



May 28, 2010

Kelly Gunsch, VP Market Services,
Alberta Electric System Operator,
2500, 330-5th Ave. SW,
Calgary, Alberta T2P 0L4

RE: Canadian Wind Energy Association Response to AESO's Short Term Wind Integration Discussion Paper

Dear Ms. Gunsch:

Thank you for the opportunity to provide input on the Alberta Electric System Operator's (AESO) Short Term Wind Integration Discussion Paper. The Alberta Caucus of the Canadian Wind Energy Association (CanWEA) has determined that the nature of our feedback suggests the use of a letter versus the supplied matrix would be more effective.

As you are aware, CanWEA and its members support the principles of the market in Alberta – namely the fair, open, efficient and openly competitive (FEOC) aspects. CanWEA further supports the role of the AESO with respect to grid stability and reliability; it is from this position that we provide our comments and feedback on the discussion paper.

The direction and focus of the paper is in identifying short-term solutions to increasing the amount of wind power generation that can be integrated onto the Alberta grid. The issue of increased wind penetration levels is not new in relative terms and has been a topic of negotiations for a number of years. In order to effectively deal with these increasing levels it is CanWEA's opinion that a longer term direction and strategy needs to be contemplated prior to the implementation of short-term mitigations that may ultimately negatively impact that longer term strategy. To suggest there is a sense of urgency now does not in our view adequately recognize the work that has gone before the release of this paper.

Unique Characteristics of Wind Power Generation

The discussion paper appears to be based on a fundamental assumption that all generation in the province should behave and respond like existing dispatchable thermal based generation. The nature of



all forms of generation appears to be compared and judged through this lens causing an inherent bias against renewable and specifically wind generation. There are many examples from our interpretation of the discussion paper and one is provided for context. For example Section 4 Policy Coherence and Principles in describing Figure 1 (page unknown), states:

Figure 1 presents a simple range of wind integration options that range from treating wind like load to treating wind like a traditional generator with a must offer must comply obligation.

This is contrary to the suggested AESO high level principles appearing later in that same section (page unknown), notably principle #4 that suggests all generation should be treated fairly while recognizing unique characteristics. By this token it is problematic to suggest that wind generators must adhere to the obligation of “must offer must comply” – an onerous obligation that does not recognize the variable nature of wind and the benefits it brings to the power market. Further it does not appear to be aligned with FEOC principles, nor is it consistent with Alberta Department of Energy’s stated principle that market refinements not be detrimental to the development of renewable energy resources.

As you are no doubt aware this was a fundamental issue that was discussed, negotiated and we assumed dealt with during the replacement of the 900MW threshold with the Market and Operational Framework (MOF) in 2007. At the time it was determined that because of the variable nature of wind power generation, a more appropriate interpretation for wind power producers would be “must forecast must comply”. CanWEA believes if this interpretation is not applied as previously accepted by AESO it will essentially render wind power generation uneconomic to offer wind in the Alberta market.

Comments on Section 5 Analysis and Simulation Model

The discussion paper assumes that the predictive simulation model used by AESO is effective and accurate in forecasting the Area Control Error (ACE) events that may occur with additional wind power. The current simulation as presented was unable to accurately predict the 2008 actual events. Table 2 indicates that the simulation model resulted in a 50% over prediction of ACE events.

It is CanWEA’s request that the simulation model be calibrated to ensure that it more accurately predicts each of the 2008 actual ACE events. The paper does not reveal what production profile was assumed by the additional wind power developments and if it is representative of the appropriate wind power production profile. Until this calibration is completed and the appropriate wind production profiles have been used, it is difficult to comment on the specific areas identified in the comment matrix.



Given that additional generation is now being developed outside of traditional areas this may serve to mitigate the issues that the AESO is presenting in this discussion paper. This concept was described specifically as part of the MOF documents in 2007. It has been demonstrated in a number of jurisdictions that geographic diversity is beneficial in addressing such issues and it would be useful to understand if the analysis of the various ramping events highlighted in the discussion paper compensated for geographic diversity when increasing the amount of installed capacity. In addition, the consideration of exports, and how these will serve to address significant wind events was not evaluated.

The discussion paper also implies that wind power on the system is the primary cause of ACE events and the unreliable operation of the grid. However, the AESO's data show that ACE events are more likely to be caused by Load, Tie or Other events outside of significant wind events. Table 1 of the discussion paper indicated that wind power was responsible for 67 of 258 events or 26% of all events. We recommend that all causes be investigated and taken into account when looking for solutions to ACE events. Expecting wind power management and control measures to address all events is unrealistic and unfair to this generation source, particularly in light of the fact that nearly $\frac{3}{4}$ of all events were caused by something other than wind.

Importance of Wind Forecasting

Regardless of how wind power is integrated onto the Alberta system it is understood and accepted that forecasting will assist the AESO in the operation of the system in a reliable manner. The centralized forecasting service now being supported by wind power generators needs to be fully implemented and transparent in order to deal with issues highlighted above as well as an examination of operating reserves as a potential mitigation tool. Additionally it is generally accepted, that regardless of what mitigation measures and management tools are utilised, forecasting will assist in improving the success of those measures and tools.

The CanWEA caucus is unaware of which metrics or events the forecasting model is tuned. This would be helpful to understand if the forecasting model is tuned for specifically these ramping events, and the success rate of forecasting these events. The Caucus is aware that during the forecasting pilot, no one type of event was the focus of the study, however given the importance of system reliability and ACE, perhaps the forecasting model should be tuned to predict ramp events specifically.

Other Points To Be Considered

It has always been CanWEA's position that wind power management (WPM) tools should be used only as a last resort, and that even then, these should only be used to address wind specific issues on the system and not as a general tool to address non-wind related issues.



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As outlined and suggested earlier in this submission, identifying and attempting to address wind related issues in isolation from the rest of the market is not useful. For example, the suggestion that the Energy Market Merit Order (EMMO) use of over dispatch and the resulting system reliability issues are not sustainable and attributable to increased wind generation does not address the fundamental issue. The use of over dispatch to deal with system operation is a function of the energy only market design in Alberta and is not a wind caused problem. It is punitive to expect the wind power industry to be solely responsible for solving these difficulties and speaks to the issue of the need for a longer-term, sustainable and relevant integration strategy.

As has been discussed, identifying short-term mitigations in the absence of a longer-term direction or strategy will not provide a fair and equitable solution going forward. CanWEA strongly suggests that there be an initiative to build upon the collaborative work that has transpired over the preceding three years to develop this strategy.

One need only look at the projects that are currently in the AESO interconnection queue to identify the fact that there are more wind projects interested in connecting to the Alberta system than any other generation source. This speaks to the importance of developing this strategy that allows for this form of non-emitting renewable energy to fully develop and assist Alberta in addressing such critical and fundamental issues as reducing our provincial greenhouse gas emissions.

As discussed throughout this paper it appears further consultation is required to ensure that a market strategy is able to be formulated that allows for a FEOC interpretation of the regulations currently in place in Alberta and allow the AESO to fulfill the government's direction of expanding the role renewable energy plays in the Alberta market.

CanWEA and our membership will continue to work with AESO to fully understand and assess what actions are required to facilitate wind integration onto the Alberta electrical system. We both have a common interest in seeking to minimize the costs associated with wind integration and ensuring the reliability and stability of the grid as greater wind penetration levels occur in Alberta. CanWEA appreciates and values the opportunity to work collaboratively with AESO and we will continue to do so going forward.

Regards,

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cc Robert Hornung, President, Canadian Wind Energy Association
, VP Policy, Canadian Wind Energy Association

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