

NOTE: The Snowy Hydro submission referred to in this submission can be accessed [here](#).

If the link does not work, the submission is available on the AEMC website, on the Congestion Management Review page under “Extension of the Expiry for the Derogation in Part 8 of Chapter 8A of the Rules”.

Loy Yang Marketing Management Company Pty. Ltd.

AGL Hydro Pty. Ltd.

International Power (Hazelwood, Synergen, Pelican Point and Loy Yang B)

TRUenergy Pty. Ltd.

Flinders Power

Hydro Tasmania

8 March 2007

Mr John Tamblyn
Chairman
AEMC
Level 16, 1 Margaret St,
SYDNEY NSW 2000

By email: submissions@aemc.gov.au

Dear John

**Draft Rule Determination – Abolition of the Snowy Region
Response to Snowy Hydro Ltd. letter to AEMC dated 29th January 2007**

Please find attached a response from the above listed group of NEM generators, known as the “Southern Generators” to the statements made in the letter from Snowy Hydro to the AEMC chairman on 29th January 2007, in relation to the Snowy region CSP/CSC trial, and comments on these in relation to the proposal to abolish the Snowy region (as proposed by Snowy Hydro Ltd. (Snowy Hydro)).

Our linkage of these comments to the region abolition proposal corresponds to a linkage made explicitly by Snowy Hydro in its letter.

1. Discussion of the event

Snowy Hydro have stated in their narrative that;

“1. As demand in NSW started to pick up the price in NSW reached \$4583.21 in dispatch period 13:55. The corresponding Snowy and Victoria price for this

dispatch period was \$150 and \$468.08 respectively. The flow on the Vic to Snowy interconnector was 529MW in a northerly direction.”¹

We agree with Snowy that the relevant condition leading to the observed behaviour in the market was high demand (and thus high prices) in NSW, with relatively low demand in Victoria.

This led to a situation where southern generation was enhanced in value, relative to the case of low NSW price, due to its ability to compete for supply into the high value northern regions.

However in the event, flow from Victoria to Snowy (and hence into NSW) was limited by two constraints,

- one relating to transmission in Snowy, and
- one relating to a transformer at South Morang, near Melbourne.

Snowy Hydro has attributed the outcomes entirely to the effect of the Southern Generators Rule Change on the treatment of negative residues in relation to the network constraint within Snowy.

This attribution is not sound because the Southern Generators Rule Change relates to the Snowy network constraint only. In the situation where this constraint does not bind negative residues on the SA to Vic interconnector can also occur. They result from the relationship between the Vic to Snowy, the SA to Vic and the Tas to Vic interconnectors, the flows on which must sum to a constant value (given the same Victorian generation). The outcome would then be determined by this relationship. In this case the outcome would be that –

- The South Morang transformer constraint would still bind, limiting the flow from Victoria to Snowy, although perhaps to a higher value.
- The price in Victoria would still relate to a combination of the northern prices (Snowy and NSW) and the South Australian price and the Tasmanian price but the Snowy price would be higher,
- The South Morang transformer constraint would be even more likely to give a counter-price flow from Victoria to South Australia, because the increased flow from Vic to Snowy can result in more counter price flow from Vic to SA.

In summary, all of the market outcomes that Snowy have attributed to the Southern Generators Rule Change, are in fact due to a constraint lying near the centre of the Victorian region, and not the constraint to which that Rule change applies.

2. Victorian Price

The Snowy Hydro letter includes the following –

“2. Under the situation in point (1) negative residues would accrue on the Vic to Snowy interconnector. However, under the Southern Generator’s proposal the counter price flow is allowed. The relevant constraint equations under the Southern Generator’s proposal produces these high prices in Victoria even

¹ Snowy Hydro Ltd. letter dated 29th January 2007 page 2

though the low demand conditions in the Southern States would ordinarily result in a much lower Spot price.

The Victorian price was determined by the prices offered at Murray generation, the Tasmanian price and the prices in NSW and QLD. The Victorian/ South Australian generators had no ability to determine and influence the Victorian price. Clearly, this was inefficient as high Victorian prices did not enable more generation from the Southern Generators to be exported into the Snowy/NSW regions.²

Before dealing with the substance of these claims, we wish to clarify an aspect of the wording above that is open to misinterpretation. The expression “*relevant constraint equations under the Southern Generator’s proposal*” could lead a reader to an assumption that the relevant constraint equations are peculiar to the Southern Generators Rule Change. In fact, these constraint equations are necessary for system security and apply regardless of the Rule change, and furthermore would apply (in an altered form, but with the same physical and pricing effects) even if the Snowy region were abolished.

2.1 Basis for pricing in the NEM

The National Electricity Market is by design a single interconnected market, while recognising both transmission losses and transmission limits. The geographical extent of the network and economic issues with its design are behind the need to consider these losses and limits.

It follows from this design that price within a region is often set by conditions outside the region. Very commonly the price within one region is set by an offer in another region, adjusted for the effect of electrical losses.

On other occasions, the price in one region is set by prices in other regions combined algebraically with local offer or bid prices in a relationship defined by the terms of a constraint equation (as required for system security).

Thus, contrary to Snowy Hydro’s assertions, it is not “artificial”, and is fully consistent with the market rules, for the Victorian price to be set by a combination of factors including prices in other regions.

Snowy is, by this criticism of the NEM price setting obligation, and perhaps without understanding the consequences, advocating a set of local markets, in place of the national market.

As noted above the Victorian price at the relevant times was influenced by two network limits as follows –

- The constraint H>>H-NIL_A, which avoids overloads of transmission lines between Murray and Tumut. With northward flow from Victoria, this constraint (when binding) generally requires that the Victorian price be higher than the Murray price because energy from Victoria makes less intensive use of the critical lines than energy from Murray.
- The constraint V>>V_nil_3B_R, which avoids overload of the “F2” transformer at South Morang near Melbourne. This constraint, inter alia, limits flow on

² Snowy Hydro Ltd. letter dated 29th January 2007 page 2

Victoria to Snowy lines, South Australia to Victoria lines and Basslink. When it is binding it creates relationships between prices in Victoria, Murray, South Australia and Tasmania.

The use of these constraints is consistent with the obligation on NEMMCO to maintain secure operation of the system, and their pricing consequences are consistent with the requirements for pricing under the National Electricity Rules.

The prices in the market are therefore not, as Snowy asserted, “artificial”. On the contrary the prices were determined in accordance with the rules, reflecting the underlying physical realities of the market. It is also not true that the prices were unaffected by Victorian offers. An offer need not set price to have an influence in the outcome.

3. Effect of Southern Generators Rule Change

Snowy Hydro has asserted that *“significant market problems and inefficiencies occurred on this date as a direct result of the Southern Generator’s proposal.”*³

In the absence of the Southern Generators Rule Change, NEMMCO would have been entitled to re-formulate a constraint to limit or prevent the counter-price flow between Victoria and Murray. In the circumstances a counter-price flow was inherent in efficient dispatch, ie dispatch to maximise the value of trade as required under the Rules.

The form of constraint that NEMMCO would introduce is artificial, in the sense that it does not relate to any limitation in the physical network.

If NEMMCO introduced such an artificial constraint, as expected in the absence of this Rule Change, the consequences would include -

- The power flow from Victoria, South Australia and Tasmania towards NSW would be limited to about zero (value chosen by NEMMCO)
- Prices in these regions would thus be artificially depressed, through generation there being denied the opportunity to supply to the northern regions at a time of scarcity.
- The net input from Snowy into NSW would be reduced, thus artificially raising prices in the northern regions.
- Generation at Murray would be free to increase, following the suppression of competition from southern generators.
- The price at Murray would rise to approximate the (raised) NSW price, thus significantly increasing Snowy revenue through both increased price and increased volume.

It is clear that Snowy Hydro’s opposition to the Southern Generators Rule Change has a large measure of self interest, since the situation without this change would allow it a large windfall gain while worsening the overall dispatch outcome relative to the dispatch objective of maximising the value of trade.

³ Snowy Hydro Ltd. letter dated 29th January 2007 page 2

4. Effect of abolition of the Snowy Region

Snowy is proposing the abolition of the Snowy region, and hence it is relevant to consider the effect of this change in relation to its criticism of the outcomes on 12 January.

The price outcomes that Snowy Hydro has attacked arose predominantly from the effects of constraints to maintain system security. These constraints relate to physical flow through the network, and are not influenced by region boundaries.

In the case of a region boundary change, many constraint equations will need to be changed, but this is to retain the same physical effect while measuring different input variables. For example, any constraint that now includes Vic to Snowy flow would be modified to include –

(Vic to NSW less Murray dispatch)

Thus the same flow is included but measured on the basis of different variables.

With the change in regions, offers for Murray would be processed in a different way because of the different treatment of loss factors, but it would be possible for Snowy to achieve the same offer prices that it used on 12 January, and this will be assumed to make the following discussion clearer.

With the same set of offers and the same constraints on physical power flows, the dispatch process under different region boundaries would result in the same prices. This would include the price at Murray, although this price would be implicit since prices at locations other than Regional Reference Nodes are implicit in dispatch but not calculated or published.

If the conditions of the relevant period of 12 January applied, but with Murray included in a redefined Victorian region then –

- The true price at Murray would again be \$150/MWh, although this would be hidden, not published.
- The Victorian prices would be the same as the prices that were so comprehensively attacked by Snowy Hydro.
- Murray generation, now being in the Victorian region, would now receive the same higher price that Snowy Hydro purports to regard as unreasonably high.

It appears highly hypocritical for Snowy Hydro to attack the Victorian price that arises from application of the market rules, and then seek by a region boundary change to be rewarded at this price, which is much higher than the true value of its production at Murray.

In the circumstances of 12 January, the abolition of the Snowy region would result in increased payment for Murray generation with no related saving elsewhere, and hence increased cost to be ultimately paid by customers.

This assumes an unchanged offer for Murray generation. However, Snowy could further enhance its position by taking advantage of being protected (by the changed region boundary) from the effect of its actions on the true value of its production.

Hence it could achieve an even larger windfall gain relative to the situation with the current regional boundary.

5. Effect on Victoria to Snowy interconnector flow

Snowy Hydro has stated that –

- “3. *As the Victorian price remained artificially high, the Tasmanian and South Australian generators tried to increase their export into Victoria by lowering their offer prices. The Tasmania generators were more successful in this bidding war and as a result the Victoria to Snowy interconnector actually decreased from the period 14:30 to 15:15. This was due to relative loss factor of the Tasmanian generators being worst than the South Australian generators thereby decreasing the export limit on Vic-Snowy with increasing Tasmania generation.*
- a. *This outcome is in direct contradiction to the Southern Generator’s stated benefits that its proposal would increase the interconnector flow to from Vic to Snowy.”⁴*

As Snowy Hydro notes this outcome occurred under highly competitive bidding conditions with prices determined in accordance with the market rules where, as noted in Section 2 above, it is possible for Victorian price to be set by a combination of factors including prices in other regions. These prices were not “artificial”.

The outcome described is a small reduction⁵ in flow from Victoria to Snowy, which occurred while the flow remained strongly positive (ie northward).

In relation to the Southern Generators Rule Change, the proper basis for comparison is with the situation with NEMMCO clamping the flow to near zero, as discussed above.

Based on this proper comparison, the Rule Change did indeed increase the interconnector flow significantly, as the Southern Generators forecast that it would.

By using an improper comparison, Snowy Hydro has misrepresented the effect of the Rule Change.

This is presumably to draw attention away from the substantial benefit that would accrue to Snowy Hydro if the Rule Change was allowed to terminate.

6. Counter-price flow on the Victorian to South Australia interconnector

- “4. *With the bidding war between the Victorian, South Australian, and Tasmanian generators taking place to access the artificially high Victorian price counter price flow occurred from Victoria to South Australia. For instance refer to the 14:25 dispatch period.”⁶*

⁴ Snowy Hydro Ltd. letter dated 29th January 2007 page 2

⁵ Snowy Hydro Ltd. letter dated 29th January 2007 page 7- Interconnector Flows graph

⁶ Snowy Hydro Ltd. letter dated 29th January 2007 page 2

As noted in Section 1 above the counter price flows and market outcomes that Snowy have attributed to the Southern Generators Rule Change, are in fact due to a constraint lying near the centre of the Victorian region, and not the constraint to which that Rule change applies.

“5. From the demand profile of the Victorian demand, it would appear that there was some voluntary load shedding from dispatch periods 14:25 to 14:45. Perversely, this reduction in Victorian load did not result in a reduction in Victoria prices since the prices were artificially determined by the NSW/QLD/Tasmania and Murray generation prices.”⁷

As noted in Section 2 these prices were not artificially determined and if this load shedding did occur the impact on price would have been correctly determined by the market Rules.

The Snowy letter includes the statement that—

“In summary, from the observations on the 12 January 2007, it is demonstrated that the Southern Generator’s proposal is inefficient as it:

- *The Southern Generator’s proposal stimulates conditions that promulgate counter price flows on the Victoria to South Australia interconnector.”⁸*

We note that the result that Snowy Hydro has criticised was one of efficient dispatch of the offers and bids as outlined above, and that the action that it advocates, namely clamping of counter-price flows through termination of the Southern Generators Rule change, must reduce the efficiency of dispatch.

The power that NEMMCO would use to prevent efficient counter-price power flows appears to exist in Chapter 8A, Part 8(c) which in turn appears to be based largely on the lack of any means under the settlement process in the market for NEMMCO to fund settlement deficits on interconnectors, even where these result from efficient dispatch.

7. Summary

The statements made by Snowy Hydro in relation to the Southern Generators Rule change have been examined and found to be incorrect or misleading.

The analysis we have undertaken has demonstrated that all of the market outcomes that Snowy have attributed to the Southern Generators Rule Change, are in fact due to a constraint lying near the centre of the Victorian region, and not the constraint to which that Rule change applies.

The conclusion made by Snowy Hydro that, *“the Southern Generator’s proposal is inefficient and created significant market problems.”⁹*, is therefore incorrect.

We suggest that the need felt by Snowy Hydro to support its proposals with misleading statements is a reflection of the undesirability of those proposals.

⁷ Snowy Hydro Ltd. letter dated 29th January 2007 page 2

⁸ Snowy Hydro Ltd. letter dated 29th January 2007 page 3

⁹ Snowy Hydro Ltd. letter dated 29th January 2007 page 4

In particular, we note that either the termination of the Southern Generators Rule change or the abolition of the Snowy region would, in the circumstances of 12 January, lead to substantial financial gains to Snowy Hydro, at the expense of customers.

The Southern generators appreciate the opportunity to comment on the Snowy submission. Please do not hesitate to contact Roger Oakley (03) 9612 2211 should you wish to discuss this submission further.

Yours faithfully,

.....
Ken Thompson
General Manager
Loy Yang Marketing Management
Company Pty. Ltd.

.....
Alex Cruickshank
Manager NEM Development
AGL Hydro Pty. Ltd.

.....
Ben Skinner
Regulatory Manager
Wholesale Markets,
Truenergy Pty. Ltd.

.....
Stephen Orr
Commercial Director
International Power

.....
David Bowker
Manager Regulatory Affairs
Hydro Tasmania

.....
Reza Evans
Manager Regulation & Market
Development
Flinders Power