

**Wind Power Forecasting Pilot Project  
Industry Work Group  
Terms of Reference**

**BACKGROUND**

The Industry Work Group (the “Work Group”) has been formed to assist the AESO in completing a pilot project on wind power forecasting in Alberta based on the recommendations from the AESO’s Wind Integration Impact Studies and the AESO’s stakeholder consultation to these studies.

The Wind Integration Impact Studies have concluded that mitigating measures will need to be implemented to continue to reliably integrate wind power in Alberta. Wind power forecasting in the studies was found to be an effective mitigating measure providing the operator with the information required to better manage the impact of wind power variability on the grid.

Wind power forecasting is being researched and introduced all over the world. Different types of forecasting methods are being implemented based on the geographical, technical and commercial nature of the different jurisdictions. This Work Group aims to identify the best methods of wind power forecasting for the AIES.

**MISSION STATEMENT**

The Industry Work Group will assist the AESO in completing a pilot project to trial and evaluate different forecasting methods in order to find the most effective means to forecast wind power in Alberta. As part of the conclusion at the end of the pilot project, the Industry Work Group will assist the AESO in recommending wind power forecasting methods to be implemented for use in today’s environment with enough flexibility to address future growth in wind power.

**PURPOSE**

The purpose of the work group is:

- To act as an advisory group to the AESO regarding the pilot project.
- To ensure industry and stakeholder concerns are addressed through representation at work group meetings.
- To provide experience and expertise to the analysis of potential providers and results.
- To update industry on the progress and outcomes of the project at stakeholder workshops and sessions.
- To work towards *consensus recommendations* and document diversity of views where consensus could not be reached.
- To coordinate, consolidate and submit recommendations to industry.

The purpose of the pilot project is:

- To trial wind power forecasting methods and providers.
- To identify the most effective method(s) to forecast wind power in Alberta.
- To identify the most effective providers of wind power forecasts.
- To educate industry on the capabilities of wind power forecasting in Alberta

## **SCOPE**

The Scope of the pilot project includes:

- The development of forecasting principles and design to be included in forecasting trials.
- The selection of forecasting providers for trial purposes.
- The supervision of the conduct of the forecasting trials.
- The evaluation of the results of the forecasting trials.
- The presentation of the results to industry.
- The development of a recommendation as to the most effective forecasting method.

The Scope of the pilot project does not include:

- The development of recommendations on operational or market policies.
- The combination of forecasting with other mitigating measures including regulating reserves and/or wind power curtailment.
- The discussion of the allocation of forecasting costs.

While the above three topics may be discussed in relation to forecasting, the scope of this pilot project does not include coming to a consensus on recommendations in these areas.

## **RESPONSIBILITIES**

### **Responsibilities of the AESO**

The AESO's responsibilities include:

- Issuing the RfPs for the pilot project and, if determined by the AESO to be appropriate, entering into the service agreements with successful proponents.
- Managing the pilot project to its completion.
- Chairing the work group meetings.
- Ensuring the work group remains on topic with their discussions.
- Polling agreement when necessary, and receive, for consideration, the advice of the work group.
- Participating in meetings as a work group member.
- Requesting logistical support and resources as necessary.

- Managing work group internal and external communication.
- Providing necessary non-public data to the work group for evaluation as required, subject to the confidentiality requirements of data source
- Final approval of all documents, including where *consensus* cannot be reached within the group.

## **Responsibilities of the Work Group**

The Work Group member's responsibilities include:

- Participation in work group meetings.
- Soliciting interest from wind developers in Alberta to support the project by providing required data needed to conduct forecasting.
- Providing input to work group communications.
- Providing logistical support and resources as necessary.
- Assisting the AESO in the evaluation of the pilot project results.
- Informing industry as to the progress of the project.
- Working towards reasonable *consensus* on recommendations and work group documents.
- Recognizing and respecting the confidentiality of any non-public data that may be provided by the AESO.
- Undertaking such further acts and entering into any agreements as reasonably required by the AESO in order to fully perform or carry out their responsibilities hereunder, including, but not limited to, Non-disclosure Agreements.

Any member of the work group is precluded from being able to bid or assist a bid to any RfPs that are issued from the work group.

## **PILOT PROJECT STRATEGY**

### **Preamble**

Wind power forecasting is being done around the world. There are several different methods being used. These methods include centralized, decentralized, persistence, physical, statistical, ensemble, etc. In each area, either the operational and market structure determined which forecasting method is used, or the capability of forecasting determined what the operational and market structure would be. In Alberta, the AESO is first aiming to determine what the capability of wind power forecasting is before defining the operational and market rules wind power will be required to meet. As such, this pilot project aims to solicit and evaluate various forms of wind power forecasting from a number of different providers.

### **Process**

The work group shall meet to define these terms of reference. Once this is complete, the pilot project will be developed in the following five phases.

The first phase will begin with the immediate development of two Request for Proposals (RfPs) to solicit proposals of forecasting providers to participate in the pilot project. The first RfP will be designed to solicit a number of different forms of wind power forecasting for a trial period, and the second RfP shall be designed to solicit a provider to complete the quantitative analysis of the results. The RfPs will be issued and managed by the AESO.

The second phase will involve the work group assisting the AESO in the evaluation of proposals received and the selection of forecasting providers to provide forecasting methods and analysis. As the AESO is issuing and managing the RfPs, the AESO will make the final decision regarding its entering into any service agreements resulting from the RFPs. Selection criteria and evaluation process shall be agreed upon and outlined within the RfP. Selection criteria shall include cost, timelines, previous experience and recommendations.

The third phase will be the oversight of the wind power forecast trials. This may include working with the forecasting providers and providing them with the necessary data and infrastructure to effectively implement their forecasting method. An AESO statistical persistence forecast may be implemented as a baseline to compare other methods against. Quarterly evaluation reports will be written by the provider of the quantitative analysis to the AESO to give direction to other wind integration initiatives.

The fourth phase will include the evaluation of the results after a pre-defined duration of forecasting. An outcome of this phase shall be a final evaluation report from the provider of the quantitative analysis describing the different methods trialed and a comparison of each against each other (and perhaps against the baseline AESO persistence forecast). Forecast providers will be expected to provide their recommendations for technical requirements involving forecasting.

The fifth phase will be the development of a recommendation by the AESO assisted by the Work Group on wind power forecasting methods to be incorporated into the technical requirements of wind power facilities, operational procedures and policies and/or market design. This recommendation may include recommendations regarding different wind power forecasting methods for different purposes, and may include recommendations for different providers for different forecasting methods.

## **Timelines**

### Phase 1

- Kick-off session July 19, 2006
- RfP Issued Oct, 2006

### Phase 2

- Selection of trial participants Nov, 2006

### Phase 3

- Implementation and conduct of trial Dec 06 – End Dec 07

#### Phase 4

- Final Evaluation Report Mid Jan, 2008
- Comments received from Industry Mid Feb, 2008

#### Phase 5

- Work Group recommendation End Feb, 2008

### **Meetings**

The work group shall meet or arrange a conference call every two weeks. After the trials begin, a conference call may be sufficient to discuss the progress. Meeting will be open to all industry stakeholders with proper notice to chair of attendance

### **Reporting**

Quarterly evaluation reports shall be written as per the schedule above. A final report shall be issued for industry comment as per the schedule above.

### **Communication of Documents**

All communication of documents will be through the AESO. As documents are approved they will be posted onto the AESO's website to a specific site designated to the Forecasting working group. Work Group Participants' comments and submissions will remain confidential to the Work Group and will not be posted or distributed.

### **INDUSTRY WORK GROUP MEMBERS**

Alberta Electric System Operator

AltaGas Income Trust

CanWEA Representatives

- Vision Quest
- Shell Canada Limited
- West Windeau Inc.

TransCanada Pipelines Ltd.

The Alberta Department of Energy

Environment Canada

Natural Power Consultants Ltd.

Phoenix Engineering Inc.