



Letter delivered by e-mail to:

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April 6, 2007

Mr. Kent McDuffie
Senior Vice President, Market & Regulatory Framework
Alberta Electric System Operator
2500, 330 - 5th Ave SW
Calgary, Alberta, T2P 0L4

Dear Mr. Kent McDuffie

RE: Market and Operational Framework for Wind Integration in Alberta – Discussion Paper

Suncor Energy Inc. is committed to developing renewable energy in Alberta to meet clean air and climate change objectives. To date, with our partners, we have installed two wind farms with a combined capacity of 60 megawatts (MW) in Alberta. Suncor maintains additional optioned lands through out Alberta, and is eager to develop additional wind farms within the province.

We would like to congratulate the Alberta Electrical System Operator (AESO) for its initiative taken towards integrating more wind power in Alberta, and on the development of this discussion paper. The document provides an excellent framework to allow for the continuing growth of wind power within the province respecting system reliability, effective distribution of costs, and market competition.

In response to the AESO's March 7, 2007 letter, Suncor offers the following comments on the AESO's discussion paper titled "Market and Operational Framework for Wind Integration in Alberta".

Realizing the Value of Diversity

In the document titled *Market and Operational Framework for Wind Integration in Alberta* the AESO has indicated there is value in diversity.

*"Distributing wind power facilities geographically can help reduce aggregate wind power variability and ramping impact on the system"*¹

¹ Market and Operational Framework for Wind Integration in Alberta – p. 6 Section 3.1.6 Wind Power Diversification

“Geographic diversity of wind generation resources will tend to reduce the need to use these tools, and therefore increase the amount of wind generation the AIES will be able to absorb.”²

However the AESO has also indicated,

“...the final arbiter of the value of wind power diversification will be the investors that allocate capital to specific wind generation facilities.”³

Currently there are no market mechanisms to signal to investors the value of diversity. Without an appropriate market structure it is unlikely that this value will be fully realized. To realize the value of diversity, a regional queuing system should be established for wind projects. Any capacity above the current 900 MW threshold should be allocated to regional queues so as to maximize diversity. In this way projects that reduce aggregate wind power variability and ramping impact on the system can be expedited. This would benefit generators by expanding the amount of wind power that can be integrated in the Alberta system. It would also benefit load customers by reducing the volume and cost of regulating reserves and/or load/supply following services and increases the supply of in-merit generation.

Suncor strongly recommends that the AESO establish a regional queuing system for any capacity beyond the current 900 MW threshold. The AESO should also undertake a study to better quantify the benefits that could be realized from diversity and to further explore ways that this value can best be realized. Data for such a study can easily be extracted from data used in the pilot program on wind forecasting that is currently underway.

Mitigation Measures and Tools

The AESO has indicated,

“If the System Operator receives a reasonable forecast of wind power generation, then the System Operator can establish an operating plan to accommodate the forecast wind energy by using the following tools:

- *The Energy Market Merit Order (EMMO)*
- *Regulating Reserves*
- *Load Supply/Following Services*
- *Wind Generation Power Management”⁴*

However, the AESO has not indicated the order in which, or extent that, these tools will be deployed. This should be clarified since these measures have different cost responsibilities and, as the AESO has indicated, these tools and measures can, to varying degrees, be substituted for each other.

² Wind Integration in Alberta: Market & Operational Framework AESO Stakeholder Consultation Session p. 15

³ Market and Operational Framework for Wind Integration in Alberta – p. 6 Section 3.1.6 Wind Power Diversification

⁴ Market and Operational Framework for Wind Integration in Alberta – p. 3 Section 3.1 Description of Mitigating Tools

Power Limiting and Curtailment

The AESO has indicated that the,

*“... the obligation of market participants to comply with dispatch instructions and directives from the system controller, in conjunction with the ability of wind generation to be controllable when the wind is blowing, supports the interpretation that wind generators must install power management technology as a condition of service, and that a wind generator must be able to comply with an instruction from the system controller to limit its output.”*⁵

It is expected that the System Controller would only issue a directive to curtail in-merit generation for security or reliability reasons and that these instances would be infrequent and of short duration.

Limits on wind power output should only be used in extreme circumstances to avoid constraining in-merit generation under normal operating conditions (i.e. all transmission facilities in service) and to enable the competitive market to deliver the lowest energy price to consumers.

Generators should not be constrained due to congestion that is not due to planned maintenance, forced outages of transmission facilities and/or some critical generation facilities and which can be relieved by procuring sufficient ancillary services.

The AESO should provide more clarity around the anticipated frequency and duration of power curtailments to wind generators.

Load/Supply Following Services

The AESO has discussed the introduction of a new load/supply following service that would respond to ramps, “that persist from 20 minutes to hours”.

Suncor supports the use of load/supply following to reduce the need for more expensive regulating reserves but would be concerned if load/supply ramping services were to be used in preference to energy market dispatches as this could lead to prolonged periods where energy prices remain unchanged even as supply/demand is increasing or decreasing significantly.

Must Forecast Obligation

The AESO has indicated that,

*“the obligation that all generators must communicate any change or limitation in availability to the ISO supports a ‘must forecast’ obligation for wind generators and the ongoing costs associated with that obligation are allocated to wind generators.”*⁶

⁵ Market and Operational Framework for Wind Integration in Alberta – p. 9 Section 4.4 Wind Generator Power Management

⁶ Wind Integration in Alberta: Market & Operational Framework AESO Stakeholder Consultation Session p. 19

Suncor supports a centralized forecasting system that is cost effective to all parties involved. We appreciate that many of the details may not be known. However, Suncor asks the AESO to indicate:

- an estimate or bounds on the costs wind power generators will pay and how these costs will be allocated to wind generators (for example will it be on an energy basis, a capacity basis, or other basis.),
- when the AESO anticipates the recovery of these costs will begin,
- how the development or start up costs will be recovered.

Removal of the 900 MW cap

The AESO has indicated,

“The AESO has continued to work with Alberta Industry stakeholders and system/market operators in other jurisdictions to develop this Market and Operational Framework for broad industry consultation and to ultimately define tools and rules necessary to remove the temporary 900 MW threshold and to integrate as much wind into the Alberta system as feasible.”⁷

“The Market and Operational Framework will enable additional wind energy to be integrated into the AIES...”⁸

“We believe the Market & Operational Framework can replace the current 900 MW threshold and allow investment decisions regarding the supply portfolio in Alberta to be driven by market forces.”⁹

Suncor would like the AESO remove the 900 MW cap and implement a revised queuing structure by Q4 2007 and to provide stakeholders with a work plan and timeline with target dates to achieve this.

Treatment of Older Wind Farms

It is fair that wind farms should be held to the standards and requirements that were in place when they were constructed and that any new requirements apply on a going forward basis to new generators. If new requirements are applied to existing generators the costs associated with implementing these requirements should not accrue to these generators.

Implementation Considerations

The AESO has indicated,

“Wind generators assume responsibilities and costs for forecasting equipment and/or services, power management equipment and uncertain output reductions.”¹⁰

Suncor asks that the AESO clarify the responsibilities and costs for uncertain output reductions that wind generators are to assume.

⁷ Market and Operational Framework for Wind Integration in Alberta – p. 3 Section 2 Background

⁸ Market and Operational Framework for Wind Integration in Alberta – p. 3 Section 3 Market and Operational Framework

⁹ Market and Operational Framework for Wind Integration in Alberta – p. 11 Section 6 Conclusions

¹⁰ Market and Operational Framework for Wind Integration in Alberta – p. 10 Section 5 Implementation Considerations

The AESO has provided a list of four critical issues that must be resolved in order to remove the 900 MW cap. These include:

1. Finalize the interconnection requirements for wind power facilities including technical requirements for wind power management systems.
2. Establish an interim forecasting methodology to be utilized prior to completion of the Wind Forecasting Project.
3. Establish the operational practices and rules for wind power forecasting and wind power management.
4. Develop tools for the System Operator to incorporate wind forecasting and wind power management.

In addition, the AESO has noted an extensive list of work that will need to be completed in parallel or subsequent to reaching agreement on the market and operational framework.¹¹ However, there is no proposed plan or schedule of work provided. To keep the process moving forward the AESO should develop and table to stakeholders a work plan and schedule and task resources to resolve these issues. As far as possible, work should be carried out in parallel. Where possible the AESO should allow for interim increases to the 900 MW cap prior to all work being completed.

Appendix 1: Ancillary Service & Power Management Impacts

The AESO's analysis greatly overstates the likely cost of the additional annual ancillary services required. This is because the AESO has doubled the Phase II estimate of additional ancillary services required and assumed that all of the additional services will be regulating reserves rather than load/supply following services. It is anticipated that the cost of a load/supply following service would be less than the cost of procuring regulating reserves. This is because there are fewer requirements suppliers have to meet to provide a load/supply following service and because regulating reserves can be used to provide load/supply following but not vice versa.

Strangely, the AESO's analysis shows that if the system wide wind ramp rate limit is 4 MW/minute, the annual additional ancillary services (MWh) with 1995 MW of wind power is 6.4% less than the annual additional ancillary services required with 1445 MW of wind power. However this reduction in ancillary services required is accompanied by a tripling of the annual wind power curtailments.

Summary

To reiterate, Suncor requests that:

- the AESO maximize the value of diversity to wind generators and loads by establishing a regional queuing system for wind generation beyond the current 900 MW threshold.

¹¹ Market and Operational Framework for Wind Integration in Alberta – Items 1 to 10 p. 11 Section 5 Implementation Considerations

- the AESO only limits wind power output in extreme circumstances to avoid constraining in-merit generation under normal operating conditions and to enable the competitive market to deliver the lowest energy price to consumers.
- the AESO indicate the order in which, and extent that, mitigation measures and tools will be deployed.
- load/supply following services be used to reduce the need for more expensive regulating reserves but not in preference to energy market dispatches.
- the AESO clarify the responsibilities and costs for uncertain output reductions that wind generators are to assume.
- the AESO consider a centralized forecasting system that is cost effective to wind generators.
- if new requirements are applied to existing generators the costs associated with implementing these requirements will not accrue to these generators.
- the AESO eliminates the 900 MW cap and establishes a revised queuing structure by the end of Q4 2007.

Thank you for allowing Suncor to provide comments on your discussion paper. We look forward to working with the AESO to help continue the growth of wind generation within the province of Alberta. We would be pleased to discuss these or other aspects of the framework with you at your convenience. I can be reached directly at (403) 205-6710 or you can contact Kolja Vainstein at (403) 920-8594.

Yours truly,
SUNCOR ENERGY INC.



Mark Roedel
Director, Renewable Energy