12th April 2007

Dr John Tamblyn
Chairman
Australian Energy Market Commission
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Australia Square NSW 1215

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Dear Chairman

Congestion Management Review – Directions Paper

Introduction

Snowy Hydro appreciates the opportunity to provide input into this important review. The management of transmission congestion affects the competitiveness of the National Electricity Market (NEM). A well designed approach to congestion management should be transparent, consistently applicable to all locations in the NEM, and provides efficient economic incentives for all Market Participants.

Snowy Hydro submission is focussed on high level aspects that should be considered in the design of improvements to the congestion management regime which is to aid the achievement of the NEM objective.

Physical Features of Electricity Supply

The physical features of electricity supply in the NEM are:

- Major electricity loads largely centred around the major capital cities
- Remotely located generation relative to loads
- ‘Thin’ interconnection between major load centres
- The electricity system is meshed and loop flows exist in many NEM locations ie. South-east Queensland (around Tarong), “Western Ring” in NSW, Murray loop, Latrobe Valley, and South-East South Australia.

The NEM market design is very much a reflection of this underlying physical structure. The physical structure is unlikely to substantially change in the medium term. These physical features are seen consistently across the NEM and hence any congestion management regime should be applied consistently across the NEM.

Applying a narrow ‘fix’ such as the Southern Generators rule only redistributes problems to other locations, as seen by the recent market problems with the South Morang constraint[1].

[1] Snowy Hydro supplementary submission to Snowy Region Boundary Change and Southern Generators Rule Extension, dated 26th March 2007.

Contract Hedging is the Key to Facilitate Competition

Snowy Hydro believes that the contract market is the main market in the NEM, with both generators and retailers having financial requirements to secure cash flows as part of their business and hedge inherent volatility. The Spot market is basically a balancing market. There are a number of studies that suggest the level of generator contracting is of the order of 80 to 90%.

The ability of remote generators to sell contracts at major load centres is subject to price basis risk and volume (dispatch) risk. For a generator selling a contract in its own regional node there is no basis risk. Volume (dispatch) risk is a function of transmission availability and capability.

For a generator to inter-regionally contract trade the settlement residue auction (SRA) units are a mechanism that partially hedges the basis risk. It has been well articulated by ERIG that the SRAs are very imperfect/non-firm hedging tool. There is some scope for incremental enhancements to the SRA instrument design but it will never the less remain a very imperfect instrument due to the fundamental uncertainties. For these reasons, SRAs support in general only incremental inter-regional trade as evidenced by a survey conducted by Andersen, Hu and Winchester[2]. SRAs are very unsatisfactory in comparison to the relative certainty provided for a generator to contract within its own region under the NEM region market design.

There is a major market design trade-off between spot market dispatch efficiency (improved by finer 'granularity') and contract market liquidity (improved by certainty of smaller number of regions).

Dispatch efficiency is primarily driven by finer or more granular locational pricing. This could be implemented through an increase in the number of regions, introduction of CSPs, or generator nodal pricing. However, with more granular pricing there exists increased basis risk for the relevant generators. Basis risk then impacts the level of contracting and liquidity. Hence, the more granular the pricing the less liquidity and less competition exists in the contract market. The regional market design strikes a balance between these two efficiency impacts. Another way of expressing the trade off is the 'mis-pricing problem' verses the 'hedging problem'.

The directions paper generally recognises this trade-off, and has a sound focus on only responding to material problems. However, a greater recognition of the balance between hedging and pricing objectives would be welcome. The discussion of regional boundary change states that a clearer process for boundary review is 'one incremental means for increasing the degree of pricing granularity'. We suggest that a reduction in granularity should also be explicitly included as a possible outcome in the discussion of regional boundary change, in view of this fundamental trade off.

There is in our view potential merit in decreasing granularity with respect of hedging major load centres (for example removing the current anomalies of the region market design

[2] Andersen, Hu and Winchester, University of NSW, Forward Contracts in Electricity Markets: the Australian Experience.

implementation by abolishing the Snowy Region) in order to achieve substantial benefits in the hedging market. That is, the small 'mis-pricing' problem is swamped by the much larger 'hedging problem'. It is well known theoretically and empirically that enhancing contract trading by increasing contract liquidity and availability will increase overall competition[3].

In our view, any moves to increase granularity of pricing (for example introducing CSPs) without addressing the associated hedging and load access issues (by for example allocating CSCs) will significantly decrease market efficiency due to the hedging market impacts.

We also note that increasing granularity simply leads to more withholding in both the spot and contracts market as generators are incentivised to access the load price. This increases both spot and contact prices due to reduced competition, purely as a function of the market design.

Regulatory Certainty

Good regulatory practice requires consistency of application of congestion management framework. Inconsistent application simply creates regulatory uncertainty and sovereign risk for participants leading ultimately to market inefficiency due to necessary risk premiums and investment uncertainties. This point is particularly pertinent in the NEM given the physical features of electricity supply as articulated above. A well designed congestion management framework must be applied in a geographic consistent manner. Similarly, 'time limited' arrangements must indeed be applied in a manner that is well understood in advance and indeed limited to its time limit.

Way Forward

Snowy Hydro believes at a fundamental level there are only two potential ways forward to further improve the congestion management framework. The physical characteristics of the NEM, and the importance of an efficient hedging contract market constrain options. Aside from resolving the broadly accepted current regional market anomalies with the Snowy region, any changes to the current congestion management framework needs to be balance against the materiality of the current problems and the cost/benefits of making changes. This being satisfied then there are two broad ways forward:

- A broadly applied CSP/CSC or similar framework
- A changed constraint formulation – "interconnector preference"

A broadly applied CSP/CSC framework increases granularity of constraints pricing but provides (partial) hedging certainty to access load centres. The Darryl Biggar Constraint Based Residue (CBR) and Constrained On/Off payments are simply other forms or variations to 'CSP/CSC' type arrangements. A CSP type arrangement without CSCs will fail as it narrowly addresses the 'mis-pricing' problem but creates a much bigger 'hedging problem'. The key issue for these types of arrangements is that of 'allocation of rights'.

[3] For example, an empirical study done using NEM data is in, Wolak, F.A (2000), "An empirical analysis of the impact of hedge contracts in bidding behaviour in a competitive electricity market", International Economic Journal, vol 14, no. 2, pp. 1-40.

Snowy Hydro advocates that the only viable arrangement for allocation is for the 'uncontestable portion' of transmission only to be allocated to incumbent/new entrant generator, with the 'contestable portion' freely auctioned. This is briefly explained in Appendix 1.

The second potential way forward is that of constraint reformulation. As a pre-requisite, this requires resolution of the current issues of the Snowy Region by abolishing the region. Interconnectors could be given preference to intra-regional generators by moving interconnector terms from the 'left hand side' to the 'right hand side'. The advantage of such an approach is that it would maximise inter-regional trade and no negative residues would accrue. Generators internal to the region would compete on a constraint co-efficient basis. Physical control of inter-connector flow by NEMMCO ceases to be an issue provided the region boundary anomalies are removed by abolishing the Snowy Region.

Conclusion

The NEM region market design recognises the trade-off between dispatch efficiency and contract market liquidity. In our view the Snowy Region is inconsistent with the NEM market design and thus material problems have occurred. Resolving the Snowy region problems by abolishing the region would resolve a considerable portion of the congestion management problems in the NEM. Further refinements need to be tested against the materiality of the underlying issues.

A well designed approach to congestion management should be transparent, consistently applicable to all locations in the NEM, and provide efficient economic incentives for all Market Participants. If materiality of problems with current arrangements can be established, there are two broad ways forward: either a broad based CSP/CSC approach, or a revised constraint formulation approach.

In short, we advocate a consistently applied and predictable approach to constraint management that is in keeping with the NEM market design.

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

Yours sincerely,

Roger Whitby
Executive Officer, Trading

Appendix 1 – Allocation of CSC for uncontested transmission access

Diagram 1 shows a stylistic representation of the flows through three (3) zones.

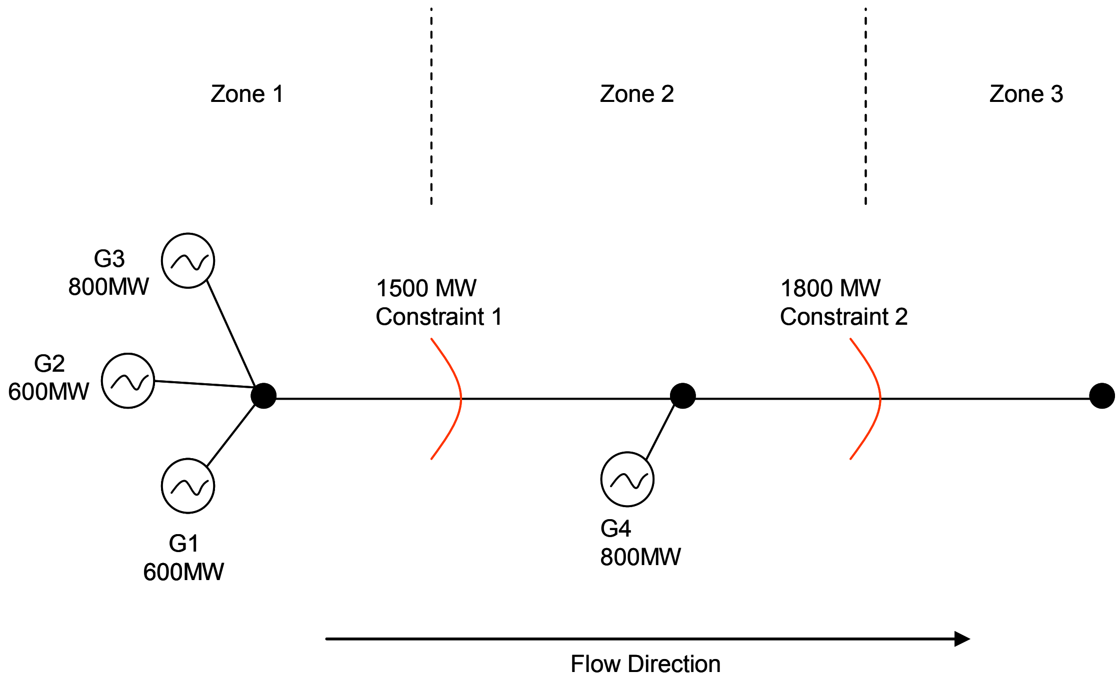

Diagram 1

From Diagram 1, it can be seen that Generation 4 (G4) is the only generator that can supply the additional 300MW from Zone 2 to Zone 3 (ie. 1800MW – 1500MW). Generator G4 faces the profit curve as shown in diagram 2 under the assumption that the flow from Zone 1 to Zone 2 is at the maximum 1500MW, and the marginal cost of generator G4 is lower than or equivalent to the marginal cost of generators in Zone 1.

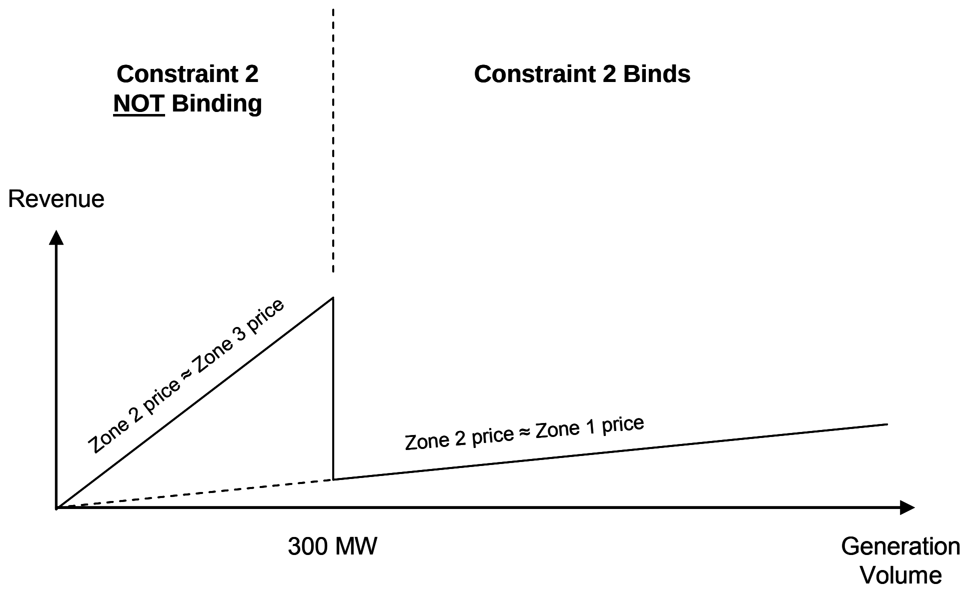

Diagram 2

When the constraint 1 is binding and at maximum capacity of 1500MW the profit curve shown in diagram 2 places strong commercial incentives on Generation G4 not to generate above 300MW and constrain the transmission between Zone 2 and Zone 3. In effect, up to 500MW (ie. 800MW – 300MW) of available G4 generation is effectively withdrawn from competition in Zone 1 and Zone 2. There would also be some physical transmission headroom inefficiencies as Generator G4 would have to allow a generation safety margin by generating less than 300MWs in order to maintain some transmission headroom on constraint 2 to ensure that the constraint does not bind and separate Zone 2 from Zone 3 prices. This reduces competition in Zone 3. These incentives are clearly inefficient as it removes available generation and reduces competition.

The uncontested transmission access for Generation G4 to Zone 3 is 300MW. This represents the transmission that only Generator G4 can supply to Zone 3. A 300MW CSC allocation to Zone 3 for Generation G4 would provide this generator with the profit curve as shown on diagram 3.

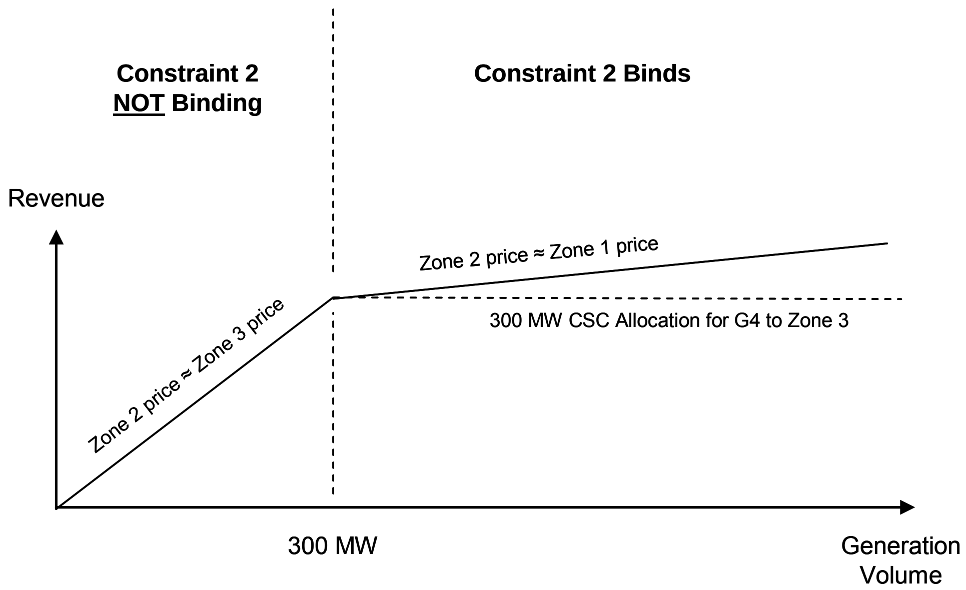

Diagram 3

Clearly, the profit curve in diagram 3 offers much better incentives for Generation G4 to be fully available and therefore provide increased competition in all Zones.