Loy Yang Marketing Management Company Pty. Ltd.

AGL Energy Pty. Ltd.

International Power (Hazelwood, Synergen, Pelican Point and Loy Yang B)

Flinders Power

Intergen Australia

Hydro Tasmania

3rd Dec 2007

Dr John Tamblyn
Chairman
AEMC
Level 5
201 Elizabeth Street
SYDNEY NSW 2000

By email: submissions@aemc.gov.au

Dear Dr Tamblyn

Congestion Management Review – Draft Report

Please find attached a submission to the Congestion Management Review – Draft Report, (CMRDR) from the above listed group of NEM generators.

This group of generators who represent a significant proportion of the generation capacity of the NEM are pleased to comment on the Commission's draft report.

We agree with the interpretation of the ToR, as described in the Commission's Issues Paper, that:

- the term "materiality" is to be interpreted in the context of the cost of introducing mechanisms to manage congestion and, more broadly, in the context of the NEM objective;
- that the relevant measure of congestion is the impact that trading risks caused by congestion – or the threat of congestion – have on NEM efficiency;

As a consequence:

- a materiality threshold can only be defined once potential CM mechanisms have been identified and their costs and effectiveness estimated; and
- analysis of congestion should be forward looking and focus on the uncertainty of congestion impacts, not the average or expected level of congestion.

Despite the terms of reference the Commission has taken a static view or backward looking review of congestion and consequently has failed to properly identify the drivers of future congestion. By making the focus of the review the impact of congestion on productive efficiency, dynamic efficiency impacts of congestion (which are typically an order of magnitude greater) have been ignored. The Commission has not assessed the trading risks or the costs of implementation of congestion management regimes and consequently has been unable to determine the materiality threshold or the net economic benefit to all those who produce, consume and transport electricity as required by the terms of reference.

We are also of the view that changes to the regulatory arrangements will reduce the future incidence of congestion.

The following is a summary of the important points raised in this submission which comments in particular on the following sections of the CMR.

Factors influencing the extent of congestion and outlook for future trends (3.1.6)

Because the analysis conducted by the Commission has focussed primarily on assessing the impact of congestion on productive efficiency at a specific point in time it has failed to identify the factors that will have a significant impact on the future trends in congestion.

A review of the Commissions analysis in this section of the CMRDR shows that the factors of primary importance in influencing the extent of congestion and outlook for future trends in congestion are:

- Transmission Investment;:
- Generation investment in the competitive market, and
- And consequently the regulatory frame work for transmission which defines the relationship between the regulated and competitive market investment;

Economic materiality of congestion (CMRDR section 3.2 page 68)

The Commission considerations of the economic materiality of congestion included, productive or dispatch efficiency, risk management and forward contracting and dynamic efficiency[1] as relevant in assessing economic materiality of congestion.

However the assessment has been in general qualitative and focused largely on productive efficiency. This has included a review of the AER historical congestion indicators and a quantitative assessment of the costs of mis-pricing by Frontier Economics. The Commissions dynamic efficiency considerations were limited to a review of a study

[1] CMRDR page 68

undertaken by Intelligent Energy Systems[2] (IES) which was submitted to the Congestion Management Review by the LATIN group. Despite acknowledging *"the dynamic efficiency aspects of congestion could have the largest impact on dynamic efficiency[3]"* the Commission considers that the "limitations"[4] of the modelling mean that the results are not realistic. As a result the Commissions considerations of economic materiality have been largely inconclusive.

We do not agree that the "limitations" reduce the relevance of the IES work. In fact this work provides an approach for a detailed quantitative cost benefit analysis to assess the outlook for future trends in congestion and its economic materiality. This work could be carried out as follows;

1. A detailed quantitative analysis of future congestion and its likely incidence and duration;

2. A review of the costs and benefits of reforming the transmission regulatory arrangements to ensure that in the long term and on average these best promote dynamic efficiency and the economically efficient level of congestion.

3. An estimate of the likely incidence and magnitude of localised congestion. (It is noted that in practice congestion is likely to be localised and transitory as it will need to build to a level that justifies investment in transmission and may impact specific participants materially but not be material when considered relative to the overall NEM production costs).

All of these studies could be carried out together along the lines of the work undertaken by IES.

4. An assessment of the costs of implementation and transaction costs of a congestion management regime for management of congestion at or below the economically efficient level.

Transmission Pricing (CMRDR Section 7.1.2.2 Page 131)

The IES work shows that the current transmission pricing arrangements are unlikely to deliver efficient transmission and generation investment to provide the lowest cost supply to consumers as suboptimal generation investment can occur when transmission costs are ignored in investment decisions, or if funded there is high degree of risk or uncertainty in relation to access Also it is unlikely that any generator would fund additional transmission without a corresponding right to use (or have first call on) the incremental capacity.

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[2] The IES report compared the current regime of a single RRP for Queensland and "shallow" connection charges for generators to two alternative scenarios of: (a) introducing eleven nodal prices for Queensland via a full regime of constraint support pricing and (b) including a transmission congestion levy on new generators in addition to the constraint support pricing. The report showed that both hypothetical scenarios would lead to a more efficient generation and transmission investment than the current arrangements with scenario (b) yielding higher benefits than (a).

[3] CMRDR page 76

[4] The "limitations" identified by the Commission are discussed in section 4 of this submission.

Changes to the regulatory arrangements are required to increase investor certainty and therefore lower delivered costs of energy to consumers. These changes should ensure that new generation proposals incorporate into their investment decision:

- The entire cost of congestion arising from reduced generator access to transmission caused by the decision;
- The cost of building transmission to obtain transmission access certainty; whichever is lower; or
- Compensation payments to constrained-off generators (refer Rule 5.4A).

This would also mean that the magnitude and incidence of congestion is likely to be lower than under the current arrangements.

This could achieved by deep connection charge linked to access which would:

- Introduce a missing key investment signal to new investors;
- Enable *all* generators to invest in transmission without the value of that investment being eroded by new entrants;
- Effectively provide access certainty to new and existing generators, thereby reducing investment risk.

Review of the IES report (Section 3.2.3.1)

The modelling work undertaken by IES was to demonstrate the likely impact on dynamic efficiency of;

- treating transmission locational costs in the same way as all other locational costs ie they are internalised in the investment decision, and
- providing generators with more granular market pricing signals

We believe that the issues raised by the Commission and others do not undermine the validity of the results which demonstrate that there are potentially significant gains from reform of the transmission regulatory arrangements.

Summary

Based on the evidence on the occurrence and significance of congestion in the NEM (primarily a historical analysis) the Commission considers that the evidence shows that congestion is not a material problem.

We disagree that it has been demonstrated that congestion is not a material problem. In our view the major efficiency gains would accrue through increases in dynamic efficiency. The Commission has not attempted to evaluate these gains, and has rejected the high level evaluation we commissioned from IES. Rather, a focus on historic productive efficiency measures, the Commission has been led to conclude that materiality is not significant. There may be limited gains[5] in dispatch costs from addressing mis-pricing and congestion management particularly when considering the costs at an aggregate level, however this approach ignores the impact of dynamic efficiency gains.

[5] The Commission noted that in terms of productive efficiency "On the economic costs of congestion, the available indicators tend to be partial and raise numerous methodological issues. However, the modelling considered by the Commission indicates that there would be limited gains in dispatch costs from addressing either all mis-pricing or even all congestion in the market;"

Some constraints will have a short life-cycle, in that they may cause some economic inefficiency for one or two years before being largely addressed by investment in transmission or generation infrastructure. However because an individual constraint has a short life cycle does not mean than congestion itself can be characterised as a short tem problem. Consideration of this is required when assessing the various policy responses. There is a danger of not implementing constraint management mechanisms for what typically appears to be a short term problem for a particular constraint but is really a continuing and endemic problem.

If you have any questions regarding this submission please contact the undersigned on (03) 96122211.

Yours faithfully,

Roger Oakley
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(on behalf of the participants listed)

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Congestion Management Review
Draft Report

Submission from

Loy Yang Marketing Management Co
AGL Hydro
International Power
Flinders Power
Intergen
Hydro Tasmania

December 2007

Congestion Management Review - Draft Report

Introduction

The following provides further discussion of the issues raised in the covering letter.

In this submission we refer to the concept of "defined access" which means that the level of access originally agreed in the connection or use of system agreement should be maintained into the future by the TNSP. This means the access would be "firm" with respect to TNSP investment decisions but non-firm with respect to transmission failures or planned outages. This arrangement would not expose the TNSPs to additional risk from their operational and maintenance activities.

1 Factors influencing the extent of congestion and outlook for future trends (CMRDR Section 3.1.6 page 64)

The Commission's discussion in Chapter 2 of the CMR framed the context of the review by describing congestion generally in terms of its impact on productive efficiency, i.e. the discussion is in relation to the extent and nature of congestion in the NEM at specific point in time.[6]

The Commission notes that;

- in this context congestion is a function of a number of factors, including the location and size of load, generation and network capacity, the Rules for operating the system and market and the interaction of those Rules with the bidding behaviour of participants. This is essentially a static view of congestion, and also notes that;

- the evidence, and the analysis provided by both AER and NEMMCO point to a number of common factors that have a significant influence on the level of congestion in the NEM. These factors affect both the prevalence of system normal and outage-caused binding of constraints. These factors are:
    1. Changes to "fully co-optimised" (Option 4) constraint formulation;
    2. Transmission Investment;
    3. Transmission rating reviews;
    4. Network Support Agreements; and
    5. Wind farm generation[7],[8].

Given that the Commission's context is static or focussed primarily in the short term it would appear to be inconsistent to include transmission investment in the above list as generation investment in general has been excluded, except for wind farm generation.

However if transmission investment is relevant in the time frame, i.e. the assessment is to be forward looking then Generation investment is also a factor to be considered. To ensure

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[6] CMRDR page 43

[7] CMRDR page 65 Wind farm generation has been included in this list on the basis that because it is intermittent it can affect NEMMCO's ability to manage the operation of system security.

[8] CMRDR page 65 It is also noted that wind farm development in South Australia has led to increased binding (ie congestion) on the Heywood interconnector, ie a generator investment decision has led to increased congestion.

a consistent and forward looking approach as the heading to section 3.1.6 of the CMRDR implies we would amend point 5 to read "5 Generation investment (including wind farms)."

Some previous submissions (including a number of submissions by this group of participants) have advised the Commission that any assessment of materiality should not be based solely upon historical measures of congestion costs but also include also a forward looking appraisal.

The Commission has assessed the outlook for the future trend in congestion based on their investigation into the above limited set of factors. As we set out below, we believe this approach has failed to adequately consider dynamic efficiency effects, which we view as the area most impacted by congestion in the NEM. We view inefficiencies in the investment environment as material, and far more significant than indicated by an approach that focuses on historic productive efficiency assessment.

This section provides the Commission's summaries of their assessment based on the detail provided in the CMRDR "Appendix D Incidence and location of congestion in the NEM", together with our comments.

1. Changes to "fully co-optimised" (Option 4) constraint formulation;

"In its additional analysis, NEMMCO found that when option 8 constraints (interconnector-only constraints) were converted to fully co-optimised constraints, the incidence of mis-pricing increased. This factor was a driver behind in the increase in average hours of mis-pricing for South Australia. NEMMCO has now completed the reformulation to fully co-optimised constraints and hence this factor is unlikely to lead to further increases in the recorded duration of mis-pricing;"

We agree that this is unlikely to lead to further increases in congestion.

2. Transmission Investment; and 3. Transmission rating reviews;

"The TNSPs have proposed significant investment into the network over the next five years. A review of constraints that have been persistent found that they were either being addressed through planned transmission augmentations or that the associated market benefits were not sufficient to justify the investment."

We agree that there is likely to be significant investment in transmission in the next 5 years and beyond and that whether or not congestion is built out depends on whether the investment is justified by the regulatory test. In our view there is significant uncertainty that congestion will remain at the current level as the regulatory test will not necessarily build out congestion caused by generation investment unless there are sufficient market benefits to justify the investment.

The Commission notes that;
"The Rules providing the regulatory framework for TNSPs should help to ensure effective and economic management of congestion. This is discussed further in Chapter 7 of the Draft Decision Report"[9].

[9] CMRDR Page 65

We agree that the Rules, particularly in the area of transmission pricing which provide the regulatory framework for TNSPs and define the relationship with generator investment decisions, play an important role in determining the extent and nature of congestion. Also we agree that the Rules providing the regulatory framework for TNSPs should help to ensure effective and economic management of congestion.

For this reason the role of the regulatory framework is discussed in more detail in section 5 below.

4. Network Support Agreements;

"Network Support Agreements have been effective at managing congestion in North Queensland and other areas across the NEM;"

We agree that network support agreements can be effective in managing congestion.

5. Wind farm generation

This section would be better titled "5 Generation investment and generation (this includes wind farms)."

The Commission has noted that;

"The amount of intermittent generation has grown rapidly over the last few years, particularly wind farm development in South Australia. The type of generation can affect NEMMCO's ability to manage the operational of a secure power system and can result in lower transfer capability limits. Evidence suggests that the wind farm development in South Australia has lead to increased binding on the Heywood Interconnector. The Commission is currently considering a Rule change proposal from NEMMCO which addresses these issues related to intermittent generation[10]".

The wind farm investment example provided by the Commission raises two issues, only one of which is addressed by the NEMMCO rule change;

- Power system security: this is a problem relating to the intermittent and unpredictable nature of wind generation which may create scheduling issues. This problem is in part addressed by the NEMMCo rule change referred to by the Commission. (This allows for equitable sharing of access for new wind generators but excludes existing wind generators and therefore will not address the existing problems.)
- Lower interconnector transfer limits: this is an example of a more general problem related to the locational signals provided to investors in new generation by the regulatory framework for TNSPs.

It should also be noted that both of these problems were created in the first instance by the location of the wind generator in a position which created congestion.

This example demonstrates that the Rules providing the regulatory framework for TNSPs[11] are a very important element in determining the location and amount of congestion.

[10] NEMMCO, Semi-Dispatch of Significant Intermittent Generation, Request for Rule Change, 23 April 2007.
[11] CMRDR page 129 section 7.1.2

The regulatory frame work for transmission includes the;

- Revenue rules,
- Pricing rules, and
- Transmission investment planning and the regulatory test rules.

The Pricing rules are in particular relevant as to whether or not congestion occurs as the result of generation investment.

As demonstrated in the above example there is no certainty that the pricing rules[12] will ensure effective management of congestion. Other examples, similar to the windfarm example in SA used by the Commission, where generation investment has created congestion are in :

- SA at the same location as the above wind investment, but caused by an gas generator;
- Victoria on the Latrobe to Melbourne 500 kV transmission line;
- NSW between the major generating and load centres; and
- Queensland where new entrant generators will create congestion on assets paid for by incumbents.

These were identified in a submission[13] to the Congestion management review in November 2006.

We further note that the 5 factors identified, by the Commission (and as modified by us), as factors that have a significant influence on the level of congestion in the NEM can be divided into factors that cause or relieve congestion and factors that manage congestion after it has occurred.

> Factor 3. Transmission rating reviews; and 4 Network Support Agreements; are either a sub set of item 2 Transmission investments or are a means of managing congestion when it occurs. As discussed below it is not necessarily efficient to build out all congestion.
>
> Factor 1. Changes to "fully co-optimised" (Option 4) constraint formulation; is no longer relevant.
>
> Factor 2 Transmission investment and factor 5 Generation Investment and their inter relationship remain as the main drivers of congestion.

It is likely in the near future that the Commonwealth will introduce an emissions trading scheme which will encourage investment in large amounts of renewable energy including significant amounts of intermittent generators such as wind generators. The likely impact on congestion of this future investment should be considered now so that there is time to develop a congestion management regime rather than trying to resolve the issue after

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12 The current arrangements for transmission pricing are described in the CMRDR page 131 section 7.1.2.2.

13 Submission by, International Power, Intergen, Hydro Tasmania, Flinders Power, AGL Energy, Loy Yang Marketing Management Company and Truenergy, to the Congestion Management Review "Barriers to New generation Entry – Why transmission rights are the solution not the problem" dated November 2006

significant amounts of congestion have occurred and it has become a difficult and intractable problem.

Conclusion

It therefore follows that the factors of primary importance in influencing the extent of congestion and outlook for future trends in congestion are those factors that determine whether congestion occurs in the first place, ie

- **Transmission Investment;**
- **The regulatory frame work for transmission; and**
- **Generation investment in the competitive market.**

In failing to adequately consider the impact of generation investment the Commission has failed to assess the likely future trends in congestion.

2 Economic materiality of congestion (CMRDR section 3.2 page 68)

The approach taken by the Commission is characterised by the statement:

"The evidence discussed in the section above sets out a detailed picture of prevailing patterns of network congestion in the NEM. The actual or expected occurrence of congestion is a necessary but not sufficient condition for congestion to represent a material economic problem. To assess whether congestion has or will have a material economic impact requires first quantifying the economic costs of congestion and then coming to a view as to whether those costs are material in a policy context."
and
"As explained in the previous chapter, there are a number of routes through which the presence and/or the management of congestion might lead to outcomes that are economically inefficient. In attempting to build a rounded picture of materiality, the Commission has considered evidence on:

- *Productive (or dispatch) efficiency,……..*
- *Risk management and forward contracting ……..*
- *Dynamic efficiency:……"*

This means that the Commission has identified or defined congestion as an occurrence which leads to inefficiencies and is trying to determine to what extent the occurrence of congestion is material or distorting outcomes away from an economically efficient outcome by a material amount. This presents difficulties in determining materiality because an economically efficient outcome has not been defined.

Further the Commission has not attempted to quantify the costs of congestion, except qualitatively in terms its impact on productive efficiency, nor estimate the cost of implementation of the various congestion management regimes proposed, or considered that congestion may be localised.

The Commission claims that the "Evaluation of the costs of introducing possible congestion pricing mechanisms is provided in Chapter 4." However this appears to be a qualitative analysis only no cost estimation has been provided.

Our approach in defining the problem is to acknowledge that congestion is an outcome or an effect of the interaction of the three prime drivers of congestion identified above i.e.

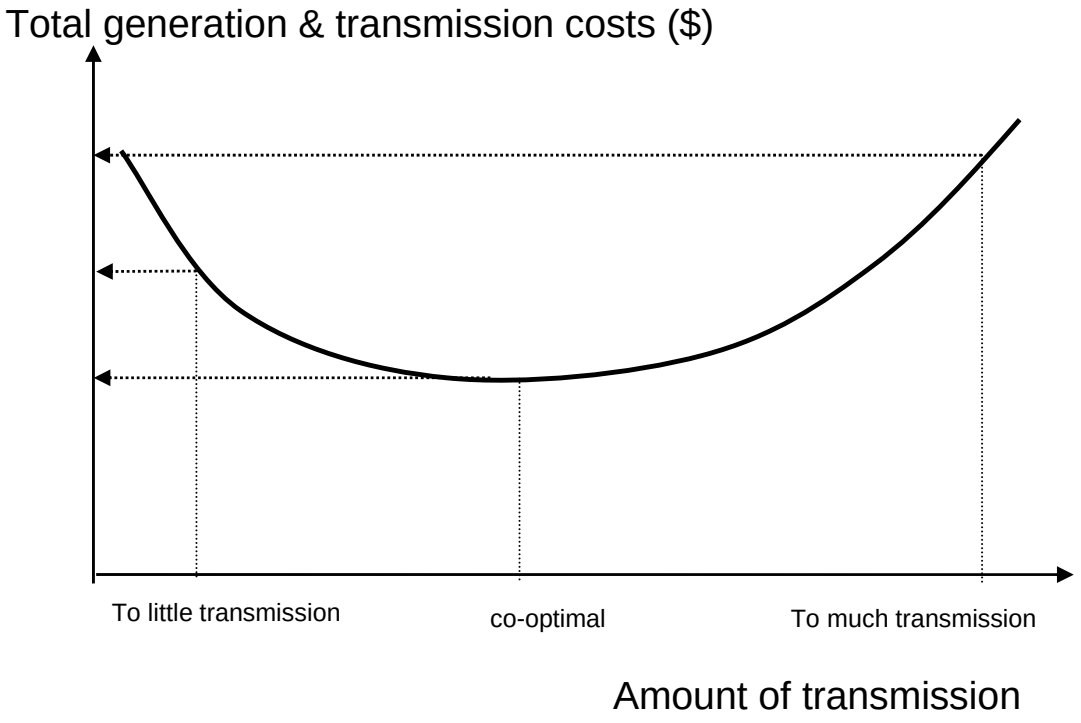
investment in generation and transmission and the regulatory framework which links these investment streams. This means that:

- Economically efficient congestion will occur when the overall investment in transmission and generation is economically efficient, i.e. providing the lowest cost delivered energy to consumers;
- There always will be some congestion - it is not economically efficient to build out all congestion – unless the benefits of doing so exceed the costs;
- Therefore congestion should be at the "economically efficient level" determined by a framework for efficient transmission and generation investment;
- The level of congestion will be dynamic driven by the transmission and generation investment drivers (plant costs and location specific costs) and may oscillate around the economically efficient level;
- Congestion then would be material when it is not at the economically efficient level - it could be *higher or lower* than the economically efficient level by a material amount;

This approach suggests that the key to addressing congestion is first to ensure that the regulatory frame work for transmission including in particular the Pricing rules are framed to promote overall economically efficient investment in generation and transmission.
The regulatory framework should promote efficient decentralised investment decisions by generators in the competitive energy market.

This view is consistent with ERIG view that;
"The interface between regulated transmission and competitive supply is an important issue that must be addressed … to ensure that overall investment in transmission and generation is economically efficient."

The objective is to establish a regulatory and market framework that is most likely to deliver the co-optimal amount of generation and transmission investment. This is represented conceptually in the diagram below where total generation and transmission costs are plotted against an increasing amount of transmission investment. At some point there is a co-optimal amount of transmission and generation investment that delivers the lowest cost delivered energy to consumers, but not necessarily no congestion, either side of this point there may be too much or too little transmission development leading to "low or no congestion" or "high congestion", both outcomes being "material" in terms of total delivered cost of energy to consumers because both can increase costs to consumers.



Viewing congestion from the point of view of "materiality" being at any positive level of congestion ignores the negative economic impact of too little congestion as a result of over investment in transmission.

The Commission considerations of the economic materiality of congestion included, productive or dispatch efficiency, risk management and forward contracting and dynamic efficiency[14] as relevant in assessing economic materiality of congestion.

However the assessment has been in general qualitative and focused largely on productive efficiency. This has included a review of the AER historical congestion indicators and a quantitative assessment of the costs of mis-pricing by Frontier Economics. The Commissions dynamic efficiency considerations were limited to a review of a study undertaken by Intelligent Energy Systems[15] (IES) which was submitted to the Congestion Management Review by the LATIN group. Despite acknowledging *"the dynamic efficiency*

[14] CMRDR page 68

[15] The IES report compared the current regime of a single RRP for Queensland and "shallow" connection charges for generators to two alternative scenarios of: (a) introducing eleven nodal prices for Queensland via a full regime of constraint support pricing and (b) including a transmission congestion levy on new generators in addition to the constraint support pricing. The report showed that both hypothetical scenarios would lead to a more efficient generation and transmission investment than the current arrangements with scenario (b) yielding higher benefits than (a).

aspects of congestion could have the largest impact on dynamic efficiency[16]*"* the Commission considers that the "limitations"[17] of the modelling mean that the results are not realistic. As a result the Commissions considerations of economic materiality have been largely inconclusive.

Conclusion

We do not agree that the "limitations" reduce the relevance of the IES work. In fact this work provides an approach for a detailed quantitative cost benefit analysis to assess the outlook for future trends in congestion and its economic materiality. This work could be carried out as follows;

1. **A detailed quantitative analysis of future congestion and its likely incidence and duration;**

2. **A review of the costs and benefits of reforming the transmission regulatory arrangements to ensure that in the long term and on average these best promote dynamic efficiency and the economically efficient level of congestion.**

3. **An estimate of the likely incidence and magnitude of the remaining localised congestion. (It is noted that in practice congestion is likely to be localised and transitory as it will need to build to a level that justifies investment in transmission and may impact specific participants materially but not be material when considered relative to the overall NEM production costs).**

All of these studies could be carried out together along the lines of the work undertaken by IES[18]**.**

4. **An assessment of the costs of implementation and transaction costs of a congestion management regime for management of congestion at or below the economically efficient level, (ie managing remaining congestion on a cost-efficient basis).**

3 Transmission Pricing (CMRDR Section 7.1.2.2 Page 131)

In section 7.1.2.2 of the CMRDR the Commission has described the current provisions governing the pricing methodologies. As noted by the Commission;

"These provisions were intended to strengthen the financial incentives for efficient decision-making by both TNSPs and participants in relation to ***investment in transmission, generation*** *and load facilities."*[19]

[16] CMRDR page 76
[17] The "limitations identified by the Commission are discussed in section 4 of this submission
[18] The objective of the IES modelling, discussed below, was to demonstrate the impact on the delivered cost to consumers of various transmission pricing arrangements. The range of potential outcomes in terms of total cost of transmission and generation investment for increasing amounts of transmission investment is represented conceptually in the diagram on page 14 of this submission.
[19] CMRDR Page 129

We assume that the Commission means that efficient decision making necessarily leads to efficient investment and on that basis agree with the objective. This objective must also be consistent with the NEM objective in terms of economic efficiency (productive, allocative and dynamic).

The Commission also noted that the provisions governing pricing methodologies were to be subject to review in light of the findings of the CMR.

"The regulatory framework section in the Pricing Rule Determination stated the Commission's provisional position on four issues that were intended to be subject to review in light of the findings of the CMR:"[20].

The regulatory framework[21] and the provisional position on the four issues as described by the Commission (page 131 section 7.1.2.2 pricing) are as follows;

1. *"generators should pay the costs directly resulting from their connection decisions, that is, a 'shallow connection' approach should be maintained;*
2. *it is not appropriate at this stage for generators to contribute to the costs of the shared network through prescribed generator TUOS charges;*
3. *Cost Reflective Network Pricing (CRNP) and modified CRNP are appropriate locational pricing methodologies, however, there should be scope for these to be developed further in future; and*
4. *to some extent price structures should be specified in the Rules with additional guidance provided by the AER".*

In addition and as noted by the Commission there is a 5th provision[22] relevant to the objective of economically efficient investment.

5. *Further, there are a series of provisions broadly relating to the topic of "firm access", in which TNSPs and participants make various "compensation" payments to one another under different market conditions (see Rules 5.4A(g)-(h) and 5.5(f)(4)). To the Commission's knowledge, agreements or payments pursuant to these Rules have not been implemented to date."*

It is implied but not stated that since the Commission has determined that congestion is not material at present it is not necessary to review the regulatory framework.

The following is a description of the impact of these provisions.

The Rules maintain a "shallow" connection charging approach for new generation. This means that generators need to pay only for the costs of their immediate connection to the transmission network.

Generators are not required to contribute to the costs of downstream augmentations or revisions. Generators may receive a benefit or disbenefit, from these augmentations.

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[20] CMRDR Page 131
[21] The Pricing Rule Determination for Chapter 6A outlined the regulatory framework and principles for setting prices for Prescribed Transmission Services.
[22] CMRDR Page 132

These augmentations are undertaken as long as those augmentations satisfy the Regulatory Test, however the Regulatory Test does not necessarily consider the negative impacts on generators or on their level of access to the market.

Generators may request a TNSP to undertake downstream augmentations that are not required to serve load requirements, but must pay the relevant costs. However they are not entitled to receive explicit financial or physical rights to the incremental transfer capability and will continue to pay for that asset even when it is utilised by others or subsumed into the shared network by augmentations justified on a least cost basis and face congestion.

Under the new Chapter 6 Rules, generators paying for "negotiated services" that are connection services may be entitled to a contribution to the cost of that asset from later connecting parties (Rule 6A.9.1(6)). However they are not entitled to receive explicit financial or physical rights to the transfer capability and may face congestion when the asset is utilised by others. Compensation for the cost of the transmission asset ignores the financial impact of any congestion which may result.

Other provisions relating to pricing are contained in Chapter 5 of the Rules. These provisions enable TNSPs to contract with connection applicants or participants for the provision of particular services. Both Rules 5.4A and 5.5 provide for negotiated use of system charges to be levied on "connection applicants" to reflect the incremental costs (or savings) of any augmentations or extensions to transmission or distribution networks that arise from their new connection (see Rules 5.4A(f)(3)(i), 5.4A(f)(3)(ii), 5.5(f)(3)(i), 5.5(f)(3)(ii)).

The Commission has also referred to a further series of provisions broadly relating to the topic of "firm access"[23], in which TNSPs and participants make various "compensation" payments to one another under different market conditions (see Rules 5.4A(g)-(h) and 5.5(f)(4)). To our knowledge, agreements or payments pursuant to these Rules have not been implemented to date. These clauses have the intent of providing explicit financial or physical rights to the transfer capability, but in practice are not workable for the following reasons;

- This Rule appears to be in conflict with other provisions discussed above which are intended to deny generators any right to receive explicit financial or physical rights to the transmission transfer capability.

- The process relies on TNSPs negotiating compensation on behalf of a number of individual participants who may be impacted (incumbents). This means that the "compensation" is through a number of independent bi-lateral contracts between a TNSP and individual participants (i.e. those providing compensation and those receiving compensation). In this arrangement those impacted by congestion have no right to negotiate the terms of compensation and must rely on the goodwill common sense or expertise if the TNSP. This presents difficulties and risks for the TNSPs.

[23] "firm access" is a term in general use that can have a wide range of meanings, the Commission has not defined its meaning in this context but would be generally understood to cover "defined access" as we have described it.

- TNSP's may view this provision as increasing their financial exposure to the risk of poor transmission planning and investment decisions. In our view it is appropriate that they be exposed to this risk however given the ambiguity in the Rules and because they are monopoly providers of this service there is little incentive for them to take on this risk.

- The TNSP has no incentive to act as a negotiator or clearer of access rights. Given the TNSP's role, the risks faced in undertaking this role and the apparent contradiction in the Rules the TNSP has little incentive to undertake this activity;

This framework is inadequate because of the lack of clarity and uncertainty associated with it means that of all the locational[24] signals that generators face in making an investment decision, the cost of delivering energy to the regional reference node (transmission pricing) is treated differently. Generators can negotiate firm contracts defining the cost of and deliverables in relation to;

- Supply and installation of generation plant
- Fuel supply and transportation;
- Water availability
- Environmental conditions
- Other Site specific conditions

BUT NOT

- Electricity transmission costs and access

Under the current arrangements investors can avoid electricity transmission costs and create congestion or game the regulatory test to have transmission paid for by customers, or if they pay for access then they have no guarantee of access.

This means generators face a high degree of certainty and low risk in relation all locational costs except transmission where they face a high degree or risk or uncertainty.

Conclusion

The current transmission pricing arrangements are unlikely to deliver efficient transmission and generation investment and provide the lowest cost supply to consumers. This is because suboptimal generation investment can occur when transmission costs are either ignored in investment decisions, or if transmission is funded by the generation investor there is high degree of risk or uncertainty in relation to access. It is unlikely that any generator would fund additional transmission without a corresponding right to use (or have first call) on the incremental capacity.

Changes to the regulatory arrangements are required to increase investor certainty and therefore lower delivered costs of energy to consumers. These changes should ensure that new generation proposals incorporate into their investment decision:

- **The entire cost of congestion arising from reduced generator access to transmission caused by the decision (for example, the payment of**

[24] All of the so called "locational costs" impact not only the location of the investment but also the nature of the plant (base intermediate or peak) and the timing of market entry.

compensation to existing generators constrained-off by the new entrant (refer Rule 5.4A); or

- **The cost of building transmission to obtain transmission access certainty; whichever is lower;**

This outcome could achieved by a deep connection charge linked to properly defined access which would:

- **Introduce a missing key <u>investment signal</u> to new investors;**
- **Enable ***<u>all</u>* **generators to invest in transmission without the value of that investment being eroded by new entrants;**
- **Effectively provide access certainty to new and existing generators, thereby reducing investment risk.**

4 Dynamic efficiency (Section 3.2.3)

The Commission has stated that:

"The Commission recognises that the dynamic efficiency aspect of congestion could have the largest effect on economic efficiency. Furthermore, with significant investment planned in the energy sector over the next 5 to 15 years, there will be potentially considerable dynamic efficiency effects for the NEM".

and has defined dynamic efficiency and the drivers for dynamic efficiency as follows;

"Dynamic efficiency concerns the efficiency of decision-making and market outcomes over time, when network, load and generation infrastructure can change."

As discussed in Section 2 above we agree that the consideration of the dynamic efficiency impact of the NEM arrangements is critical to determining the level and location of congestion. For this reason, in a supplementary submission dated 22 December 2006, the LATIN Group presented a report entitled "Modelling of Transmission Pricing and Congestion Management Regime", prepared by Intelligent Energy Systems (IES). This work was undertaken to demonstrate the impact on dynamic efficiency of alternative transmission pricing arrangements which included stronger locational transmission pricing signals, ie new generators funding the network assets required to support their output and more granular pricing for generators.

This report estimated the extent of dynamic inefficiencies under the current Rules (compared with the theoretically optimal outcome) arising through the sub-optimal location and timing of generation investment, which arise because generators may, but do not need to consider transmission costs in making an investment decision.

Efficiency requires an integrated approach where new generation investment decisions would;

- take into account all fixed costs including transmission associated with the investment; and
- be informed by a location specific forecast price duration curve to determine the nature and timing of the investment

This can be achieved in practice by establishing defined access for incumbent generators, requiring new generators to fund the additional transmission required to provide their defined access and implementation of more granular pricing for generators which, together with defined access (for example a CSP/CSC scheme or nodal pricing & FTRs), would minimise congestion in the long run and provide certainty in the way congestion would be allocated when it occurred.

Although noting the importance of dynamic efficiency the Commissions considerations were limited to a critique of the IES work and work undertaken by NEMMCo as part of the ANTs process. The issues raised by the Commission in relation to the IES work are discussed below.

4.1 Review of the IES report (Section 3.2.3.1)

The Commission[25] has raised the following issues in respect of the IES work and on the detailed methods used in deriving the results and considers that they place important limitations on the inferences that can be drawn from the IES modelling results.

We have categorised the issues and provide a response as follows;

Implementation issues

- *"No consideration of the risk implications of introducing nodal pricing;*
- *The risk management implications of localised nodal pricing would be substantial and need to be reflected in any assessment of different pricing regimes.*
- *Transaction costs and implementation costs of introducing new pricing regimes were not included[26];"*

These are implementation issues and do not invalidate the modelling exercise or the results.

Implementation of defined access and more granular pricing would be through changes to the transmission pricing regime which would reduce participant risk or in the case of more granular pricing with a CSC or FTR. Under these arrangements there would be minimal increase in participant risk. It should also be noted that generators subject to unmanageable constraints today would in fact face lower risk if they faced a nodal price, provided this came with a well defined access right to the reference node. Today a participant can not be sure how much access to the reference node they will have during a constraint – unless pro-rata access is assumed. Even if pro-rata access is assumed, long term contracting may still be unattractive, as participants may be constrained 4 or 5 years into the future by a new entrant.

[25] In addition the Commission has received submissions from both Powerlink and Stanwell that questioned IES's approach and assumptions. Refer Powerlink response to the AEMC Congestion Management review Directions Paper, 12 April 2007 and Stanwell Corporation letter to the AEMC on the Congestion Management Review, 11 July 2007.

[26] CMRDR Page 76

The signatories to this submission do not support the introduction of more granular or nodal pricing for generators without addressing the increased risk to generators that this would entail.

There would be no additional risk or administrative costs/conversion costs on the retailer or customer if it is only generators that receive the nodal price, and customer load is still settled at the RRN.

Transaction costs and implementation costs would need to be considered to ensure that the benefits exceeded the costs of implementation however none of the above issues place any limitation on the inferences which can be drawn from the modelling, ie there are potentially significant gains in dynamic efficiency available by changing the current regulatory arrangements for transmission.

Input assumptions

- Modelling was limited to Queensland with simplistic modelling of other NEM regions;
- No verification of whether the location of the additional generation was
- plausible;
- Generic transmission costs estimates were used for congestion levies;
- Simplistic generator entry and reactive transmission investments were used, and
- The cost estimates of the current transmission pricing regime are not realistic[27].

These input assumptions were held constant in each of the scenarios modelled so should have little bearing of the relative benefits of the scenarios. If the criticism is that the assumptions do not appropriately represent current actual costs we note that actual costs for generation transmission fuel and all the other location specific accosts are dynamic and will change with location and time. It is unlikely that anyone other than the participant will have an accurate knowledge of all the actual costs for any specific project. We believe that these criticisms do not undermine the validity of the results – which focused on providing a relative estimate of the cost of existing inefficiencies. The modelling did not attempt, or claim to provide an absolute cost estimate.

No sensitivity analysis was performed on results

We agree sensitivity analysis could be undertaken over the expected range of costs and we are of the view that the Commission is best placed to collect cost data and undertake this work. Again we note that this work was performed to demonstrate the concept of the existing inefficiency – and to try to promote the consideration of dynamic efficiency impacts in this review. It was not presented as an absolute cost estimate.

The Commission has also stated that:

[27] However, given its limitations, the Commission does not consider that the estimates of the costs of the current regional pricing regime contained in IES report are realistic.

"The Commission agrees with the point made in the Stanwell and Powerlink submissions that there are many other important factors besides price signals that influence generation location, and hence, transmission investment. These factors include portfolio risk; carbon risk; fuel source; water source; environmental restrictions (air shed, water, noise, etc)."

We do not dispute that there are a range of factors that influence generation investment. Like transmission costs they will have an impact on the location, nature and timing of the investment. In making investment decisions new generators have no option but to take all these costs, except transmission, into account in their investment decision. The purpose of the modelling was not to debate the relative importance of the locational signals or say that transmission costs are more important than the other costs, but rather to demonstrate that taking an inconsistent approach to internalisation of these costs in generator investment decisions can lead to a reduction in dynamic efficiency and an increased cost to consumers.

Insofar as they are represented in the capital costs estimates for new plant the impact of these other costs has been represented in the modelling. Whether or not they were appropriately quantified in the modelling exercise is a second order issue when compared to the current regulatory arrangements which allow new investors to avoid transmission costs altogether. We see little point in debating the relative impact of these "locational" variables in the face of inconsistent treatment of transmission costs.

Conclusion

The modelling work undertaken by IES was to demonstrate the likely impact on dynamic efficiency of;

- **treating transmission locational costs in the same way as all other locational costs ie they are internalised in the investment decision, and**
- **providing generators with more granular market pricing signals**

We believe that the issues raised by the Commission and others do not undermine the validity of the results which demonstrate that there are potentially significant gains from reform of the transmission regulatory arrangements.

4.2 ANTS estimates of removing congestion over the next ten years.

The NEMMCO ANTS [28] analysis may have limited usefulness in estimating the likely magnitude of the physical and financial trading risks associated with congestion. However the analysis underlines the significant amount of investment required over the next ten years to achieve the estimated "market benefits" (in the order of $2.2b if all constraints are removed). Ensuring the transmission pricing arrangements deliver this investment in an economically efficient manner will maximise the benefits to consumers.

[28] "As noted in the Directions Paper, the ANTS provides an integrated overview of the current state, and potential future development, of National Transmission Flow Paths (NTFPs) (being the portion of network used to transport significant amount of electricity between load and generation centres). The ANTS also uses a market simulation model to develop a ten-year forecast of network congestion in order to identify the need for NTFP augmentation from a "market benefit" perspective. In its 2006 ANTS, NEMMCO estimated the present value of the total market benefits of removing all network constraints at $2.2 bn over the next ten years, with market benefits arising due to lower dispatch costs, deferral of capital expenditure and reliability savings.

5 Comments on the Commission's observations on materiality

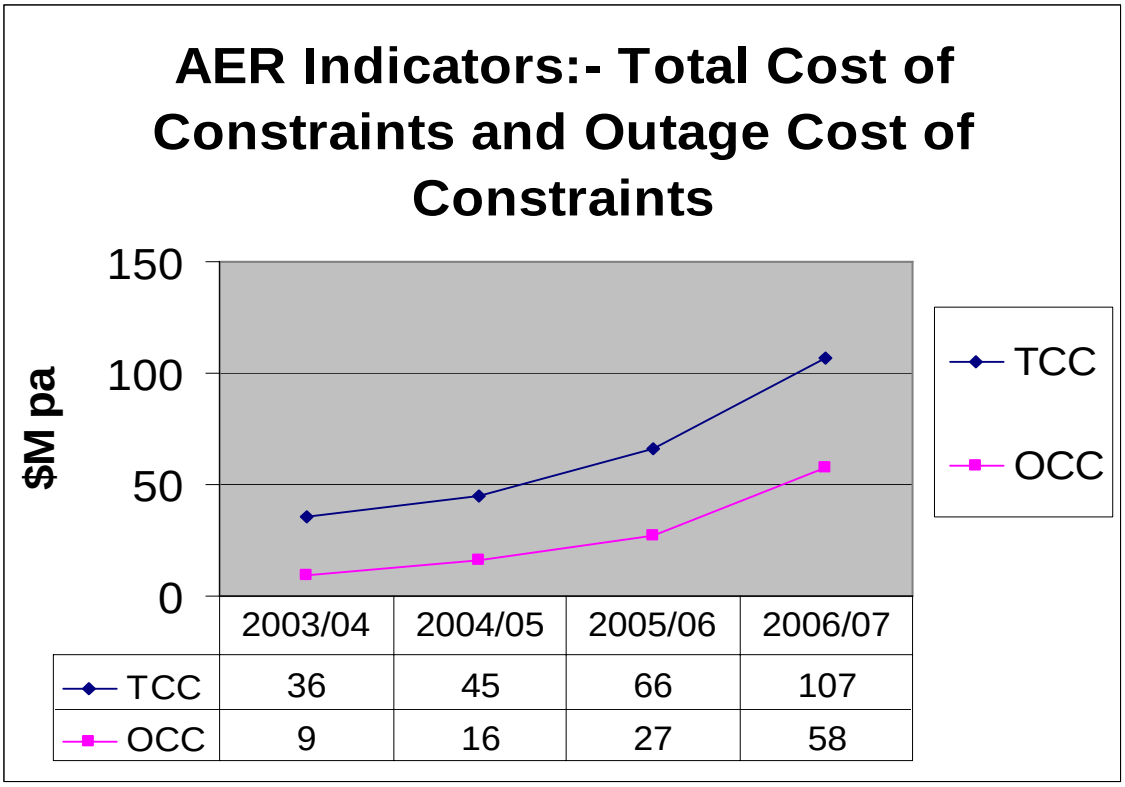
The Commissions concluding comments on their observations on materiality note that;

"The Commission does recognise that that in the future, work will be required to develop a more robust framework for modelling dynamic efficiency impacts, especially for regional boundary assessments."

We agree that further work is required and look forward to studies by the Commission in relation to this important issue which in our view should relate primarily to the management of intra-regional congestion given that regional boundaries are likely to be very stable under the revised region boundary change process. That further work is required is supported by the fact that the Commissions analysis on the materiality of congestion has focussed primarily on the impact of congestion on productive efficiency despite noting that the dynamic efficiency aspects could have the largest effect on economic efficiency.

6 AER indicators of the market impact of transmission congestion[29]

We note also that congestion continues to increase see AER TCC and OCC measures below which now include the 2006/07[30] figures.



[29] CMRDR page 70 table 3.1

[30] Note: The 2005/06 Figures include any congestion within the Tasmanian transmission network for the first time. Data source: AER Indicators of the market impact of transmission congestion, Report for 2003/04, 9 June 2006; Report for 2004/05, 10 October 2006, Report for 2005/06, February 2007 and Report for 2006/07, November 2007.