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April 3, 2007

Ms Laura Letourneau
AESO
Calgary AB

DRAFT FOR DISCUSSION:

Dear Ms Letourneau,

Comments on 'Market and Operational Framework for Wind Integration in Alberta'

The subject comments are attached.

In that RHO is a 'new kid on the block' perhaps some introduction is appropriate: As a Professional Geologist my career was devoted to working in domestic and international frontier regions. I was the first geologist to undertake employment with respect to the Arctic Islands. After I had done a couple of seasons of field work, my company drilled the second Canadian Arctic well in 1963. Internationally I provided geologic interpretation to the first geophysical data on the Northwest Shelf of Australia and managed a joint venture program in the eastern jungles of Ecuador. When one is the 'first boots on the ground' one finds oneself actively involved beyond professional discipline in the conceptualization, design, and implementation of operational systems. Such it was with offshore drilling support in Australia and STOL aviation support of seismic and drilling operations in Ecuador. Back in Canada, as 2IC of Petro Canada's 'Frontier Systems Development Group' I was involved in several frontier programs. I was a director of Memorial University's Centre for Cold Ocean Research and Engineering (C-CORE) which had several emerging innovative programs. Elsewhere, I managed a contractor effort to model a coastal marine phenomenon. The statistical model was quite successful; the physical process model failed miserably. Therefore, I must admit a jaundiced initial view on the current forecast modeling undertaking.

All of that said it seemed logical, constructive and appropriate, in retirement to undertake wind farm site evaluation and development. After a spectacularly successful prospecting phase, RHO is at the transition to development. Resolution of the temporary 900MW cap is of the utmost importance to RHO.

The attached comments are constructively motivated. I would be pleased to further amplify, as may be appropriate, either by email or I can be reached at (403) 271-3743.

Yours truly,

R.W. Craig
President
RHO*V**CUBED ENERGY LTD.

Comments on 'Market and Operational Framework for Wind Integration in Alberta' and the Stakeholder Consultation Workshop of March 26, 2007:

1a) The entire Framework document is based on the assumption that the current forecast program will produce constructively useful results. Such is by no means assured. My personal work experience indicates that a primarily statistical model with physical process model support will be the most successful.

1b) I was interested in the dialogue between the meeting chairman, Kent McDuffie, 'Pauline' and 'Claude' of the Forecasting Working Group. 'Pauline' was pushing for "metrification" of AESO's forecasting requirements/expectations. 'Claude' reported that one or more of the forecasting contractors has already sought such definition as a guide to their efforts under the contract. The Working Group feels it does not have the authority to adequately respond to the contractor.

I can only encourage AESO to clearly state its accuracy requirements/expectations to the contractors. Such will focus contractors' efforts under the contract and enhance results. Secondly, it will provide transparency to all in evaluation of the Forecasting Working Group progress and final reports.

1c) The meeting, in unanimous consensus, declined my suggestion to defer the deadline for these comments by one month to allow all to benefit from the April 25-26 CanWEA/AWEA Calgary Conference on 'Wind Forecasting and Integration'. So be it. Nonetheless, I look forward to an exceptional opportunity to learn of the current state-of-the-art and experience in other jurisdictions.

2a) No one doubts the AESO requirement of enhanced regulating reserve and load/supply following services. However, one might seriously question the position that all of these accrue to wind generation.

2b) In the discussion of 'Wind Generator Power Management' the statement was made that generator dispatch down or off applies to all generators in the system. In the interests of clarity, it would be useful for AESO to table a list of all such dispatches, and the setting of these, within the past five years.

3a) Power Management is the nub of the wind integration problem. In the second paragraph of 3.1.6 of the Framework, AESO specifically acknowledges that 'investors will allocate capital to specific wind generation facilities'. Globally, there is a cadre of investors who have become familiar and comfortable with wind variability. Care must be taken that the addition of 'power management' does not kill the goose that laid the golden egg by effectively precluding investment in Alberta wind facilities.

(2)

4a) At the meeting I attempted to raise the question of the relevance of FERC Order 661 to the Alberta requirement. It was my sense that no one at the meeting wanted to acknowledge what FERC 661 is, or how it might relate to Alberta. For the record, FERC 661 is the final order, after years of study, on wind integration in the USA. It has been adopted by Nova Scotia and, with slight modification, by New Brunswick. It is at various stages of study by all other jurisdictions in Canada. Why is it not mentioned in Alberta? Briefly stated FERC 661 calls for wind generator overproduction to be paid for at 90% of pool price and the makeup of undersupply to be purchased by generator at 110% of pool price. The upcoming CanWEA/AWEA Conference provides to opportunity to gain a detailed understanding of how this implements in the context of 'forecasting and integration' in all other N.A. jurisdictions.

5a) The Framework makes no provision for the wind generator to self regulate by application of hydrogen, mini-hydro, biomass, or other means. The potential is there to achieve a 24/7/365 constant power supply. It seems to me that the application of these emerging innovative technologies is best left to the entrepreneur rather than placed in the hands of a large monopoly.

Respectfully submitted

R.W. Craig
President
RHO*V**CUBED ENERGY LTD.

