A Summary of submissions on Congestion Management Review

This Appendix presents a summary of submissions received to date as part of the consultation process on the Commission's Congestion Management Review. It covers all submissions received on the Commission's Issues Paper released on the 3 March 2006, the two submissions received on the Commission's Statement of Approach issued in June 2006, plus any further supplementary submissions received to date, and views presented to the Commission during the Industry Leaders Strategy Forum (Industry Forum) held on 17 October 2006.[100]

All submissions plus a summary of the discussion at the Industry Leaders Strategy Forum are available on the Commission's website.[101] A list of the submissions and supplementary submissions plus a list of the parties represented at the Industry Forum can be found in Appendix B.

A.1 Consultation Process

The Ministerial Council on Energy (MCE) directed the Australian Energy Market Commission (Commission) on 5 October 2005 "consider the requirement for and scope of enhanced trading arrangements in relation to congestion management and pricing". The Terms of Reference requires the Commission to investigate three key areas:

1. Identify and develop improved arrangements for managing financial and physical trading risks associated with material network congestion;

2. Examine feasibility of constraint management regime as a mechanism for managing material congestion issues, until those issues can be addressed through investment or a region boundary change; and

3. Take account of and clearly articulate the relationship between a "Congestion Management Regime", constraint formulation, region boundary review criteria and review triggers, the ANTS flow paths, LRPP, Regulatory Test, and TNSP incentive arrangements.

Terms of reference for the MCE directed Congestion Management Review are available from the Commission's website.

On 3 March 2006 the Commission released an Issues Paper as the first step in public consultation as part of the Review. Submissions responding to this Issues Paper were due on 13 April 2006 and a total of 21 submissions were received. The Issues Paper sought stakeholder views about options to improve congestion management. The

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[100] This Appendix does not include a review for any material variations from parties submissions to the 2004 MCE consultation on CRA's recommendations to the MCE. Clause 3.3 of the ToR requires the Commission to have regard to these 2004 submissions.

[101] www.aemc.gov.au.

Commission asked forty specific questions on congestion related matters, including the following:

- The existing congestion management issues and examples, in detail, as well as the reasons why these issues may not have been addressed by the current approach to congestion management;
- The nature of the problems with the current approach to congestion management in the NEM, and the materiality of these problems;
- Options to improve congestion management that are workable, effective, economically efficient in the long-term and take into account the level of development of the market; and
- The costs and benefits of these potential approaches and any alternative congestion management proposals that have not been canvassed in the Issues Paper.

Since the end of the consultation process on the Issues Paper, the Commission received a further seven supplementary submissions.

In June 2006, the Commission released a Statement of Approach which provided clarity on the Commission's integrated approach to the Congestion Management Review and the set of inter-related Rule Proposals. In December 2006, the Commission issued a revised Statement of Approach.

On 17 October 2006, the Commission held an Industry Leaders Strategy Forum (Industry Forum) at its office in Sydney to obtain the views and opinions of industry leaders on: (1) the materiality of current congestion in the NEM; (2) the effectiveness of existing arrangements for managing congestion; (3) options for improving the management of congestion; and (4) the features of a comprehensive "Congestion Management Regime" that meets the future requirements of the NEM.

A.2 Summary of Submissions

The Issues Paper asked a number of detailed questions on a range of topics relating to congestion management. Submissions identified a number of problems, principles, and solutions relating to both the current congestion management approach and a future congestion management regime. The supplementary submissions put forward further thoughts on the materiality of congestion and possible approaches to congestion management.

This summary discusses the industry comments under the following topics:

- problems with the current congestion management approach;
- principles for a future congestion management regime; and
- possible options and components of a congestion management regime to address the current problems.

A.3 Problems with the current congestion management approach

While submissions raised a number of issues with the current congestion management approach, no submission argued for a complete overhaul of the current approach. Two submissions stated that they did not believe there was a need for a comprehensive change to the current congestion management arrangements. Both Delta Electricity and the Newcastle Group expressed a view that no case had been made to fundamentally change to the current Rules as they relate to congestion. However, both these submissions did suggest ways to improve the current approach which are discussed in Section A.5.[102]

Other submissions raised a number of problems on a range of congestion management issues, focusing heavily on a business ability to manage risk, both financial and physical. The LATIN Group made a broad statement that constraints do affect the economic efficiency of the NEM.[103] Origin Energy stated that the current approach had no specific criteria or process established to assess the materiality of congestion or how to best address it.[104]

There was little guidance on the magnitude or materiality of the current level of congestion in the NEM from the submissions. Only the AER submission provided guidance on the magnitude or materiality of the current level of congestion through referring to its Total Cost of Constraints (TCC) and Marginal Cost of Constraint (MCC) indicators.

In its submission, IES[105] presented analysis on historical data for the number of constraints in the NEM and how often they bound. They concluded that there is a large number of system security constraints with many new constraints added each month. IES suggested that based on its analysis it would be better to have a congestion regime that deals with all constraints and not just a small proportion of constraints.

The Industry Forum and the supplementary submissions provided more comments on the materiality of congestion within the NEM. At the Forum, participants agreed that the materiality of congestion needed to be assessed empirically. There was agreement that the existing measures don't provide the complete picture on congestion, although they indicated that congestion is not a material problem.

Some of the supplementary submissions provided detailed assessments of the question of whether congestion is material within the NEM.

The Macquarie Generation supplementary submission which contained a study from McLennan Magasanik Associates (MMA) on 25 September commented that TNSPs

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[102] Delta Electricity, p. 1; Newcastle Group includes AGL, Delta Electricity, Intergen, Loy Yang Marketing Management Co., and Macquarie Generation, p. 1.

[103] The "LATIN Group" comprises of: Loy Yang Marketing Management Co., AGL, TRUenergy, International Power, and NRG Flinders, p. 2.

[104] Origin Energy, p. 2.

[105] IES Submission to the Congestion Management Review, 19 April 2006.

are adequately responding to constraints and that there is no intra-regional material congestion. This view was also made at the Industry Forum.

The LATIN Group[106] in its supplementary submission dated the 17 November 2006 puts forward its position as to why intra-regional congestion may not be immaterial. It argues against the conclusions made in the MMA report, stating that it is not adequate to assess materiality solely on historical measurements or performance of Transmission Network Service Providers (TNSPs) because new generation investments will cause more congestion in the future. The LATIN Group noted that TNSPs are prohibited from augmenting the network simply to relieve network constraints unless such augmentation is also required to meet reliability obligations or is shown to be economic (where the value of congestion avoided exceeds the augmentation cost). The LATIN group recognises that these TNSP considerations, either through economic augmentation or reliability standards should maintain congestion as at a certain level but they argue that at that level congestion will still be material. Hence TNSPs have no obligations to manage intra-regional congestion and therefore it should not be assumed that congestion will not be immaterial in the future.

Regarding the problems with the current congestion management approach, comments related to:

- Regulatory design (certainty, clarity, and transparency);
- Physical network access (management/access to network capacity);
- Pricing Incentives (congestion pricing signals/bidding incentives (including investment signals));
- Settlement Residue Auction (SRA) design and firmness; and
- Existing problem areas in the market requiring attention.

A.3.1 Regulatory Design

Submissions raised three examples of regulatory uncertainty in today's market. Snowy Hydro raised issue with the uncertainty caused by NEMMCO's intervention process to manage negative settlement residues. Macquarie Generation and the NGF stated that the uncertainty associated with the regulatory process to change region boundaries was creating material risks for market participants. The Newcastle Group and Macquarie Generation also stated that NEMMCO's intervention to maintain system security caused uncertainty in the market and required greater codification of principles for formulating constraint equations to minimise NEMMCO's discretion.[107]

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[106] The membership of the LATIN Group has been extended to include Hydro Tasmania and InterGen (Australia) Pty. Ltd.

[107] Snowy Hydro, p. 6; Macquarie Generation, p. 5; NGF, p. 11; Newcastle Group, p. 7-8; Macquarie Generation, p. 3.

Furthermore, submissions identified several places where transparency and clarity could improve. The LATIN Group stated that the current congestion management approach lacks transparency because of the absence of any markets for managing intra-regional congestion, the high level of regulatory risk, and impossibility of quantifying or managing that risk.[108] The NGF stated that there is no effective constraint management regime for constraints that are not priced (e.g. intra-regional constraints).[109] Macquarie Generation stated that the current Rules lacked clarity over NEMMCO's responsibilities regarding system security and system reliability.[110] NEMMCO expressed that under the current arrangements there is overlap in the role it and TNSPs have to operate a reliable network, particularly regarding the procurement of reactive power.[111] Transend agreed with NEMMCO, stating that the current arrangement required clarification of NEMMCO's role to procure Network Control Ancillary Service (NCAS).[112] The NGF raised a specific problem with network support agreements (NSA), stating that the cost of NSA arrangements was not transparent. It said the approach worked for constrained-on payments but not for constrained-off, and that TNSPs lacked incentives to purchase or pay for the services.[113] A real risk for consumers, the MEU identified, came from the lack of clarity in the Rules to permit resolution of constraints when they arose.[114]

At the Industry Forum, participants commented on the information currently available in the market related to congestion and ways to improve it. Regarding the Transmission Annual Planning Reports (APR), participants noted that they are an important source of information for the market on emerging constraints and planned network investments to address them. However some felt that while there was a vast amount of information in the APRs, it is difficult to analyse and interpret the information in terms of its implications for future congestion and investment. The Annual National Transmission Statement (ANTS) was also acknowledged as an important information source in the market.

In its supplementary submission, Delta makes a similar point, noting that although the ANTS provides congestion information on major flow paths, it does not provide sufficient information on the potential congestion at specific sites. Such information would be useful for potential generators to factor into their investment decisions. Delta suggest that TNSPs provide some information on the maximum addition injection capability at connection points.

Also at the Industry Forum, suggestions were put forward to improve the information provided by both TNSPs in relation to planned outages, the amount of notice provided by TNSPs before taking an outage, and by NEMMCO regarding the policies used to formulate and implement constraint equations.

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[108] LATIN Group, p. 4.

[109] NGF, p. 11.

[110] Macquarie Generation, p. 3.

[111] National Electricity Market Management Company (NEMMCO), 13 April 2006, p. 17.

[112] Transend, p. 2.

[113] NGF, 14-15.

[114] MEU, p. 40.

In its submission on the Statement of Approach, Snowy Hydro stated that it considered that the most material problems for both dispatch efficiency and investment efficiency occur when the NEM adopts inconsistent models, with some generators being priced regional and others nodally, and with some generators having access to load and others not.[115]

A.3.2 Physical Network Access

The submission from the NGF stated that constrained-on and constrained-off payments created market risks, particularly given the current design where generators could be constrained-on or -off but were not compensated. Its submission also identified problems with managing risk due to unscheduled or unusual reductions in transmission capacity and the non-firm access to the transmission system for generators.[116] Origin Energy raised that there was no transparent or predictable way to allocate the cost of congestion or access to constrained capacity. Macquarie Generation expressed the view that NEMMCO's approach to option 4 constraint formulation increased the risk of generators being constrained-on. CS Energy raised the view that the potential to be constrained-on or -off created a significant and material risk for generators to manage.[117]

At the Industry Forum, participants expressed concern over distorted generator location decisions. The concern was expressed that generators might choose locations which exacerbated existing congestion, either (in some cases) shutting out or (in other cases), reducing the dispatch of existing generators, even when the new entrant generator was less efficient than the existing generators. Specific examples were given relating to locations in the Latrobe Valley, Southeast South Australia, and southern NSW.

A.3.3 Pricing Incentives

The AER submitted that the current approach lacked incentives for generators to submit an offer curve reflecting their true marginal cost because of the risk of being constrained-on or -off.[118] This, it said, may lead to short-term reductions in dispatch efficiency, medium-term distortions in investment decisions, and should counter-price flows result causing NEMMCO intervention to manage them, a further reduction in dispatch efficiency.[119] The submission also suggested the potential problem of generator market power.[120] This issue was also repeatedly raised at the Industry Forum. There was a discussion on the risk participants faced from having to manage congestion. When generators are constrained off, it was suggested there arises a "bidding war" where generators offer their output at a low price ($-1000/MWh) or use other techniques such as bidding "inflexible" to prevent their

[115] Snowy Hydro, Submission on Statement of Approach June 2006, p.5.

[116] NGF, p. 10-11.

[117] Origin Energy, p. 6; Macquarie Generation, p. 5; CS Energy, p. 4.

[118] AER, p. 1-2.

[119] AER/D. Biggar, p. 32 (attachment).

[120] AER/D. Biggar, p. 18 (attachment).

output being reduced. Since generators do not know from one day to the next who will win this "bidding war", they are unable to offer firm contracts over this output and must, instead, manage this uncertainty in dispatch into their contracts (either by price or volume).

CS Energy raised in its submission that distorted bidding incentives and inefficient dispatch to manage negative residues can result because of the difference between dispatch and settlement arrangements.[121] Delta Electricity stated that one of the problems with option 4 constraint formulation is it creates incentives for remote intra-regional generators to bid below their true opportunity costs of supply.[122] The LATIN Group expressed the view that option 4 and negative residues meant intra-regional constraints were not priced.[123] At the Industry Forum, participants noted that not all material congestion are resulted from physical constraints because generators can have commercial incentives to bid to prevent certain constraints from binding.

The MEU submission stated that the current price signals were inadequate to encourage responses where they were most needed to relieve constraints. It said that the existing constraints had a material impact as some generators were not being dispatched due to congestion which was making consumer costs excessive. The view expressed in the submission was that interconnectors were the major problem, not intra-regional constraints. The NGF, on the other hand, stated that intra-regional constraints could be significant and distortionary, and that there was a need for different measures to deal with intra-regional constraints that did not affect the supply node.[124]

Certain submissions suggested that there are inefficient investment signals for generators within the current market**.** The LATIN Group stated that investment inefficiencies result because generators make no contribution for the delivery of their power from their connection point to the regional reference node.[125] Stanwell Corporation's submission stated that the current investment model lacks locational signals for generators.[126] Snowy Hydro expressed the view that the current arrangements for investment were inefficient, using the Wambo Gas Turbines and TransGrid 500kV ring upgrade as examples.[127] NEMMCO raised in its submission that the current regime did not provide efficient signals for generation investment as the cost of transmission as a signal for investment is less than that of a fuel source or water. This means investment in new network is more likely to be subject to the location of new generation rather than the other way around.[128]

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[121] CS Energy, p. 3.
[122] Delta Electricity, p. 2.
[123] LATIN Group, p. 2.
[124] MEU, p. 34-35, 24-25; NGF, p. 7-8.
[125] LATIN Group, p. 3.
[126] Stanwell Corporation, p. 3.
[127] Snowy Hydro, p. 5.
[128] NEMMCO, p. 6-7.

On the other hand, the NGF stated that the regional price structure did provide appropriate investment signals, except where intra-regional congestion resulted in mis-pricing of generation within the region.[129]

At the Industry Forum, a distinction was made between the risks associated with managing the physical aspects of congestion and managing the financial and commercial aspects of congestion. On the physical side, only TNSPs were said to have the responsibility and governance arrangements to manage that risk whereas the financial and commercial risks associated with congestion (e.g. inefficiencies and uncertainties) were being priced into commercial arrangements. This was suggested to affect the ability of participants to obtain or offer inter-regional contracts. Participants also needed to manage the uncertainty of dispatch and the risks of being constrained on or off that intra-regional congestion creates. There was a divergence of views on the management of trading risks with some participants arguing that the market had learnt how to manage risks effectively in the current framework and other arguing for changes to assist trading.

A.3.4 Settlement Residue Auction Design and Firmness

Some issues raised by submissions related to the design of the financial instrument used to manage inter-regional trading risk, called inter-regional settlement residue (IRSR) units, which are sold at settlement residue auctions (SRA). Views ranged on the financial firmness (which means the ability of the product to act as a prefect hedge against the risk) of IRSRs. CS Energy, ERAA, AER/Dr. Darryl Biggar, and the National Generators Forum (NGF) all stated that the lack of firmness of IRSRs was an issue to consider.[130] Submissions stated a lack of firmness resulted in greater inter-regional trading risks. Another problem raised was not so much the lack of firmness but the unpredictable basis of the firmness. John Hoddinott's submission raised that the original design of the IRSR was not intended as an instrument to directly manage inter-regional price risk, particularly because units were based on a percentage of total residue, not volume.[131]

The Major Energy Users (MEU) submission argued that the risks of trading inter-regionally were too high for retailers as there was only a modest secondary market. It went on to say that there was very little market liquidity, resulting in retailers building peaking plant as a hedging instrument. The SRA approach, it said, provided little certainty for those seeking long term arrangements.[132]

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[129] NGF, p. 8-9.

[130] CS Energy, p. 4; Energy Retailers Association of Australia (ERAA), 13 April 2006, p. 5; Australian Energy Regulator and attachment from Dr. Darryl Biggar, p. 16 (attachment); National Generators Forum (NGF), p. 10.

[131] John Hoddinott, p. 2-3.

[132] Major Energy Users (MEU), p. 35-36, 39.

A.3.5 Existing problem areas in the market requiring attention.

In their submissions, CS Energy, Macquarie Generation, the Newcastle Group, NGF, and Snowy Hydro identified that the existing problems in the Snowy region were significant and required immediate consideration and resolution.[133] At the Industry Leaders Strategy Forum, there were general agreement among participants that network congestion in the Snowy Region is material and significant and needs to be addressed immediately. However participants views varied on whether or not congestion is a material problem other than in the Snowy Region. Some participants noted congestion related problems arising in other areas of the NEM including south-east South Australia, the Latrobe Valley, and QNI.

A.4 Proposed principles for a congestion management regime

Submissions proposed a range of principles that they considered a congestion management regime should promote. These principles fell into two main categories: economic efficiency and good regulatory practice.

A.4.1 Economic Efficiency

Submissions saw economic efficiency as compromising a wide range of conditions for NEM. Submission stressed that the congestion management regime should promote efficient market incentives (including bidding incentives, commercial and end user incentives); efficient pricing of congestion to ensure the appropriate allocation of congestion costs and risk across the market, and effective use of the network capability in order to minimise congestion. Some submissions thought that efficient risk management under the regime is needed for economic efficiency. Also certain submissions noted the possible negative effect on efficiency from the congestion management regime becoming too interventionist. These submissions stressed that the regime should minimise market disruption.

A.4.1.1 Efficient market incentives

Many submissions commented on the impact transmission congestion has on the incentives of market participants. The LATIN Group simply stated that a congestion management regime should remove market inefficiencies.[134] Origin Energy stated the regime should address the inadvertent distortions to bidding incentives in the regionalised market through the implementation of appropriately specified Constraint Support Pricing/ Constraint Support Contract (CSP/CSC) measures or region boundary changes.[135] Snowy Hydro stated that consideration must be given to how a change to congestion management affects commercial incentives, while the NGF wrote in its submission that a congestion management regime should focus on

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[133] CS Energy, p. 2; Macquarie Generation, p. 1; Newcastle Group, p. 3; NGF, p. 1; Snowy Hydro Limited, p. 3.

[134] LATIN Group, p. 2.

[135] Origin Energy, p. 3.

removing impediments to market efficiency, avoiding subjective judgements over competitive market outcomes or interactions.[136]

In its submission on the Statement of Approach, Snowy Hydro stated that the Commission should prefer options which lead to more cost reflective prices because of their impact on efficient consumption. Snowy Hydro also noted that it would be a mistake to regard prices above short-run marginal costs (SRMC) as inefficient because periods when prices exceed SRMC provide a signal for market entry, and enable generators to recover capital costs and ensure financial viability.[137]

Ergon Energy commented more generally that market incentives, the price of transmission services, and Rules on new transmission investment were key components to a congestion management regime.

A.4.1.2 Appropriate allocation of congestion costs/risks

Origin Energy stated in its submission that a congestion management regime should determine the best way to allocate the cost of congestion. Ergon Energy presented the view that the costs of congestion should be allocated to those who cause it. Transend supported the view that the risks of managing congestion should rest with the parties best able to manage them. This, it stated, should cover both the risk and consequences of the risk.[138]

Efficient congestion pricing

Macquarie Generation stated that the regime should identify where future material intra-regional congestion was likely. The NGF agreed, stating that the quantification of both current and likely future material congestion was important.[139]

Efficient use of network capability

Ergon Energy stated that a regime needed mechanisms to prevent network congestion while CS Energy argued that constraints should not be completely eliminated. Rather, CS Energy, stated, the regime should promote the maximum efficient use of existing transmission assets. Ergon Energy agreed, stating that the regime needed mechanisms to price efficient congestion explicitly.

Enable effective risk management

In its submission on the Statement of Approach, Snowy Hydro advised that the Commission should assess options and proposals, on the basis of their impact on risk, entailing a consideration of the extent of any exposure to risk of price separation

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[136] Snowy Hydro, p. 4; NGF, p. 7.

[137] Snowy Hydro, Submission on Statement of Approach June 2006, p.5.

[138] Origin Energy, p. 3; Ergon Energy, p. 1; Transend, p. 2.

[139] Macquarie Generation, p. 1; NGF, p. 6.

and the extent to which they facilitate effective management of that risk.[140] Origin Energy stated in its submission the need for a framework to manage the price risk associated with congestion management tools.[141]

Appropriate economic criteria/modelling methodologies

The NGF supported the development of a modelling methodology to enable congestion management costs and benefits to be quantified.[142] Origin Energy stated that it was critical to have appropriate economic criteria for assessing when and how congestion should be addressed. The regime should include an agreed and comprehensive set of economic criteria for assessing the costs and benefits of implementing a specific congestion measure.[143] The Newcastle Group proposed that any Rules on congestion should be incremental, and be supported by a robust assessment of the net costs and benefits of the measure.[144]

Minimal market disruption

CS Energy stated that any congestion management tool should minimise market disruption. Origin Energy expressed the view that it was critical to address congestion, where it is significant, using the simplest and lowest cost option; implementing the option as quickly as possible with minimum market disruption. Part of this process should include a way to integrate the measures so congestion could be addressed in the most efficient and timely manner possible.[145]

A.4.2 Good Regulatory Practice

The majority of the submission stressed that the regime follow good regulatory practise. Submission saw good regulatory practise as including transparency, clarity, simplicity, predictability, certainty, stability, sustainability, fairness; and a holistic approach.

According to submissions, a congestion management regime should:

- Be clear, simple, and predictable;[146]
- Offer stability, transparency, and regulatory certainty;[147]
- Be a comprehensive and sustainable means for managing congestion;[148]

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[140] Snowy Hydro, Submission on Statement of Approach June 2006, p.6.
[141] Origin Energy, p. 6.
[142] NGF, p. 6.
[143] Origin Energy, p. 5, 3.
[144] Newcastle Group, p. 1.
[145] CS Energy, p. 8; Origin Energy, p. 6, 3.
[146] Origin Energy, p. 5.
[147] Snowy Hydro, p. 6; LATIN Group, p. 2.

- Provide greater clarity and transparency of NEM operations without compromising power system security;[149]
- Include principles to minimise NEMMCO's discretion around managing counter-price flows and altering constraints in response to possible security and reliability triggers;[150]
- Have tools that are simple to implement as well as being stable and fair;[151]
- Clearly define a process to manage congestion;[152] and
- Provide guidelines to address alternative solutions.[153]
- Origin Energy stated that the regime should provide for a holistic approach to congestion management.[154]

In its submission on the Statement of Approach, Total Environment Centre commented that any review of transmission congestion management must also consider distribution since these networks can be equally constrained and noted that the distribution network service providers are likely to be regulated at a national level in the future.[155]

A.5 Congestion management framework and tools to address problems

Views differed on the range of options that should be considered as part of a Congestion Management Regime. Some participants considered that while managing congestion was important, there was not enough significant congestion to justify a major redesign of the market. Preventing congestion arising or worsening was seen by some as better than managing it once it emerged. Some suggested that allocating transmission access rights would greatly reduce the risks associated with congestion. Others suggested that there was merit in considering a staged approach, as suggested by the MCE, including a mechanism to price existing or potential congestion like the Constraint Support Pricing/Constraint Support Contract (CSP/CSC) mechanism.

Submissions contained four categories of options for addressing identified problems with the NEM's existing congestion management approach:

- Options to better price congestion;

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148 LATIN Group, p. 2.
149 NEMMCO, p. 8.
150 Newcastle Group, p. 7-8.
151 CS Energy, p. 8; Stanwell Corporation; p. 4.
152 Origin Energy, p. 5.
153 NGF, p. 6.
154 Origin Energy, p. 5.
155 Total Environment Centre Submission on CMR Statement of Approach, p.3.

- Options to increase network capacity;
- Options to amend the inter-region settlement residues; and
- Options to change NEMMCO's constraint formulation process

A.5.1 Pricing Congestion

Under pricing congestion, submissions raised a number of solutions ranging from boundary change to more locational pricing.

A.5.1.1 Boundary change

Origin and Macquarie Generation argued that boundary change criteria should be evaluated on the same basis as network investment.[156] Powerlink said that the pre-conditions for boundary change applications needed to be stated in the Rules.[157]

The LATIN Group noted that the case for boundary change would be limited with a CSP/CSC regime, while Origin considered that boundary changes would be 'rare' with CSP/CSC.[158] Snowy Hydro noted that region boundaries were the most transparent way of signalling major, persistent congestion.[159]

CS Energy, Powerlink, the NGF and AER supported boundary change as a last step, after economic feasibility of all investment options explored.[160] The Government of South Australia's submission expressed the view that the interests of small regional customers should be taken into account when contemplating a region boundary change which would create more than one region within a jurisdiction.[161]

At the Industry Forum, comments were made on how the original market design and historical arrangements intended to manage congestion. The original design was to minimise the extent of intra-regional congestion through the choice of region boundaries or through network augmentation. The historical arrangements anticipated regular reviews and change to region boundaries, which has not been the case. There was some agreement that the potential for infrequent region boundary changes in the future will make intra-regional congestion problems more significant over time.

A.5.1.2 Constraint Support Pricing/Constraint Support Contracts (CSP/CSC)

Views are divided whether a CSP/CSC regime be introduced for the NEM. The LATIN group, Snowy Hydro and Origin Energy supported a more comprehensive

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156 Origin Energy, p. 8; Macquarie Generation, p. 7.

157 Powerlink, p. 2.

158 LATIN Group, p. 8; Origin Energy, p. 13.

159 Snowy Hydro, p. 6.

160 CS Energy, p. 6; Powerlink, p. 1; NGF, p. 11; AER, p. 24-25 (attachment).

161 Ergon Energy, p. 1; Government of South Australia, p. 1.

CSC/CSP regime, while, Delta Electricity, the Newcastle Group, Powerlink and Ergon Energy raised concerns with the approach.[162] Delta argued that the that the problems with CSP/CSC of competitive neutrality, gaming, barriers to new entrants, barriers to new regions, and the fact that it is hard to organise or agree on institutional arrangements would diminish its effectiveness.[163]

The NGF, LATIN Group, Origin Energy, and Snowy Hydro said that CSCs needed to be introduced with CSPs. Regarding firmness of the contracts, the LATIN Group, NGF, Origin, Macquarie Generation, and ERAA stated that firmness was impossible to guarantee, but that this was not essential to the design. There was significant disagreement with how to allocate CSCs.[164] Origin and CS Energy suggested allocation based on proportional share of generator capacity competing for access to the constraint. NGF supported grandfathering and Westpac supported auctioning. AER stated that if they were allocated for free to existing generators, they must be tradable. Macquarie Generation said that CSCs should manage financial risk to generators exposed to CSPs. Delta stated that allocation of any CSCs creates uncertainty for participants.[165]

A number of submissions raised issues with the practicality of establishing CSP/CSC. Stanwell Corporation suggested that it should be applied to a limited number of constraints until proven. NEMMCO noted that there are risks with multiple CSP/CSC arrangements operating simultaneously and that the calculations were exceeding complex. IES raised issues of transparency, noting that information would be needed on shadow prices.[166]

A.5.1.3 Constrained on payments for generators

The AER and NGF considered constrained on payments a possible solution to managing congestion or an alternative to CSP/CSC.[167] The Newcastle Group, NGF, Transend supported constrained on generators being paid their offer price.[168] Macquarie Generation and Stanwell gave qualified support for the use of constrained-on payments.[169] An industry levy to pay for constrained-on payments was suggested by the Newcastle Group.[170] Both the ERAA and Macquarie Generation said that any uplift charges arising from constrained-on payments would

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[162] LATIN Group, p. 4; Snowy Hydro, p. 6; Origin Energy, p. 5; Delta Electricity, p. 3-4; Newcastle Group, p. 7; Powerlink, p. 4; Ergon Energy, p. 3.

[163] Delta Electricity, p. 3-4.

[164] NGF, p. 15; LATIN Group, p. 7; Snowy Hydro, p. 7; NGF, p. 16; Origin Energy, p. 13; Macquarie Generation, p. 10; ERAA, p. 9.

[165] Origin Energy, p. 11-13; CS Energy, p. 7; NGF, p. 15; Westpac, p. 4; AER, p, 26 (attachment); Macquarie Generation, p. 9; Delta Electricity, p. 3.

[166] Stanwell, p. 4-5; NEMMCO, p. 18; IES, p.15.

[167] AER, p. 28 (attachment); NGF, p. 13-14.

[168] Newcastle Group, p. 8; NGF, p. 10; Transend, p. 2.

[169] Macquarie Generation, p. 8; Stanwell, p. 4.

[170] Newcastle Group, p. 8.

be difficult to hedge.[171] The NGF suggested hedging through a secondary market or by funding an alternative new investment.[172] At the Industry Forum, constrained-on payments for generators were also a way to help manage the risks of being constrained-on. No submission specifically discussed the use of constrained-off payments.

A.5.1.4 Increase locational pricing

The AER, NEMMCO, ERAA and John Hoddinott suggested generator nodal/locational pricing.[173] The AER said this would help address inefficient generator bidding.[174] The Newcastle Group did not support this approach, arguing that it would adversely affect the functioning of financial markets and add complexity to hedging arrangements for retailers.[175]

In a joint supplementary submission, Snowy Hydro and Macquarie Generation[176] dated 22 December 2006 presented a study conducted by Firecone on the impact of locational pricing on the contract market. That study concluded that an increase in locational pricing is likely to result in a greater level of inter-regional price risk, lower liquidity in contract markets, and greater difficulty and complexity in pricing risks. The study advises that any decision on the extent of locational pricing in the NEM, either as an interim measure or a permanent change to the market, should also take into consideration the impact on transaction costs in the contract market.

The AER advocated greater locational pricing for customers. It stated that there is no reason that different jurisdictions could not determine their own policies regarding geographic averaging for consumers.[177]

A.5.1.5 New access/congestion Payments for Generators

In its submission, Delta Electricity proposed that new generation investment should be exposed to the cost of relieving congestion at the proposed connection point.[178] In a supplementary submission, Delta Electricity[179] put forward a generator access model to support this position. Under the model new generators would be expose to a possible location charge reflecting the additional cost of any long term network augmentation required to avoid any additional congestion occurring from the new generator's location. Delta argued that such a system will improve the certainty of

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171 ERAA, p. 7; Macquarie Generation, p. 9.

172 NGF, p. 14.

173 AER, p. 26 (attachment); NEMMCO, p. 19; ERAA, p. 6; J. Hoddinott, p. 5.

174 AER, p. 26 (attachment).

175 Newcastle Group, p. 7.

176 Snowy Hydro and Macquarie Generation, Supplementary Submission; Regional Boundaries Rule and Congestion Management Review, 22 December 2006.

177 AER, p. 24 (attachment).

178 Delta Electricity, p. 5, 9.

179 Delta Electricity, Supplementary Submission, Congestion Management Review New Generator Access Arrangements, 9 November 2006.

access for new generators thereby removing a barrier of entry. Delta also commented that the model would address the current disconnect between regulated transmission investment and market generator investment.

In a further supplementary submission dated 22 December 2006, the LATIN group presented a report from IES, which models the potential efficiency gains from efficient location of new generation and commensurately lower transmission investment requirement when new generators are exposed to the full costs of congestion and/or new transmission that their location causes.[180] IES modelled the effect on introducing either or both a nodal pricing regime with constraint support and a congestion levy regime for new generators. The congestion levy was based upon required transmission costs. IES estimated that introducing such regimes will cause an increase in overall dispatch costs caused by increased generation from relatively more expansive plant, which is more than offset by significant reductions in transmission and generation capital costs. IES estimated efficiency gains with a NPV of over $200m over the next 15 years for one state alone (Queensland).

VENCorp stated that there was a need to review commercial/firm access arrangements and a need to develop detailed procedures for negotiation for commercial access.[181]

A.5.1.6 Transmission Access Rights

In a further supplementary submission dated 23 November 2006[182], the LATIN group (including Hydro Tasmania and InterGen) argued that transmission rights are essential in removing or lowering existing entry barriers for new generation investment. The LATIN group agreed with the Delta submission that uncertainty of access is a major deterrent for potential entrants. It argued that the introduction of rights for generators to use the transmission network would overcome the potential inefficient overuse of the network and lead to more efficient location decisions for generators. Such a system would now mean that new entrants will factor into their location decisions any congestion costs imposed on other generators and will give more certainty of access for all generators. The LATIN Group proposed that incumbent generators would be granted grandfather access rights but any new entrant would have to pay to obtain such rights.

Other submissions argued against the grandfathering of rights to existing generators. Origin[183] in its submission commented that to the extent that incumbent generators have not had to pay deep connection charges, imposing such charges on new entrants provides an inadvertent competitive advantage to the former.

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[180] LATIN Group, Supplementary Submission on Congestion Management Review of modelling of future efficiency gains, 22 December 2006.

[181] Ergon Energy, p. 3; J. Hoddinott, p. 4-5; VENCorp, p. 1-2.

[182] International Power, Loy Yang Marketing Management Co, Intergen (Australia) TRUenergy, AGL Hydro, Hydro Tasmania, and Flinders Power Supplementary Submission On Barriers To Entry 23 November 2006.

[183] Origin submission, p.5.

A.5.2 Improving Network Capacity

A lot of the submission commented on the need for better incentives for TNSPs and improvements to the transmission investment framework. Ergon Energy, Origin Energy, the NGF, IES, and the LATIN Group all suggested there should be stronger incentives for TNSPs to reduce the financial impact of congestion. This may include operational and investment incentives for TNSPs. Operational incentives on TNSPs could minimise transmission outages in critical periods and increase the firmness of IRSR units (IES and NGF). Investment incentives could assist in building out congestion (Ergon and Origin).[184] Origin Energy suggested that transmission companies should keep a portion of congestion costs avoided as an incentive.

Regarding the transmission investment decision making framework, submissions suggested some changes to the Regulatory Test and the introduction of a national transmission planning body. Stanwell, Origin, MEU, and Transend suggested a 'stronger' Regulatory Test to address congestion. The MEU argued that price reductions should be included in the Test. Origin suggested stronger incentives to use the market benefits limb. Powerlink suggested that non-network alternatives should undergo the Regulatory Test.[185] John Hoddinott, Ergon Energy and the MEU suggested that a national transmission planning body was required to address congestion.[186]

Also regarding Network capability, some submission commented on the use of Network Control Ancillary Services (NCAS) and Network Support Agreements (NSA).

NEMMCO suggested an increased role for TNSPs in procuring NCAS, although, the NGF and the LATIN Group said that there were issues with TNSP procurement.[187] CS Energy, Macquarie Generation, and the NGF said that NCAS costs should be recovered from customers.[188] CS Energy, MEU, Macquarie Generation and NEMMCO supported increased use of network support agreements as a congestion management tool, although Powerlink considered it inappropriate for TNSPs to be required to use NSAs as a tool to improve the value of spot market trading, as it is inconsistent with the network investment framework. The NGF proposed that NSAs should be tendered in an open market or based on market price signals.[189]

In its submission on the Statement of Approach, Total Environment Centre stressed that Demand Management mechanisms are an effective means to manage congestion and to date, have not been pursued in a serious fashion. It considered that NEMMCO has under-utilised direct load shredding arrangements. Total Environment Centre called for the establishment a robust demand side response in the NEM as a means to address congestion. It also noted that better information

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[184] Ergon Energy, p. 1; Origin Energy, p. 14; NFG, p. 5; IES, p. 17; LATIN Group, p. 7.

[185] Stanwell, p. 4; Origin Energy, p. 6; MEU, p. 25; Transend, p.1; Powerlink, p. 2.

[186] J. Hoddinott, p. 3-4; Ergon Energy, p. 2; MEU, p. 46.

[187] NEMMCO, p. 17; NGF, p. 15; LATIN Group, p. 7.

[188] CS Energy, p. 7; Macquarie Generation, p. 9; NGF, p. 15.

[189] CS Energy, p. 7; MEU, p. 52; Macquarie Generation, p. 9; NEMMCO, p. 15-16; Powerlink, p. 3; NGF, p. 14.

disclosure on emerging network constraints and TNSPs policies on demand side mechanisms is required.[190]

A.5.3 Inter-Region Settlement Residues

Market participants can used Inter-Regional Settlement Residues (IRSRs) as a hedge against price separation between regions. Submissions raised a number of issues regarding the ability of IRSRs to be a prefect hedge against inter-regional price risk (see A.3.4). Submission advocated a number of options, ranging from improving the existing IRSR product, to addressing the negative settlement residues issue, and replacing the IRSR with another financial hedge product.

IES, CS Energy, Origin Energy, ERAA, and the AER all supported improving the existing IRSRs to make it more of a firm hedge, although Origin and ERAA said that it should not be by artificial means such as a customer uplift charge.[191] Origin stated that firmness can only be improved in a practical sense by increasing the physical capability of the network. Snowy Hydro suggested that appropriate region boundaries, a congestion management regime, and better incentives on TNSPs would increase firmness. ERAA argued for longer contract terms for IRSRs, with region boundary stability. NEMMCO argued that secondary markets were more appropriate to assign the risk of firming up IRSRs. [192]

NGF, Macquarie Generation, CS Energy, and the LATIN Group supported funding negative residues through auction proceeds. NEMMCO said with the Commission's Negative Settlement Residues Rule in place, increasing thresholds for constraints applied to accumulating negative residues should be considered.[193] IES suggested further work could be done to see if a general application of the Southern Generators proposal is financially adequate. The AER/Dr Biggar suggested the development of "constraints based residues" as a more general means of managing negative residues, improving economic incentives for managing congestion, and creating firmer inter-regional regional trading instruments than the existing IRSR units.[194]

In terms of alternatives products to replace the existing IRSR product, Westpac proposed replacing it (and any Constraint Support Contracts) with a series of auctioned instruments with varying degrees of firmness, similar to securitisation of credit risk in debt markets.[195] Ergon Energy, and John Hoddinott proposed introducing Financial Transmission Rights as they are firmer product than IRSRs.

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[190] Total Environment Centre Submission on CMR Statement of Approach.

[191] IES, p. 17; CS Energy, 6; Origin Energy, p. 3; ERAA, p. 5; AER, 28 (attachment).

[192] Origin Energy, p. 8; Snowy Hydro, p. 7; ERAA, p. 5; NEMMCO, p. 7-8.

[193] NGF, p. 13; Macquarie Generation, p. 8; CS Energy, p. 6; LATIN Group, p. 6; NEMMCO, p. 14.

[194] IES, p. 17; AER, p. 28-29 (attachment).

[195] Westpac, p. 3-4.

A.5.4 Options to change NEMMCO's constraint formulation process

In its submission, IES raised a concern that under Option 4 constraint formulation there are inefficiencies in the process of determining TNSPs limits which then are used to determine the constraints to feed into the NEM dispatch engine. IES argued that a better approach to developing limits would in turn reduce network congestion for the same network capacity.

IES have suggested two ways to change the current constraint formulation process; changing to a full network model that would explicit model all key transmission line flows, and developing approaches that would develop constraints in near real time instead of well ahead of dispatch time. This would make the system security obligation less restrictive as it mean that constraints are based on more up to date information instead of a range of assumptions. NGF also stated that NEMMCO should further investigate the costs and benefits of a full network model.[196]

[196] IES, p. 12-14; NGF, p. 16.

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B List of submissions and supplementary submissions

B.1 Issues Paper Submissions

CS Energy Submission

Delta Electricity Submission

Energy Retailers Association Of Australia Submission

Intelligent Energy Systems Submission

John Hoddinott Submission

LATIN Group -Loy Yang AGL TRUenergy IP NRG Flinders - Submission

LATIN Group Submission - Response To Questions

Macquarie Generation Submission

Macquarie Generation Submission - Attachment

NEMMCO Response To Macquarie Generation Submission

National Generators Forum Submission

NEMMCO Submission

Newcastle Group -AGL Delta Electricity Intergen- Submission

Powerlink Submission

Snowy Hydro Limited Submission

Stanwell Corporation Submission

VENCorp Submission

Westpac Submission

AER Submission

Major Energy Users Submission

Origin Energy Submission

Transend Submission

Government Of South Australia Submission

Ergon Energy Submission

B.2 Submissions on Statement of Approach June 2006

Total Environment Centre Submission

Snowy Hydro Submission

B.3 Supplementary Submissions

Macquarie Generation Supplementary Submission And MMA Report 25 September 2006

LATIN Group - LYMMCO AGL Hydro International Power TRUenergy Flinders Power InterGen (Australia) Delta Electricity Letter On Supplementary Material For Congestion Management Review

Delta Electricity Supplementary Submission 9 November 2006

LATIN Group - International Power LYMMCO InterGen (Australia) TRUenergy AGL Hydro Hydro Tasmania Flinders Power Supplementary Submission On Materiality Of Congestion 17 November 2006

LATIN Group - International Power LIMBO Intervene (Australia) TRUenergy AGL Hydro Hydro Tasmania Flinders Power Supplementary Submission On Barriers To Entry 23 November 2006

Powerlink Submission On Significance Of Intra-Regional Congestion In The NEM; 6 November 2006

Snowy Hydro and Macquarie Generation joint submission, containing Firecone report on the impact of locational pricing on the contract market, 22 December 2006.

LATIN Group - International Power LIMBO Intervene (Australia) TRUenergy AGL Hydro Hydro Tasmania Flinders Power Supplementary Submission on the modelling of future efficiency gains on 22 December 2006

B.4 Industry Leaders Strategy Forum – Participants

The Commission invited industry bodies to participate in the Strategy Forum, asking for one to two representatives, at the CEO level. The Commission also invited the AER and NEMMCO to participate. The attendees are indicated in Table B.1 below.

Table B.1: List of attendees

Organisation	Representatives
Australian Energy Market Commission (AEMC)	Commissioners Tamblyn, Carver, and Woodward, Commission staff and advisors attended
Electricity Transmission Network Operators Forum (ETNOF)	Powerlink and TransGrid attended
Energy Retailers Association of Australia (ERAA)	EnergyAustralia and AGL attended
National Generators Forum (NGF)	TRUenergy, Snowy Hydro, and Macquarie Generation attended
Australian Energy Regulator (AER)	Attended
National Electricity Market Management Company (NEMMCO)	Attended
Energy Users Association of Australia (EUAA)	Unable to attend
Major Energy Users (MEU)	Unable to attend