A Submissions Summary

This Appendix presents a summary of the submissions received on the Congestion Management Review Directions Paper. The Directions Paper was issued on 12 March 2007 with submissions closing on 13 April 2007.

The following nine organisations made submissions on the consultation of the Congestion Management Review Directions Paper:

- Snowy Hydro, Macquarie Generation, Southern Generators[118], Major Energy Users (MEU), National Generation Forum (NGF), Powerlink, NEMMCO, Electricity Users Association of Australia (EUAA) and Electricity Transmission Network Owners Forum (ETNOF).

This summary covers views presented on the Directions Paper. The Commission previously published a summary of all earlier submissions and views presented during the Industry Leaders Strategy Forum[119] as an appendix to the Congestion Management Review Directions Paper.[120]

This Appendix summarises the issues raised in submissions under the following headings:

1. The Commission's approach to the Review;
2. The Commission's interpretation of the problems of congestion;
3. Materiality of congestion and trigger thresholds;
4. Options to amend the congestion management regime; and
5. Factors influencing levels of congestion.

A.1 The Commission's approach to the Review

On balance the submissions agreed with the Commission's approach to the Review as set out in the Directions Paper. In its submission, Macquarie Generation stated its support for the proposed approach and analytical framework outlined in the Directions Paper.[121] The National Generators Forum (NGF) also largely supported the body of work the Commission intends to undertake.[122] However a number of submissions made specific criticisms of the Commission's proposed approach.

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[118] Southern Generators include Loy Yang Marketing Management Co, AGL, TRUenergy, International Power, Flinders Power and Hydro Tasmania.

[119] AEMC, Industry Leaders Strategy Forum, 17 October 2007.

[120] AEMC, Congestion Management Review, Directions Paper, 12 March 2007, Appendix A.

[121] Macquarie Generation, Congestion Management Review, p.1.

[122] National Generation Forum, Congestion management Review – Directions Paper, p.1.

MEU stated that that the Commission's approach to addressing congestion is sound except that it doesn't focus on the needs of consumers, who ultimately pay for congestion. It considered that the focus of the Directions Paper is on the need to create financial certainty for market participants but not on the need for consumers to have certainty that they are receiving the lowest reasonable priced electricity. MEU argued that by focusing the issues on impacts to market participants, and not on consumers, the Commission's approach is against the NEM objective.[123]

For example, MEU considered that the discussion on trading risks is focused on developing better risk management mechanisms but ignored what the costs implications are consumers of such commercial mechanisms. MEU also considered that the Directions Paper fails to link the assessment of costs and financial management of congestion to market participants to the costs of building out the congestion. [124]

On this issue, EUAA advise that explicit consideration needs to be given to how the risk management solutions impact on end-users. It asked whether the reduction in basis risk will translate into more competitive prices for end users and can the improved risk management solutions be applied in a flexible manner to meet the needs of retailers and customers when contracting. [125]

The NGF is disappointed that the focus is solely on mechanisms to manage congestion in isolation from the broader issues of a sound framework for driving effective and efficient generation and transmission augmentation and the boundary change principles and process. It stated that the assessment of the options for CMR should not be taken in isolation with a review of the arrangements associated with generator investment in downstream transmission augmentation to relieve congestion and that the proposed framework for analysing options is poor. [126]

NGF considered that the categorisation of the impacts of congestion detailed in the Directions Paper justifies the focus on mechanisms for enabling participants to better manage trading risk at the expense of an overarching review of all of the elements that need to fit together as part of an effective congestion management framework. [127]

The Southern Generators are disappointed that the Commission plans to exclude a number of potential congestion management mechanisms from further consideration and considered that the Commission has interpreted the Terms of Reference in a very narrow way, which it felt is mistaken. It stated that the Commission should take the view that if the MCE has not explicitly ruled out an option then that option needs to be considered. [128]

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[123] The Major Energy Users Inc., Commented on the Directions Paper, p.3, April 2006.

[124] Ibid, p.4.

[125] Energy Users Association, Submission to the AEMC Congestion Management Review, p.6, April 2007.

[126] National Generators Forum, Congestion Management Review – Directions Paper, p.4, 13 April 2007.

[127] Ibid, p.7.

[128] The Southern Generators, Congestion management Review Submissions Paper, p.1, April 2007.

The Southern Generators' submission stated that proper considerations should be given to :

- All complete solutions, i.e. those solutions which can manage all current and future congestion without further development or regulatory intervention;
- grandfathering of existing generators against the commercial impacts of new congestion management (CM) mechanisms; and
- use of congestion prices to provide efficient incentives to the location of new investment. [129]

NGF also considered that the Commission's approach has limited the options for review to either constraints support pricing/contract (CSP/CSC) or constraint bases residue (CBR) approaches. NGF stated that all options need a proper review and advised the Commission to consider also negotiated transmission augmentation based on providing generators with an increased level of access. The NGF commented that it would not be prudent to limit the scope of this review unnecessarily.[130]

The Southern Generators questioned why the option of generator nodal pricing has been ruled out since it was presented as an option in the Issues Paper and also ask what has caused the Commission to change its interpretation of the scope of the review since the Issues Paper.

The Southern Generators submission rejected the Commission's partial localised solution approach for the following reasons: (a) this was not the intention of the MCE, in drafting the ToR; (b) that the AEMC has not properly taken the cost characteristics of complete CM solutions into account in applying its "materiality" requirement; and (c) that the characteristics of congestion may mean that partial solutions are relatively ineffective in managing the majority of congestion. They disputed the Directions Paper statement that "the Commission was not asked to develop a regime for long term market wide application". [131] Southern Generators recognise that mechanisms could be implemented on a localised basis but the congestion management regime must be NEM wide and long term. [132]

Southern Generators stated that the concept articulated by the Commission that a congestion management mechanism should only be applied to identified, specified instances of material congestion is only appropriate to partial CM solutions where there is a significant incremental cost associated with each extra area of congestion which is covered by the scheme. This factor is not appropriate to a complete CM

[129] The Southern Generators, Congestion management Review Submissions Paper, p.12, April 2007.

[130] National Generators Forum, Congestion Management Review – Directions Paper, p.15, 13 April 2007.

[131] AEMC, Directions Paper, p. 53.

[132] The Southern Generators, Congestion management Review Submissions Paper, p.17, April 2007.

mechanism, where there is essentially no incremental cost to managing new areas of congestion. [133]

Submissions from both Southern Generators and NGF thought that the framework for transmission investment – and its relationship to the emergence and management of congestion – should be considered further within the Review. Both the NGF and Southern Generators noted that the Ch.6 review did not address the relationship of the investment framework to congestion management and the Commission stated at that time, that these issues will be reviewed under the congestion management review.[134] NGF noted that the Ch.6 review did address revenue and pricing issues facing network service providers but did not adequately address issues associated with:

- Improving the linkages between generation investment and the planning of transmission networks; and
- Generator investment in 'deep' network augmentations that become part of the shared network and open to 'free rider' use. [135]

Southern Generators stated that the CMR terms of reference explicitly require that the review should take account of and articulate the relationship between the constraint management regime and (*inter alia*) the regulatory test and TNSP incentive arrangements. [136]

MEU stated that it was unfortunate that the Commission has decided to assume that the issues affecting the physical aspects of congestion have been addressed by the implementation of the changes made to the transmission revenue, regulatory test and last resort planning power and labels the Commission approach as "bizarre". MEU stated that if the costs for managing the financial approach exceeds the costs of augmentation, then it become logical that the physical approach to solving congestion is taken.[137]

The Transmission Network Service Providers (TNSPs) agreed with the Commission's position. ETNOF commented that any further changes in this area is likely to be counter-productive as the new Rules are only being implemented through the next round of transmission revenue re-sets.[138]

A.2 The Commission's interpretation of the problems of congestion

A number of submissions stated the Commission needed to balance the mis-pricing problem with the hedging problem and recognise the trade off between dispatch

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[133] Ibid, p.21.

[134] The Southern Generators, Congestion management Review Submissions Paper, p.31, April 2007.

[135] National Generators Forum, Congestion Management Review – Directions Paper, p..7, 13 April 2007.

[136] The Southern Generators, op.cit. p..31.

[137] The Major Energy Users Inc, op.cit. p.5.

[138] Electricity Transmission Network Owners, Congestion Management Review, p.2, 13 April 2007.

efficiency and contract market liquidity. Snowy Hydro commented that with 80% to 90% of trading volume done by financial contract, the contract market is very important. Its considered that enhancing contract trading through increasing liquidity and availability will increase competition and argued that a decrease in the level of price granularity could be economic efficient if the mis-pricing problem is outweighed by a larger hedging problem.[139]

NGF considered that the problem of mis-pricing could be over-stated. It commented that pricing mismatches will naturally occur in an 'energy only' market, designed to be over supplied at all times to satisfy system security and reliability standards at times of maximum peak demand. Furthermore, NGF argued that the level of inefficient dispatch under most market conditions taking account of the typical level of hedge contracts that participants manage will be less than that indicated by magnitude of price differentials. [140]

NGF felt that the mis-pricing discussion needs to reflect that mis-pricing is a natural consequence of the regional market and that this was accepted by the designers of the market.[141]

NGF considered that the key question is whether the proposed increase in price zones for generators will reduce dispatch inefficiencies by more than the cost of increased consumer prices. It stated that the Commission has under-stated the significance of the derivative market compared with the physical market. A high proportion of the physical electricity supply in the NEM is covered by hedge derivatives of various forms and contract trading risk can be mitigated by schemes that support the purchase of zonal price differential residues. The NGF argued that the cost of access to the residues and any residual risk will be quantified as premiums on hedge contracts purchased by retailers, and therefore lower hedging ability will feed through to higher consumer prices.[142]

A.3 Materiality of congestion and trigger thresholds

All the submissions supported the need to develop the analysis of materiality and stressed the importance of making decisions on changes to the congestion management regime balanced by the materiality of the problem.

Some submissions commented on whether congestion is material or not. Macquarie Generation restated its position that it does not consider that there is significant level of congestion in the NEM to justify fundamental change and supported the Commission's interim conclusion that "there is no clear evidence that mis-pricing due to system normal constraints is having a significant adverse effect on dispatch efficiency"[143].

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[139] Snowy Hydro, Congestion Management Review – Directions Paper, p.2, 12 April 2007.

[140] National Generators Forum, op.cit. p16.

[141] ibid. p.5.

[142] ibid. p.2.

[143] Page 31 of Directions Paper.

The Southern Generators argued that congestion is a significant problem and considered that intra-regional congestion will continue to increase.[144]

MEU commented that although the frequency of the times there is significant congestion are relatively few, the impact on consumers of these occurrences is extreme. MEU's submission contained analysis on the frequency of price spikes above $300 MWh in the NEM (excluding Tasmania and Snowy) to support its view that congestion is material. Making the assumption that all price spikes above $300MWh are caused by congestion, MEU's analysis shows the cost of consumers of price premiums caused by constraints is over $1.5 bn per year for both 2005 and 2006. It concluded that although the number of price spikes analysis is small, the severity of them is enormous.[145]

NGF stated that the materiality assessment must be both on the NEM wide costs and trends and also factor in localised congestion affecting a small number of market participants.[146]

MEU commented on the difficulty of assessing the cost of intra-regional congestion because price differences are not identifiable. MEU also commented that any loss of supply caused by congestion must be considered to be material for consumers.[147]

The Southern Generators thought that it was unclear how the Commission intended to interpret and apply the concept of materiality to its decision making framework. The Southern Generators interpreted the Commission's position from the Direction Paper[148] as that the level of materiality is linked to the costs of the introducing new congestion management mechanisms and that a mechanism would only be introduced if there is a net benefit. The Southern Generators supported the perceived Commission position and argued against the use of arbitrarily set materiality thresholds. The EUAA made a similar interpretation and concluded that whether any alternative approach to the management of congestion is justified depends on a comparison of the costs and benefits of the option relative to the materiality of pre-existing congestion.[149]

NGF put forward a similar position and noted that in order to determine the threshold of materiality there needs to be an assessment of the likely costs (both implementation and on-going transaction costs) of the different constraint management options. It suggested that the minimum threshold level should be in the order of the cost of implementing the congestion management scheme plus the ongoing transaction costs of that scheme.[150] Likewise, Macquarie Generation stated that in setting thresholds for implementing change, the Commission will need to take

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144 The Southern Generators, op.cit p.10.

145 From 2005 to 2006, although the number of price spikes increased the severity was less and the focus moved from NSW to Victoria and SA.

146 National Generators Forum, op.cit., p.9.

147 The Major Energy Users Inc, op.cit., p.23.

148 Section 2.1 Page 8, of the Directions Paper.

149 Energy Users Association, op.cit., p.4.

150 National Generators Forum, op.cit., p.8.

into account all of the transition, implementation and on-going costs of any alternative mechanism. Macquarie Generation advised the Commission to include a safety margin in any net benefit assessment by which the expected although uncertain benefits exceeded the more tangible costs.[151]

The remaining comments on materiality in submissions address how the Commission should assess the materiality of congestion.

Regarding the assessment of materiality, the Southern Generators submission stated that it was difficult to accept the Commission's dismissal of the existing measures because it did not put forward a comprehensive alternative nor describe how the existing measures' shortcomings will be addressed. The Southern Generators are concerned that the Commission's analysis of and plans for measuring congestion are inadequate and incomplete. [152]

Submissions (MEU, NGF and Southern Generators) note that measuring congestion must also include the costs incurred by market participants dealing with the uncertainty of congestion and effect on efficiency caused by potential congestion. Measures based on actual congestion may understate the problem. NGF stated that the Commission needed to examine the impact of potential congestion on the reluctance to trade across regional boundaries.[153]

MEU comment that since the timing, duration, and severity of an actual occurrence of a constraint cannot be predicted, market participants are require to address constraints as if they might occur at any time. Thus the costs to protect against the financial outcome of constraints are related more to the potential of a constraint rather than to the actual incidence of the constraint binding. MEU state that the Commission should develop a method for measuring the costs of the financial mitigation tools put in place for when congestion might occur.[154]

Both Southern Generators and NGF noted the costs of the trading risks from potential congestion and hence the possibility that congestion could be material even if transmission constraints never actually bind. MEU consider that the costs incurred by generators and retailers to manage the risks of congestion potentially occurring, which are passed onto consumers, need to be included in the materiality assessment. These submissions thought that the current approaches to measuring congestion do not recognise the full cost to consumers for congestion risk management.[155]

The Southern Generators and NGF agreed that the assessment should look to measure the impact caused by the uncertainty of congestion, rather than just its average or expected level. For Southern Generators the assessment should also consider worst case scenarios, since these are an important component of trading risks. It also thought that consideration of how congestion impacts on operating and

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[151] Macquarie Generation, op.cit., p.2.

[152] The Southern Generators, op.cit., p.14.

[153] National Generators Forum, op.cit., p.5.

[154] The Major Energy Users Inc, op.cit., p.24.

[155] Ibid., p.36.

investment decisions is needed.[156] NGF thought that the assessment should exclude generator behaviour that only results in wealth transfers between generators.[157]

The Southern Generators considered that the assessment should not be based upon historical costs of congestion but be based on forward looking modelling and should also assess the expected reduction in costs in the future as a result of the any mechanism.[158] The NGF considered that any assessment of congestion should include backward looking analysis as well as forward looking projections as the backward analysis would provide an indication of the delivered value of network investment.[159] Macquarie Generation disagreed and stated that historical data will provide the best guide to the likely level of congestion over future years. It considered that forward modelling of congestion has limited value as it is ultimately a function of the input assumptions on a number of uncertain variables.[160]

Both the Southern Generators and NGF stated that the materiality assessment needs to examine dynamic effects as well as static efficiency effects (productive and allocative efficiency). Southern Generators considered that dispatch inefficiency impacts are likely to represent only a small proportion of overall efficiency impacts. Both recognised that the level of dynamic efficiency benefits will depend upon the design of the constraint management mechanism, in particular how the mechanism will affect investment decisions.

NGF agreed with the Commission that a single measure is unlikely to be sufficient for materiality. It thought that some form of modelling is required to give a complete assessment. It noted that an agreed modelling methodology and assumption list will be important to gain the support of NEM participants.[161] Southern Generators thought that the Commission should draw on the modelling work done by Frontier Economics for the Snowy Abolition rule change determination to assess the static impact of congestion.[162]

Powerlink questioned the assumptions used in the 2006 IES report, especially the assumption that there are no constraints on fuel availability or other key factors which affect generation location.[163]

NGF raised the possible scenario that although is it concluded that congestion is not material today, it could turn out to being material in the future. It considered that the Commission should specify the preferred mechanisms today as part of this review to gave certainty to market participants going forward.[164]

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156 The Southern Generators, op.cit., p.7.

157 National Generators Forum, op.cit., p.8.

158 The Southern Generators, op.cit., p.9.

159 National Generators Forum, op.cit., p.8.

160 Macquarie Generation, op.cit., p.2.

161 National Generators Forum, op.cit., p.7.

162 The Southern Generators, op.cit., p.15.

163 Powerlink, Response to CMR paper, p.4, 12 April 2007.

164 National Generators Forum, op.cit., p.8.

The EUAA submission mainly focused on how the Commission is assessing the materiality of congestion and raises what it considers to be flaws in the Commission's approach.

The EUAA noted that the Commission intends to investigate specific historic events where the recorded AER figures are relatively large in order to get a better understanding of the materiality of congestion. The EUAA considered that there is a risk that a focus on headline days will result in flawed conclusions. It noted that the proportion of the total cost of constraints attributable to a small number of incidents may not disclose the impacts of constraints that are of less significance on an individual cost basis but which are repeated and sustained thereby adversely impacting the efficiency of dispatch.[165]

The EUAA noted that the analysis to date fails to incorporates the impacts of strategic generator bidding and considered that it is not clear from the proposed workplan how the Commission will address this.

The EUAA stated that the Commission should re-examine two issues that have been excluded from the analysis. One is that recognition of whether jurisdictionally imposed environmental or energy purchasing schemes (e.g. ETEF and LEP) introduces risks to the management of inter-regional price differentials.[166] The second issue is that assumption that constraints associated with Network Support Agreements (NSA) should be ignored. The EUAA considered that the Commission needs to assess whether such agreements effectively ensures that efficiency is increased given that network support is effectively displacing out of merit order generation. The EUAA stated that NSAs can have unpredictable timing, duration, and their costs are not fully transparent nor is their use competitively based.[167]

A.4 Options to amend the congestion management regime

A.4.1 Information Rules

All submissions supported increased information provision to improve congestion management, although the transmission owners added a number of caveats. ETNOF stated that when examining possible information provisions for TNSPs, the Commission need to recognise that: (a) the provision is not costless; (b) must be meaningful and practical to provide; and (c) that information should only be provided on a Rules mandated basis where it can be shown that the required information will not be delivered as a result of competitive forces and/or provision on a user pays basis. [168]

Powerlink expressed some concern about getting extra information responsibilities and commented that TNSPs should not be made responsible for making potential

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[165] Energy Users Association, op.cit., p.5.

[166] Energy Users Association, op.cit. p.6.

[167] Ibid.

[168] Electricity Transmission Network Owners, op.cit. p.3.

investments decisions for new investors.[169] MEU noted that publishing information on future levels of congestion to assist investment decisions, might expose the provider to risks if the information proves later to be incorrect.[170] Both Powerlink and ETNOF stated that they would like to discuss any new information provisions for TNSPs with the Commission.

NGF supported the provision of more detailed congestion information that allows participants to: a) prepare for occasions when constraints occur; b) ensure trading strategies are consistent with congestion risks; and c) better assess current and future market access at key locations around the NEM.

Regarding Delta Electricity's proposal for increased information on connection point transfer capability,[171] ETNOF noted that such information is already commonly provided to investment proponents as part of the process for making a connection enquiry and is dealt with in an appropriate legal and commercial manner through that process. ETNOF state that this has the advantage of being produced on a user pays basis for intending investors at locations where the information is useful and relevant to the specific proposal.[172]

ETNOF also questioned the utility of some of the information that appears to be sought. For instance, the Delta Electricity proposal to identify the quantum of additional injection without exacerbating congestion requires assumptions to be made regarding power flows in that area after the hypothetical additional injection is made. If the analysis were to be conducted assuming no injection at nodes remote from the subject node the results would be meaningless. ETNOF suggested that this sort of analysis and information provision is most properly dealt with through the connection enquiry process.[173]

Regarding the request for information on locations that could accept further generation injection without exacerbating congestion, NEMMCO noted that it may be possible to provide limited information for a small number of connection points but that there may be practical difficulties which would require more extensive power system analysis in providing such information for multiple connections points within each ANTS zone.

Southern Generators supported the provision of additional information to reduce congestion but considered that it may have limited effectiveness since it does not address the problem of a lack of certainty of access to the regional reference node that a new generator faces.[174]

Macquarie Generation considered that improvements should be made to the provision of information on network outages plans. It suggested that the monthly

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[169] Powerlink, op.cit. p.1.

[170] The Major Energy Users Inc, op.cit., p.43.

[171] Delta Electricity, Congestion Management Review – New Generator Access Arrangements. Supplementary Submission to AEMC, 9 November 2006.

[172] Electricity Transmission Network Owners, op.cit., p.2.

[173] ibid, p.4.

[174] The Southern Generators, op.cit., p.13.

RIEMNS outage plan is combined with NEMMCO's daily Network Outage Schedule (which was originally foreshadowed in NECA's RIEMNS stage one final report).[175]

Regarding the publication of nodal prices, NEMMCO considered that this would require a very substantial ongoing commitment of resources. It viewed the information on mis-pricing as simpler to produce, and stated that the mis-pricing information is likely to be equally instructive to market participants as nodal prices information. NEMMCO noted that it already publishes significant constraint information and commented that there would be merit in explaining further how mis-pricing is expected to improve participants' responses to congestion.

Southern Generators supported the publication of nodal prices, but advise that there should be caveats in order to ensure that these prices are not misinterpreted, particularly by potential entrants who may be unfamiliar with the idiosyncrasies of NEM pricing, as generators are not actually exposed to the nodal price in settlements.[176]

None of the submissions responded to the request in the Directions Paper for suggestions to improve of the PASA (Projected Assessment of System Adequacy) or the pre-dispatch process that would assist participants to manage trading risks.[177]

A.4.2 Dispatch Rules

The Commission's proposal[178] for the requirement for NEMMCO to formulate constraints as "fully optimised" to be moved to Chapter 3 of the Rules was supported by NEMMCO, Powerlink and Southern Generators.

A.4.3 Constrained-On Payments

Some submissions supported constrained on payments while others argued against this mechanism because of the possible perverse incentives it would create for generators.

Macquarie Generation and NGF supported such payments, commenting that it was inconsistent with an open and competitive market to compulsorily oblige a supplier to provide its output at a price below which it was voluntarily prepared to sell. Macquarie Generation sees the benefits of constrained on payments as leading to increased plant availability and over the long term increased investment in generation especially if only the payments were made to those generators who alleviate congestion.[179]

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[175] Macquarie Generation, op.cit., p.3.

[176] The Southern Generators, op.cit., p.38.

[177] Directions Paper, 6.1.5, p,60.

[178] Directions Paper, 6.1.1, p.55.

[179] Macquarie Generation, op.cit., p.3.

Both the NGF and Macquarie Generation thought that constrained on payments should be made as side payments to generators with the side payment equal to the difference between the generator's offer price and the regional reference price. MEU stated that there are more than the two options for setting a constrained on price for a generator described in the Directions Paper. It suggested that the constrained on price be set at the average price used for dispatch of that generator over the previous twelve months, which it considered would be close approximation to the generator's average cost.[180]

Regarding funding of payments, Macquarie Generation considered that the least distortionary funding mechanism would be a direct pass through to customers as part of transmission network service charges.[181]

ETNOF considered that there are some two instances where constrained on payments for generation may be appropriate. Firstly, the positive gatekeeper scenario, secondly, the constrained on generation payments are considered the best option under the Regulatory Test. ETNOF considered that the positive gatekeeper model could be structured to be revenue neutral.[182] The funding for the positive gatekeepers increment in generation could be sourced from the increment in the IRSR that results from the higher inter-connector flows they facilitate. The IRSR is no smaller than it would be if the additional generation did not occur, hence IRSR holders are not compromised and there is an overall benefit to trade in the NEM.[183]

ETNOF's concern about this approach is that it would be difficult to compare this mechanism with network based solutions and this could lead to a risk of this approach being locked in although other long term approaches could be more economically efficient.

The second instance covers situations where the approach has been assessed as the best under the Regulatory Test framework. This covers the situation in North Queensland, and more recently, as intended to apply in relation to planned NSW 500kV development where constrained on generation is to be funded to defer line development costs.

ETNOF considered the issues surrounding constrained-on generation should be considered in the context of what other alternatives are available such as network investment, demand management or new cheaper generation, and not simply as a question of how to fund payments.

Southern Generators stated their preference for alternative solutions over constrained-on payments. They commented that where the constrained on generator is in a load pocket, settling constrained on payments based upon the generators offer price would lead to windfall gains. The Southern Generators considered that such situations are better addressed through Network Support Agreements and

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[180] The Major Energy Users Inc, op.cit., p.41.

[181] Macquarie Generation, op.cit., p.3.

[182] Positive and negative gatekeepers are explained in Appendix G.

[183] Electricity Transmission Network Owners, op.cit., p.6.

compensation payments arising from NEMMCO Directions and that there are some incremental changes that would make these processes more effective. [184]

Powerlink raised some concerns with the introduction of constrained on payments for generators. It viewed that changing the current regime such that generators control these payments through bidding behaviour is a fundamental change to the governance arrangements of the NEM.[185] MEU raised a similar concern noting that if there is a significant payment for constrained on generators then it would act as an incentive for generators to withhold capacity in the expectation of getting a constrained on premium.[186]

Powerlink also noted that a further fundamental change would be if the TNSPs had to manage the allocation and payment of constrained-on payments. It argued this would be a fundamental change with risk allocations that have not been previously discussed. This brings the need for clarity of roles and responsibilities in respect of the provision of network capability into the realm of the CMR.[187]

None of the submissions comment on whether constrained off payments were required as well as constrained on payments.

A.4.4 Settlement Residue Auctions (SRA) reform

Snowy Hydro stated that the IRSRs units currently sold at SRA are imperfect and only support incremental inter regional trade (as supported in the Anderson, Hu and Winchester survey).[188] MEU agreed that IRSRs are an ineffectual risk management tool and an alternative approach needs to be developed but noted that firm Financial Transmission Rights (FTRs) could lead to higher costs for consumers, especially if TNSPs have the responsibility for providing firm access.[189] NEMMCO agreed that funding of negative IRSR should be consider as part of the CMR and considered that exploring approaches based on FTRs may identify applications for the NEM. NEMMCO also see merit in considering the definition of IRSR in the presence of loop flows but noted that this may not be a big issue given that looped region structures are not expected in the foreseeable future.

The NGF supported the work program proposed by the AEMC to review options to improve the SRA Rules and auction process. It noted that whilst the firmness of the IRSR instruments will always be limited by forced or planned transmission outages, enhancements that increase the term should be considered. NGF advocated that the current arrangements for the funding of negative residues through auction proceeds should be extended to cover all time periods, replacing NEMMCO's current practice

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[184] Ibid.

[185] Powerlink, op.cit., p.2.

[186] The Major Energy Users Inc, op.cit., p.42.

[187] Powerlink, op.cit., p.2.

[188] Anderson, E., Hu, X. and Winchester, D. (2007), "Forward contracts in electricity markets: the Australian experience", *Energy Policy*, vol 35 pp. 3089-3103. http://www.ceem.unsw.edu.au/content/documents/contractsurvey_short_May2006.pdf

[189] The Major Energy Users Inc, op.cit., p.40.

of netting negative residues off positive residues within each settlement week. Southern Generators also considered that NEMMCO's current practice of netting negative residues from the positive residues within the same billing week should be stopped.[190]

Southern Generators agreed that extending the duration of the IRSR auction instruments might, to some extent, provide greater medium-term certainty for inter-regional trading, but noted that this is limited by the medium-term uncertainty of the IRSR cash-flows themselves. Southern Generators noted that since some of the proposed mechanisms for addressing congestion affect the IRSR cash-flows, the options to amend the IRSR unit can only be evaluated following the position on the congestion management mechanisms.[191]

EUAA stated that the Commission needs to consider whether the improved risk management instruments will be used by participants to actively manage basis risk or be traded on a largely speculative basis.

A.4.5 Increasing price granularity and nodal pricing

Submissions addressed the problems of market power and increased basis risk from increased price granularity. Both Snowy Hydro and MEU thought that increased price granularity will lead to more market power issues. Both ETNOF and NGF acknowledged that more granular pricing of generation will increase basis risks and would increase the need for some improved form of risk management.

The Southern Generators restated its preference for full CSP/CSC instead of nodal pricing. It noted that whilst both options provide similar price signals to generation at the margin, the full CSP/CSC option also provides a mechanism for grandfathering incumbent generators against the commercial impacts of moving to nodal prices.

If a nodal pricing regime were to be introduced, the Southern Generators stated they would prefer to see the demand side price continue to be calculated as the regional reference node price and not the proposed volume-weighted average of the nodal prices.[192]

NEMMCO considered that the Commission's work program on whether mis-pricing is being driven by outages as having a major bearing on the feasibility of the options raised for increase price granularity. NEMMCO considered that if congestion is driven by outages then implementing mechanisms that target a small number of material congestion in a defined location may not be relevant when outages can be dispersed throughout the NEM.

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[190] National Generators Forum, op.cit., p.13.

[191] National Generators Forum, op.cit., p.13.

[192] The Southern Generators, op.cit., p.30.

A.4.6 Intervention rules and constraint formulation

There was some support for the option of replacing clamping with a discretionary constraint formulation which would give preference to inter-connector flows over local generation. Macquarie Generation and Snowy Hydro supported this but MEU and Southern Generators argued against this on the grounds that interventions are a sign of market failure and it is better for the market to be fixed than to allow interventions to continue. NEMMCO raise a number of fundamental issues with such a new type of constraint that favours inter-connector flows over generators.

Macquarie Generation considered that there is merit in the proposal to allow NEMMCO to implement a discretionary form of constraint in the event that remote generators bid low and create counter-price flows. Macquarie Generation stated that it would be possible to implement a discretionary constraint to fully restore inter-connector flow and ensure positive inter-regional residues where pre-dispatch was showing likely counter-price flows caused by inefficient bidding behaviour. Alternatively, another option would be to apply a discretionary constraint that allowed for a degree of sharing of the available transmission capacity between local remote and interregional generation based on a pre-determined formula such a pro-rating on the basis of nominal capacities. Macquarie Generation considered that either full or partial preference for inter-connector flows would provide a sharper locational signal for new generation investment.[193]

Snowy Hydro supported this proposal for interconnection prioritisation as an alternative to a CSC or CBR approach. Under constraint reformulation, Snowy Hydro stated that inter-connectors could be given preference to intra-regional generators by moving inter-connector terms from the 'left hand side' to the 'right hand side'. It sees the advantages of such an approach in that it would maximise inter-regional trade and no negative residues would accrue. Generators internal to the region would compete on a constraint co-efficient basis. Physical control of inter-connector flow (clamping) by NEMMCO ceases to be an issue provided the region boundary anomalies are removed by abolishing the Snowy Region.[194]

Although NEMMCO recognised that clamping introduces additional complexity and uncertainty, it considered that there are a number of fundamental issues that need to be assessed with the option of using a discretionary constraint formulation. It noted that although applying constraints that favour inter-connector flows could firm up the IRSR units, the new constraints could also possible increase the economic cost of dispatch. This is because NEMMCO would not be able to optimise the dispatch between local generation and inter-connector flow, which may not result in the least cost dispatch for the NEM.

It advised that extensive analysis is done to demonstrate that discretionary constraint approach results in a new benefit could to the status quo. NEMMCO also noted that there a number of practical issues to consider. For example, if absolute priority was given to inter-connector flows when there may be ramifications for generators being given targets below their technical minimum.

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[193] Macquarie Generation, op.cit., p.4.

[194] Snowy Hydro, op.cit. p.3.

However, MEU considered that interventions are a sign of market failure and if interventions are used consistently then the market design needs to change. Southern Generators likewise disagreed with the option and consider that the MCE 2005 Transmission statement made it clear that intervention Rules should only be considered as an interim solution to congestion management and therefore proposing it as a fundamental option is out of scope of the Review. It considered that the problems should be fixed by pricing solutions, not by intervening in the dispatch.[195]

A.4.7 CSC/CSP and CBR regimes

A number of submissions made general commented on the two forms of a constraint based mechanism.

NEMMCO believed that based on the experience of the CSC/CSC Tumut trial, the wider application of such mechanisms is far from straight forward. It noted that conflicting price signals may occur if a single generating unit is involved in concurrent mechanisms. NEMMCO stated that the implementation timing and rescourcing will have to be determined on a case by case basis and that its general practice is that incremental changes require a lead time of between 3 and 9 months.

Snowy Hydro considered that the Constraint Based Residue approach and Constrained on/off payments are similar forms or variations to CSP/CSC arrangements. It saw the key issue for such arrangements is the allocation of rights. Snowy Hydro proposed a two step process for allocating CSCs. First, the "uncontested" volume of the transmission capacity be allocated to incumbents or a new entrant generator. Second, any remaining transmission capacity that is contestable be covered by CSCs that are freely auctioned. Snowy Hydro also stated that introducing CSPs without addressing the hedging risk problem and load access problem (by also having CSC) will decrease market efficiency.[196]

Powerlink's concern is that the establishment of financial rights may lead to the holders being incentivised to work or delay beneficial network enhancements. Allocating a constraints based approach would means that an individual constraint equation would bring with it financial rights.[197]

MEU considered that this approach should be used for limited periods only until the fundamental problem in the market can be rectified. The prolonged use of such interventionist mechanisms implies there is a more pervasive problem that needs to be addressed.[198]

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[195] The Southern Generators, op.cit., p.35.

[196] Snowy Hydro, op.cit. p.3.

[197] Powerlink, op.cit., p.2.

[198] The Major Energy Users Inc, op.cit., p.47.

NGF is of the view the following implementation issues, in relation to CSC or residue allocation need to be resolved:

- Would there be a threshold of congestion materiality on a constraint cut-set that would result in a congestion management scheme being implemented or would a scheme be applied automatically whenever a constraint equation was binding?

- How the allocated CSCs or residues are impacted by the incremental development of the transmission network?

- How negotiated transmission augmentations that are funded with the express purpose of reducing material congestion fit with an implemented congestion regime?[199]

The Southern Generators question the basis for the Commission's position of doubting the practicability of a CSP/CSC approach covering a large number of areas of congestion. They agreed that a partial CSP/CSC scheme will become increasingly complex as more individual CSP/CSC schemes are introduced. However they do not believe that this shortcoming would apply to a full CSP/CSC scheme since it does not become any more complicated in the face of new areas of congestion emerging. [200]

Submissions raised a number of problems with the proposed Constraint Based Residue Approach (CBR).

NGF argued that the CBR approach will lead to higher consumer prices because of increased risk mitigation. NGF noted that under a CBR regime, generators are exposed not only to volume risk, as they are now, but also to price risk. Although it recognises that these risks are mitigated by the purchase of CBRs it stated that the potentially large residual risk can only be quantified into contracting premiums to retailers. [201]

NGF considered that CBRs cannot deliver firmness since transmission response to congestion is left to another mechanism and noted that CBRs cannot hedge against transmission equipment outages. ETNOF noted there has not been any quantification of the level of firmness or the capacity that can be underwritten by the proposed risk management instrument on a firm basis and considered that the concept put forward in Dr Biggar's paper is too theoretical.

ETNOF stated that given the underlying variability of transmission capability inherent in the NEMDE constraint equations, the expectations of the level of firm trading risk management hedges available exceeds the practical reality. [202]

NGF also stated that there seems to be no consideration of the need to be able to forecast zonal prices and transmission capacity under the CBR approach. For CBR

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[199] National Generators Forum, op.cit., p.13.

[200] The Southern Generators, op.cit., p.22.

[201] National Generators Forum, op.cit., p.17.

[202] Electricity Transmission Network Owners, op.cit., p.7.

units to be effective, participants must be able to forecast with some certainty the likely price differentials and levels of congestion.[203]

ETNOF's submission stated that there will be some real world practicalities that need closer examination before committing to such a scheme and raised the problem of a more complex and cumbersome governance arrangement. It considered that the following matters needs to be addressed:

- How often would the rights to residues based on individual constraints be allocated or auctioned?
- Can changes to constraints only be introduced at specific times of the year to align with the residue allocation mechanism?
- Would holders of rights to residues over specific equations have any right of veto over changes to equations? [204]

A concern of ETNOF is that with the CBR approach being dependent upon all the constraint equations, it may become less flexible for NEMMCO to change the equations and there will be a real risk that a CBR scheme will introduce delays in the deployment of new or change equations. It stated that this can only reduce the available transmission capacity as new equations are required and commented that changes to equations are also often required to accommodate specific network outage conditions. If these changes are delayed then some other existing, more conservative equations will need to be used instead, which will unnecessarily over-constrain network capability. [205]

Southern Generators do not think it would be a practical proposition for CBRs to be allocated and traded individually given there are many of thousands of constraints in the NEMMCO constraint library and which are being updated and changed constantly.

A.4.8 Access rights and grandfathering

Both the NGF and the Southern Generators interpreted the Commission's position as being that grandfathering of rights is out of the question. Both argued against the Commission's position.[206]

The NGF noted that many submissions to the CMR issues paper argued that grandfathering may in fact provide net market efficiency and the NGF believed that

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[203] National Generators Forum, op.cit., p.16.

[204] Electricity Transmission Network Owners, op.cit., p.6.

[205] Ibid, p.8.

[206] P.72 of the Directions Paper stated, "Grandfathering would provide a benefit to incumbent generators without offering any efficiency improvements over auctioning".

grandfathering of access rights cannot be discarded without a more in-depth assessment of the pros and cons.[207]

The Southern Generators submission stated that for good regulatory practice the Commission should look to minimise the impact of any regulations without compromising the objective of the new regulation. Furthermore, it argued that the grandfathering approach proposed by the LATIN Group does offer efficiency benefits compared to auctioning. These efficiency benefits arise from:

- Reducing the perceived level of regulatory risk;
- Removing the need to design and implement complex auctioning arrangements;
- Ensuring that constrained on generators receive CSC thereby relieving the problem of revenue insufficiency; and
- Possibly mitigating market power.

Southern Generators noted that grandfathering is likely to be the least contentious of all possible CSC allocation methodologies, since it minimises the extent of winners and losers.[208]

A.4.9 Deep connection charges/incentives on new generators

Macquarie Generation agreed with the Commission that there are number of important physical factors that determine the location decision for new generation investment, but commented that the Commission omitted the factor of environmental limits on various emissions from the generation process from its list. Air shed limits – particularly those associated with coal-fired generation, but also applying to gas plant – often preclude the possibility of locating generation plant in or adjacent to load-rich parts of the network. Macquarie Generation considered that water availability, air shed limits and access to fuel supplies dominate the location decision. [209]

NGF considered that other connecting parties are unlikely to agreed to pay charges that reduce the cost to the original investor particularly in the case of a deep augmentation. The free rider concerns and the lack of any firm arrangements to compensate or reimburse a generator for a loss of asset value are outstanding issues the NGF would like to see revisited.[210]

MEU noted that there are not signals to new generators to locate to relieve congestion. The MEU suggested that introduction of capacity payments made on a locational basis such as is used in the New England (US) ISO Rules are worthy of investigation, and refers the Commission to its submission to the Reliability Panel.

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[207] National Generators Forum, op.cit., p.14.

[208] The Southern Generators, op.cit., p.23.

[209] Macquarie Generation, op.cit., p.4.

[210] National Generators Forum, op.cit., p.7.

MEU stated that to eliminate locational signals on generation will only compound the problem of congestion. It commented that the Commission appears content for consumers to carry the costs of inappropriate generator location decisions.[211]

Southern Generators considered that the only option the Commission is proposing to improve dynamic efficiency is the provision of an additional congestion mechanism and stated that the Commission is too focused on static efficiency improvements. It disagreed with the Commission's statement that allocation to incumbents creates a barrier to entry and argued that the biggest barrier is uncertainty of financial access to the regional reference node.[212]

A.5 Factors influencing the level of congestion

A.5.1 Transfer capabilities

In the context of network capability, Powerlink noted that the transfer capability of an inter-connector can also be materially affected by factors such as the output of various generating units, and the flows on other (distant) inter-connectors. It stated that the existing constraint equations are designed to deliver dynamically the maximum transfer capability at each point in time, whilst maintaining system security; having regard to the ever changing pattern of generator outputs and flows elsewhere in the interconnected system.[213]

NEMMCO recognised that measures of network capability are yet to be defined in any consistent and comprehensive manner. Although network capability cannot be adequately described by a single number as it is influenced by a series of factors, NEMMCO consider that it could partly be described as a constrained flow-duration curve. This curve plots level of flow when binding, against the number of hours binding at each level of flow.

NEMMCO also suggested that correlating historical information on network capability with an understanding of network loading patterns and the deployment of network support and control services (NSCS) could provide some insights on the effectiveness of NSCS in influencing network capability and as to the existing headroom on network loading before congestion reaches serious levels.

Regarding the Commissions suggestion that TNSPs undertake more maintenance at times of off-peak loading of the network, Powerlink state that it would be wrong to assume that there is capability in the Queensland network to do this. Powerlink noted that a lot of outages are due to new connections and cannot be confined to the weekends.[214]

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[211] The Major Energy Users Inc, op.cit., p.43.

[212] The Southern Generators, op.cit., p.31.

[213] Powerlink, op.cit., p.3.

[214] Ibid, p.1.

ETNOF considered that the existing Rules governing outages are sufficient. It stated that arrangements involving TNSPs actively responding to price signals to routinely change outage plans runs counter to the intent of the Rules established by RIEMNS in that they introduce a higher degree of uncertainty for traders regarding the timing and duration of planned transmission outages. There are also important practical issues regarding the design of such a price signal. For example, changes in wholesale pool prices arise after the event, and do not necessarily signal a net economic benefit of rescheduling a transmission outage. ETNOF considered that the AER has already established meaningful incentives to encourage TNSPs to minimise the number and duration of forced and emergency outages.[215]

MEU was supportive of the use of "soft constraints" being used by NEMMCO (i.e., allowing short periods of over rating) and encouraging TNSPs to make full capacity available at times of expected peak usage. MEU considered that improving "up time" of transmission at times of greatest needs is important but is limited in significantly reducing severe congestion.[216]

The NGF also supported an assessment of how the existing network could be better utilised with the provision of information that provides more operational transparency. It suggested that one area that could be assessed is different transmission operating protocols (such as the use of short time overload capability and network support schemes) among the TNSPs.[217]

A.5.2 Transmission Investment and the Regulatory Test

In response to the statement in the Directions Paper that allowing TNSPs free rein to increase the size of connectors is not necessarily economically efficient, MEU stated that this needs to be balance with the loss of supply, excessive price for electricity and constraining off lower priced generation is also not economically efficient.

MEU strongly considered that the Regulatory Test must be permitted to include the costs to consumers of risk management in addressing congestion. It is concerned that the better risk management could decrease the possibility of augmentation being used to address congestion.[218]

Regarding the choice between reliability limb and market benefits limb of the Regulatory Test, Powerlink does not see itself facing such a choice. The reality is that Powerlink is legally required, under its Transmission Authority, to meet a deterministic N-1 reliability of supply standard. The use of the Reliability Limb is not a discretionary choice – it is the only mechanism which is consistent with a deterministic reliability standard.[219] ETNOF also argued against the Commission's inference that TNSPs have a choice between the reliability or market limb. It stated that this is not an accurate assessment, as it is the specification of mandatory

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[215] Electricity Transmission Network Owners, op.cit., p.3.

[216] The Major Energy Users Inc, op.cit., p.48.

[217] National Generators Forum, op.cit., p.12.

[218] The Major Energy Users Inc, op.cit., p.47.

[219] Powerlink, op.cit., p.1.

reliability standards that effectively oblige TNSPs to invest to meet those standards.[220]

ETNOF also questioned the analytical basis for the Commission's view that TNSPs are reluctant to pursue network augmentations under the Market benefits limb. It put forward some examples of TNSPs pursuing network investment under market benefits and argued that the reason for these investments not being pursued is the inherent lack of net economic benefits from constraint relieving investment. ETNOF noted that ANTS reached similar conclusions. ETNOF considered that there is no value in the Commission's proposal for safe harbour provisions covering the modelling used to analyse network augmentations under the market benefits limb as it will not change the situation.[221]

Powerlink considered that the incentives facing TNSPs were fully canvassed under the Commission's Part 6 determination and agreed with the Commission position on this. It also supported the Commission's approach to wait for the AER guidelines on service target performance incentives scheme before deciding whether to change the existing Rules. [222] Likewise, the Southern Generators accepted that the Commission does not need to duplicate the AER initiative to develop market based incentives on TNSP to minimise congestion.[223]

However MEU noted that decisions made under these other determinations were made with the stated exception that further changes might occur arising from the CMR. MEU stated that Directions Paper now imply that this is not the case. MEU commented that the decisions made earlier cannot have known of the better understanding the Commission has acquired under the CMR. [224]

A.5.3 Transmission Operation and NCAS

Powerlink does not support the Commission's proposal of a separate and more specific review regarding NEM roles and responsibilities, but sees the CMR as an appropriate opportunity for NEM roles and responsibilities in respect of the provision of network capability to be clearly articulated for the NEM participants.[225] NEMMCO's submission seeks further guidance on how the Commission will address the current ambiguities arising from clause 3.11.4 (b)(2) – a clause that requires NEMMCO to procure and deploy network control ancillary services (NCAS) to enhance the value of spot market trading.

NEMMCO also noted that the Directions Paper doesn't comment on the future of the NCAS review that the Rules (clause 3.1.4 (al)(4)) require NEMMCO to conduct. It considered that following COAG response to ERIG's final report, it is likely that the MCE will be directing the Commission to look at some of these issues. NEMMCO

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[220] Electricity Transmission Network Owners, op.cit., p.3.

[221] Electricity Transmission Network Owners, op.cit., p.4.

[222] Powerlink, op.cit., p.1.

[223] The Southern Generators, op.cit., p.38.

[224] The Major Energy Users Inc, op.cit., p.43.

[225] Powerlink, op.cit., p.3.

would like the Commission to clarify the status of its NCAS review and noted that previously the Commission has advised that NEMMCO should commence its NCAS review after the CMR.

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