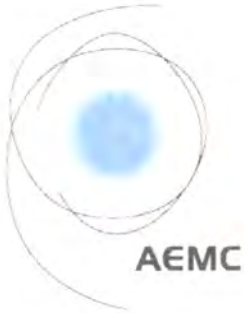

Australian Energy Market Commission

Draft Rule Determination

(The AEMC has published one Draft Rule Determination for both of the below Rule change proposals in accordance with s.93 of the National Electricity Law.)

Proposed National Electricity Amendment (Split Snowy Region) Rule 2007

Rule Proponent
Macquarie Generation

AND

Proposed National Electricity Amendment (Congestion Pricing and Negative Residue Management Arrangements for the Snowy Region) Rule 2007

Rule Proponents
Loy Yang Marketing Management Company, AGL Hydro, International Power, TRUenergy, Flinders Power and Hydro Tasmania

30 August 2007

Signed:.....

John Tamblyn
Chairman
For and on behalf of
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Citation

AEMC 2007, *Split Snowy Region and Congestion Pricing and Negative Residue Management Arrangements for the Snowy Region*, Draft Rule Determination, 30 August 2007, Sydney.

About the AEMC

The Council of Australian Governments, through its Ministerial Council on energy, established the Australian Energy Market Commission (AEMC) in July 2005 to be the Rule maker for national energy markets. The AEMC is currently responsible for Rules and policy advice covering the National Electricity Market. It is a statutory authority. Our key responsibilities are to consider Rule change proposals, conduct energy market reviews and provide policy advice to the Ministerial Council as requested, or on AEMC initiative.

Contents

Executive summary

This document is the draft Rule determination on two Rule changes concerned with the arrangements for managing congestion in the Snowy region of the National Electricity Market (NEM). One is a proposal from Macquarie Generation Limited to split the current Snowy region into two regions (the Split Snowy Region proposal). The second is a proposal from the Southern Generators[a] to convert the temporary the congestion pricing arrangements currently being trialled in the Snowy region into a permanent arrangement (the Southern Generators' Congestion Pricing proposal).

The NEM is a regional market. A price for wholesale electricity is calculated for each thirty minute trading interval for each of the six current regions: Queensland, New South Wales (NSW), Snowy, Victoria, Tasmania and South Australia. In general terms, all generators in a region are paid the regional reference price for the electricity they produce, and all loads in a region pay the regional reference price for the electricity they consume. Price differences between the NEM regions play an important role over time in providing locational signals for future investment in generation and transmission and signalling variations in the cost of supplying customers in different locations.

To achieve these locational signals and pricing effects generally speaking regional boundaries should be located at points of material and enduring network congestion. However, this is not the case in relation to the Snowy region. The network limitations between Murray and Tumut within the existing Snowy region give rise to a material and enduring constraint. This constraint provides Snowy Hydro with incentives to behave in ways that can result in inefficient market outcomes.

A number of temporary ad hoc measures have been proposed and implemented in the Snowy region over recent years with the aim of addressing the issues raised by this congestion. For example, there is a trial currently in place, which adjusts the price received by Snowy Hydro's Tumut generator when the network is congested between Murray and Tumut (the Trial). Investment to relieve this transmission constraint is unlikely in the foreseeable future, meaning a permanent National Electricity Rule (Rule) or region boundary change is required to address the material and enduring congestion in the Snowy region.

The Split Snowy Region proposal and the Southern Generators' Congestion Pricing proposal are two of three alternative solutions proposed to address the legacy congestion issue in the Snowy region under consideration by the Australian Energy Market Commission (the Commission). Snowy Hydro Limited is the proponent of the third proposal, which proposes to abolish the current Snowy region of the NEM, by extending the boundaries of the existing NSW and Victorian NEM regions (the Abolition proposal).

[a] The group of generators known as the "Southern Generators" includes: Loy Yang Marketing Management Company, AGL Hydro, International Power, TRUenergy, Flinders Power, and Hydro Tasmania.

Since these three Rule change proposals are alternatives to address the same congestion problem, the Commission can only accept one of them. It has therefore jointly assessed the three alternative Rule change proposals. The Commission has today also published its final Rule determination on the Abolition proposal.[b]

The Commission has decided to present its decisions on both the Split Snowy Region proposal and the Southern Generators' Congestion Pricing proposal in a single draft Rule determination. Since both these proposals aim to address the issues surrounding congestion in the Snowy region, the Commission is satisfied that the subject matter addressed in each of these proposals is the same (as required by section 93 of the National Electricity Law). Moreover, both proposals are at the same stage in the Rule change process and the Commission considers there are significant efficiency gains in preparing a single draft Rule determination for both proposals.

The Commission's assessment of these Rule change proposals has taken place against a background of a number of related reviews and Rule change proposals directed at ensuring an efficient, reliable, and secure power system in the NEM. The Commission will soon publish its draft Rule determination on the Ministerial Council on Energy's proposed process for region change, and its Draft Report following its review of congestion management in the NEM. The Commission has been careful to consider all its work on congestion in a holistic manner. This draft Rule determination in respect of the Snowy region is an important step in addressing legacy congestion issues, establishing a robust starting point to which the congestion management regime can apply in the future.

The Commission has assessed the Split Snowy Region proposal, the Southern Generators' Congestion Pricing proposal, and Abolition proposal against the National Electricity Market Objective (NEM Objective) using the same set of criteria, and with reference to a common base case (the current regional boundary structure, without the current Trial).

All three Rule change proposals represent improvements on the base case. There is, therefore, a strong case for change. This finding accords with the generally held view that congestion in the Snowy region is a material legacy issue that warrants an enduring change to the Rules.

While all three proposals result in improvements, the Commission has decided that the Split Snowy Region proposal and Southern Generators' Congestion Pricing proposal do not promote the achievement of the NEM Objective as effectively as the Abolition proposal.

The Commission considers that the Split Snowy Region proposal and Southern Generators' Congestion Pricing proposal are less likely to result in economic benefits than the alternative Abolition proposal. The Split Snowy Region and Southern Generators' Congestion Pricing proposals would expose Snowy Hydro to the price

[b] AEMC 2007, *Abolition of the Snowy Region*, Final Rule Determination, 30 August 2007, Sydney.

risk associated with trading across regions. In contrast, the Abolition proposal removes the price risk associated with trading across regions for Snowy Hydro. The change to price risk under the Abolition proposals strengthens the incentives for generators to bid in a more competitive way, in Snowy Hydro's case increasing its output at "super-peak" times. The more competitive generator bidding improves dispatch efficiency and results in more cost-reflective spot prices. The Commission expects that the shorter term competitive benefits under the Abolition proposal will impact positively on contract markets, and provide clearer signals for efficient investment and consumption in the longer term, benefiting end-use customers., when compared to the Split Snowy Region or Southern Generators' Congestion Pricing proposals.

In addition to the efficiency improvements resulting from the stronger competitive environment, the Commission considers there are other benefits to implementing the Abolition proposal relative to the Split Snowy Region and Southern Generators' Congestion Pricing proposals. The Commission considers that the Split Snowy Region proposal adds complexity in the market arrangements (over and above the Abolition proposal) with no discernable additional benefits. The Commission considers that the Southern Generators' Congestion Pricing proposal, by extending the interim arrangements and effectively deferring consideration of region boundary change as a permanent long term solution, creates unnecessary uncertainty as to the long term development of the market. In the Commission's view, the situation of material and enduring congestion in the Snowy region is a clear example of when region boundary change in an appropriate regulatory response – and not acting accordingly could increase perceptions of regulatory risk.

The Commission does not consider that either the Split Snowy Region proposal or the Southern Generators' Congestion Pricing proposal provides a proportionate response mechanism to address the congestion problem in the Snowy region when compared to the mechanism proposed by the alternative Abolition proposal. The Commission also considers that the Split Snowy Region proposal and the Southern Generators' Congestion Pricing proposal are not as likely to promote a stable and transparent longer term environment when compared to the environment under the alternative Abolition proposal.

The Commission has therefore decided not to accept the Split Snowy Region proposal or the Southern Generators' Congestion Pricing proposal.

This draft Rule determination is structured in two parts.

The first part presents the Commission's decision and summarises its assessment and reasoning in coming to that decision. Section 1 presents the Split Snowy Region and Southern Generators' Congestion Pricing Rule change proposals and each proponent's explanation as to how its proposal addresses the material and enduring problem of congestion in the Snowy region. Section 2 sets out the Commission's decision making framework and Section 3 sets out its consultation process. Section 4 presents the Commission's key findings and reasoning that informed its draft decisions on these Rule change proposals. Section 5 assesses the proposals against the NEM Rule making test and the NEM Objective.

The second part consists of a series of appendices that present the Commission's detailed assessment of the three Rule change proposals and quantitative modelling analysis, summaries of submissions received on the three Rule change proposals, and provide background on the congestion issues in the Snowy region.

The Commission invites interested stakeholders to make comments on the issues raised in this draft Rule determination. Under s.101 of the National Electricity Law, any interested person or body seeking a hearing on this draft Rule determination must send their request in writing to the Commission no later than Thursday, 6 September 2007.

Submissions should be received by Tuesday, 16 October 2007. Submissions can be sent electronically to submissions@aemc.gov.au or by mail to:

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

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1 The Rule change proposals

This draft National Electricity Rule (Rule) determination presents the Commission's considerations on two Rule change proposals, one received from Macquarie Generation and the other from a group of generators known as the "Southern Generators".[1]

This Section describes the Rule change proposal received from Macquarie Generation regarding the splitting of the Snowy region of the National Electricity Market (NEM). It also describes the Rule change proposal from the Southern Generators to make permanent the congestion management mechanisms currently in place in the Snowy region.

For each Rule change proposal, this Section presents each proponent's reasoning and analysis of the problem their proposal addresses, the way in which their proposal addresses that problem, and how the proposed change advances the National Electricity Market Objective (NEM Objective).

1.1 Split Snowy Region Rule change proposal from Macquarie Generation

On 5 March 2007, Macquarie Generation requested that the Commission formally consider a Rule change proposal to split the existing Snowy region into a southern Murray region and a northern Tumut region ("Split Snowy Region proposal"). Macquarie Generation had originally requested a Rule change proposal on 3 February 2006 seeking to replace the existing Snowy region with a Northern Victoria and South-West New South Wales (NSW) region. Following the publication of the Commission's draft Rule determination on the Abolition of Snowy Region ("Abolition proposal") on 19 January 2007, Macquarie Generation considered the Split Snowy Region proposal examined in that draft Rule determination, "largely capture[d] the benefits of the Macquarie Generation [Alternative Snowy Region Boundary] Rule change proposal".[2] On 21 February 2007, Macquarie Generation wrote to the Commission asking it to modify the 3 February 2006 proposal with one to implement the Split Snowy Region. Its 5 March 2007 Rule change proposal superseded that request.

Macquarie Generation stated that the basic problem in the Snowy Region was caused by constraints on the transmission system between Tumut and Murray generation. It identified that the intra-regional congestion in and around the Snowy region created incentives for Snowy Hydro to "bid its generation into the market below cost, resulting in inefficient dispatch and reduced levels of inter-regional trade."[3] This,

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[1] The generators included in the "Southern Generators" group includes: Loy Yang Marketing Management Company, AGL Hydro, International Power, TRUenergy, Flinders Power and Hydro Tasmania.

[2] Macquarie Generation, Rule change proposal to Establish New Snowy Regions, Rule change proposal, 5 March 2007, p.1. (Split Snowy Region proposal.)

[3] Split Snowy Region proposal, p.1

Macquarie Generation stated, also led to counter-price flows between regions and calls for short-term measures to manage negative residues.

In its proposal, Macquarie Generation commented that both its and Snowy Hydro's Abolition proposal put forward options to "improve dispatch signals faced by Tumut and Murray generation during periods of binding transmission constraints." Both proposals, it continued, recognised that "transmission congestion [was] likely to be an enduring and persistent problem in the Snowy region" and that a "long term solution" that addressed the current region boundary structure was necessary.[4]

Macquarie Generation acknowledged that its Rule change proposal referenced key parts of the work carried out as part of the Commission's draft Rule determination on the Abolition of the Snowy Region proposal. It stated that it believed a large proportion of the analysis and modelling previously reported in the draft Rule determination could be used in the analysis of this proposal. This was particularly relevant, Macquarie Generation noted, given the advice TransGrid gave to the Commission, indicating that building out the congestion in this region would be unlikely. This is because the Congestion Management Review proposed by the Ministerial Council on Energy (MCE), put forward a "staged approach" to congestion management and proposed that a change in regions should only be a last resort if investment is unable to address the problem.

In its proposal, Macquarie Generation stated that it believed the Split Snowy Region proposal would "deliver greater efficiency benefits by appropriately pricing likely areas of congestion both within and north and south of the Snowy region".[5] This would be achieved by introducing a region boundary across the material and enduring Murray-Tumut constraint and retaining the existing Snowy region boundaries, effectively creating two new regions to be known as Murray and Tumut. The regional reference node (RRN) in the Murray Region would be at Dederang and in the Tumut region at Lower Tumut. Macquarie Generation proposed that the Split Snowy Region proposal would retain the existing Victoria–Snowy[6] and Snowy–NSW interconnectors and introduce a new one between the Murray and Tumut regions.[7]

Macquarie Generation noted that a key strength of its proposal relative to either the Commission's business-as-usual case or the Abolition proposal was that it provided greater incentive for Snowy Hydro to bid in a manner that reflected its opportunity cost of production[8]. The proposal also stated that the Split Snowy Region proposal would minimise the scope for counter price flows by improving dispatch efficiency signals and improve the effectiveness of inter-regional settlements residues (IRSR) as a risk management tool by more closely aligning costs, bidding incentives and settlement prices. It would also decrease negative settlement residues by moving the Murray RRN to Dederang.

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[4] Ibid, p.2

[5] Ibid, p.4

[6] Although the Victoria – Snowy interconnector would now be from Thomastown, Victoria to Dederang, which would then be the Murray RRN.

[7] Split Snowy Region proposal, p.7

[8] Ibid, p.10

Macquarie Generation believed its proposal would contribute to the NEM Objective through:

- increased competition in the NEM. This would be a result of increased interconnector flows from the altered incentives that would be created for market participants;
- significantly lower wholesale prices in NSW and to a lesser extent in Victoria, as a result of improved dispatch efficiency;
- possibly improved inter-regional trading and risk management by introducing a new interconnector between the proposed Tumut and Murray regions; and
- limited implementation and timing costs as the impacts of its proposal are limited to the existing Snowy region, which does not contain any significant load.

Macquarie Generation noted that further work was needed to assess the costs, risks, and incentives associated with its proposal.

Macquarie Generation also noted that it supported the modelling approach used by the Commission in the draft Rule determination on the Abolition proposal and that Macquarie Generation was undertaking further analysis on some of its key issues.

Macquarie Generation suggested that the proposed Rule change should commence on 1 July 2008. It considered that this start date allowed sufficient notice to the market and was adequate to allow NEMMCO and participants to make the necessary system changes. This start date would align the region boundary change with the start of the IRSR quarterly cycle.

1.2 Congestion Pricing and Negative Residue Management Arrangements for the Snowy Region Rule change proposal from "Southern Generators"

On 15 March 2007, Loy Yang Marketing Management Company, AGL Hydro, International Power, TRUenergy, Flinders Power and Hydro Tasmania ("Southern Generators") submitted a joint Rule change proposal to the Commission, formally proposing a continuation of the current CSP/CSC trial at Tumut (the Tumut CSP/CSC Trial) and the approach to the management of negative residues in the Snowy region proposed by the Southern Generators (the "Southern Generators Rule") (together, the "Southern Generators' Congestion Pricing proposal"). On 13 April 2007, the Commission received a further submission from the Southern Generators containing the results of the modelling that supplemented their Rule change proposal.

The Southern Generators proposed to incorporate into the body of Chapter 3 of the Rules the current Tumut CSP/CSC Trial and the Southern Generators Rule (to manage negative settlement residues in the Snowy Region), rather than have them operate as a temporary arrangement under the derogation in Part 8 of Chapter 8A of the Rules, which must have an expiry date. By making these components of the Part 8 derogation a permanent part of the Chapter 3 Rules, the proposal seeks to replace the existing sunset provision with a conditional clause enabling these components to

fall away should a region boundary change render them unnecessary. The Southern Generators considered that this Rule change proposal would ensure that the Commission formally consider this arrangement as part of the review of the Snowy region boundary.

In their submission, the Southern Generators stated that in the absence of current arrangements, during times of high inter-regional flows, these binding constraints led to material mis-pricing at Tumut and counter-price flows between the Victorian and Snowy regions.

The current Tumut CSP/CSC Trial addresses the mis-pricing by ensuring that in the case of northward flows and a binding constraint between Murray and Tumut, the settlement price for the Tumut generators is closer to the NSW regional reference price (RRP), rather than the Snowy RRP. Similarly, when the flow is southerly and those same constraints bind, Tumut receives the Snowy RRP on the first 550MW of its output, and then effectively the NSW RRP for every additional MW. Under the Southern Generators Rule, in the case of either northward or southward power flows, positive settlement residues accumulated on the interconnector between Snowy and NSW are used to offset negative settlement residues accumulated on the interconnector between Victoria and Snowy. Their proposal suggested that the current arrangements are more efficient than the use of clamping or re-orientation to limit negative residues.[9]

The Southern Generators considered that, relative to the other proposals, the request to extend the current arrangements is most consistent with MCE policy[10]. The MCE proposed a staged approach to congestion management, where the Commission:

> "Should consider the role of a congestion management regime to manage material congestion until investment, a change in market conditions or a regional boundary change addresses that congestion".[11]

The proposal maintained that the success of the current arrangements indicated that neither investment solutions, nor implementation of a region boundary change were necessary.

The Southern Generators considered that their Rule change proposal met the NEM Objective because it:

- Formalised an arrangement that would provide the most economically efficient dispatch;
- Secured both inter-regional trade that is already occurring across the Snowy region and firmer settlement residues to hedge future inter-regional trade, as a result of the removal of NEMMCO's clamping practises to manage negative residues;

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[9] Southern Generators, Rule Change Request: Move Snowy CSP/CSC trial into Chapter 3, Rule change proposal, 15 March 2007, p.3 (Southern Generators' Congestion pricing proposal.)

[10] Southern Generators' Congestion Pricing proposal, p.7

[11] MCE Region Boundary Rule change request p.5

- Did not inhibit future development of the NEM. Changes to the Snowy region boundary would automatically terminate the current arrangement; and

- Continued good regulatory practise through minimal disruption to the market. The Southern Generators stated that as the current arrangements are in place the proposal could be implemented relatively quickly. The Southern Generators' proposal states that there would be no cost of implementation for NEMMCO and the market participants as the arrangements are already in place, whereas the cost of implementation of all other alternatives is likely to be significant and may outweigh their respective benefits.

- The Southern Generators commissioned a study replicate and validate or otherwise the basis upon which the Commission reached its draft decision on the Abolition proposal. The aim of this study was to explicitly model the Southern Generators' Congestion Pricing proposal as an alternative to the Abolition proposal, and to determine whether, if the assumptions were different from those used in the analysis by the Commission, the outcomes would be different from those identified in the Abolition draft Rule determination.[12]

Key issues and results from the Southern Generators' modelling analysis are as follows:

- The results of the analysis determined that the NEM costs were highest for the business-as-usual case without the Southern Generators' Congestion Pricing proposal and lowest for the Split Snowy Region proposal under an assumption of "typical Snowy Hydro bidding"[13]. The ranking changed when strategic bidding by Snowy Hydro was analysed. In this case, the NEM costs were highest for the Split Snowy Region proposal and the lowest for the business-as-usual case with the Tumut CSP/CSC Trial and Southern Generators Rule in effect.[14]

- Contrary to the modelling conducted for the Abolition draft Rule determination, this analysis found that the Abolition proposal results in higher NEM costs (by $0.7m/a) than the business-as-usual case (with clamping).[15]

- The constraints used in the modelling for the Abolition proposal draft Rule determination were analysed and found to be appropriate for the base case.[16]

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[12] Southern Generators' Congestion Pricing proposal, Analysis of the AEMC Draft Rule Determination to Abolish Snowy Region – Appendix A Modelling, p. 1 (Southern Generators' Congestion Pricing Proposal, Appendix A.)

[13] ROAM Consulting defines "typical bidding" for an energy limited plant like a NEM hydro plant as: "bidding into the market according to long term average operating profits. To achieve this, energy limited plant is bud into the market at a very low price (between $0 to $5/MWh) for the capacity that would historically e dispatched within each half hour of the year. The remaining capacity is bid into the market at a high price, (around $500/MWh) and so remains available for reliability purposes, but generally is not called on to run, except in situations when interconnector and intra-connector constraints are binding, given the rest of the NEM plant is mainly bidding below $500/MWh." (Southern Generators' Congestion Pricing proposal, Appendix A, p.4.

[14] Southern Generators' Congestion Pricing proposal, Appendix A, p.I-II

[15] Ibid, p.II

- The study concluded that appropriate dynamic and static loss factors were included in the Commission's modelling for the Abolition proposal draft Rule determination. It was also noted that in the real market, during times when Snowy Hydro will bid in a manner so as to set the price, the change from dynamic inter-regional loss factors to static intra-regional loss factors will create market inefficiencies.[17]

- Finally, the analysis was unable to show that demand point 29 was significant in terms of efficiency costs (which was the case for the Commission's modelling as presented in the Abolition proposal draft Rule determination), concluding that most efficiency differences were found during the summer high load periods, whereas demand point 29 was associated more closely with peak winter periods.[18]

[16] Ibid, p.23-24.

[17] Ibid, p.24.

[18] Ibid, p.30.

2 Commission's decision making framework

This Section describes the Commission's general approach for examining the Split Snowy Region and Southern Generators' Congestion Pricing proposals. It sets out the policy context for the Commission's considerations. It then outlines the Commission's considerations under the NEM Objective and the statutory Rule making test[19], before providing the Commission's assessment framework for evaluating the proposals against the NEM Objective. It then presents the reasoning for the Commission's decision to amalgamate its consideration on these two Rule change proposals under s.93 of the National Electricity Law (NEL). Finally, this Section describes the alternative considered by the Commission in its assessment of the Split Snowy Region and Southern Generators' Congestion Pricing proposals.

2.1 Policy context for decision making

The Commission's draft Rule determination to not accept the Split Snowy Region and Southern Generators' Congestion Pricing proposals has been made against a background of a number of reviews and Rule change proposals directed at ensuring an efficient, reliable, and secure power system in the NEM. The Commission has been conducting an extensive work program involving changes that will affect the efficiency of the market, transmission investment decisions, supply reliability and security of the power system, and relate to the reform of region boundaries and the management of congestion within the NEM. The program includes consideration of the:

- MCE's Rule change proposal on process for region change;
- Congestion Management Review reference from the MCE;
- National Transmission Planner reference from the MCE;
- Review of economic regulation of electricity transmission revenue and pricing Rules (the Chapter 6 Rule proposal);
- MCE's Rule change proposal on Last Report Planning Power;
- MCE's Rule change proposal on the Review of Regulatory Test principles; and
- Comprehensive Reliability Review.[20]

Furthermore, the Commission has issued determinations on a number of Rule changes relating to issues associated with the Snowy region. These include the making the "Southern Generators Rule"[21] and final Rule determination on the

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[19] Section 88 of the National Electricity Law (NEL).

[20] Appendix H provides a summary of these related reforms.

[21] AEMC 2006, Management of negative settlement residues in the Snowy region, Final Rule Determination, 14 September 2006, Sydney. Available on AEMC website.

management of negative residues by re-orientation.[22] In addition, the Commission also made a Rule on the Recovery of Negative Inter-regional Settlements Residue.[23]

The Commission considers that the above reviews and Rule changes are inter-related and complementary. The Commission recognises the importance of ensuring work in these areas is co-ordinated, ensuring the development of a coherent set of arrangements for the NEM. In its "Congestion Management Program – Statement of Approach – December 2006"[24] the Commission set out its integrated approach for considering these related reforms.[25]

The Commission also noted in its December 2006 Statement of Approach that the NEM is characterised by a small number of "legacy" congestion issues. The congestion issues arising from transmission network limits within the Snowy Region, where the building out of transmission constraints is unlikely in the foreseeable future, are an example of these legacy issues.[26] The Statement of Approach indicated that the Commission would address these issues as a matter of priority, while recognising that any legacy issues must be resolved within an overarching and coherent framework for managing congestion in the NEM.

The Commission has received three Rule change proposals concerned with addressing the legacy congestion issues in the Snowy region. In addition to the Split Snowy Region and Southern Generators' Congestion Pricing proposals, the Commission received an alternative Rule change proposal: Snowy Hydro's Abolition proposal). This alternative proposal is described in more detail in Section 2.4.

Having three alternative proposals for addressing congestion issues in the Snowy region has implications for the way the Commission considers these proposals against the NEM Objective and how it applies the Rule making test, as discussed in Section 2.2. This draft Rule determination presents the Commission's decision on the most appropriate response to address the Snowy region legacy issues.

2.2 Role of NEM Objective and Rule making test

The Rule making test is set out in s.88 of the NEL. In applying the Rule making test, the Commission is only able to make Rules if:

> "(1) It is satisfied that the Rule will or is likely to contribute to the achievement of the national electricity market objective.

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[22] AEMC 2006, Management of negative settlement residues by re-orientation, Final Rule Determination, 9 November 2006, Sydney. Available on AEMC website.

[23] AEMC 2006, Recovery of Negative Inter-regional Settlements Residue, Final Rule Determination, 30 March 2006, Sydney. Available on AEMC website.

[24] AEMC 2006, "Congestion Management Review – Statement of Approach – December 2006", 7 December 2006, Sydney. Available on AEMC website.

[25] The December 2006 Statement of Approach superseded the Commission's previously released "Congestion Management Program - Statement of Approach – June 2006".

[26] Background on congestion issues in the Snowy region is presented in Appendix D.

(2) For the purposes of subsection (1), the AEMC may give such weight to any aspect of the national electricity market objective as it considers appropriate in all the circumstances, having regard to any relevant MCE statement of policy principles."

The NEM Objective, as set out in s.7 of the NEL, is to:

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

In applying the Rule making test and considering the achievement of the NEM Objective, the Commission may give weight to any such aspect of the NEM Objective as it considers appropriate in all the circumstances, having regard to any relevant MCE statement of policy principles.[27]

The likely economic efficiency effects of a proposal on the market is an important element of promoting the NEM Objective. Economic efficiency is commonly defined as having three elements:

- Productive efficiency – meaning the electricity system is operated on a "least cost" basis given the existing and likely network and other infrastructure. For example, generators should be dispatched in a manner that minimises the total system costs of meeting consumers' demands;
- Allocative efficiency – meaning electricity production and consumption decisions are based on prices that reflect the opportunity cost of the available resources; and
- Dynamic efficiency – meaning maximising ongoing productive and allocative efficiency over time, and is commonly linked to the promotion of efficient longer term investment decisions.

The Commission has taken the view that the NEM Objective is not solely focussed on a economic approach to the promotion of efficiency. Rather, the NEM Objective has implications for the means by which regulatory arrangements operate as well as their intended ends. This means that the Commission also seeks to promote stability and predictability of the regulatory framework. This, in turn, means that the Commission will seek to:

- Promote transparency and predictability in the operation of the NEM – to the extent that intervention in the market is required, it should be based on, and applied according to, transparent criteria;
- Promote a proportionate response to the problem identified – a proportionate response should seek to address the most material and enduring problem but

[27] Section 88(2) of the NEL.

should not try to address smaller less-material problems, possibly pre-empting other market-based responses; and

- Promote changes that are likely to be robust over the longer term – other things being equal, the Rules for the dispatch and pricing of the market should be sufficiently stable and predictable to enable participants to plan and make both short and long term decisions.

These requirements are founded on the principles of good regulatory design and practice, which the Commission believes is central to its task in furthering the NEM Objective.

The NEM Objective requires the Commission to consider the likely effect of a Rule proposal on the quality, security, and reliability of the national electricity system. The Commission will carefully consider Rule proposals that may have implications for these important factors.

The Commission notes that proposed Rule changes may have distributional impacts. The Commission considers that the NEM Objective is primarily concerned with efficiency and good regulatory practice. These qualities will help ensure that the arrangements will benefit consumers in the long term. Rather than seeing distributional outcomes as a distinct limb of component of the NEM Objective, the Commission has taken the view that distributional outcomes have relevance only in so far as they may negatively influence the stability and integrity of the market arrangements. Basing fundamental decisions on the operation of the market primarily on distributional criteria rather than efficiency and good regulatory practice is likely to be counter-productive to the interests of consumers in the long term.

As described above, the Split Snowy Region and Southern Generators' Congestion Pricing proposals are two of three alternatives to address the same congestion problem in the Snowy region. Since the proposals are alternatives, the Commission can only accept one of them. In deciding to accept either the Split Snowy Region or Southern Generators' Congestion Pricing proposal instead of the alternative proposal, the Commission must not only be satisfied that the Split Snowy Region or Southern Generators' Congestion Pricing proposal contributes to the NEM Objective, but that it contributes to the NEM Objective better than the alternative proposals. As set out in Section 5, the Commission is not satisfied that either the Split Snowy Region proposal or Southern Generators' Congestion Pricing proposal would contribute to the NEM Objective more than the alternative Abolition proposal.

2.3 Commission's approach and assessment framework

To assess proposals against the NEM Objective, the Commission adopts a rigorous approach in evaluating Rule change proposals involving the following steps:

- Clearly describes the problem(s) to be addressed to ensure the Commission has a clear understanding of what problem(s) the proposal is trying to address in order to develop an appropriate assessment framework;

- Assesses the materiality of these problems to ensure that the uncertainty that inevitably follows a Rule change process is justified because of the severity of the problem;

- Identifies any competing formal Rule change proposals that intend to address the same problem(s), so that they can be concurrently assessed against the NEM Objective, if appropriate;

- Applies well-developed and accepted economic analysis to evaluate the effects of the proposal, supported by empirical modelling where appropriate; and

- Seeks stakeholder views on the Commission's characterisation of the problem, assessment of materiality, approach for analysing the merit of the Rule change proposal, and ultimately, the Commission's assessment of the merits of the proposal as evaluated against the NEM Objective.

In particular, to assess the Split Snowy Region and Southern Generators' Congestion Pricing proposals and the alternative proposal against the NEM Objective, the Commission has informed its decision by considering the following:

- The likely effect of each proposal on the economic efficiency of dispatch;

- The likely effect of each proposal on inter-regional trading and risk management – which may affect the competitiveness of the market and allocative and dynamic efficiency in the future;

- The likely pricing outcomes and participant responses – in that pricing outcomes may have implications for allocative and dynamic efficiency in the future;

- The likely effects of each proposal on power system security, supply reliability, and technical issues;

- Whether each proposal is consistent with principles of good regulatory practice;

- The likely long term implications of each proposal and its consistency with public policy settings; and

- The likely timing and cost of each proposal and any other implementation issues.

This draft Rule determination sets out the Commission's analysis and conclusions to not accept either the Split Snowy Region and Southern Generators' Congestion Pricing proposals when compared to the alternative Abolition proposal, based on the decision criteria set out above. In Appendix A, the Commission sets out its more extensive assessment and findings on these three proposals.

2.4 A single draft Rule Determination under Section 93 of the NEL

Section 93 of the NEL states that:

> "If the AEMC receives more than one request for the making of a Rule in respect of the same subject matter or subject matters that are related subject

matters, the AEMC may treat those requests as one request for the purposes of this Division."

Both the Split Snowy Region and Southern Generators' Congestion Pricing proposals aim to address the legacy issues surrounding the congestion in the Snowy region. For the purposes of s.93, the Commission therefore considers that the proposals relate to the same subject matter - congestion in the Snowy region. The proposals put forward different solutions to address the material and enduring congestion in the Snowy region. In practical terms, the Commission could only implement one of the proposals, if it so determined; it could not accept both.

Relying on a single process under s.93 of the NEL permits the Commission to assess the proposals together and to avoid duplication of processes in the interests of promoting efficiency. While the Commission commenced initial consultation on the proposals at slightly different times, the consultation period on both was aligned to enable stakeholders to consider the alternatives concurrently.

Given the subject matter addressed in each of these proposals is the same and that both proposals are at the same stage in the Rule change process, the Commission considers there are significant efficiency gains in preparing a single draft Rule determination that assesses both the Split Snowy Region and Southern Generators' Congestion Pricing proposals.

2.5 Proposals assessed

As noted above, while considering the Split Snowy Region and Southern Generators' Congestion Pricing proposals, the Commission concurrently assessed and compared an alternative Rule change proposal from Snowy Hydro also intended to address constraints in the Snowy region. The Commission took this approach to enable it to identify which alternative better meets the NEM Objective in all circumstances. The Commission's final decision to accept the alternative Abolition proposal is presented in its final Rule determination also published on 30 August 2007.[28] To provide a common reference point for the Split Snowy Region and Southern Generators' Congestion Pricing proposals and the alternative Abolition proposal, the Commission assessed all the proposals against the same base case. A description of the base case and the alternative proposal is provided below.[29]

2.5.1 Base case

The purpose of the base case scenario is to provide a reference point to assess the potential effect that implementation of the Split Snowy Region or Southern Generators' Congestion Pricing proposal may have on the NEM. In particular, the comparison between the base case and these proposals should reveal if generator incentives change as a result of a region boundary change or congestion pricing mechanism, and if so, the effect that may have on the market.

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[28] AEMC 2007, *Abolition of the Snowy Region,* Final Rule Determination, 30 August 2007 Sydney.

[29] For a more detailed description of the alternative proposal, see AEMC 2007, *Abolition of the Snowy Region,* Final Rule Determination, 30 August 2007 Sydney.

The base case is common across the Commission's assessment of these proposals and the alternative Abolition proposal. This provides a common reference point to not only assess each proposal against the NEM Objective, but also a common reference point for comparison of the proposals against each other.

The base case chosen reflects the market under a "do nothing" approach. It retains the existing Snowy region boundaries and the Snowy RRN at Murray. It allows the expiry of the interim arrangements currently managing congestion in the Snowy region, i.e. the Tumut CSP/CSC Trial and the Southern Generators Rule. It reinstates NEMMCO's intervention power to manage negative settlement residues on the Victoria-to-Snowy and Snowy-to-NSW interconnectors through "clamping" flows or "re-orientation".[30]

2.5.1.1 Snowy Hydro "Abolition of Snowy Region" Rule change proposal

On 11 November 2005, the Commission received a Rule proposal from Snowy Hydro regarding a change to the existing Victorian and NSW region boundaries that would effectively abolish the Snowy region of the NEM. It would price the congestion between Murray and Tumut. The Abolition proposal also removes the existing Snowy region boundaries north of Tumut and south of Murray, as Snowy Hydro argues these region boundaries do not fall across major "pinch-points" of congestion.

The abolition of the Snowy region relocates Snowy Hydro's Murray generation and Jindabyne pumping station into Victoria, to be settled at the Victorian RRP. It relocates Snowy Hydro's Upper and Lower Tumut generation and Guthega generation into NSW, to be settled at the NSW RRP.

On 19 January 2007, the Commission published a draft Rule determination in support of the Abolition proposal. In that draft Rule determination, the Commission compared the Abolition proposal against two counter-factuals: a business-as-usual case (similar to the base case used as the point of reference in this determination) and a Split Region Option. The Split Region Option is virtually the same scenario as that put forth by Macquarie Generation in its Split Snowy Region proposal.

[30] NEMMCO's power to manage the accumulation of negative settlement residues is set out in clause (c) of Part 8 of Chapter 8A of the National Electricity Rules (Rules). NEMMCO's procedure for managing negative residues is set out in its "Operating Procedures – Dispatch: SO_OP3705".

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3 Consultation process

This Section describes the consultation process to date for considering the Split Snowy Region and Southern Generators' Congestion Pricing proposals.

All submissions relating to these proposals are available on the Commission's website (www.aemc.gov.au). A summary of all submissions received is provided in Appendix C.

3.1 Split Snowy Region proposal – Summary of statutory consultation periods

Table 3.1 below presents the Commission's statutory decisions in relation to the Split Snowy Region proposal. Reasons for the extensions are presented in Table 3.2.

Table 3.1: Split Snowy Region - consultation dates

Stage of consultation	Notice type	Date of notice	Submissions close/ Publication date
First round consultation	s.95	8 March 2007	30 April 2007
Extension publication Draft Rule Determination	s.107	10 May 2007	30 August 2007

Table 3.2: Split Snowy Region - reasons for timeframe extensions

Date of notice	Reasoning
10 May 2007	The Commission decided this extension to the publication date of the Draft Rule Determination was in the best interests of consumers as it would provide interested parties with an opportunity to consider the interrelated issues associated with the Congestion Management Review, the MCE regional boundaries Rule change proposal and the various Rule change proposals in relation to the Snowy region boundary in an integrated manner.

3.2 Southern Generators congestion pricing proposal - Summary of statutory consultation periods

Table 3.3 below presents the Commission's statutory decisions in relation to the Southern Generators congestion pricing proposal. Reasons for the extensions are presented in Table 3.4.

Table 3.3: Southern Generators congestion pricing - consultation dates

Stage of consultation	Notice type	Date of notice	Submissions close/ Publication date
First round consultation	s.95	22 March 2007	30 April 2007
Extension publication Draft Rule Determination	s.107	10 May 2007	30 August 2007

Table 3.4: Southern Generators congestion pricing - reasons for timeframe extensions

Date of notice	Reasoning
10 May 2007	The Commission decided this extension to the publication date of the Draft Rule Determination was in the best interests of consumers as it would provide interested parties with an opportunity to consider the interrelated issues associated with the Congestion Management Review, the MCE regional boundaries Rule change proposal and the various Rule change proposals in relation to the Snowy region boundary in an integrated manner.

4 Summary of Commission's key findings and reasoning

This Section sets out the Commission's key findings and reasoning on the three Rule change proposals against the assessment criteria identified in Section 2. It begins by discussing the impacts of congestion on generator incentives and market outcomes, before outlining the case for change, and then considering the Rule change proposals against each of the assessment criteria in turn. More detail on the Commission's assessment and reasoning of the three Rule change proposals is presented detail in Appendix A. Evidence and analysis informing the Commission's assessment is included in Appendices B to I.

4.1 The impacts of congestion

The three Rule change proposals all seek to address the congestion in the Snowy region by pricing its effect on the market. The different approaches each have implications for the extent and nature of the price and volume risks faced by participants. Before assessing the three Rule change proposals, this Section sets out how congestion affects pricing and volume risks.

The regional pricing structure of the NEM prices the congestion that arises between RRNs through differences in the RRP at those RRNs. This regional pricing structure does not enable the explicit pricing of congestion within a region, however.

The NEM dispatch engine (NEMDE) dispatches generators based on a comparison between a generator's offer price and its hypothetical (or shadow) nodal price, which reflects the local demand and supply conditions. Congestion between a generator's location and its RRN can result in a divergence between the local shadow price and the RRP, the price at which the generator's output is settled.

When the shadow nodal price and RRP diverge, this "mis-pricing" creates dispatch (volume) risk for generators because it can leave a generator exposed to:

- being dispatched and being settled at prices that do not meet its incremental costs (i.e. constrained-on); or
- missing out on being dispatched even though its offer price is below the RRP (i.e. constrained-off).

Mis-pricing resulting from intra-regional congestion can distort participant decision-making in both the short and long run. In the short run, mis-pricing can provide an incentive for generators to engage in non-cost-reflective "disorderly" bidding, such as bidding -$1,000/MWh or $10,000/MWh to avoid being constrained-off or -on, respectively, increasing the underlying resource costs of supply. In the long run, mis-pricing may distort investment technology, location and timing decisions for both supply and load.

In the NEM, participants can also face financial risks when congestion arises between regions. Participants contracting and trading between regions are exposed to "basis risk", that is the risk of price divergence between the price a participant is settled (its RRP) and the price its contract is referenced (the other region's RRP). Access to

mechanisms to manage this basis are important in promoting inter-regional trade, and therefore greater competition for contracts at RRNs. This is particularly relevant if greater pricing granularity is introduced as a means of more accurately pricing congestion.

One instrument for hedging the basis risk of inter-regional price separation in the NEM is the IRSR unit. IRSR units provide the unit holder access to a share in the positive settlement residues that accrue when electricity flows from lower-priced regions to higher-priced regions. However, IRSR units do not provide their holders with a "firm" hedge, in that the units may not yield a return that compensates holders for the full price difference between RRNs. This non-firmness may arise for several reasons, such as transmission outages (which reduce potential flows between regions), or because constraints elsewhere in the network lead to either counter-price flows on interconnectors or intervention by NEMMCO for non-system security reasons.

The degree of congestion pricing in the NEM can also have implications for emergence and exercise of transient market power. As more congestion is priced, generators will be settled at prices that more closely reflect their shadow nodal price. This can influence the competitive dynamics of how participants behave and affect dispatch and settlement prices. More granular pricing may reduce the effect that the exercise of transient market power has on prices faced by market participants in other locations. On the other hand, generators facing a local nodal price may find it profitable to withhold production (or maintain "headroom") in order manage their basis risk by preventing constraints from binding that might otherwise reduce their own settlement price. To the extent withholding occurs, it may diminish or reverse the productive and dynamic efficiency benefits of greater pricing granularity.

This analytical background sets the context for the Commission's assessment of these three Rule change proposals. The more congestion is accurately reflected in prices, the less mis-pricing and, therefore, dispatch risk for participants, reducing the perverse incentives for disorderly bidding. However, this can increase the level of basis risk for market participants to manage. On the other hand, less granular pricing can reduce basis risk for participants, but can increase dispatch risk. Given that price granularity is a distinguishing feature between the three Rule change proposals, the way in which participants respond to these different pricing and volume risks, and the implications for the competitiveness of the market, is of particular interest to the Commission. The Commission's assessment of the three Rule change proposals considers these trade-offs in reasoning which proposal is most likely to promote the achievement of the NEM Objective.

4.2 Case for a change

The Commission evaluated the Split Snowy Region proposal, the Southern Generators' Congestion Pricing proposal, and the Abolition proposal against a base case. This base case reflects the market under a "do nothing" approach. The Commission's assessment of the Split Snowy Region and Southern Generators' Congestion Pricing proposals and the alternative Abolition proposal suggests that the "do nothing" base case is the worst outcome for the NEM.

First, it leaves a point of material and enduring congestion across the cutset between Murray and Tumut in the Snowy region unmanaged. As explained further in Appendix D, investment is unlikely to address this congestion in either the short or medium term. Network augmentation is unlikely due to the high market cost that would result from taking the lines out of service in order to upgrade them and the environmental issues associated with development in the national parks across which the Snowy region lays. Generation or load investment is equally unlikely due to the restrictions on developing such investments in the national parks.

Second, the bidding incentives generators face under the base case are likely to result in less efficient dispatch, more basis risk for particular participants, and less cost-reflective pricing when compared to the market outcomes under the Abolition proposal or either of the two alternatives. Under the base case, Snowy Hydro has incentives to bid in a non-cost reflective manner, which may trigger market intervention by NEMMCO for non-power system security reasons (discussed in more detail below). Each of the three Rule change proposals alters the pricing and settlement arrangements for generators, and in particular Snowy Hydro, with the effect of changing their bidding incentives. Conceptual and quantitative analysis demonstrates that under each of the three Rule change proposals, generators face incentives to bid in a more cost-reflective manner, with consequential improvements in dispatch efficiency. This more competitive bidding also results in more cost reflective pricing, and a reduction in basis risk for particular participants, relative to the base case.

The non-power system security intervention by NEMMCO to manage the financial consequences of negative settlement residues is a third reason the base case is sub-optimal. As discussed in Appendix D, the network in the Snowy region contains a loop. When congestion arises on the lines between Murray and Tumut, the pricing at the various points (or nodes) around the loop reflects the pressure generation injected at each of those points places on the congested lines between Murray and Tumut. For northward flows, the price is lowest at the Murray node, which is also RRN for the Snowy region, because generation at Murray places the greatest pressure on the Murray-Tumut constraint. Under these conditions, the price in Victoria is higher than the price in Snowy. This results in counter-price flows, that is flows across the interconnector from a higher-priced region to a lower-priced region. While this outcome may result from economically efficient dispatch, the Rules provide NEMMCO with the power to intervene in market dispatch to prevent these counter-price flows and associated negative settlement residues. Similar issues can arise at times of congestion for southward flows. This intervention, which in turn has incentives for participant bidding, can result in less efficient dispatch outcomes when compared to the outcomes under the Abolition proposal and alternatives.

No submission promoted the base case as the preferred market structure going forward. In addition, participants at the Commission's Senior Industry Leaders Strategy Forum on 17 October 2006 strongly agreed that that network congestion in

the Snowy region was material and significant, and needed to be addressed immediately.[31]

For these reasons, the Commission considers there is a strong case to "do something" to address the material and enduring congestion in the Snowy region. The question then becomes which of the three alternative Rule change proposals currently before the Commission represent an improvement on the base case and if so, which is likely to best contribute to the achievement of the NEM Objective. The Commission's evaluation of the Split Snowy Region, Southern Generators' Congestion Pricing, and the alternative Abolition proposal under the following assessment criteria informs the Commission's decision to accept the Abolition proposal and not to accept the Split Snowy Region or the Southern Generators' Congestion Pricing proposal.

4.3 Economic efficiency of dispatch

Proposals that promote more cost-reflective bidding are likely to result in more economically efficient dispatch compared to proposals that do not support such incentives. Each of the three Rule change proposals reduces the incentives for Snowy Hydro to bid in a way that results in NEMMCO intervention to manage negative settlement residues, resulting in an improvement in dispatch efficiency relative to the base case. However, the bidding incentives for Snowy Hydro's Murray and Tumut generators are different under the Split Snowy Region and Southern Generators' Congestion Pricing proposals compared to the Abolition proposal.

The Split Snowy Region and Southern Generators' Congestion Pricing proposals both reduce Snowy Hydro's incentives to engage in disorderly bidding of Murray and Tumut generation by removing much of the risk of those plants being "mis-priced"[32]. However, both these proposals introduce strong incentives for Snowy Hydro to maintain headroom, or prevent congestion, on all lines between its plant and the Victorian or NSW RRN, depending on the direction of flows. At times of northward flows if there are no constraints between Tumut and the NSW RRN, the price at the Tumut RRN will be similar to the NSW RRP,[33] while if there is a constraint between Tumut and the NSW RRN, the price at the Tumut RRN will fall below the NSW RRP. Withholding output at Tumut at these times may reduce the risk of constraints binding between the Tumut RRN and NSW RRN during northward flows, increasing the likelihood of a relatively higher Tumut RRP.

Similar incentives for Snowy Hydro to bid in a way to prevent lines between its generation and the neighbouring RRN from constraining exist at times of southward flows, enabling Snowy Hydro can try to "import" the higher RRP from the neighbouring region. The incentives for Snowy Hydro to maintain headroom are

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[31] AEMC 2006, "Industry Leaders Strategy Forum – Summary of Discussion", Congestion Management Review, 17 October 2006. Available: www.aemc.gov.au.

[32] Mis-pricing occurs when a generator's local nodal price and its respective regional reference price differ. Disorderly bidding occurs when a generator has incentives to bid below cost in order to ensure it is dispatched. These concepts are discussed in more detail in Appendix A.

[33] The difference between RRPs at these times will reflect dynamic inter-regional loss factors.

driven by both the potential to maximise revenue across its generation output by accessing a relatively higher price, and the potential to manage basis risk by minimising inter-regional price separation (as discussed in Section 4.1 and 4.4). The net effect of this mis-pricing and resulting disorderly bidding on overall dispatch efficiency outcomes is not clear from a conceptual analysis. This is an empirical question that has been informed by the Commission's quantitative modelling, discussed below.

Under the Abolition proposal, when constraints bind between Snowy Hydro's generators and their new RRNs there will be mis-pricing, resulting in incentives for Snowy Hydro to engage in disorderly bidding (as discussed in Section 4.1). For example, when congestion arises between Murray and the Victorian RRN, the local value of output at Murray will be lower than the RRP. However, given Murray generation will be settled at the higher Victorian RRP, Snowy Hydro faces incentives to bid Murray generation into the market below cost in order to ensure it is dispatched and therefore earns the RRP. Similarly, when constraints bind between Tumut and the NSW RRN, Snowy Hydro faces incentives to offer its Tumut generation into the market below cost. Once again, it is unclear based on the conceptual analysis whether the Abolition proposal would lead to more efficient dispatch outcomes compared to the Split Snowy Region or Southern Generators' Congestion Pricing proposals. The Commission has undertaken quantitative modelling to inform its analysis.

The Commission's quantitative modelling, presented in Appendix B, demonstrates that while all the proposals result in dispatch efficiency improvements relative to the base case, neither the Split Snowy Region or Southern Generators' Congestion Pricing proposals produce the most efficient dispatch outcomes. The alternative Abolition proposal provides the most efficient dispatch outcomes. Compared to the base case, the Split Snowy Region, and Southern Generators' Congestion Pricing proposal, the alternative Abolition proposal resulted in an increased level of competition, with sustainable bidding patterns involving participants offering almost all their capacity into the market, maximising dispatch efficiency. By pricing Murray and Tumut generation at the Victorian and NSW RRNs, respectively, the Abolition proposal promotes incentives for Snowy Hydro to maximise its production by bidding competitively. In contrast, Snowy Hydro faces incentives to withdraw capacity in order to maintain headroom at times under the Southern Generators' Congestion pricing and Split Snowy Region proposals, resulting in less efficient dispatch outcomes when compared to the outcomes under the Abolition proposal.

Submissions were divided on the likely effect of each of the three Rule change proposals on dispatch efficiency. Several submissions supported the conclusion that the Abolition proposal was likely to result in the greatest improvement in dispatch efficiency. However, some submissions submitted that the Split Snowy Region proposal was likely to result in greater efficiency improvements than the Abolition proposal by avoiding the creation of remote intra-regional generators. As discussed in more detail in Appendix A, the Commission does not believe that there is evidence to suggest the removal of existing regional boundaries under the Abolition proposal will result in substantial intra-regional constraints in the near term.

Having regard to conceptual and quantitative analysis and submissions, the Commission concludes that economic efficiency of dispatch benefits from the Split

Snowy Region and Southern Generators' Congestion Pricing proposals are not as great as those resulting from the more competitive environment under the alternative Abolition proposal.

4.4 Inter-regional trading and risk management

As discussed in Section 4.1, pricing congestion by introducing greater pricing granularity may increase generator basis risk. However, this increase in basis risk may in turn be offset by an increase in the availability and firmness of the instruments to hedge basis risk.

The increase in price granularity under the Split Snowy Region and Southern Generators' Congestion Pricing proposals are likely to increase Snowy Hydro's basis risk. In contrast, the Abolition proposal minimises the basis risk for Snowy Hydro compared to the alternatives. Under the Abolition proposal, Snowy Hydro's Murray and Tumut generation are able to offer contracts at the Victorian and NSW RRNs, without the risk of price separation, reducing its basis risk compared to the alternatives.

The reduction in basis risk under the alternative Abolition proposal is likely to improve Snowy Hydro's incentives to offer more competitively priced contracts at the NSW and Victorian RRNs compared to the Split Snowy Region or Southern Generators' Congestion Pricing proposals. This, in turn, will increase pressure on other parties to be similarly competitive. Several submissions supported the conclusion that a reduction in Snowy Hydro's basis risk under the Abolition proposal would encourage Snowy Hydro to offer more competitive contracts, resulting in lower contract prices, with flow-on benefits for the liquidity in the contract market, inter-regional trade.

The effect of each of the three Rule change proposals on the firmness of IRSR units is less clear. The range of factors determining interconnector flows, including network limits, the output of various generators, and interventions like NEMMCO's clamping, makes it difficult to determine conceptually how a change in the pricing and settlement arrangements under the three Rule change proposals may affect the firmness of IRSRs between the Victoria and NSW RRNs. The Commission is therefore unable to conceptually identify which of the three Rule change proposals assessed promotes IRSR firmness in a way that substantially enhances market participant's ability to manage basis risk between Victoria and NSW. The quantitative analysis of risk is also inconclusive on which of the three Rule change proposals better enables participants to manage the risk of trading inter-regionally between Victoria and NSW (both directions) using only IRSR units (see Appendix B).

That being said, market participants noted in interviews with the Commission that they did not rely solely on IRSRs for managing an inter-regional risk. Some used it as a speculative tool while others used it as part of their portfolio approach for managing inter-regional risk. To the extent participants can access other tools to supplement cover for their inter-regional basis risk, then the overall effect of IRSR firmness is not a strong differentiating factor between the proposals.

When compared to the Split Snowy Region and Southern Generators' Congestion Pricing proposals, the Commission expects that the reduction in basis risk for Snowy

Hydro under the Abolition proposal will promote incentives for Snowy Hydro to offer more competitively priced contracts at the NSW and Victorian RRNs, introducing greater competitive pressure in the contract markets at those RRNs, providing competitive benefit for the wider contract market. The Commission does not consider that either the Split Snowy Region proposal or Southern Generators' Congestion Pricing proposal would provide as great a competitive benefit in the contract market when compared to the competitive benefits flowing from the Abolition proposal.

4.5 Pricing outcomes and participant responses

Although favourable wholesale price impacts are not a distinct component of the Commission's considerations, a greater alignment between costs and prices has desirable efficiency implications. If a proposal promotes greater competition in a wholesale market, this may also increase competition in the contract market. To the extent effective retail competition ensures that end consumers see more cost-reflective prices, in the short term consumers are able to make more informed decisions about the timing and level of their consumption. Short term competition improvements can therefore have longer term implications, particularly relating to participant responses to those competitive improvements.

Wholesale market spot and contract prices provide signals for future generation, load, and network investment. They inform not only location decisions but also the timing of those decisions and best-fit technology. Future investors require a level of certainty prior to committing to an investment. Investment decisions rely on information on the competitive environment and likely trends in participant behaviour, which are in turn a function of the incentives for participants under the three Rule change proposals being assessed.

The Commission has considered which of the Split Snowy Region and Southern Generators' Congestion Pricing proposals and the alternative Abolition proposal is most likely to result in wholesale prices reflecting the efficient costs of production, promoting allocative efficiency in the short term, and dynamic efficiency in the long term by generating pricing signals to inform efficient decisions by existing and prospective generators, loads, and network providers.

The analysis of dispatch efficiency presented in Section 4.3 concluded that each of the three Rule change proposals were likely to result in more efficient dispatch relative to the base case, because they encourage cost-reflective bidding by participants. More competitive bidding could in turn be expected to result in more cost reflective spot prices than the alternatives, with benefits for allocative efficiency in the short term and dynamic efficiency in the long term. This conceptual analysis is supported by the Commission's quantitative modelling. All three Rule change proposals demonstrate a general trend of lower average annual prices in NSW, and to a lesser extent Victoria, over the three years modelled relative to the base case.

However, as also discussed above, the Abolition proposal provides the strongest incentives for participants to bid cost-reflectively, which is in turn likely to result in more cost-reflective prices than the Split Snowy Region and the Southern Generators' Congestion Pricing proposals. Moreover, the Commission's analysis of risk

indicated that it expected increased competitive pressure in the contract market more under the Abolition proposal as a result of the reduction in Snowy Hydro's basis risk than under the Split Snowy Region or Southern Generators' Congestion Pricing proposals. Many submissions stated they believed the Abolition proposal would require generators in NSW and Victoria to adopt more competitive strategies, which would lead to more competitive spot, contract, and retail prices. This is supported by the quantitative analysis, which demonstrates that Abolition proposal results in more consistently lower spot prices than the Split Snowy Region or Southern Generators' Congestion pricing proposals.

The Commission therefore considers that the alternative Abolition proposal is more likely to promote wholesale prices that reflect the efficient costs of production, and therefore allocative efficiency when compared to the Split Snowy Region proposal or the Southern Generators' Congestion Pricing proposal.

While the Commission's modelling only considers a three-year outlook, it indicates a positive trend in more cost-reflective pricing over time relative to the base case and alternatives. One submission noted that while that the productivity gains from a region boundary change were likely to be modest, the benefits from more efficient prices were likely to emerge in the longer term.

Greater price granularity can improve locational investment signals. The more prices in a market, the more information investors can obtain about potential network congestion points, which can in turn inform their investment decisions. As discussed above, however, investment is unlikely in or around the existing Snowy region due to the environmental restrictions of investing in a national park. Therefore, the greater price granularity provided by the Split Snowy Region proposal is unlikely to improve investment signals in that location of the NEM. This suggests that there is no additional benefit from the greater pricing granularity under the Split Snowy region compared to the alternative Abolition proposal.

While all three Rule change proposals promote a more cost-reflective pricing relative to the base case, the Commission considers that the improvement in competition in the spot and contract markets under the Abolition proposal is most likely to encourage cost-reflective pricing. The Commission therefore concludes that the alternative Abolition proposal is more likely to promote allocative efficiency in the short term and the signals for efficient investment in the longer term when compared to the Split Snowy Region proposal or to the Southern Generators' Congestion Pricing proposal.

4.6 Power system security, supply reliability, and technical issues

The Commission considers a proposal that would detract from NEMMCO's ability to operate a secure and reliable network in the short or long term would be unlikely to promote the NEM Objective. The Commission sought advice from NEMMCO, as the power system operator, on stakeholder comments related to this criterion to NEMMCO.

NEMMCO advised the Commission that it did not consider either the Split Snowy Region proposal or the Abolition proposal would increase the risks to power system security. It also advised that it had not identified any circumstances where

intervention to manage power system security had been necessary as a result of the operation of the Southern Generators Rule. NEMMCO concluded that, to this extent, power system security had not been compromised. NEMMCO's advice to the Commission comprehensively addressed the limited number of system security and supply reliability issues raised in submissions.

The Commission therefore considers that none of the Split Snowy Region, Southern Generators' Congestion Pricing, or alternative Abolition proposal will have significant direct impacts on system security, supply reliability, or the technical functioning of the NEM. The application of this criterion, therefore, does not provide a basis for distinguishing between the Split Snowy Region and Southern Generators' Congestion Pricing proposals or the alternative Abolition proposal.

4.7 Good regulatory practice

As discussed in Section 2, the Commission considers that a Rule change proposal should promote principles of good regulatory practice. This includes promoting transparent and predictable market operations, and a proportionate response to an identified problem. A proportionate response to the issues arising from the congestion in the Snowy region would need to address the problem, therefore addressing a major legacy congestion issue, but without pre-empting possible market-based responses to future congestion problems in the NEM.

The Commission considers that the Split Snowy Region and Southern Generators' Congestion Pricing proposals and the alternative Abolition proposal would offer an improvement in terms of the transparency and predictability of market operation when compared to the base case. These three proposals all price the material congestion between Murray and Tumut. They also reduce the likely incidence of NEMMCO's intervention to manage counter-price flows.

The Commission considers, however, that the responses proposed in the Split Snowy Region proposal and in the Southern Generators' Congestion Pricing proposal are less proportionate mechanisms to address the congestion problem in the Snowy region when compared with mechanism proposed in the alternative Abolition proposal. The Split Snowy Region proposal retains the region boundaries just north of Tumut and just south of Murray. The Commission's analysis of both historical and forward looking congestion does not suggest that those areas of the NEM are places of material and enduring congestion.[34] Retaining a region boundary across those cutsets pre-empts a possible future response to address any potential congestion that may arise. In contrast, the alternative Abolition proposal provides the opportunity for future responses to address any congestion that may arise north or south of the modified Victoria-NSW region boundary, consistent with the future congestion management regime. In this context, the Split Snowy Region proposal is not considered to be a proportionate response to address the material congestion between in Murray and Tumut when compared to the alternative Abolition proposal.

[34] See Appendix F.

While the Southern Generators' Congestion Pricing proposal prices the Snowy region congestion, the Commission does not consider it to be as stable or permanent solution as regional boundary change.

The MCE's policy, as set out in the Congestion Management Review Terms of Reference, provides the guidance that material and enduring constraint issues should ultimately be "addressed through investment or regional boundary change."[35] As discussed earlier, the congestion in the Snowy region is unlikely to be addressed through investment. Implementing a region boundary change to address this material congestion is therefore consistent with the MCE's policy settings.

The Commission does not consider that either the Split Snowy Region proposal or the Southern Generators' Congestion Pricing proposal provides a proportionate response mechanism to address the congestion problem in the Snowy region when compared to the mechanism proposed by the alternative Abolition proposal. The Abolition proposal provides the best starting point from which to apply the future congestion management regime.

4.8 Long term implications and consistency with public policy settings

At this stage of the NEM's development, radical changes to the market design and operation are unlikely to be either necessary or desirable in terms of promoting the NEM Objective. The Commission considers that most Rule change proposals submitted will focus on smaller incremental improvements compared to the overall costs of operating the power system. In its assessment of the three Rule change proposals, the Commission considers it important ensure that these incremental improvements are consistent with a stable and orderly evolution of the NEM, promoting the NEM Objective in the longer term. The Commission also considers it must have regard to the broader public policy, including the policy position put forward by the MCE regarding the management of congestion and the long term options for addressing material and enduring congestion.

The Commission considers all three Rule change proposals could improve economic efficiency in the market. However, for the reasons discussed earlier, the Commission considers that the Split Snowy Region proposal and the Southern Generators' Congestion Pricing proposal are not as likely to promote a stable and transparent longer term environment when compared to the environment under the alternative Abolition proposal. As discussed in Section 4.5, the Commission expects that the increased competition under the Abolition proposal will most effectively promote allocative and dynamic efficiency in the NEM over the longer term. The Commission considers that consumers would be expected to gain from these efficiency improvements in the longer term, through the creation of a more stable and transparent environment for future investment decisions.

The Commission also considers that region boundary change according to the Abolition proposal is most consistent with the policy settings as set out by the MCE,

[35] MCE, "Terms of Reference for Australian Energy Market Commission – Congestion Management Review", 5 October 2005, p.4.

when compared to the Split Snowy Region and Southern Generators' Congestion Pricing proposals.

4.9 Implementation

A change to the existing Snowy region boundaries would be the first such change to region boundaries since the start of the NEM in 1998.[36] The Commission has sought advice from NEMMCO and input from market participants on the steps required to implement both the Split Snowy Region and alternative Abolition proposal.

The implementation issues surrounding the Split Snowy Region and Southern Generators' Congestion Pricing proposals and the alternative Abolition proposal are important considerations for the Commission. In particular, the benefits of making a change to the Rules should exceed the costs of that change. In reaching its decision, the Commission has considered the relative costs and benefits of implementing the proposals.

The Commission understands that the Southern Generators' Congestion Pricing proposal has minimal implementation costs. The only implementation step for the Southern Generators' Congestion Pricing proposal would be to incorporate into the body of Chapter 3 of the Rules the current Tumut CSP/CSC Trial and the Southern Generators Rule rather than have them operate from the derogation in Part 8 of Chapter 8A of the Rules.

Both the region boundary proposals have similar implementation processes, although the Split Snowy Region proposal would take longer to implement and would be more costly relative to the Abolition proposal. Section A.9 in Appendix A steps through the common steps required to implement the Split Snowy Region and Abolition proposals. It appears to the Commission, from correspondence with NEMMCO and stakeholder submissions, that the Split Snowy Region proposal would involve a more complex process of implementation than the Abolition proposal because:

1. It involves the creation of one new region and interconnector (in net terms); and

2. It is likely to involve more adjustments to the contract portfolios, IRSR unit holdings, and risk positions of a larger number of market participants than the Abolition proposal.

The Commission notes that all three Rule change proposals are capable of being implemented in a reasonable timeframe and at relatively low cost. The Commission also notes the NEMMCO advice that the Split Snowy Region proposal is likely to take longer to implement than the Abolition proposal.

[36] Excluding: a) the addition of Tasmania to the NEM in 2005, which did not require any change in region boundaries; but did involve the addition of a region previously electrically separated from the other parts of the NEM; and b) reassignment of load at the Terranora node from the Queensland region to the NSW region as part of the conversion of Directlink to a prescribed network service.

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5 Assessment of proposals – Rule making test and NEM Objective

This Section considers the Commission's power to make a Rule on either the Split Snowy Region proposal or the Southern Generators' Congestion Pricing proposal. It also presents the Commission's reasoning that while both the Split Snowy Region and Southern Generators' Congestion Pricing proposals are both capable of contributing to the achievement of the NEM Objective, neither satisfies the statutory Rule making test as much as the Abolition proposal. The Commission's determination presents this draft decision.

5.1 Power to make a Rule

The Commission is satisfied that the subject matter of the Split Snowy Region proposal and the Southern Generators' Congestion Pricing proposal is for or with respect to the specific subject matters referred to in s.34(2) of the NEL, and set out in the following items of Schedule 1 of the NEL:

7 The settling of prices for electricity and services purchases through the wholesale exchange operated and administered by NEMMCO, including maximum and minimum prices;

8 The methodology and formulae to be applied in setting prices referred to in item 7;

9 The division of the national electricity market into regions for the purpose of the operation of the wholesale exchange operated and administered by NEMMCO; ...

27 The metering of electricity to record the production or consumption of electricity; ... [and]

36 Any other matter or thing that is the subject of, or is of a kind dealt with by, a provision of the National Electricity Code as in operation and effect immediately before the commencement of section 12 of the *National Electricity (South Australia) (New National Electricity Law) Amendment Act* 2005 of South Australia.

The Commission is satisfied that the subject matter of these proposals is for or with respect to a matter that the Commission can make Rules under the NEL.

5.2 Assessment against the Rule making test and NEM Objective

The NEM Objective, as set out in s.7 of the NEL, is to:

> "Promote efficient investment in, and efficient use of, electricity services for the long term interests of consumers of electricity with respect to price, quality, reliability and security of supply of electricity and the reliability, safety and security of the national electricity system."

Under s.88 of the NEL, the Commission is only able to make Rules if:

> "(1) It is satisfied that the Rule will or is likely to contribute to the achievement of the national electricity market objective.
>
> (2) For the purposes of subsection (1), the AEMC may give such weight to any aspect of the national electricity market objective as it considers appropriate in all the circumstances, having regard to any relevant MCE statement of policy principles."

On the basis of its assessment on the information and analysis before it, the Commission is satisfied that the solution set out in the Split Snowy Region proposal and the solution set out in the Southern Generators' Congestion Pricing proposal are both capable of contributing to the achievement of the NEM Objective. The Commission recognises that each of the proposals is likely to result in efficiency and related improvements compared to the circumstances that would exist in the longer run in absence of either proposal.

The Commission has also concluded that the alternative solution set out in the Abolition proposal contributes to the achievement of the NEM Objective, as it would also offer an improvement compared to the base case determined by the Commission in its analysis.

The Commission considers that because the three proposals are alternatives, which are all capable of contributing to the achievement of the NEM Objective, it must make a comparative decision as to which of the three options will best contribute to the achievement of the NEM Objective. As stated above, section 88(2) of the NEL allows the Commission to exercise its discretion to "give such weight to any aspect of the national electricity market objective as it considers appropriate in all the circumstances." In its assessment of the proposals as presented in Appendix A and summarised in Section 4, the Commission has identified differences between the proposals in relation to achieving the NEM Objective.

The Commission considers that the Split Snowy Region proposal, Southern Generators' Congestion Pricing proposal, and Abolition proposal all provide improvements when compared to the base case. However, when compared to the Abolition proposal, the Split Snowy Region proposal and Southern Generators' Congestion Pricing proposal:

- Are less likely to promote economic efficiency of dispatch than the Abolition proposal;
- Would not provide as great a competitive benefit in the contract market compared to the competitive benefits flowing from the Abolition proposal;
- Would not promote allocative efficiency in the short term and the signals for efficient investment in the longer term to the same degree as the Abolition proposal;

- Would not provide a proportionate response mechanism to address the congestion problem in the Snowy region when compared to the mechanism proposed by the alternative Abolition proposal;

- Are not as likely to promote a stable and transparent longer term environment when compared to the environment under the alternative Abolition proposal.

While the Southern Generators' Congestion Pricing proposal is the least costly and disruptive proposal to implement, the Commission considers that when compared to the Abolition proposal, it would provide less certainty to the market in terms of providing a permanent solution to the legacy congestion problem in the Snowy region. The Split Snowy Region proposal is relatively more costly and disruptive to implement when compared to the Abolition proposal.

The Commission is not satisfied, when assessed against the Abolition proposal, that either the Split Snowy Region proposal or Southern Generators' Congestion Pricing proposal would more effectively promote improvements in competition and efficiency in the NEM, and therefore more effectively promote the long-term interests of electricity consumers. Neither the Split Snowy Region proposal nor the Southern Generators' Congestion Pricing proposal, therefore, satisfy the Rule making test better that the Abolition proposal.

On the basis of its analysis and all relevant considerations, the Commission has determined not to make either the Rule proposed by Macquarie Generation's Split Snowy Region proposal or the Rule proposed by the Southern Generators' Congestion Pricing proposal.

5.3 Commission's determination

The Commission has determined in accordance with s.93 of the NEL to publish a single draft Rule determination on the proposed National Electricity Amendment (Split Snowy Region) Rule 2007 or the proposed National Electricity Amendment (Congestion Pricing and Negative Residue Management Arrangements for the Snowy Region) Rule 2007.

In accordance with s.99 of the NEL, the Commission has determined to publish this draft Rule determination not to make the proposed National Electricity Amendment (Split Snowy Region) Rule 2007 and to not make the proposed National Electricity Amendment (Congestion Pricing and Negative Residue Management Arrangements for the Snowy Region) Rule 2007.

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6 Description of appendices

The Appendices to this final Rule determination present the Commission's comprehensive analysis, assessment, and reasoning in coming to its final decision on this Rule change proposal. The Appendices are as follows:

Appendix A – Assessment of related Rule change proposals: Appendix A presents the Commission's assessment and reasoning on this Rule change proposal. It briefly outlines the Commission's approach to assessing the proposal, before discussing the Commission's processes and procedures. It then presents the Commission's analysis against the selected assessment criteria.

Appendix B – Modelling: Appendix B describes the approach, assumptions, and data sources used in the revised modelling undertaken by the Commission's consultants (Frontier Economics) of the various Rule change proposals submitted by participants in relation to the Snowy region of the NEM.

Appendix C – Submission summary: Appendix C presents a summary of all submissions received in relation to the various Rule change proposals relating to managing congestion in the Snowy region.

Appendix D – Background on the Snowy region: Appendix D provides background to the proposals by explaining the background to the NEM region structure, the 1997 decision on the current Snowy region boundary, and describes some of the issues that are associated with the current Snowy region boundary. Appendices E and F contain additional background.

Appendix E – 1997 Determination on Region Boundaries: Appendix E outlines the location of existing transmission network and region boundaries and explains the historical reasons behind the choice of these boundaries.

Appendix F – Historical congestion between Victoria, Snowy and NSW regions: Appendix F assesses the historical frequency, type, and location of congestion between the Snowy region and the regional reference nodes for Victoria and NSW in the four year period from financial year 2003/04 to 2006/07.

Appendix G – Interaction between the Southern Generators Rule and the South Morang constraint: Appendix G assesses the comments presented by Snowy Hydro and the Southern Generators related to the interaction between the Southern Generators Rule and the incidence of binding of the South Morang constraint.

Appendix H – Summary of related reforms: Appendix H presents the policy reforms, Rule changes, and Reviews that relate to the issues being considered in this determination.

Appendix I – Review of ROAM Consulting report: Appendix I comments on the modelling report from ROAM Consulting, submitted by the Southern Generators to inform their Rule change proposal and associated submissions.

The Rule to be made: The Rule to be made is available on the Commission's website: www.aemc.gov.au.

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