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Date: April 6, 2007

Attention: Wind Integration Workshop Participants

Subject: Market and Operational Framework for Wind Integration in Alberta

To whom it may concern,

Having experience in operating renewable energy assets in various locations in North America and Europe, Naturener is familiar with the benefits and the challenges wind energy can bring. We appreciate the effort by AESO and various other contributors to assemble the Operational Framework paper in March. The report shows balance in the approach to mitigating impact of wind integration to grid stability and clearing a path for further development of this valuable renewable generation resource.

In the AESO paper, there are several means described for mitigating the impact of wind generation on the operating stability of the grid. The first mitigation tool described is the implementation of a wind power forecasting system. We agree and fully support this fundamental requirement. Naturener has implemented and continues the work to improve their internal power forecasting system for hydro and wind generating assets. We fully support the requirement for generators to implement such a system that will achieve a standard of timely and accurate forecast, set by AESO.

It was not clear, however, in the March 7 paper about how AESO intended to implement such a system in Alberta. It is our opinion that a single system for forecasting all energy projects can ease the implementation and integration of the collective forecasts. On the other hand, no energy forecasting system is perfect. And, no one forecasting system is best for all locations or circumstances. Each will tend to perform better in different circumstances. A single system for system-wide forecasting will likely have the same amount of error for all forecasts created. Statistically, AESO will collect a much more accurate forecast by requiring wind generators to implement separate independent systems that conform to standards set by AESO for timely forecasts, forecast accuracy, and protocols for forecast data integration. We believe an independent wind resource analysis group like Phoenix Engineering or Garrad Hassan can develop the standards for timing, accuracy and protocol that AESO would need to properly set these standards.



To this point, we believe it is a mistake not to include forecasting accuracy in the recently commissioned study by Phoenix Engineering Inc. Understanding the accuracy that can be achieved will help AESO with the latter approach described above.

Another important point made in the paper was the impact of wind generation ramp rate, and the curtailment and ancillary services that might be required to mitigate this impact. We do not agree with the assessment presented by AESO that distributed generation resources do not reduce the ramp rate impact to the electrical system. In addition, the newer larger generators entering the market will show to have a much different ramp rate than older smaller turbines. While we believe ramp rate will be less than shown in previous AESO presentations, it does have an impact when the entire system load is ramping in opposite direction of wind speeds.

In summary, it is our recommendation that AESO proceed with the requirement for implementation of forecasting systems for all wind generation in the province. Existing plants without such systems in place should be given a grace period to achieve compliance. The PEI study should be restructured to include the study of forecasting system accuracy in different regions of the province to help establish requirements for AESO to consider.

To enable AESO to remove the present 900 MW limit for wind generation, a temporary regulation can be established for forecasting at least as accurate as persistence modeling. We would also wish to see more clarity on the limitation of ramp rates for the purpose of curtailment and the supply of Ancillary Services.

Thank you for the opportunity to comment on the work completed by AESO on the implementation of wind energy generation in the system. We look forward to helping Albert to achieve its growth potential in renewable energy generation.

Sincerely,

Bill E. Alexander
Naturener – Chief Development Officer