

25<sup>th</sup> May 2005

Mr Sebastian Roberts  
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Regulatory Affairs - Electricity  
Australian Competition and Consumer Commission  
PO Box 1199  
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Letter sent electronically to: [electricity.group@acc.gov.au](mailto:electricity.group@acc.gov.au)

Dear Sebastian

## **Rebuttal of Macquarie Generation Market Benefit Analysis**

### **Introduction**

Snowy Hydro Limited ("Snowy Hydro") appreciates the opportunity to rebut Macquarie Generation's (Mac Gen) arguments in their submission to the ACCC dated 20 May 2005. Snowy Hydro is able to demonstrate the following:

- "in the absence of any empirical analysis from the applicant" is factually incorrect. Snowy Hydro has previously submitted detailed quantification of the benefits (in its submission to NECA on 20 January 2005).
- "without (ACCC) providing sufficient time for other Participants to undertake comprehensive analysis" is factually incorrect. Mac Gen has had more than four months to undertake this analysis, and comment on the Snowy Hydro publicly available analysis if necessary.
- "Macquarie Generation has undertaken an analysis". This analysis is irrelevant as it only serves to further add to the benefits of the proposal demonstrated by Snowy Hydro.

### **1. Snowy Hydro demonstration of benefits**

Mac Gen asserts in submission to the ACCC on "Dispatching the market: CSP/CSC Trial at Tumut Nodes" that "**Snowy Hydro did not offer any empirical evidence or even an estimate as to the magnitude of any benefits from its proposal nor has NECA. This is factually incorrect.**" Snowy Hydro clearly demonstrated and estimated the **probable** market benefits of the proposal. For example, in its submission to NECA dated 20<sup>th</sup> January 2005, the benefit (principally to NSW customers) is demonstrated using historical market data.

Mac Gen analysis asserts the "public benefit is fundamentally based on the view that ensuring Tumut receives more location specific prices at times of constraint between Murray and Tumut will lead to more efficient dispatch outcomes". In Mac Gen's methodology of estimating dispatch efficiency they have applied short run marginal opportunity cost analysis to Tumut generation but have curiously assumed that the NSW price represents the short run marginal cost of NSW generators. In the absence of perfect competition it clearly does not.

In Snowy Hydro's analysis we applied broader benefits including competition, direct cost to final customers and reliability benefits as per the stated requirements of Mac Gen submission 2.4, 2.10 to 2.13. It is curious that Mac Gen reverted to very narrow analysis of dispatch efficiency only, in their quantification of benefits.

Snowy Hydro has submitted that the CSP/CSC proposal will result in significant net benefit through increased dispatch efficiency. However, despite the significance of the dispatch efficiency benefit, it is not the major benefit. In actual fact Snowy Hydro has demonstrated (estimated) the very material broader public (final consumer) benefits of the proposal through increased market competition in NSW, reduction of market intervention uncertainty (risk premiums) and improved reliability of supply, in addition to the increased dispatch efficiency. Importantly the cost to implement the CSP/CSC proposal is immaterial; and the arrangements can be reversed at any stage.

## **2. Northerly Flow Benefits**

### **2.1 Corrected market benefit using Mac Gen's methodology**

Snowy Hydro notes that the northerly dispatch benefit estimation is not material as, despite its significance, it only incrementally adds to the broader benefits determination.

Macquarie Generation's analysis for northerly flows relied on the following question:

3.4 (a) "Whether and to what extent Tumut would have been dispatched at a higher output had it received the NSW RRN price instead of the Snowy RRN price";

Macquarie Generation however in 3.5 (b) has incorrectly estimated the potential benefit.

Mac Gen have calculated additional possible generation above their estimated Tumut opportunity marginal cost estimate of \$33 based on the Murray to Tumut constraint value rather than the potential Tumut to NSW flow. That is, in assuming the opportunity cost bid (and dispatch) of Tumut generation; they have forgotten to estimate the additional flows that would have occurred between Tumut & NSW (ie the Snowy to NSW inter-connector was not at its limit).

For example, on 8<sup>th</sup> February 05, 16:05, the Snowy price was \$0.02, and NSW price was above \$7000. At that time Tumut was dispatched 1653MW above its bid price. However if Tumut was dispatched in accordance with the assumed opportunity cost bid as per the Mac Gen analysis methodology an additional 31 MW would have been dispatched of Tumut generation. According, using the Mac Gen methodology the benefit would have been \$19,600 [(\$7619 - \$33) \* 31MW / 12] for that 5 minute period only. Applying the same methodology across the whole day gave a historical market benefit of more than \$130,000. Using the Mac Gen methodology, this proves there are material efficiency benefits.

### **2.2 Northerly flows benefit using appropriate methodology**

Notwithstanding the corrected analysis in 2.1, Snowy Hydro believes that an appropriate analysis framework should be based on future expected behaviour based on market incentives.

For example, at half hour ending 16:30 on the 8<sup>th</sup> of February 05 the following occurred:

- Snowy price \$0.02; NSW price \$7910;
- Tumut generation price offers between \$26.55 and \$7533.44. Therefore given the Snowy price the Tumut generation should **not** have been dispatched.
- Upper Tumut and Tumut3 were dispatched according to NSW price rather than SNOWY price for 1653.85 MW's (665, 988.85 respectively).
- Constraints (N>N-NIL\_1U & N>N-NIL\_28) caused units at Delta and Macquarie

- Generation to be dispatched below the quantities bid in (constrained off).
- Eraring therefore was the only generator in NSW able to supply more power up to 447.1 MW's.
- The NSW1-QLD1 interconnector was 218 MW's away from the limit.

Therefore if Upper Tumut and Tumut3 did not generate there would have been a shortfall of generation of  $(1653.85 - 447.1 - 218 = \mathbf{988.75MW})$  in NSW.

This shortfall of 988.75MW priced at VOLL prices in NSW would have resulted in a public loss (dis-benefit) of **\$4.94 million for the half hour**. This is the reliability benefit associated with Snowy Hydro not cutting the availability of Tumut generation. Please note that reliability benefits are not substitutable with any other market instruments/products. By definition reliability is for the market and not meeting the reliability is an indication of market failure.

If Snowy Hydro were to act in according to pure economic incentives that it faced on this occasion, it would have fully withdrawn its full Tumut generation capacity (approx 2115MW). In that case the price in NSW would be \$10,000, which would have resulted in a direct customer cost of **\$12.9M in that half hour**. This is the customer dis-benefit associated with the non availability of Tumut generation. The major beneficiary of such a price outcome would have been NSW generators (including Mac Gen).

It should be noted that Snowy Hydro in its submission to the regulatory bodies (including NECA and ACCC) has clearly demonstrated that the NSW customers suffer the major dis-benefit of the current arrangements. Snowy Hydro has demonstrated that the NSW customers could stand to lose up to \$10s Million per hour if Snowy Hydro acted in accordance with its pure economic incentives (and thereby could have saved Snowy Hydro orders of magnitude less in short run marginal opportunity cost). It is unreasonable to assume that while the consideration of the derogation proposal is before the market regulatory bodies for approval, Snowy Hydro would act to save tens of thousands of dollars in opportunity cost (as per Mac Gen's assumption's on opportunity cost) and in doing so create \$10s Millions dollars of direct costs to final customers (just to 'prove' a market inefficiency). However if the consultation process does not recognise this benefit (under the CSP/CSC derogation proposal), it is only reasonable to expect that Snowy Hydro would act to minimise its opportunity cost as the broader final customer cost must be by definition non-existent.

Based on historical data and rational Snowy Hydro behaviour as presented by the current market arrangements, it is reasonable to expect that the probable outcome would be that Snowy Hydro would not generate below its marginal cost going forward, and final customers will incur the market dis-benefits (as per clause 2.13 of the Mac Gen submission).

Snowy Hydro further notes that if the current perverse arrangements are not corrected by the derogation proposal, a reasonable expectation is the probable reliability of supply to NSW may be compromised. The current arrangements provide strong incentives for Snowy Hydro to remove Tumut generation from competition in NSW (as it is not paid at least its opportunity cost price as estimated by Mac Gen). As illustrated this arrangement directly and artificially benefits NSW generators (including Mac Gen) at the expense of NSW final customers (as per clause 2.13 of the Mac Gen submission), which in Snowy Hydro's opinion fully explains the opposition to the proposal from NSW generators.

### **3. Southerly Flow benefits using corrected Mac Gen Methodology**

#### **3.1 Corrected market benefit using corrected Mac Gen methodology**

Macquarie Generation's analysis for southerly flows determined:

"For southerly flows does the fact that Tumut receives the Snowy RRP price instead of the



(locationally more appropriate) NSW RRN price cause Tumut to *inefficiently displace NSW generation*"

As noted in section 1 above, dispatch efficiency benefits can only be assessed by analysis of short run margin cost displacement of Tumut verses NSW thermal generators. Please note that the Mac Gen analysis does not perform this, as their assumption that the NSW price is a reflection of the NSW short run marginal cost under the circumstance is invalid. NSW generators do not have sufficient competition in this circumstance to reveal their true short run marginal cost. However this analysis is irrelevant as the demonstrable competition benefits in NSW for southerly flows are orders of magnitude greater than any dispatch efficiency benefit.

### 3.2 Southerly flows benefit using appropriate methodology

Snowy Hydro previously demonstrated in their public submissions to NECA (dated 20/1/05) and its other submission that there is demonstrable benefits resulting from the derogation proposal for southerly flows considering both historical actual market data, and future expected scenarios.

Snowy Hydro in its analysis compared the market outcomes using the current dispatch procedure, on 11<sup>th</sup> January 2005 and compared these with market outcomes if the derogation was in place. Under the current dispatch procedures, Tumut's generation is truncated when there's a binding constraint between Tumut and Murray to prevent accumulation of negative settlement residues. This leads directly to a significant reduction in supply side competition in NSW and resulting direct cost to final customers.

Using an actual example from Tuesday 11<sup>th</sup> January 2005, the following historical analysis can demonstrate the benefits.

Electrical flows were southerly through the Snowy region. This resulted in binding Option 4 constraints from Tumut to Murray. This generated counter price flows from Snowy to NSW for dispatch periods 14:00 onwards.

It was observed at one dispatch period (14:25) with continuing counter-price flows, NEMMCO truncated the Snowy-NSW flow to 0 MW resulting in the following outcome:



The effect of truncating the Snowy-NSW flow to zero MWs was to remove 2500 MWs of potential Snowy and other generation to the south from competing in NSW (which was available to generate but removed from NSW competition). This situation dramatically reduces the effective generation competition in the NSW Region and hence producing artificially high prices in the absence of supply competition.

If derogation were in place all 2500MW would be able to compete in NSW and NSW price would not be able to increase above the level of \$60. The loss of public benefit on NSW customers can be estimated as:

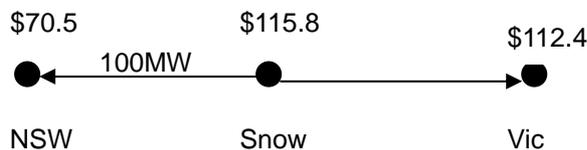
$$\begin{aligned} \text{Loss of benefit} &= 9500\text{MW} * (\$1000 - \$60)/12 \\ &= \mathbf{\$740,000 \text{ for the single 5 minute period}} \end{aligned}$$

Please note that in this actual market event, there was low demand in NSW in the order of 9500MW.

While Victoria did not have an extreme demand day during this summer (nor in the previous two summers), it is reasonable to expect that Victoria will have extreme hot days in the future (coinciding with relatively mild days in NSW). On these days the potential loss for the customers in NSW is in the orders of millions per hour.

Please also note that the major beneficiaries of the current arrangement are NSW generators (including Mac Gen). The costs to NSW final customers are directly translated to benefits to the NSW generators through reduced competition. Please also note that this was clearly acknowledged in NECA's report.

On the same day in dispatch period 14:40 demonstrates how the CSP/CSC proposal firms up the settlement residues (and reduces the incentive [that Mac Gen tried but failed to quantify] for Tumut to bid below its short run margin opportunity cost). In simplified line diagram form the situation for dispatch period 14:40 was:



Given that approximately 800MW is capable of being exported from NSW and given the relatively low demand in NSW relative to generator offers / supply and coupled with the 100MWs of actual counter priced flows, the effective lost in settlement residues auction (SRA) value can be calculated as follows:

$$\begin{aligned}\text{Approximate lost of SRA value} &= (800+100)\text{MW} * (\$115.8 - \$70.5) \\ &= \$40,700 \text{ per hour.}\end{aligned}$$

This actual lost of SRA value in this case was relatively mild. It is conceivable under high southerly flow scenarios through the Snowy region due to high demand in the combined Vic/SA regions that the magnitude of the price differences could exceed \$9000/MWh. Under these scenarios the magnitude of lost in SRA value could result in a lost of \$8.1 million per hour (assuming counter price flows from Snowy to NSW of 100MW). The Snowy CSP/CSC derogation corrects this problem and will firm up these settlement residues.

Hover, the primary benefit of the derogation proposal is it places the 'contestable' part of Tumut generation capacity on an equal footing to compete with NSW generators (without perverse price incentives).

#### **4. Other Secondary Issues**

The following issues are irrelevant to the ACCC's consideration of the expected net public benefits as noted by Mac Gen, however they are noted to clarify the public record.

##### **4.1 Wealth Transfers**

Mac Gen asserts an 'estimated wealth transfer of some \$41 million' future holders of Snowy to NSW SRA unit holders to Snowy Hydro. Snowy Hydro has previously submitted (and ACCC agreed in its draft determination) that the principal wealth transfer occurred as a result of NEMMCO/NECA not

implementing the regional boundary review process on a number of occasions as required under the code. This wealth transfer was in fact from Snowy Hydro (Tumut generation settlement) to other Participants who purchase the SRAs. Please note that Mac Gen is presumed to be one of these Participants, hence a further possible reason for resistance to the derogation.

With respect to the estimate of \$41M by Mac Gen, their estimate is clearly flawed due to their assumptions. The example above of actual market data on 8th February 05 half hour ending 16:30 demonstrates that approximately \$6 Million dollars was accumulated in the Snowy to NSW SRA. However if Snowy Hydro acts purely economically as explained the accumulation value will be zero.

It is noted that Mac Gen itself agrees that wealth transfers should not form part on the consideration of the net market benefits test.

#### **4.2 Factual Error Correction**

In Section 4.2 of Mac Gen submission, Mac Gen asserts “ In fact, under the proposal, Snowy Hydro could receive a price high than the NSW RRN price for Tumut generation if its bid price exceeded the NSW RRN”. This is factually incorrect. It is impossible in this scenario (northerly flows, considering losses) for Tumut to receive a price higher than the NSW RRN. **Tumut generation by definition will simply not be dispatched if its bid price is higher than the NSW RRN.**

#### **4.3 Market Power**

Any consideration of market power impacts of the proposed derogation needs to properly consider the impacts on both Tumut generation and NSW generators. It is noted that Tumut generation capacity that can directly compete with NSW generators is 1700 MWs (difference between Murray to Tumut and Tumut to NSW constraints). This effective capacity is less than half the size of each of the three major NSW generators.

### **5. Summary and Conclusion**

Snowy Hydro has (for example in its submission to NECA dated 20 January 2005) demonstrated and estimated the likely (probable) net benefits of the proposal using both historical market analysis and using forward analysis. Mac Gen’s assertion that no evidence of the benefits has been provided is **clearly false**. Mac Gen has had over four months to dispute Snowy Hydro’s analysis but have chosen not to dispute in any of the three consultations.

The benefits are very significant, probable, and include broader benefits than simply dispatch efficiency (which in itself is improved by the proposal). It is noted that Mac Gen in its submission (2.10 to 2.13) rightly points out that a broader consideration of the benefits is required.

Mac Gen’s own dispatch efficiency analysis does not contribute in any way to the broader benefits analysis assessment. Additionally the Mac Gen historical market analysis of dispatch efficiency only further adds to the significant probable benefit of the proposal identified by Snowy Hydro.

Snowy Hydro’s boarder market analysis clearly demonstrates the beneficiaries of the current arrangements are the NSW generators (including Mac Gen), with an effective value transfer from NSW final customers to NSW generators. The proposed derogation will therefore provide significant net benefits.

Snowy Hydro rejects the Mac Gen assertion that it has “had insufficient time for other participants to undertake comprehensive analysis”. Mac Gen was formally aware of the proposal on 14th December



04 when NECA commenced its consultation on the proposed derogation allowing very ample time to analyse the proposal. In addition, Snowy Hydro's estimates of market benefits have been fully available to Mac Gen & others to analyse and if necessary criticise from the NECA consultation since the 14<sup>th</sup> February 05 when the submissions were made public.

Snowy Hydro is concerned that Mac Gen motives in challenging the ACCC's process is simply an attempt at prolonging the maintenance of the current perverse value transfer from NSW customers to NSW generators.

In view of:

- the robust nature of the process that has been followed to date,
- the inability of Mac Gen to substantiate any real or factual concern despite the considerable elapsed time,
- apparent failure of Mac Gen to dispute the Snowy Hydro articulated benefit over the last four months, and
- the apparent commercial self-interest of Mac Gen,

Snowy Hydro recommends that no further opportunity be given to Mac Gen to disrupt and delay the legitimate consideration process.

If you would like to further discuss this letter, please call me on (02) 9278 1885.

Yours sincerely,

Roger Whitby  
Executive Officer, Trading

