



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

Comments From: Alberta Direct Connect Consumers Association (ADC); Industrial Power Consumers Association of Alberta (IPCAA); and Office of the Utilities Consumer Advocate (UCA) – submitted on a joint basis.

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<b>1. WIND POWER FORECASTING – Centralized Forecasting Model</b>	
<p>The AESO recommends that a centralized forecasting model be implemented in Alberta.</p>	<p>X Support  <input type="checkbox"/> Oppose  <input type="checkbox"/> Indifferent</p>
<u>Reasons for Stakeholder Position:</u>	
<p>Minimizing the forecast load variability discussed on p.16 is clearly critical to the reliable operation of the AIS, and to the expected growth in wind resources. In the early stages of forecasting skill development, a centralized approach is clearly preferable for the noted reasons of efficiency, economics, uniform quality and accuracy (p.62). To the extent that this becomes a material cost, its recovery from customers should be addressed in the AESO tariff proceedings. Some level of cost sharing between loads who benefit from this generation and the wind generators themselves would seem appropriate.</p>	
<b>2. WIND POWER FORECASTING – RFP ASAP</b>	
<p>The AESO recommends that solicitation (RFP), evaluation and selection of a centralized forecasting service provider should proceed as soon as practicable.</p>	<p>X Support  <input type="checkbox"/> Oppose  <input type="checkbox"/> Indifferent</p>
<u>Reasons for Stakeholder Position:</u>	
<p>The AIS's ability to reliably use wind resources is clearly linked to forecasting accuracy. The sooner forecasting skills development is initiated, the sooner this resource can expand its energy provision to the system.</p> <p>To the extent that the AESO's forecasting pilot project demonstrated significant differences in forecasters' capabilities, consideration should be given to initially retaining multiple forecasting providers. Once the data provision processes have been well established, the incremental costs of diversity in the pure forecasting function will likely be small compared to the potential benefits.</p>	



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**3. WIND POWER FORECASTING**

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.

Support  
 Oppose  
 Indifferent

Reasons for Stakeholder Position:

Capturing comprehensive wind data is more urgent than retaining forecasting services. Every day that data is lost is another day of lost knowledge. It is recommended that data recording protocols be given the highest priority, particularly data such as on-site meteorological information which once lost cannot be recovered.

Additionally wind generators should be required to provide access to at least three years of historic wind data for their sites (if available) as a condition for connection to the grid to provide inputs to the forecasting models.

**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:

Wind forecasting is clearly a competitive industry, and it would be unwise to place data collection and retention services in the hands of a forecaster whose incentives would be to set the data repository up in a proprietary, closed fashion.

It would be preferable to retain an IT-focused entity not engaged in the forecasting business to establish an 'open' data repository which can be made available to any forecaster the AESO chooses. This would also ensure that the AESO maintains strong control over source data dissemination, which is essential to maintaining the level of confidentiality required in respect of this commercially sensitive data. It is understood that a strong competitive market for wind data repository services already exists, and outsourcing this activity at this point would relieve pressure on the AESO's systems resources.



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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:

Different forecasting approaches will likely yield different types of forecast accuracy; some may be strong in the longer term, others in near real-time. An understanding of the types of accuracy yielded by various approaches will develop as experience is gained. This is an important long term objective, but does not appear to be immediately critical. At this stage in the process, the AESO might be well served by contracting with an external expert to provide these assessments.

**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:

Transparency should always be the default option, and the burden of proof as to confidentiality properly belongs with the party making that contention. The benefits of transparency are well captured in the AESO's document. This is a requirement analogous to the publication of scheduled unit outages, and creates a level information playing field for all generators.

It would be of greatest value if the AESO was to make the end results of these forecasts public, so that their outputs could be compared and assessed. Some components of the input data may be of value to analysts, but since this data has proprietary dimensions its general release appears neither necessary nor desirable.

**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



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Reasons for Stakeholder Position:

It is suggested that this is fundamentally a question of market structure, from which an operating protocol should then be derived. In general, market-based, bilateral solutions are preferable to an imposed formula.

A “DDS-like” approach would be more consistent with the current market design, since this is essentially a ‘constrained down’ requirement that flows from the generation system itself, just as DDS flows from the transmission system itself.

A ‘bilateral’ approach to this problem is also worthy of consideration. Loads could be held responsible for providing operating instructions consistent with the system’s requirements, in a form that can be efficiently used by system operators.

It may be practical to set a date by which an alternative mechanism must be agreed to by industry. If agreement is not reached by that date, then it would be helpful if the AESO’s operations group identified an expedient default protocol (which, ideally, would be distasteful enough to all parties to force agreement on a better approach).

It would also be expedient to consider implementation of negative pricing as the means to allocate curtailment among the zero-offer community provided this was in concert with introduction of an energy-ahead and imbalance market design. Note that negative pricing is not a new concept - the Ontario average hourly price on April 10<sup>th</sup> was -\$6.50/MWh, as generation assets attempted to manage their activities.

**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
- 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 Generation<sup>1</sup> (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.

<sup>1</sup> 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.

- (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:

It is suggested that this is fundamentally a question of market structure, from which an operating protocol should then be derived. Alternatives include a 'DDS-type' model, negative pricing, and 'blind' pro-rating, each of which may have advantages and disadvantages for the zero-offer generators; however, none of the alternatives should be implemented without an extensive review of the implications for the broader power market.

In addition, consideration must be given to the economic consequences of curtailment as well as the reliability issues. Co-generation facilities that are supporting industrial processes with thermal outputs often cannot be curtailed without significant impact to the production processes supported by the steam. As such, all co-generation facilities that support industrial processes should have the ability to designate an MOL that is based on this industrial need as well as the other factors identified.

In any instance where the co-generation facility is part of an ISD, the facility must be fully exempt from any OPP 103 provisions. It is unreasonable to have these units subject to any dispatch risks induced by a supply surplus, as by definition they are part of an industrial process.

It is recommended that any changes to OPP 103 become part of a broader market dialogue such that the concerns of other zero-offer generators are adequately captured in the considerations.

**9. SUPPLY SURPLUS – protocol**

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

- 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:

- 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.

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

Reasons for Stakeholder Position:

It is suggested that this is fundamentally a question of market structure, from which an operating protocol should then be derived.

The initial step of curtailing imports appears manifestly unfair, particularly since importers may have to make significant financial commitments in order to obtain transmission services to the Alberta border, and Load Shed Requirement (LSR) support for these transactions may already be committed.

The concept of decision-making based on physical requirements of assets is fundamentally in conflict with decision-making based on the economic preferences of market participants. Such 'mixing of models' inevitably leads to complex 'seams issues', which could be avoided by selecting one model and rigorously adhering to its requirements.

Please refer to comments on Issue #7 as well.

**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.

- 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 appears to be a balanced and practical solution.

**11. ADDITIONAL COMMENTS**

Although the solutions to issues as set out in the MOF appear to have the consensus support of wind-developers, they do not take into consideration the implications of significant increases in wind generation on the operation of the hourly market nor on implications for system reliability. These broader issues demand a more comprehensive consultative approach.