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Via email: stakeholder.relations@aeso.ca

Gentlemen,

Re: AESO Recommendation Paper
Implementation of
MARKET Operational Framework
For Wind Integration in Alberta

RHO welcomes the opportunity to comment on the subject paper.

It must be acknowledged that process is paramount in any bureaucratic organization; doubly so when an engineering system is involved. Traditionally, engineers don't like to be told that their system is subject to Mother Nature. She will do her own thing, regardless of whether it is anticipated by the "system". In the present context, a process founded on an inadequate understanding of the wind resource would be, at best, inefficient; at worst a system failure waiting to happen.

The forecasting Pilot Study was less than spectacularly successful. For its own corporate reasons, the AESO constrained the study to the relatively small portion of southern Alberta presently containing operational wind farms. Boundaries were gerrymandered to create western, central and eastern portions of southern Alberta. The AESO declined to provide forecasters with guidance as to the time frames of most importance, thus denying forecasters the opportunity to focus their product. At least one of the international consulting companies apologized for its results in the special and unfamiliar southern Alberta wind climate. With this background, the AESO, in the present paper, requests concurrence to do a RFP, presumably of these same experts, for a long term forecasting service. It is RHO's opinion that such a contract is not appropriate at this time.

What happened to the suggestion, at the conclusion of the forecasting pilot study, that the AESO liaise with Atmospheric Environment Services of Environment Canada to coordinate Alberta trialing of AES' new finer scale regional model? AES' national models are run at the six hourly GMT intervals (i.e. 01:00, 07:00, 13:00 and 19:00 MST). Perhaps the regional model is also run at the intervening 03:00 intervals but these would be without fresh upper air values. This is as good as modeling, or forecasting, is going to get. Repetitive

iterations add nothing new to the forecast. A regional model of this nature is likely to satisfy the AESO's D-2 requirement.

In RHO's opinion, a totally different approach is required to meet T-20, or similar, needs. Rather than forecasting as such, the approach needs to be a rigorous exercise in real time data acquisition and application. As RHO understands the process, the AESO receives every wind turbine's SCADA, including weather parameters, in real time. Archived data provide the opportunity to analyze turbine, and farm, response to each compass point winds. Upwind measurements accurately predict down wind values with appropriate time offset (eg1: Crowsnest Pass, Cowley Ridge and Summerville winds predict westerly wind events at Fort MacLeod; eg2: southwesterly wind events at Waterton Park Gate, Cardston, and Suncor McGrath all go to prediction of those events at Enmax Taber. Some stand-alone met tower data will be required to supplement SCADA but it is entirely within reason to anticipate an operable real-time dataset at reasonable cost. The wind power product of the total wind generator system in southern Alberta can be accurately predicted based on factual data. This is not the same as forecasting.

The thrust of the Recommendation Paper is towards rationalization of the balance between Energy Market Merit Order (EMMO), regulating reserves, load/supply following, and Wind Power Management. It is RHO's opinion that intelligent balance of these processes and the creation of relevant prodicals cannot be done until a firm expectation is available as to the ultimate ability to model wind production by forecasting/application of real-time data.

The AESO continues to insist that an interconnection level playing field is created by not giving preference to renewable energy. This is 20th century thinking which ignores the reality of GHG production from the burning of fossil fuels and that those are cumulatively poisoning the earth's atmosphere. We are told that the degree of climate change 35 years out has already been determined. What is at issue is the additional exponential increase by society's activity forward. Society cannot afford to wait 15 years to determine the practicality of Sequestration and Burial. In recent months the renewable energy industry media have reported on European experience across the past thirty years; they don't attempt burial. Recently, both significant oil sand and conventional oil participants have opted out of the Alberta program. We don't get a "do over" here. Where is Plan B?

Last summer the AESO suggested that it would be convening a meeting of interested parties to discuss potential contingency reserve methodologies and proposals. That meeting never happened. At any given time, the gas plant component of the grid is functioning at a fraction of its capacity. Typically, in the early evening, this ranges between 75 and 80%. Every gen set comes with a manufacturer's warranted power curve and related fuel consumption curve. Optimum fuel consumption corresponds to the Alberta grid practice. Are not these facilities, in effect, spinning contingency reserves? By varying fuel

consumption by, say 15%, some 700 MW of reserve could be available. The profitability of these facilities would be affected only marginally.

WPM needs to be clearly defined as a “last resort” response. The need for such is inversely proportionate to forecast accuracy and to the efficiency of alternative processes. In the real world it will be almost impossible to convince renewable resource investors to invest in Alberta wind when due diligence obliges developers to advise investors: “Oh, by the way, the AESO reserves the right, at any time, to reach over and turn us off.” The methodologies of WPM allocation discussed in the Recommendation Paper appear to have the effect of rewarding mediocrity and penalizing excellence in wind farm efficiency factor.

Should it be deemed constructive, RHO is prepared to enter into detailed discussion with the AESO of an operable real-time data project.

Respectfully submitted,

R. W. Craig
President