



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

Comments From: Mainstream Renewable Power (MRP)
 Date: March 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>MRP agrees that a system of central forecast has advantages of efficiency and consistent quality. However, the quality of a central forecast is not constant and it can be improved by providing timely data feeds from <u>upstream</u> weather stations and <u>downstream</u> WFP activity. In other words, it is not enough to simply have a central forecaster; all available data feeds need to be explored and implemented.</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>What criteria will be used for the RFP? The pilot project lasted one year and only after several months of data can the quality of the forecasts be differentiated.</p> <ul style="list-style-type: none"> • How long will the selection process take? • Will a selection be based on forecasting method or on forecasting performance? <p>Any process should involve the members of wind industry since cost allocation is likely.</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</p>	<p>X Support <input type="checkbox"/> Oppose <input type="checkbox"/> Indifferent</p>

required from wind generation facilities (or individual forecasters) to deliver forecasts to the AESO.

Reasons for Stakeholder Position:

Support the immediate consultation on providing WFP data for forecasting purposes as an initial preliminary undertaking. However, conclusion of any rules respecting the availability and delivery of data should await the selection of the central forecaster and a determination as to the data and information feed that compliments the forecaster's method.

- Avoid making rules that serve no useful purpose.
- Please state the implications of being outside forecast.

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
X Oppose
 Indifferent

Reasons for Stakeholder Position:

We would request that the AESO determine and convey what it seeks to accomplish by warehousing data. One would expect that a capable forecaster will have the ability to warehouse the data feeding into the forecast as well as the realized "actual" results. (If they cannot do so, then the quality of the forecast should be questioned.)

- Hence, a first question is what amount of data can be warehoused by the forecaster and can the AESO retrieve data on request?
- The second relevant question is, for what purpose does the AESO need to retrieve warehoused data?

The discussion implies that the AESO may need such data for compliance monitoring and penalties. This is questionable. For example on page 33 the AESO says, "[any inaccuracies along the process will contribute to forecast accuracy and errors and in the future may be the basis for monitoring compliance and penalties.]" Such a statement is a gross generalization and in most cases false. The central forecast is superior because it does not depend strictly on WPF specific data, so inaccuracies from one site should typically have little effect on the overall performance. The exception to this would be the failure to report turbine outages; however this type of activity can be directly monitored from metered volumes data or other production data.

If compliance monitoring is the AESO's objective, then identification and clarification of these issues as a first step is required.



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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:

Realistically speaking; development of an Alberta-wide wind power forecasting system will require years of experience. This will be a prime example of "learning by doing". Accordingly, the AESO needs to avoid the "trap of perfection" by focusing on a sole objective of "accuracy".

Forecasting is a tool to be used in concert with other tools, such as operating reserves. There will be times when the forecast can be usefully certain (accurate) and the level of reserves can be adjusted to accommodate the situation; alternatively there will be times when the forecast can only indicate a high level of uncertainty and in this case the operating reserves should be adjusted up. Forecasting, reserves and other tools should not be used as substitutes but should be used in a complimentary fashion, working together to maintain system reliability.

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:

Information transparency makes for a more efficient market.

The AESO should publish all relevant aspects of the forecast including the point estimate of WPF production but also the forecast uncertainty/ confidence interval.

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

Qualified Support

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:

A pro rata approach is notionally the fairest approach to capping individual WPF production when a SWPL is in effect. If other methods are to be considered they need to consider the loss of fairness inherent in the pro rata approach.

The AESO has stated "the impacts of implementing and operating the proposed protocol have not been fully evaluated and further work will be required to determine to what extent this functionality and capability can be implemented and in what timeframe."

- What progress has the AESO made in this regard since the Working Group recommendation was put forward last spring?
- Can we expect some publication of the metrics that have been assessed in the last 6 months?
- Can the AESO define what work needs to be accomplished and set out a work plan with specific dates for concluding the work?

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.

X Support

Oppose

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

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.

"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:

While the AESO has included the Supply Surplus discussion as part of the MOF implementation, it is not a wind specific issue. The AESO recognises the wide range of interests that will be affected by changes to OPP 103.

- Will all market participants review the MOF implementation paper?

It is likely better to advance changes to OPP103 through the established rules consultation process so that details of each the rule can be debated including the calculation of the MOL for each generator. Is this the proposed plan of action?

9. SUPPLY SURPLUS – protocol

The Supply Surplus work group also developed the following protocol respecting OPP 103:

- X Support**
 Oppose
 Indifferent

Step 1: Curtail opportunity services including import transactions.

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:

- Curtail flexible \$0 blocks, by pro-rata assignment,
- 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,
- Curtail inflexible \$0 blocks to the asset's MOL.

Step 3: Curtail an asset to 0 MW (go off line), considering the asset's

minimum off time.

Reasons for Stakeholder Position:

While the AESO has included the Supply Surplus discussion as part of the MOF implementation, it is not a wind specific issue. The AESO recognises the wide range of interests that will be affected by changes to OPP 103.

Will all market participants review the MOF implementation paper? It is probably better to advance changes to OPP103 through the rules so that details of each the rule can be debated including the calculation of the MOL for each generator. Will this be done?

10. Technical Requirements and Standards

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.

X Support

- Oppose
- Indifferent

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.

Reasons for Stakeholder Position:

This should be the case only for those wind farms not capable technologically supporting power management or those built before 2004 Integration standards

11. ADDITIONAL COMMENTS

At page 42 (first full paragraph) the AESO seems to imply that it is monitoring the "complex relationship" between wind market integration and the cost of ancillary services as though there were a trade-off to be made between the two. In other words, the AESO is attempting to find the optimal balance between increased cost of reliability and increased wind integration.

In actual fact, the AESO has a duty to achieve both goals and there should not be an attempt to trade one off against the other. The AESO has a duty to promote and fair, efficient and openly competitive market, period. Unequivocally the AESO also has a duty to provide for a reliable system. The trajectory of the past 50 years is relatively simple; the cost of reliability increases as the market develops. This is not to say that the AESO should not attempt to minimize or slow the rising cost of reliability; by all means look for alternatives, however it would be inappropriate to slow or halt the development of the energy market because the cost of reliability would increase.

At page 45 the AESO raises the notion of compliance monitoring. Such discussion is premature until the rules have been determined. That said, the objective of compliance monitoring also needs to be clarified and stated. Additionally, the consequence of failure needs to be addressed as well as appropriate penalties. This is a broad discussion regarding the principles of compliance and penalties this is not wind integration specific. The AESO should address these principles on a stand-alone basis.

At page 45 the AESO discusses the possibility of contingency plans but concludes with the statement that today's rules will be used if the new rules are not yet in effect. This is somewhat puzzling as many of the MOF implementation rules are new. It is recommended that the AESO be more explicit as to how issues will be addressed using the current rules if the new rules are not in effect. For example, how will the AESO determine a SWPL; what method will be used to cap WPFs if a SWPL is invoked; what forecasting method will be used; how will OPP103 apply to WPFs today; etc.?

At page 46 and 47 the AESO outlines its' next steps. We observe that these next steps will involve converting the high-level concepts presented in the MOF paper to specific rules and that this process will require a considerable amount of in-depth work. The AESO encourages stakeholders to participate (and we would agree that stakeholder participation leads to better results) however the amount of time and resources needed to fully participate can be taxing on stakeholders. From this perspective the AESO is encouraged to consider funding a portion of stakeholder costs in order to allow for a greater degree of participation by stakeholders.

Please return this form with your comments by April 3, 2009 to:

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