

20<sup>th</sup> November 2006

Dr John Tamblyn  
Chairman  
Australian Energy Market Commission  
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Dear John

Supplementary Submission: National Electricity Amendment  
(Snowy Region Boundary) Rule 2006

### **Introduction**

Snowy Hydro asks that the Commission considers this supplementary submission on the Snowy Region boundary rule change. This submission:

- Provides a follow up on issues discussed at the meeting with the AEMC on Tuesday 14<sup>th</sup> November and clarifies matters raised with the AEMC in the Snowy Hydro re-orientation rule change proposal; and
- Offers clarification of technical issues only.

This submission presents no new material, but summaries the key issues that have previously been submitted/presented to Commission in this and other related consultations (Snowy Hydro is mindful not to disrupt the current rule change process and timelines).

### **General Technical Comments**

- The contract market is the key market in the NEM and congestion affects the efficiency of the contract market.
- Snowy Hydro believes that more than 90% of the expected demand in the NEM is purchased under financial hedge contracts (or is covered by internal generation capability in the case of vertically integrated retailers). If this is correct the contract market is the primary market for purchasing energy.
- The spot market is we believe, effectively a balancing or reference market in which producers mainly manage production cost and risks.
- The Commission can test the above assertions of the relevance of the contract market over the spot market by requesting from each retailer (on a confidential basis) the percentage of expected demand that they seek to hedge in the contract market. The Commission, in a similar way, examined the impacts of contract levels of generators in its consideration of the Southern Generators rule change proposal.
- Benefits/dis-benefits of rule change proposals obviously need to weigh spot market impacts and contract market impacts:
  - The two markets are inter-related but not directly proportional (risk premiums are expected in the contract market over the spot market due to relative financial certainty/risks). For example, this is evidenced by reference to the

Power Industry News<sup>1</sup> which highlighted that Tarong Energy's hedge contract portfolio delivered premium of **\$5.86 for each MWh generated above the time-weighted average pool price** for electricity in Queensland.

- Contract market impacts are likely to be much greater than the Spot market impact due to leverage (Contract market impacts across the entire contract market where as spot market impacts across directly affected MWs only). However contract market impacts are less explicit/transparent.
  - Contract market impacts (transaction costs/risk premiums) affect dynamic efficiency/capital utilisation efficiency as investments are made using forward contract prices and contracts and not expected spot outcomes.
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- Short term congestion impacts: These impacts include dispatch (productive) efficiency, incentives to reveal marginal costs (eg 'headroom' incentives) and effectiveness of transmission instruments (SRA units or CSCs) in managing basis risk and hence contract supply and positions held.
  - Medium Term congestion impacts: Companies risk management policies limit inter-regional (and intra regional) exposure (i.e. basis risk) and hence limit contract supply from inter-regional generators. Forward contract prices are a key factor in new entrant investment decisions.
  - Transmission instruments (SRA units or CSCs) provide a means for remote generators to access contract trading hubs (i.e. the load centres at Brisbane, Sydney, and Melbourne etc). Effective management of basis (inter-regional) risk is necessary for participants to trade inter-regionally.
  - Murray generation is subjected to a 'naked' CSP without a CSC to the load hubs of Vic and NSW. A CSC allocated to a generation node (i.e. the existing Snowy Regional Reference Node) has no value because it doesn't directly/indirectly allow the generator to access load and therefore does not allow the generator to offer hedging contracts. Hence the CSC (to a generation node) cannot be used for hedging purposes.
  - Technical market power (Oligopoly/Monopoly generator) is reduced in generation exporting node/increased in generation importing node if 'transmission right' is granted. For example if 'transmission rights' i.e. CSCs are granted to an exporting generator to access the load hub then technical market power is reduced in the generator's exporting node as these generators have no incentive to withhold. If CSCs are granted to the importing generators then technical market power is increased in the importing hub as these generators have an incentive to withhold and drive up the price in the importing region. This assertion is proven in the Joskow and Tirole paper<sup>2</sup>.
  - The Joskow and Tirole paper illustrates how strategic purchasing of FTRs can be used to enhance or mitigate market power under both cases of a simple linear network and a network with loop flow.
  - Generators in importing regions can influence/exert market power in the contract markets by acquiring SRA positions (blocking competitors from accessing the importing regions contract market).
  - Uncertainty over region boundaries (the uncertain ability to hedge inter-regional risks) significantly limits Snowy Hydro's ability to transact medium and long term contracts – hence reducing medium and long term contract supply. This assertion is supported in AEMC's modelling<sup>3</sup> which shows that Murray would be more willing to offer more contract volume in Victoria under the re-orientation proposal which would have effectively placed Murray generation in the Vic region.
  - With the current planned roll off of NSW ETEF scheme, retailers in NSW are currently wishing to sign significant volumes of replacement hedges to avoid contractual

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<sup>1</sup> Power Industry News (PIN - Edition 516 - 9 am Monday - 6 November 2006). The PIN is a news circulation that summarises publicly available information.

<sup>2</sup> Paul Joskow and Jean Tirole, 'Transmission rights and market power on electric power networks', RAND Journal of Economics Vol.31, No3, Autumn 2000, pp450-487.

<sup>3</sup> AEMC, Final Rule Determination, Management of Negative Settlement Residues by Re-orientation, page A48.

uncertainties and reduce 'cliff edge risks'. Hence uncertainties over regional boundaries are currently materially affecting the contract markets.

### **Current Market Situation**

- Both the Tumut CSP/CSC and the Southern Generator's Rule are time limited trials. The AEMC has acknowledged this in various documents<sup>4</sup>. The Southern Generator's decision was explicitly made on short term analysis only and dynamic impacts were not explicitly considered. Hence it doesn't appear that the current market arrangements can be used as the appropriate status quo by which to assess and compare Snowy Hydro's and Macquarie Generation's proposals. The reference (base case) for comparison purposes should be the existing Snowy Region without these short term current market arrangements.
- The current arrangements appear inconsistent with MCE policy as we understand it ('naked' nodal pricing contrary to region market design)
- The current arrangements don't resolve mis-pricing of:
  - Upper Tumut (when there is a constraint between Lower Tumut to Sydney);
  - Guthega (connected firmly to NSW);
  - Murray under voltage constraints. Murray is currently 'constrained on' (despite its current nodal pricing) for considerable periods due to voltage support requirements for imports into Victoria (eg on 20/11/06 commencing at 09:00 Market time).
- Disrupts and reduces contract supply in NSW/Vic and promulgates technical market power. Refer to the General Technical Issues section above. Refer also to previous Snowy Hydro confidential submission to AEMC (re-orientation proposal), and observed impact on the Vic contract market following the Southern Generator's Rule decision.
- Region boundary anomalies create perverse location investment signals. For instance the muted Wagga Gas Turbine and Tumut generation are in the same electrical location but have different pricing. This was also noted as an issue by Darryl Biggar<sup>5</sup> and by TransGrid<sup>6</sup>.

### **Snowy Hydro Proposed Boundary Change Benefits**

- Significantly enhances contract supply in NSW/Vic (due to very significant reduction in basis risk for Snowy Hydro and other participants).
- Improves liquidity and ease of contract trade between the major load centres of Melbourne and Sydney (as only one instrument between NSW/Vic is required).
- Limited existing contract market disruption as 'load' is not dislocated by the revised boundaries.
- Spot market impacts:
  - Static loss factor impacts only small – see Attachment A;
  - Headroom incentive benefit (accepted by Commission in Southern Generators determination<sup>7</sup>). Removing the incentive for withholding of this generation capacity (headroom) provides a significant benefit to NSW customers for both the spot and contracts markets.

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<sup>4</sup> See for instance see AEMC, Final Rule Determination, Management of Negative Settlement Residues by Re-orientation, pages 3, 8, and 35.

<sup>5</sup> Darryl Biggar, Congestion Management Issues: How significant is the mis-pricing of intra-regional congestion in the NEM?, 25 October 2006, page 3.

<sup>6</sup> TransGrid Annual Planning Report 2005, page 99.

<sup>7</sup> AEMC, Final Rule Determination, Management of Negative Settlement Residues by Re-orientation, page C13.

- First order incentives on Snowy Hydro generation would be clear and transparent. (For example, Tumut generation is incentivised to maximise generation when the price in NSW is very high against any binding constraint into NSW).
- A CSP/CSC or similar arrangement is materially not required to firm SRAs – see Attachment B.
- Provides a ‘sensible’ starting point for future evolutionary refinement (such as future boundary changes) if it is required.

### **Mac Gen Proposed Boundary Change**

- Proposed boundaries are located across network elements that can’t normally constrain and thus the proposed boundaries are technically incorrect:
  - Upper Tumut to Canberra cannot constrain (across Mac Gen proposed boundary);
  - Guthega to NSW cannot constrain (across Mac Gen proposed boundary);
  - Blowering to NSW cannot constrain (across Mac Gen proposed boundary).
- Pre-empts real potential network upgrades that remove congestion points (thus forms potentially needless and disruptive regions in contradiction of the MCE policy). For example:
  - To the north of Tumut, the current ‘64’ line between Upper and Lower Tumut is currently being re-instated with current switchyard upgrades. This would increase the transfer from Tumut to NSW by around 150MWs. The TransGrid 500 KV upgrade would result in upgrade works from Bannaby to Marulan and from Marulan to Avon/Dapto. Additionally there’s a network support service currently offered by Snowy Hydro that would increase the transfer into NSW by a further approx 200MW. In addition there are future potential to upgrade the 03 & 07 lines following recent surveys of these lines at relatively modest cost and potential for reactive support upgrades again at relatively modest cost.
  - To the south there are ANTS projects that could alleviate the constraint from Murray to South Morang.
- Materially disruptive to contracts market as ‘load’ in northern Vic and Southern NSW is dislocated by the Mac Gen proposal.
- Doesn’t ameliorate technical market power (see General Technical Issues section above) – headroom incentives remain and thus dis-benefits to NSW customers would be entrenched.
- Doesn’t materially increase contract supply as basis risk still exists for generators in these new regions trying to access the load rich NSW and Vic regions.

### **Support for enduring change**

The Snowy Hydro Snowy Region change rule proposal would achieve significant market efficiency benefits compared to the existing Snowy Region definition. Snowy Hydro also:

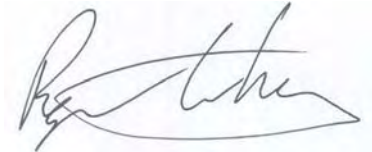
- Reaffirms support for future congestion management enhancements should the Commission recommend such a direction in its Congestion Management Review; and
- Considers the Snowy Hydro proposed region boundary change as offering the highest benefit and is the critical change needed with respect to congestion management refinements.

## Conclusion

We strongly advocate implementing the Snowy Hydro Snowy Region rule change proposal. The problems associated with the Snowy Region have been apparent and well debated by all Participants over many years.

Snowy Hydro appreciates the opportunity to provide this supplementary submission. Please contact me on (02) 9278 1885 if you would like to discuss the issues outlined in this submission.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Roger Whitby', written over a light blue rectangular background.

Roger Whitby  
Executive Officer, Trading

**Attachment A - Why Marginal Loss Factors (MLF) is not an Issue in Snowy Hydro's Snowy Regional Boundary Change**

Hydro Tasmania has made a supplementary submission raising the issue of Marginal Loss Factors (MLFs) associated with a change in the Snowy Region.

Please note that the MLF issue associated with Murray and Tumut is no different to all other locations in the NEM. For instance the difference between a dynamic and a static MLF would be an issue in the Latrobe Valley generators and the Hunter Valley generators for similar percentage of time that the Snowy Region MLFs may be an issue.

Having said this, Snowy Hydro believes the impact of MLFs under an abolished Snowy Region boundary are immaterial. Marginal Loss Factors are only an issue in the case of dynamic efficiency when due to dynamic loss factors one plant is dispatched in preference to another.

In the case of the Snowy Region generators, there may be internal substitution between Murray and Tumut generation. This however is immaterial since these generators share the same long term water storages (Eucumbene) and hence have similar long term opportunity costs.

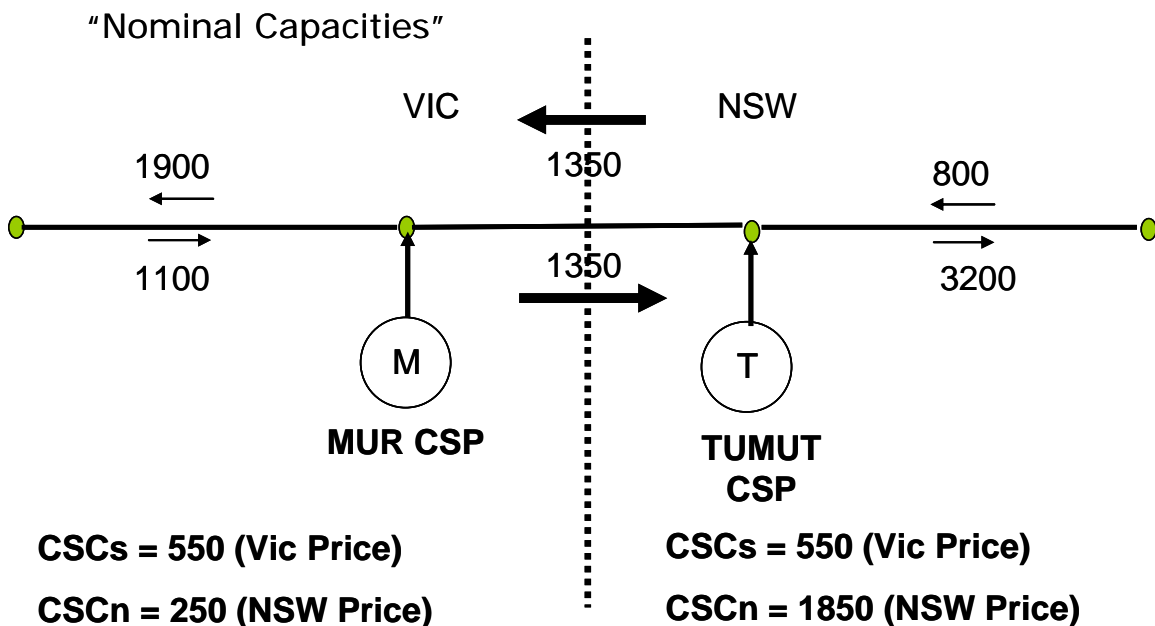
The other issue is that only 5% of the time loss factors are high (when there is very high transfers on the inter-connectors). Due to this low duration of time, any accumulated benefit cannot be significant. This 5% represents times of high prices and high demand when hydro plant would be expected to operate anyway. Hence the static MLF for Murray and Tumut is immaterial in these circumstances.

## Attachment B - Why a CSP/CSC is not needed for the abolished Snowy Region

We have stated that the Snowy Hydro proposal rule change with Tumut in NSW and Murray in Victoria lays the foundation for potential future incremental improvements in the region structure. The Snowy Hydro proposed change aligns Snowy Hydro generation with major load centres.

Depending on the outworkings of the Congestion Management Review, a potential future implementation of CSP/CSC for Snowy Hydro generators should be simplest application of the concept (because it involves only one participant).

However it is important to note that the Snowy Hydro proposed Snowy regional boundary change proposal effectively does not require CSP/CSC in order to achieve a majority of the benefits. In the following diagram, Snowy CSC allocation is presented based on 'uncontestable access' (that is the portion of transmission capacity that only Snowy Hydro can utilise).



There are two possible scenarios under Snowy Hydro's Snowy Region Rule change proposal:

1. If Tumut generates full capacity (for northerly flow) 2100 MWs, then Tumut will simply displace the Murray generation and will not affect the Victoria to NSW interconnector (3200-2100=1100 MWs);
2. If Murray generates high i.e. 1500 MWs (for southerly flow direction) it will displace Tumut first, and only after that marginally displace the NSW to Victoria interconnector (ie. 1900 -1500 = 400 worse case interconnector flow). This may occur only if Murray is able to generate at full capacity in these circumstances (i.e. not limited by lake level etc). The probability of generating at these high levels is very low.

This means that the Snowy regional boundary Rule change can be implemented without a CSP/CSC arrangement.