



**Implementation of MOF Recommendation Paper
Stakeholder Comment Form**

Comments From: TransCanada Energy Ltd. ("TransCanada")
 Date: April 17, 2009
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1. WIND POWER FORECASTING – Centralized Forecasting Model	
<p>The AESO recommends that a centralized forecasting model be implemented in Alberta.</p> <p><u>Reasons for Stakeholder Position:</u></p> <p>A centralized forecasting model would seem to provide the most reliable and consistent forecast to the industry.</p>	<p>X Support <input type="checkbox"/> Oppose <input type="checkbox"/> Indifferent</p>
2. WIND POWER FORECASTING – RFP ASAP	
<p>The AESO recommends that solicitation (RFP), evaluation and selection of a centralized forecasting service provider should proceed as soon as practicable.</p> <p><u>Reasons for Stakeholder Position:</u></p> <p>The AESO should consider including wind industry participants/stakeholders with background or technical knowledge in forecasting to assist the AESO in developing the RFP and potentially evaluating and selecting the provider. In the Wind Forecasting Pilot the industry workgroup participants were of considerable assistance to the AESO in this regard. The timing of this may be impacted by number 3 below.</p>	<p>X Support <input type="checkbox"/> Oppose <input type="checkbox"/> Indifferent</p>
3. WIND POWER FORECASTING	
<p>The AESO will commence consultation on rules, procedures, standards and technical requirements regarding submission of wind generator forecast data/information including; data requirement such as turbine availability and on-site meteorological data, communication protocols, and data quality required from wind generation facilities (or individual forecasters) to deliver forecasts to the AESO.</p> <p><u>Reasons for Stakeholder Position:</u></p>	<p>X Support <input type="checkbox"/> Oppose <input type="checkbox"/> Indifferent</p>



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Many of these technical requirements may need to be specified in the wind forecasting RFP and thus this may need to be defined before the RFP can be issued. Also, wind industry experts with technical knowledge could assist the AESO in developing these requirements and specifications before releasing them to the general industry. Utilizing these technical resources would lead to a faster and cleaner consultation process.

4. WIND POWER FORECASTING – Data Management

As part of its forecasting research and development work, the AESO will continue work to determine the capability, resources, systems and time required to perform the data management function. In parallel, the AESO will include data management as an optional requirement in the wind forecasting RFP.

- Support
- Oppose
- Indifferent

Reasons for Stakeholder Position:

As per comments in 3 above, this may need to be specified in the wind forecasting RFP and thus may need to be defined before the RFP can be issued.

5. FORECASTING ACCURACY

The AESO will monitor forecasting, market and operational results and develop measures of forecasting accuracy. The AESO intends to leverage available data and forecasting resources toward this end.

- Support
- Oppose
- Indifferent

Reasons for Stakeholder Position:

As per comments in 3 above, additional work is required to be completed prior to the issuance of the RFP. Forecasters will need to understand what information the AESO is trying to forecast (wind speed, direction, power, ramping, etc) in order to prepare an appropriate proposal. It may be important to determine the level of granularity of the data that would be required.

6. FORECASTING - TRANSPARENCY

The AESO considers that system or aggregate wind forecasts should be transparent and made available to all market participants, particularly near term to real time.

- Support
- Oppose
- Indifferent

Reasons for Stakeholder Position:

TransCanada supports transparency in all AESO processes, especially where it is available in a timely manner.



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7. WIND POWER MANAGEMENT – Curtailment Protocol

The AESO seeks stakeholder feedback on the work group recommendations to use a Potential MW Protocol and specifically would like input from stakeholders regarding practicality and risks associated with this option.

- Support
- Oppose
- Indifferent

1. Pro rata allocation of the system wide wind curtailment among Wind Power Facilities (WPF)
2. Use of Potential MW Capability to allocate for each WPF
3. Curtailments should be re-assess and re-allocate every 20 minutes if the limit for any one WPF has changed by greater than 5MW

Reasons for Stakeholder Position:

In principle, TransCanada opposes pro-rata allocation of generation curtailment. This is consistent with our congestion management position and our position that the AESO should find market based solutions to system problems.

TransCanada does not believe that Wind Generators should be solely responsible for the variability of generation output. This is a responsibility of the system that should be met by Ancillary Services.

TransCanada encourages the AESO to explore market based solutions to the variability introduced by adding more wind capacity. This could include procuring fast ramp down service so that fast ramping generators and storages facilities and wind dumping can together determine the most efficient curtailment service through competition .

This is also true in the situation where wind production is already high and the risk is that it will diminish quickly. During such times t other generators will have unloaded capacity available that the system is relying upon. This reliance on the unloaded capacity is a service and should be compensated. The need for this service is a consequence of the addition of wind generators which comes with numerous benefits. Competition to provide this service while the system is surplus in capacity will moderate the cost of the service.

8. WIND POWER MANAGEMENT - Supply Surplus

The AESO solicits input from all stakeholders on the proposed supply surplus protocol and proposed modifications to OPP 103 provided below.

- Support
- Oppose

¹ ISO Rule definition for MSG is “minimum stable generation” which means the minimum generation level that an asset can be continuously operated at without becoming unstable.

Indifferent

- (1) Include wind power facilities and co-generation facilities in OPP 103 procedures with co-generation to be subject to Minimum Operating Level (MOL) requirements
- (2) Establish a Minimum Operating Level (MOL) for each asset and, where possible, assets should not be dispatched below their MOL.
- (3) Refine MOL definition to include new constraints not included in Minimum Stable Generation¹ (MSG) but that affect the asset's ability to operate at or below a threshold. MOL is a physical operating limit (not an economic limit) for an asset constrained by legal/regulatory, environmental, health and safety, equipment reliability, operating level required to serve dispatched ancillary services, or operating level required to prevent damages to third party equipment. Examples of physical operating constraints for types of generation and import/export are included in the WG paper (Appendix A).
- (4) Develop a mechanism for pool participants to declare and submit the MOL. It is expected that the need for, approach and frequency of declaration may vary among generators and will need to be defined.
- (5) Revise the current "inflexible block" definition. The definition of "inflexible block" will need to be amended as follows:

"inflexible block" means a block of energy that may be dispatched on or dispatched off, but not partially dispatched on, except for a \$0 offer block it may be dispatched to the asset's MOL.

Definition of "flexible block" does not require any changes since it accommodates the proposed \$0 SMP management protocol.
- (6) Provide market indication of supply surplus conditions (similar to supply adequacy situations) to provide market participants an opportunity to take voluntary actions in the face of potential \$0 SMP conditions and also become aware that an out-of-market dispatch to clear the energy imbalance could be forthcoming.

Reasons for Stakeholder Position:

TransCanada supports the inclusion of wind power facilities in OPP 103. TransCanada also, in principle, supports the inclusion of co-generation facilities in OPP 103, as long as the contractual steam requirements that the generation facility has with its host facility can be maintained. In many instances the power output of a cogeneration facility is driven by the host steam requirements.

TransCanada requests removing the revision of OPP 103 and Supply Surplus consultation from the MOF and addressing this change through the rule making process. Within the MOF this issue may not receive the same attention from the rest of the industry who may dismiss it as purely a wind issue.

9. SUPPLY SURPLUS – protocol	
<p>The Supply Surplus work group also developed the following protocol respecting OPP 103:</p> <p>Step 1: Curtail opportunity services including import transactions.</p> <p>Step 2: Take the following actions, taking into account the transmission system operating and reliability constraints and an objective of rotating the curtailments amongst market participants where possible:</p> <ul style="list-style-type: none"> a. Curtail flexible \$0 blocks, by pro-rata assignment, b. Where wind generation is required to be curtailed pursuant to (a), assign the curtailment amongst each individual wind power facility using the wind power management protocol, c. Curtail inflexible \$0 blocks to the asset's MOL. <p>Step 3: Curtail an asset to 0 MW (go off line), considering the asset's minimum off time.</p> <p><u>Reasons for Stakeholder Position:</u></p> <p>See response to 8 above.</p>	<p><input checked="" type="checkbox"/> Support <input type="checkbox"/> Oppose <input type="checkbox"/> Indifferent</p>

10. Technical Requirements and Standards	
<p>Given the expected difficulty and expense in modifying and/or retrofitting some existing wind power facilities, the WPFTR (s 1.2 g) provided an exemption from the 2004 requirements for any facilities that interconnected under the technical requirements that were in effect prior to November 15, 2004 but specified that these facilities would be required to comply with the WPFTR if the facilities underwent a refurbishment or major upgrade.</p> <p>The AESO considers that this approach is reasonable and prudent but expects that the issue of applicability should be discussed in the rules and standards development and consultation phase. This will include a discussion of the potential grandfathering of certain wind facilities based on the terms and conditions of interconnection agreements and other relevant information.</p> <p><u>Reasons for Stakeholder Position:</u></p> <p>TransCanada does not support grandfathering for forecasting data acquisition. All Wind Power Facilities should be held to the same</p>	<p><input type="checkbox"/> Support <input checked="" type="checkbox"/> Oppose <input type="checkbox"/> Indifferent</p>



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standards and rules. Installing met towers is not a significant cost but has a significant benefit to the system. Grandfathering of existing facilities may be acceptable only for small wind projects, 10 MW or less. Larger projects should be able to accommodate any additional costs to install forecasting equipment. The issue of managing winds variability will not be resolved if the 497 MW already on the system are not required to forecast their wind resource.

11. ADDITIONAL COMMENTS

Missing from these recommendations is any reference to what level of Regulating Reserves the AESO will contract for and dispatch, and especially how this will be traded off against Wind Power Management.

The industry would also benefit from an analysis on historical statistics regarding ramping behaviour of wind generation in Alberta. How often do they ramp? How much do they ramp? How quickly do they ramp? This might best be illustrated with "duration curves" rather than hard numbers or percentages.

Currently the Alberta market does not have adequate ramping response for future wind generation levels. If the market is to succeed in growing ramp capability the AESO must move away from curtailment and commit to procuring for its future needs. To allow creative solutions, the AESO should define the problem to be solved, not the solution. (This definition could be something like XX MW/minute ramp up capability to be used when wind generation is high, and YY MW/minute ramp down capability to be used when wind generation is low.) The AESO needs to commit to a long enough initial term for the service that will entice suppliers to develop appropriate solutions. To protect the market, these quantities must only be used for the purpose procured (to accommodate new wind generation capacity) and after that initial term there should be a return to full competition to provide the service.

Please return this form with your comments by April 17, 2009 to:

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