

14 August 2007

Writers direct contact

lcrockett@pacifichydro.com.au

03 9615 6490

Dr John Tamblyn
Chairman
Australian Energy Market Commission
PO Box H166
Australia Square NSW 1215

By email: submissions@aemc.gov.au

Dear John,

Re: Response to NEMMCO's supplementary submission

I am writing to you in relation to NEMMCO's supplementary submission to the AEMC dated 1 August 2007. Specifically, I would like to address incorrect and inaccurate statements made by NEMMCO in its supplementary submission, and in particular those which relate to the Challicum Hills Wind Farm and its relationship to the $V > SML_NIL_7$ constraint equation.

NEMMCO has used the example of Challicum Hills to illustrate a perceived need to include a distribution connected wind farm into central dispatch and thus have the ability to control its output.

Pacific Hydro considers the information provided to the AEMC to be both inaccurate and misleading. The following paragraphs detail the actual operation of the Challicum Hills wind farm on the network system in western Victoria, and have been confirmed by VENCORP and Powercor.

The 66kV line that runs in parallel with the Ballarat – Horsham 220kV line has always been at risk of overloading if the 220 kV line is tripped, which was the case prior to the connection of the Challicum Hills wind farm. As a result of this risk of overload, VENCORP required that the Murraylink interconnector be run back to zero in a very fast manner (<300ms). The speed of the run back scheme is such that Murraylink flow is assumed to be zero when assessing the Victorian thermal limits following a trip of the Ballarat - Horsham 220kV line. This applies for Vic to SA export conditions.

VENCORP has confirmed that the worst case conditions under which the Ballarat North - Buangor 66kV limit may apply where there is peak summer loading in the outer state grid, reduced import from Snowy or Vic export to Snowy, and the Challicum Hills wind farm output is at zero. It is important to note that any output from the Challicum Hills Wind Farm actively improves the loading limit on the line as it reduces the Horsham terminal station load and hence the loading on the Ballarat North – Buangor 66kV line, simultaneously increasing the allowable flow over Murraylink. Thus the post contingent distribution network loadings are actively reduced by the embedded generation of the wind farm.



When Pacific Hydro negotiated the connection of the wind farm with Powercor the existing overloading of the line was taken into account. As a result of this, Pacific Hydro provided in the design a ring bus arrangement in the Buangor substation along with a split bus with dual Static VAR Compensators in the wind farm itself. Buangor became the point at which the 66kV line is opened to avoid the overloading situation. When the circuit breaker at the substation is opened the wind farm splits in half, half the power goes to Ararat, half goes towards Ballarat North, both sides with appropriate voltage control devices. The generation therefore reduces the power flow out of Ballarat North. Powercor Operations has full control of the circuit breaker. The line rating that Powercor provides to VENCORP is a continuous rating which gives the Powercor operator ample time in which it can operate the circuit breaker to avoid extended periods of high loading on the line.

NEMMCO further asserts that the inability to control, that is limit or reduce, the wind farm's output is contributing to the inefficient operation of the NEM. Pacific Hydro believes that this assertion is misplaced, not only because the reverse is the case as control in this example would increase inefficiencies, but also because it illustrates a level of conservatism that fails to recognise the benefit that embedded generation provides where it is negative load.

This raises a broader question regarding NEMMCO's philosophical approach to control of embedded generation, where there appears to be intent to control embedded generation by reducing its output, regardless of the specific benefits that the generation may provide. This can have the impact of increasing the operating costs of wind farms with little or no economic improvement in the transmission flows. Pacific Hydro maintains that the efficiency has already been gained through the location of the wind farm as it is inherently taken into account through the offset that it provides to the Horsham terminal station loading. This load measurement is already part of the right hand side of the constraint equation, the increase in the limit occurs when the terminal station load goes down. There is no requirement or efficiency gained by including the wind farm in the dispatch system. Only wind farms that need to be controlled downward in their output as a result of contributing negatively to a network constraint should be required to be included in the left hand side of a constraint equation.

Pacific Hydro is very concerned with the manner in which NEMMCO has singled out Chalicum Hills wind farm as an example of what should be subject to its control. Not only is the use of Chalicum Hills as an example in error, but it signals NEMMCO's intent to control embedded generation without taking into account the potential benefits and efficiencies that it can provide.

Yours sincerely,

(Signature withheld for publication)

Lane Crockett
General Manager Development, Australia/Pacific