. Recently it was noted that this resulted in an over rating of certain elements. Consequently this interconnector has been operating at 10% less capacity than in earlier years. The constraint equation has this new rating "hard wired" into the NEMDE, and there is no capacity to use the proven over capacity to soften the short term price separations that can occur between the two regions. A short term over capacity could allow a conventional power station to take up the increased demand in preference to a fast start but short term operating plant being used when the capacity of the interconnector is approached. NEMMCo refers to this use of short term over capacity as "soft" limitations.

There is no doubt that following this approach over the NEM of using short term over capacity (which has little negative impact on the network) would lead to less violent price separations and so better utilize the generation and transmission characteristics.

Generators are well attuned to the potential of constraints in the network and the ability it gives generators to increase prices due to reduced competition. As closely as does NEMMCo, generators watch the way the interconnectors are operating and identify the optimum time to reschedule their dispatch pricing. If there was less ability of the generators to anticipate the constraint on an interconnector due to NEMMCo using "soft constraints" in lieu of "hard constraints" then generators would have less ability to use constraints to ramp regional prices.

In this regard, it should be noted that as an interconnector constraint occurs it is often due to a relatively high regional demand. As the regional demand approaches the limit of regional generation, it is easier for regional generators to raise prices, as competition has reduced. If the regional demand is 3000 MW and regional generation is of a similar value, the competition for the last MW of demand is very low, due to most of the generation already being dispatched. Thus the last generation to be dispatched has a wider freedom to set high prices as there is little competition. This can be achieved just as readily by a base load generator withdrawing supply and rebidding this capacity at very high prices, effectively getting a high regional price by calling in ultra-peak generation to

replace the capacity withdrawn. All this is possible as the constraint on the interconnection is well known and can be anticipated. A "soft constraint" would make this approach by generators that much more difficult.

4. Are there any material problems with the 'option 4' approach to constraint formulation to managing system security and reliability?

Addressing constraints in terms of technical issues and frequency denies the fact that it is much more to the point to address the severity of the constraints. A constraint which does not significantly impact on the regional pool price should receive much less attention than one which causes the regional price to rise significantly.

There are 105,120 five minute periods in a year. The impact of one 5 minute period at VoLL ($10,000/MWh) adds 10 cents/MWh to the average annual regional price or 0.3%. This is significant.

This same impact would result if a constraint raised the regional price to $100/MWh for 16 separate half hour periods.

Thus the **severity** of the constraint needs to addressed more so than the perhaps the **frequency** of a constraint.

How might such problems be addressed while continuing to maintain system security and reliability?

Requiring "soft constraints" into the constraint equations which recognizes the ability of the network to operate in an over-capacity regime for limited periods will assist in reducing the impact of constraints.

5. Are there any other problems, other than constraint formulation, with the management of system security in the context of the current congestion management regime?

There is a need for an independent national planning body to develop the strengthening of the transmission network

How might any such problems be addressed?

The MEU suggestions for assessing the need for addressing constraints have been provided above. Reducing generator market power, reducing the vertical reintegration, including the reduction of costs to consumers of price spikes in the RT by allowing increased augmentation to minimize generator market power are three ways of addressing the problem.

5.2 Bidding incentives for participants

The AEMC discussion paper addresses the potential for inefficient bidding practices as a result of constraints, whether inter- or intra-regional. The assumption is that the approach to bidding is symmetrical (ie there is a much incentive to reduce prices as there is to increase prices). This is a view that NECA took when it undertook the rebidding review in 2001and this view was subsequently carried through by the ACCC in its review of rebidding. Whilst the frequency of rebidding by generators to reduce prices (for what ever reason) is heavily in favour of reducing prices, the relative fewer rebids to increase prices has a much greater impact on the average annual regional prices.

Too often reviews concentrate on the frequency of the problem rather than the outcomes. In relation to constraints, there is little doubt that the ability of generators' bidding strategies are focused on maximizing profits, because this is what shareholders require for their assets. The extreme severity that can result when a constraint occurs, demonstrates that the issue may not necessarily be a frequent occurrence, but when it does occur the outcome is of major proportions.

6. How material are reductions in the dispatch and pricing efficiencies due to binding intraregional constraints under the current arrangements?

It should be remembered that the regional jurisdictions controlled electricity supply and were vertically integrated, addressed this problem because it impacted on the operation of the state owned entity. Thus when a constraint was identified (prior to the mid 1990's) it was addressed directly by the state owned business in advance of the problem occurring. Thus there is every expectation that as only a decade has elapsed since the break up of the state owned businesses that few intra-regional constraints would have emerged.

At the same time, inter-regional connections were seen as only a support to the state owned businesses and therefore had less attention placed on them. Thus inter-regional constraints have since developed as the major issue, and intra-regional constraints have yet to develop to the same extent.

How can they be quantified?

NEMMCo attempted to provide some quantification of the impact of intra-regional constraints as part of its work for the ACCC/AER service standards working group. Apparently this was extremely complex but there are results available for the relatively short period that was investigated. The analysis seems to support the contention that intra-regional constraints have less impact than inter-regional constraints, as might be expected.

5.3 Managing counter price flows and negative settlements residues

The negative settlements result from there being a too few regions. The example used in the Issues Paper clearly shows that should such an event as negative SRs occur frequently, then there is a strong reason for the region to be divided into two. Jurisdictions appear to be opposed to increasing the number of regions as this detracts from the jurisdictions' ability to have consistent pricing across an entire jurisdiction, and is therefore politically unacceptable.

Addressing intra-regional constraints which impact on inter-regional settlements should be seen as an essential activity. However the RT which would demonstrate the need for such augmentation to relive the internal constraint, is constrained from including the commercial benefits to consumers that an augmentation (relieving the constraint) would bring.

Thus the solution to the problem identified is by increasing the numbers of regions and ceasing to standardize pricing across a jurisdiction, and by modifying the RT to include for the benefits to consumers for relieving the constraint.

7. How material are the reductions in dispatch and pricing efficiencies due to the management of negative settlements residues under the current arrangements?

NEMMCo has the ability to identify the cost to consumers of this out of merit dispatch. However there is no doubt that as demand increases, intra-regional constraints will increase, exacerbating the problem identified. Whilst quantifying the problem now might indicate that the issue is of minor concern now, the problem will get worse over time unless there is a solution developed.

How can they be quantified?

NEMMCo has a tool which can quantify the magnitude of the problem. However To defer the matter now is not the solution – it must be addressed now before it gets worse, and replicates the magnitude of the inter-regional costs of constraints to consumers

5.4 Efficient signals for investment

8. Have the existing arrangements resulted in materially inefficient investments?

The only significant augmentations made to the transmission networks to improve inter-regional exchange of power has been QNI (initiated before the NEM commenced, minor improvements to Vic-Snowy transfer, and the three market NSPs. QNI and the Vic-Snowy augmentations have been demonstrably supportive of consumers. The fact that both Murraylink and Directlink have reverted to regulated status at a discount to their construction prices indicates that these augmentations have proven to be non-commercial. The other market NSP (Basslink) is effectively underwritten by the Tasmanian Government and therefore should be considered more as a QNI approach to interconnection.

New generation has been constructed in a number of jurisdictions, a significant element of this by retailers to provide physical hedges against price spikes when inter-regional flows are constrained and there is price separation. Such new generation has been located at the most convenient point for fuel supply and available space, rather than to address locational signals for the most supportive of the signals provided by the NEM.

Demand side responses are modest at best, and those able to provide a DSR, tend not to be located in the place needed to relieve constraints.

With this in mind, accepting that the average annual regional prices are so heavily dependent on price spikes resulting from uncoupling of regional prices, indicates that the current arrangements of pricing signals are totally inadequate to encourage responses where they are most needed to relieve constraints.

> Could the existing arrangements result in materially inefficient investments in the future?

Yes.

> What kind of inefficiencies may result?

As there is little response now to signals, matters will only get worse as demand continues to rise. The inefficiencies identified now will not improve as demand increases, and can only get worse.

9. How well do existing arrangements provide signals for efficient investment over time and locationally using the least-cost technology—generation, network demand side management or non-electricity alternatives?

The result of the NEM operation to date shows that the existing arrangements are totally inadequate; and it is by far and away consumers who are paying the price for these inefficiencies.

5.5 Risks arising from congestion

The Issues Paper only considers the impact on generators being constrained-on or -off as the prime cause of risk relative to a constraint. In relative terms these costs are modest compared to the accumulated risks paid for by consumers.

Consumers are obliged to pay the risk margins set by retailers. As retailers by and large have remained in business then consumers are paying all (if not more) than the costs of risk mitigation incurred by retailers. Retailers in turn purchase power from the generators who incorporate their costs of risk mitigation into there supply prices. In this regard it should be noted that it is generator pricing practices that result in the price spikes.

As the largest component of risk mitigation faced by generators and retailers relates to the price spikes caused from inter-regional price separations, then the risks are faced by consumers is of a larger magnitude than those faced by either generators and/or retailers. The costs to consumers must be greater than the sum of the individual risks faced by the other parties.

10. Does the potential to be constrained-off or constrained-on relative to the regional reference price result in material risks for market participants?

    How are those risks managed?

5.6 Financial risk management

There is a basic assumption in the Issues Paper that needs to be considered – that is that there is real hedging trade across regions. When consumers approach retailers for pricing, one of the basic questions asked is “who is the generator counterparty?”. This provides the consumer with an indication of whether the base price offered by the retailer is reasonable. Invariably the response is that the generator counter party is a generator in the same region. This, it is explained, is because the retailer cannot take the inter-regional risk associated with using pricing from another region.

The implications of this response are twofold:-

- The risks of trading inter-regionally are too high for a retailer to take. The excesses in pricing that are seen when price separation occurs are of

such a magnitude that the retailer cannot find adequate risk management tools to manage the extent of the risk.

- The fact that there is a very modest (at most) secondary market in the NEM when compared to other secondary markets is indicative that the NEM operations are just too volatile and provide too little ability to relate the potential outcomes to the potential inputs, for a secondary market to develop.

11. Do market participants face problems in managing risk due to the nature of the instruments available, or the liquidity of market for those instruments?

Yes. There is very little liquidity in the financial markets for participants to manage risk. The reasons for this are noted above. The fact that retailers are building peaking generators is indicative that the financial markets are virtually non-existent and that a physical hedge is required to mange exposure to the risk of operating in the NEM.

If so, how are those problems related to the current approach to congestion management?

Congestion allows regional prices to separate and spike; congestion requires the out-of-merit order of dispatch. Congestion is caused by insufficient capacity in the network to provide for consumer needs.

Consumers are prepared to pay for augmentation of the networks to relieve congestion that results in increased costs to consumers. The RT needs to be changed to allow these needed augmentations to be built and so relive congestion causing costs to consumers.

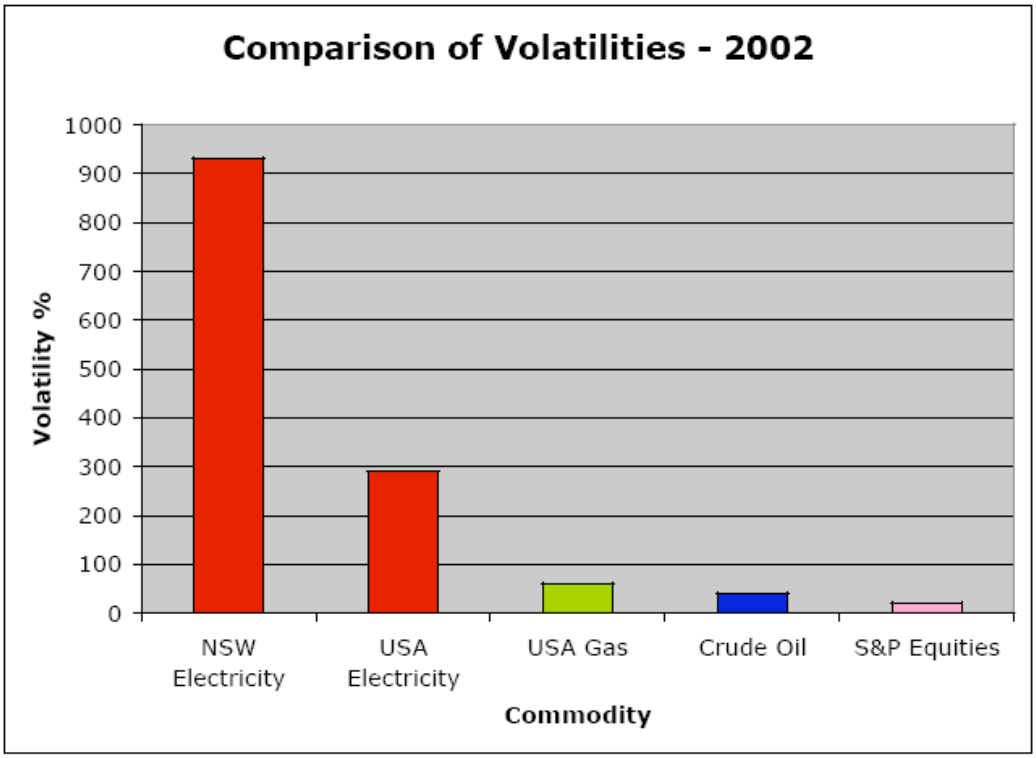
12. Are there problems in accessing information to support effective risk management in the context of congestion in the NEM?

The information provided in the Issues Paper indicates that OTC trading is a five year average of perhaps 25% above actual demand based needs. The SFE trading is even less than this. In most secondary trading markets the secondary market would be expected to be many times a multiple of the base market.

The fact that there is so little secondary trading is indicative that the information flows are inadequate and that the risks can be so severe. The lack of true forecastability due to the extreme randomness of the severe price movements also creates the lack of a secondary market.

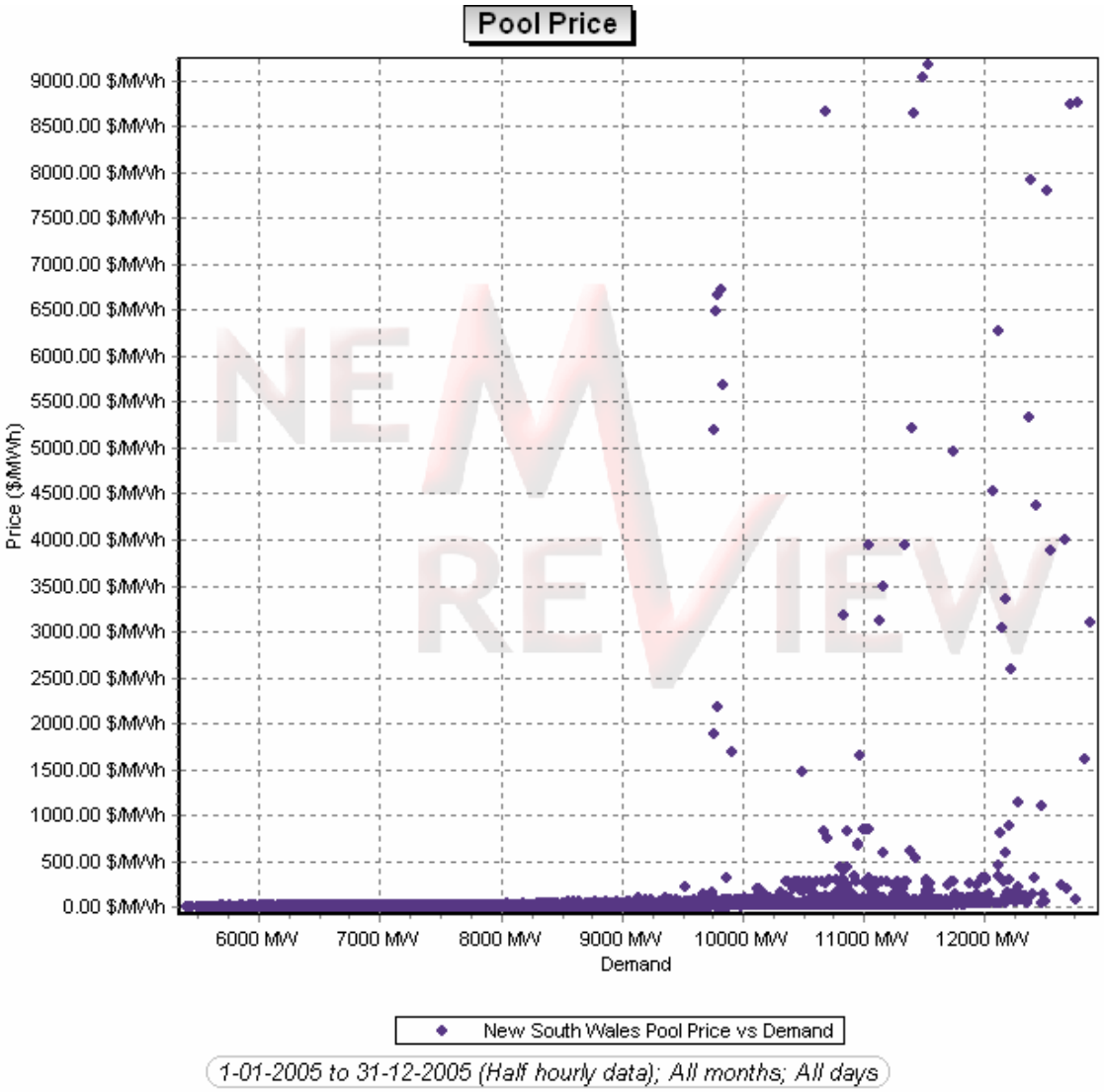
In its paper on the NEM, Bardak[8] provides the following comparison of the volatility of different markets – many of which have thriving secondary market trades. The extreme volatility of the NEM market (using NSW regional prices in 2002), exemplifies the reason for the minimal secondary market.

Fig 5.9 Comparison of Volatilities



A secondary market requires the primary market to operate within certain bounds that can be forecast. As the NEM regional pricing is so random and can be so severe in magnitude, this essentially precludes the secondary market from operating.

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



As noted in section 2 above over one third of the average annual regional price for NSW in 2005 was attributable to prices above $300/MWh. The peak demand in that year was 12884MW with a price of $3092/MWh. With the high prices ranging from a demand of 9775 MW (lowest price recorded for this demand was about $20/MWh and the highest at about $6489/MWh) to 12884 (a demand of 12763MW was priced at $77/MWh), there is little of the consistency needed to operate within the risk parameters needed for a secondary market.

Is the lack of exchange based trading a problem in this context?

5.7 Inter regional settlements residues

IRSRs are stated in the Issues Paper as:

> "… generally reflect[ing] the price differential between the two regions where they accumulate, they provide a useful hedging instrument to parties that trade between those regions." (page 32)

This addresses the ability to manage risk, as cross regional trading is related to the degree of price separation between regions. That the IRSRs are the same as the differential points more to addressing risk for a retailer than to addressing the fundamental cause of the price separation (which is the constraint). This approach does nothing about:-

- mitigating the cost to consumers of the constraint,
- the ability of regional generators using the constraint to spike prices,
- the fundamental need that generators must spike prices in order to receive a reasonable return on investment, or
- the resultant severe volatility that negatively impacts on new generation investment.

13. Does the current design of IRSR units impact the ability of participants to efficiently manage inter-regional price risk?

The current approach does little about managing risk – what it does is to protect the retailer form being sent into bankruptcy in the event there is a severe price separation.

The IRSR process as currently managed at most only addresses 12 months ahead. Consumers have invested in their current facilities (be that a residence or a large manufacturing facility) for the long term. As a result they seek stability in pricing against which they can assess their future costs. The approach to have SRAs only for the next four quarters is an inappropriate match to the needs of consumers who might seek forward pricing for 3, 5 even 10 years ahead. Thus the SRA approach does little to provide certainty for those seeking such long term arrangements.

What is overlooked in the Issues Paper is that managing risk is more than being protected from the outcomes of a severe price separation. Management implies taking active steps to minimize the costs resulting from the cause of the risk. **There is no "risk management" included in the IRSR process – it is only a means of protection from the outcomes of that risk.**

Consumers consider that the risk management needed is to identify the costs of the continuation of the risk compared to the cost of mitigating the costs being borne by consumers.

5.8 Certainty and transparency

The assumption throughout the Issues Paper is the need for certainty for the NEM Participants. What is totally absent from the assessment is the need for consumers to have certainty that they are receiving the lowest reasonable pricing and that this will not be increased unreasonably or the NEM to provide excessive profits for Participants.

The fact that the single market objective refers only to the interests of consumers (and to no other party) has been overlooked in the analysis of the congestion management.

The fact that there has not been a transition to more regions as foreseen in the original NEM design has prevented the regulatory change that would have eventuated. This has increased the certainty of operating in the NEM without this change occurring.

What has created uncertainty for NEM participants and consumers alike, has been the extreme volatility and severity of price spikes seen in the NEM. What has further created uncertainty is the fact these price spikes are not predictable, reducing the ability to manage the impact of them. That many of the price spikes are attributable to network constraints has allowed the generators free rein to utilize constraints to maximize revenue.

14. Has the uncertainty regarding regulatory process and decisions created material risks for participants?

It is not seen that the lack of an evolving regional structure has created much uncertainty. It is more so a concern that constraints have been allowed to remain in the networks without appropriate attention that has caused concern and uncertainty.

15. Do market participants face problems in managing risk due to a lack of transparency associated with the current approach to congestion management?

The lack of clarity in the Rules to permit the resolution of constraints creates a real risk for consumers. The apparent lack of concern by regulators that the party bearing the bulk of the risk (the consumer in its electricity price) is not permitted to include in the RT the cost of this risk to offset the cost of mitigating the risk (by the consumer in transmission prices) has created.

If so, what are the nature and materiality of these problems?

The materiality of the cost of constraints in the NEM has been provided above in Section 2.

5.9 Other issues

16. Are there any additional issues with the current congestion management regime that should be considered as part of the Review?

    How can the materiality of these concerns be quantified?

6. Future options

The initial view of the national electricity market was one where there was free flowing power to all parts of the network. This would be created by strongly reinforcing the interconnections between jurisdictions so that there was in fact a true national market. What we have at this time is a series of regions connected by relatively weak interconnections which are regularly constrained.

It was envisaged that a truly national NEM would provide sound competition between all generators, essentially regardless of location, so that the market price for electricity would be reasonably consistent across the entire market. Price separations would be an infrequent occurrence and usually attributable to an asset failure rather than a NEM where price separations occur frequently and with severe price implications.

The NEM does not provide this “Shangri La”. As was identified when the SA-NSW interconnector was mooted, there are many ways to prevent what was seen as an eminently appropriate augmentation was so easily prevented. This project did pass the RT but was prevented by particular interests[9] keen to maximize profitability on their own investments.

Other inter-regional connections have been mooted, yet they have been prevented by particular interest groups and companies, or by the failure of the RT to recognize identifiable benefits to consumers.

The Issues Paper lists a number of comparisons between the NEM and overseas approaches to attempt to resolve the problems of constraints. Unfortunately the NEM is unique in a number of ways and there has been strong resistance to modify the structure to address major problems. As an example the UK model (on which the NEM is based) has been significantly changed to address identified problems, yet there has been only minor changes to the NEM to date and these have had a marginal impact only (if any) on improving the NEM outcomes.

The main challenge facing the NEM, as distinct from other approaches, is the extreme volatility of pricing and the severity of these prices when compared to the average of prices throughout the regions. That many of these price spikes are associated with constraints in the NEM clearly demonstrates that as a first step, these constraints must be addressed before refinements to the NEM processes as proposed in the Issues Paper Future Options can be considered.

This submission highlights the need for the RT to be modified to allow the costs to consumers of constraints to be included in the assessment of augmentations. The MEU is firmly of the view that, as a first step, constraints which would be

[9] Both generators and Murraylink joined forces to prevent SNI occurring.

reduced in frequency and severity by a regulatory approach which recognizes that constraints cause significant cost to consumers (and where consumers are willing to pay for the mitigation of the constraints) must be resolved before the refined approach to addressing the remaining constraints.

It is accepted that constraints will be present in the NEM, but the cost impact of these remaining constraints, after resolving the main culprits, might well be more easily addressed by the refinements suggested in the Issues Paper.

The approach suggested in the Issues Paper is as follows:-

> "Under this staged approach:
> - no action would be taken in response to minor or temporary congestion;
> - a congestion management regime would be introduced in response to material congestion. The proposed CSP/CSC regime, discussed in more detail in Section 5.4, would introduce modified pricing for generators affected by a material constraint and might incorporate contracts, which protected their financial position. The arrangement would leave pricing for load unchanged;
> - where congestion is both material and enduring, investment in transmission may be justified. This could where necessary be facilitated by the Commission invoking a LRPP process; and
> - if the congestion persists, and no investment response is forthcoming, the Commission may undertake a review of whether the criteria for region boundary change are met, and if so initiate a boundary change. The boundary change would lead to changed pricing arrangements for load as well as generation." (page 37)

In principle this approach is supported, but these elements are seen as refinements rather than addressing the core problem. Augmentation must be undertaken at points where severe[10] congestion occurs. It is the failure of the RT as developed by the ACCC to include the impact on consumers of the costs of constraints that must be seen as the initial stage.

If the fundamental issue of the RT is not addressed then consumers see that this whole review is purely a matter of rearranging the deck chairs on the Titanic rather than a sincere attempt to resolve the pressing cost outcomes resulting from a flawed assessment of benefits.

[10] As measured by the financial impact and not by frequency

6.1 Current approach to congestion management

17. Is this an appropriate characterisation of the current arrangements in the NEM for the purposes of assessing potential improvements to the congestion management regime?

It is appropriate to set a starting point against which improvements can be benchmarked. The characterization made in the Issues Paper as representing an appropriate starting point is accepted, but only if the first item is to address the need for a change to the RT.

Points are made earlier which should be used to refine the definition of the starting point, such as

- The view that SRAs are only a tool to prevent financial catastrophe rather than a being a tool for managing risks.
- Boundary change proposals address market power issues as well as technical criteria
- "Soft constraint equations" need to be introduced into the NEMDE by NEMMCo.
- There are concerns that preventing NEMMCo from managing counter price flows may increase costs to consumers and increase risks.

6.2 Rationale for a staged approach

18. Is the proposed 'staged approach' to congestion management an appropriate framework?

A staged approach is supported. The first stage should be a change of the RT to allow the inclusion of the cost penalties on consumers to be included in the RT. It is considered that this will reduce many of the current constraints observed in the NEM and therefore future changes will have much less impact on consumers than might otherwise be the case (eg such as might result from changing boundaries).

Is it the most effective response to those problems? Is it technically and commercially feasible?

6.3 Need for a staged approach

The Issues paper cites a concern that a staged approach is necessary as an intermediate step (such as a boundary change) could have a significant cost impact on the consumers affected. This is true. However it is seen that the most

likely outcome of introduction of regional boundaries changing will be the introduction of new regions rather than just a move of an existing boundary.

The NEMMCo review of new boundaries implied that there would be a new SA region (based around Mt Gambier) and at least three new regions in Queensland. The impact of these new regions on consumers needs to be identified before their introduction to ensure that the transition will be manageable. Failure to carryout such a review could easily result in downstream investment being made non-viable, causing loss of jobs and loss of revenue to the jurisdiction, not to mention the commercial impact on the owner of the facilities impacted.

19. Has the NEM had material congestion problems which have not been enduring?

Constraints have been enduring, as have the costs of these constraints. There has been made an assumption that the costs and management of intra-regional constraints will be excluded from the review. This is a bold statement as the new regions developed from purely technical criteria could well result from these intra-regional constraints, causing new regions to come into reality.

As noted earlier attempts have been made to address intra-regional constraints because they occur within a jurisdiction and a single jurisdictional entity has the responsibility to minimize the costs associated with such constraints – usually by network augmentation. It could be assumed that such an approach will continue further reducing intra-regional constraints.

Is it likely to do so in future?

It is expected that the jurisdictional entity responsible within each jurisdiction will continue to augment the networks to minimize intra-jurisdictional constraints.

It is the inter-regional constraints that are not managed as well as intra-jurisdictions. A national body is needed to take control and manage inter-regional constraints. Unless this occurs, these constraints will continue and so be enduring".

20. Are the costs of an interim congestion regime (discussed in greater detail below) clearly lower than the costs associated with region boundary change?

The MEU is of the view that the first stage must be the addressing of constraints through a modified RT. Constraints between regions must be made the

responsibility of an entity charged with a national view of the needs of the NEM transmission network.

Once this change has been effected, then the costs for future changes may well be much lower than first envisaged.

6.4 Process for implementation

As noted earlier to attempt to add refinements to the Rules ahead of resolving the prime cause of constraints (ie that the RT does not address the problem correctly) will be a pointless exercise. The triggers mentioned for resolution of the constraints include a lack of investment to ameliorate the constraint. Yet its is the inability of TNSPs to secure the regulatory approval by use of a flawed RT that is preventing this investment occurring.

In regard to inter-regional congestion (which generates the market pricing signals) there is no body charged with the responsibility of assessing the needs for inter-regional congestion. There are jurisdictional bodies reviewing intra-regional constraints, but their purview is limited.

In addition to resolving the RT, the first step must be establishment of a body for over-viewing all inter-regional needs and assessing the impacts and solutions to inter-regional constraints.

21. What triggers should be considered for the introduction of various congestion management tools under a staged approach?

The Issues Paper fails to address the fundamental need of assessing why the existing approaches have not resulted in the needed (and expected) outcomes. That lack of investment is seen as a trigger to reduce congestion is obvious, but why has there been no investment has not been addressed.

The question is raised that the congestion must be seen as enduring, yet little attempt has been made to identify the current congestion issues which have effectively “endured” since the NEM commenced, or for a mechanism for these to be addressed.

Despite being raised by consumers at every opportunity, no attention has been given to resolving the very large financial impact that consumers have carried since the NEM commenced – consumer views in this regard have been effectively dismissed without detailed analysis or explanation.

Which institutions should be responsible for recommending and approving the introduction of congestion management tools at each stage?

The Government owned TNSPs in Queensland, NSW and Tasmania, and VENCorp and ESIPC in Victoria and SA respectively have this responsibility to assess the impact of intra-regional congestion. There is a need for a national body to oversee the needs of the national market, and to coordinate the activities of the regional jurisdictional bodies to ensure there is an outcome appropriate for the national market needs.

It is strongly recommended that this be a new planning body, and not an adjunct to NEMMCo which has the responsibility for operating the NEM. MEU sees that there is a potential conflict of interest for NEMMCo being both operator and planner, as NEMMCo will have the responsibility to provide unbiased advice to the planning body in order for the most appropriate decision to be made. There is also potential for NEMMCo to concentrate its resources to aspects other than planning.

6.5 Region boundaries and the staged approach

22. What role should region boundary changes play in managing congestion, particularly in a staged response?

The creation of regions and moving regional boundaries has heavy political implications, and therefore must addressed with care.

Changing boundaries will have minor impact on relieving congestion and the transfer of energy within the NEM. Essentially congestion is related to technical issues such as the carrying capacity of the network, and the relationships of the network to locations of generation and demand. The decision to have a demand or generation in one region or another does not impact on the ability of the network to provide improved access to lower priced generation or to limit the degree of out-of-merit order generation.

How much emphasis should be placed on that role?

The MEU is of the view that more fundamental issues need to be addressed before consideration of matters which might at best provide a marginal impact to the major issue of the costs to consumers of congestion.

In this regard the MEU is of the view that regional boundary changes should not be the primary approach to attempt resolution of the congestion observed in the NEM.

23. Is the economic boundary change criterion proposed in the MCE region boundary Rule change proposal consistent with the staged approach to congestion management?

    What further efficiency gains would be realised from region boundary change, after the introduction of an interim congestion management tool?

6.6 Firming up IRSRs

Providing firm transmission rights (or even an approximation of these) has the potential to allow generators to increase their market power even further. For example a generator with generation in two adjacent regions with the generation capacity exceeding the capacity of the interconnector, and who has secured the FTR on the interconnector, has the ability to ensure the price in a region can be maintained at a high level for extended periods of time by careful adjustment of generation outputs from their generation.

On the other hand, does allowing firm transmission rights lead to a reduction in the congestion? No. The only way the congestion can be reduced is by network augmentation, changing the demand or changing the pattern of generation.

What is needed is not an ability for a market participant to secure financial security in the event that a constraint has occurred, but a method for ensuring the constraint does not lead to an increase in the cost of power to consumers. At worst what is needed is a clear financial signal that investment is required to relieve a constraint which is causing higher than needed costs to consumers.

It is accepted that the purchase of an FTR does provide a signal that a market participant sees that its investment in the FTR his valuable. It assesses this from observations that the price separations between regions would provide it with financial security in the event a price separation occurs. This is no different to including into the RT the financial benefit to consumers for relieving the constraint – a cost element that is currently excluded from the RT.

The MEU finds it intriguing to say the least that the Issues Paper would countenance the firming up of IRSRs as a potential solution for retailers, without accepting that the same outcome for consumers is currently prevented by the RT.

24. To what extent will firming-up IRSRs facilitate inter-regional trade?

No, it can't. Firming up IRSRs can enable the purchaser of the rights to control the pricing in a region. In this regard, it is not the increase in inter-regional trade

that will increase (after all it can't as the physical constraint prevents this) but it grants the holder of the rights access to benefit from a price separation between regions.

What will increase inter-regional trade will be the reduction of the constraint by augmenting the network. If the RT is permitted to include the cash benefits from the relief of the congestion as proposed by MEU, then increased inter-regional trade is achieved.

What is the best approach to firming up IRSRs and how would this work?

This approach is seen as a refinement and should not be seen as a first step. When assessing the impact of firming up IRSRs, care should be taken to ensure that this does not increase to costs to consumers for them using the transmission network. As the transmission network is paid for by consumers, any increase in risk carried by TNSPs can be passed through to consumers. If this occurs, not only are consumers still facing the costs of the price separation, but they will also be paying for the increased risks devolving from the sale of FTRs (or their equivalents) to market participants.

The lowest cost option would be for the RT to be modified as suggested. This way, consumers not only see a direct financial benefit, but face less risk and therefore pay lower risk premiums.

6.7 Constraint formulation

As noted above, there is no incentive on TNSPs to expose themselves to risk by permitting the networks to operate at maximum capacity, or for even short periods of over capacity. In fact there is an incentive on the TNSPs to under declare their networks capacities, as by doing so they are better able to convince regulators of the need to augment the networks. It is by augmenting their networks that TNSPs increase their rewards to their shareholders.

Thus by relying purely on the advice of the TNSPs as to the capacity of their networks under all scenarios, there is the potential that the maximum capacity of the networks is not being provided.

It was recommended above that there must be a national oversight of the NEM. The concern that the NEM might not be operating at its optimum ability can be addressed by this national planning body. As the needs for augmenting the NEM are so heavily dependent on the capacities of each element of the NEM (as these are the result of the constraint formulae used by NEMMCo) such in depth analysis of the constraints would be a necessary part of the operation of the national planning body.

MEU would see that the national planning body would carryout the necessary development of any financial case to support the needed augmentation.

25. Is there a need to review the case for the 'option 4' constraint formulation approach in the context of this Review?

Yes. See comments above.

If so, what would be advantages and disadvantages of moving away from an 'option 4' approach to constraint formulation?

6.8 Counter price flow management

It is accepted that the principle for an intra-regional constraint impacting flows across a region can result in perverse outcomes. It has not been established that this occurrence is either frequent or resulting in costs to consumers. The market objective is the basis for assessing such perverse outcomes and therefore there is a need to identify the magnitude of the problem. The Issues Paper notes that these occurrences may not be sufficiently frequent to justify intervention. As MEU points out in the section 2, a VoLL occurrence for just 5 minutes creates an impact on consumers by adding $0.10/MWh to the average annual regional costs.

If the problem is infrequent then a sensible manual adjustment can be carried out to eliminate the perverse outcome. Where the frequency increases, then the problem needs to be addressed formally. In this case the first step is to quantify the problem in terms of consumers. If the problem results in the RT (including the costs to consumers) identifying that an augmentation is warranted, then this provides the solution to the problem. If augmentation is not a viable solution and the outcome is still a high frequency then other solutions should be investigated. It would be axiomatic that if the RT (including the cost impact on consumers) did not result in augmentation, then the problem has a low cost to consumers and therefore can perhaps be left to lie as it is.

26. What would be the effect of ceasing NEMMCO intervention to manage counter price flows?

It is not in the interests of consumers for NEMMCo to become financially unstable. Therefore NEMMCo must take steps as it is currently doing to minimize the potential of this risk. The MEU is of the view that the recommended change to the RT would significantly reduce the impact of these counter flows on it.

To what degree does this depend on other factors such as the region boundary criteria and process?

27. How should negative settlements residues be funded?

    Should the current process of offsetting negative residues with positive residues within the current billing week be continued or changed?

There would appear to be no sensible alternative to the current practices and this combined with the MEU recommended change should be sufficient to mange this problem sufficiently to render it a non issue.

6.9 Constrained-on payments

A constrained-on payment is a side effect of the network being insufficiently sized to prevent the need. It is compounded by the right of a generator to locate itself regardless of the needs of the consumers. If the RT included for the costs of such imposts on consumers then the issue would be quickly resolved.

A constrained-on generator would not have been dispatched if the network was sufficiently sized. Therefore it has no expectation that it would have been dispatched before it was dispatched in the normal manner, ie when the regional price matched the generator bid price. Thus the constrained on generator is at most only entitled to its marginal cost of operation in that this payment would cover its costs that it has unexpectedly incurred as a result of being constrained-on. If the regional price is less than the marginal cost of operation the generator is out of pocket. If the regional price is above the marginal cost then the generator is receiving a benefit that it never intended to receive as it was bidding above the regional price.

Thus the only exposure that a constrained-on generator has, is if its marginal cost is higher than the regional price. Thus there is a case for a payment to a constrained-on generator if it is constrained-on at a price lower than its marginal cost of operation. These marginal costs for different types of plant are well known and can be used to assess any payment that might be due as a result of constraining-on.

As has been mentioned before, there is no quantification of the problem. Further if constraints were severe enough to be a problem it is quite likely that the modified RT would address the issue and result in network augmentation and so the problem disappears.

If the is a residual problem after assessing a network solution, the constrained-on payment between the regional price (where it is lower than the marginal price)

and the marginal price of the generator should be seen in a similar light to the cost recovery of ancillary services.

28. Are constrained-on payments an appropriate solution to generators being paid regional reference prices less than what they offer?

    If so, what principles should apply for determining the size of payments, who should apply them and how should they be funded?

29. Would the funding of constrained on payments be likely to introduce a material financial risk for participants making the payments?

The provision of ancillary services is by market participants. There is deemed to be little (if any) financial risk associated with provision of these services. As the risk of payment to a generator is seen as being the cost between the regional price and the marginal cost of the generator involved, the costs of constraining-on would be very low in comparison to other risks in the NEM.

How could this risk be managed?

6.10 Network support agreements

The way the Issues Paper addresses the matter of network support payments typifies the lack of understanding of the shortcomings of the current RT. Network support is only accepted if it meets the RT. In the case of the Far north Queensland arrangement the NSA was identified as the lowest cost option for providing a network service to that location. The NSA was selected over a network augmentation solution. The costs of the NSA was seen to be lower than the maximum cost that consumers were likely to pay for (ie it met the benefit test limb of the RT). If neither option had met the benefit test neither the network solution nor the NSA would have been instituted.

NSAs are a useful tool to limit congestion. The modified RT would still require the lowest cost solution to congestion to be instituted, and if providing specifically sized and located generation is a more cost effective solution to relieving constraints and congestion, then this should be permitted and instituted.

The cost of NSAs are included in the regulated revenue granted to TNSPs.

30. Would there be merit in extending the existing NSAs as a congestion management tool in the NEM?

    If so, how should such arrangements be implemented?

6.11 Network control ancillary services contracts

NCAS has the ability to achieve two main functions. The NCAS called for by NEMMCo is predominantly for reactive power supply as consumers need the provision of reactive power (MVAr) for their electrical equipment. The outcome of excessive reactive power supply is a drop in voltage.

However, reducing the load of reactive power in the network can lead to increased carrying capacity of the network. The RT has the ability to permit the use of NCAS to increase the capacity of the network and have the costs recovered through the TNSP revenue.

Thus there is no doubt that augmentation of the transmission system through the provision of NCAS can have a role in reducing congestion. As the TNSP carries out the responsibility for management of the network, including augmentation, it is appropriate that the augmentation by NCAS should be included in the TNSP revenue cap. Such NCAS can be provided by generators or by fixed hardware and so the RT would require the TNSP to implement the lowest cost option.

31. Should NCAS support contracts be used to enhance transmission network capability?

Yes.

If so, who should offer these contracts?

Where the need for the NCAS is to increase the carrying capability of the network, it is the role of the TNSP to seek the right to augment. The RT will provide the substantiation for the costs to be included in the revenue cap.

32. Is there merit in having TNSPs responsible for procurement of NCAS, rather than NEMMCO, so that NCAS forms a part of the Network Services?

As noted above there are two roles for NCAS. TNSPs should be responsible for NCAS which increases the capacity of the network.

NEMMCo should continue to seek provision of reactive power to match the needs of the network as it is provided.

If so, how should this be arranged?

33. What would be the best way of funding NCAS payments and how should this be implemented?

NCAS for reducing congestion is a network issue and should be left to the network owner. Funding would be through the regulatory review process.

6.12 Designing the CSP/CSC arrangements

The process of the CSP/CSC approach to constraints is confusing.

On the one hand the RT, which could relieve the constraint if the impact of price separation on consumers was included, is currently precluded from including the cash benefit to consumers if the constraint was resolved.

On the other hand, the CSP/CSC approach actually provides a cash benefit to the generators affected by a constraint. An FTR would do likewise. The Issues Paper considers that these options are acceptable, yet the rules behind the operation of the RT which, if varied, would permit many of the constraints to be relieved are not even considered for review and comparison to the option being countenanced in the Issues Paper.

The fact that the Issues Paper considers that payments are appropriate to be made to generators for CSP/CSC approach, clearly implies that there should be an equal right to include in the valuation of benefits under the RT, the cash benefits that consumers will receive should a constraint be reduced.

What the approach being contemplated by the Issues Paper, is that consumers should remain liable for the inter-regional price separations **and in addition,** pay for generators to recover the losses they make in being constrained-on or -off.

Where is the equity in this? The market objective is that the market should work to the benefit of consumers. Precluding real cash benefits of reducing constraints from assessments of the RT, and yet require consumers to pay for generator losses caused by these constraints, is simply absurd, and does not meet the market objective.

Allocation of CSCs

A major problem with the CSC is that it creates a right. This results in three major considerations –

- How is the right allocated between two (or more) existing generators both impacted by the same constraint
- It precludes new entrants at the same location being able to operate equitably with the incumbent generators.

- Whilst networks are very reliable, there are times when the network is not able to operate at maximum capacity. When this occurs, who has the rights of usage?

34. Is the allocation of CSCs a necessary element of a CSP/CSC regime, or would it be practical to introduce CSPs without simultaneously allocating CSCs?

35. If CSCs are a necessary component, what is the optimal way to allocate CSCs?

    What effect will this have on the ability to introduce CSPs rapidly and flexibly?

Characteristics of CSCs

36. Is it important to the design of a congestion management regime whether or not CSCs are firm?

    If so, what issues should the AEMC consider in reaching a view on the appropriate nature of CSCs?

37. How should the process of region boundary change be coordinated with the allocation of CSCs under a staged approach to congestion management?

Lessons from the Snowy trial

38. How can the Commission best draw on the partial Snowy CSP/CSC trial to evaluate the costs and benefits of the use of CSP/CSCs?

    How can the Commission best draw on the Snowy CSP/CSC trial to consider modifications to the proposed design of CSPs and CSCs?

6.15 Alternative congestion management arrangements

39. Are there any additional congestion management tools that should be considered as part of this Review?

Yes. As noted above, the cash benefits to consumers from constraint reduction should be included into the Regulatory Test

    How would these tools be implemented?

Very easily – by changing the regulatory test. TNSPs would immediately commence a program of constraint reductions with the costs being permitted into the revenue cap which is directly and predominantly paid for by consumers.

> How would they interact with other aspects of the congestion management regime?

They would reduce the need for many of the other options being considered.

> What would be the effect of such tools on participant behaviour and market outcomes?

The change would reduce the number of incidents of constraints and would lead to a reduction of generator market power.

6.16 Packaging of options

40. Which, if any, of the congestion management issues identified in this paper could be considered on a stand-alone basis?

The change to the RT could be implemented immediately and does not need any of the other options to accompany it.

> Which issues need to be considered together to ensure a comprehensive and consistent congestion management regime?