

AESO Discussion Paper – Short-Term Wind Integration

Stakeholder Comment Matrix

Stakeholder: Suncor

Section	Subsection	Stakeholder Response
<p>4.0 Policy Coherence</p>	<p><u>Wind Integration Principles</u></p> <ol style="list-style-type: none"> 1. Any potential suite of wind integration tools must ensure the safe and reliable operation of the system. 2. Market solutions are preferable to administrative solutions. 3. The energy market merit order is primarily a tool for balancing energy requirements on the system. 4. All generation should be treated fairly while recognizing their unique characteristics. 5. Ancillary services are a tool to protect the system from events that cannot be reasonably controlled. <p>The draft principles are intended to outline a preliminary view on the interpretation of FEOC as it relates to the interaction between wind generation, the energy market and ancillary services. This relationship must be explored in order to develop a long-term wind integration plan that is grounded in policy and consistent with the current market design.</p>	<p>Suncor recommends the following principles underlie the consideration, and determination of wind integration tools in the short and long term:</p> <ol style="list-style-type: none"> 1. Any potential suite of wind power integration tools must not adversely impact the safe and reliable operation of the system. Wind power integration tools, by themselves, cannot ensure the safe and reliable operation of the system. 2. Market solutions are preferable to administrative solutions. 3. The energy market merit order is primarily a tool for balancing energy requirements on the system. 4. All generation should be treated fairly while recognizing their unique characteristics. 5. Ancillary services are a tool to protect the system from events that cannot be reasonably controlled. 6. Wind integration tools should be consistent with, and promote, a FEOC market. 7. Rules and operating policies and procedures that address the integration of wind power to the interconnected system should be consistent with other rules and operating policies and procedures that impact wind power. <p>In light of these principles, Suncor recommends the following:</p> <ul style="list-style-type: none"> • Release to all market participants, on a facility by facility basis, the wind related data from the two year pilot. The release would include both the forecast data and the actual data from the pilot period. This would allow the AESO and market participants to engage in an informed discussion about the merits and capability of wind power forecasting on both an aggregate and facility basis and determine the ability of wind forecasting to support a must offer, must comply obligation for wind. • Establish a requirement to forecast wind power – this is

		<p>consistent with all 7 identified principles above. An analysis of the pilot data would suggest whether forecasting is most effective on a facility or an aggregate basis.</p> <ul style="list-style-type: none"> Do not institute a must offer, must comply obligation on wind generation facilities. Given the unique and distinct nature of wind generation, it would be unduly discriminatory to require wind to comply with dispatch instructions or to stay within the permissible dispatch tolerance; requiring wind generation facilities to forecast facility output and turbine availability is a reasonable and fair alternative to a must offer, must comply obligation. <p>A review of the pool rules indicates that the term “must offer, must comply” is not defined. It is important that the AESO define the term so that all pool participants understand and use it consistently.</p>
<p>6.0 Short-Term Integration Tools</p>	<p>6.1 Energy Market Merit Order</p> <p>Stakeholder feedback on using the EMMO to integrate wind generation is requested with the following key points:</p> <ul style="list-style-type: none"> At what point is over-dispatching the merit order for ramp rate unacceptable from a FEOC perspective? If the need to over-dispatch EMMO can be anticipated prior to real-time, should tools such as incremental ancillary services and/or WPM be used in place of over dispatching EMMO? In the long-term, should new ancillary services be developed that will reduce the instances of over dispatching EMMO for ramp rate both for wind and for other reasons? 	<p>In light of the principles identified and recommendations proposed in section 4.0 above, Suncor suggests reliance on the EMMO to manage the variability of wind power would violate the following principles:</p> <ul style="list-style-type: none"> Market solutions are preferable to administrative solutions. Non-wind generation submitted offers on the assumption that the facility would be dispatched for energy. Using the EMMO to manage the variability of wind power is a quasi-administrative tool. In relying on the EMMO to manage the variability of wind the system controller is dispatching facilities on the margin based on offers submitted for a different purpose. The energy market merit order is primarily a tool for balancing energy requirements on the system; it should not be used to manage the variability of wind power in the long term. All generation should be treated fairly while recognizing their unique characteristics. A reliance on EMMO to manage the variability of wind power requires persistently dispatching units for short periods of time to achieve the desired system ramp rate; this has adverse impacts on the dispatched generating facilities, which is not consistent with fair treatment.
	<p>6.2 Operating Reserve</p> <p><u>Regulating Reserve</u></p>	<p>In light of the principles identified and recommendations proposed in section 4.0 above, Suncor suggests acquiring incremental ancillary services (“wind following services”) to manage the variability of wind power would be appropriate and consistent with the identified principles.</p>

	<ul style="list-style-type: none"> • Is it appropriate and FEOC to procure RR day-ahead when the wind forecast suggests they will be required to mitigate wind volatility? • How should the volume, if any, of incremental active regulating reserve be determined? <ul style="list-style-type: none"> ○ Based on the volume required to accommodate forecast wind energy? ○ Based on a tradeoff between the cost of incremental reserve and the value of lost wind production? ○ Based on the volume required to reliably integrate wind without planning to rely on tools such as over dispatching the EMMO? • Should standby RR be activated in near-real time to manage the system over and above current RR levels? <ul style="list-style-type: none"> ○ Activating standby reserve would need to be done prior to an actual problem because moving reserve from standby to active make a situation worse as the unit activated alters its generation to provide the service. ○ Is it appropriate and FEOC to activate standby RR near real-time (T-2 or even T-30min) when the near real time wind forecast and system conditions suggest they will be required to mitigate wind volatility? • In the long-term, should regulating reserve be split into a load following product and an AGC product? 	<p>Wind following services could be comprised of both active and stand-by regulating and contingency reserves.</p> <p>Since load benefits from the resultant downward pressure on system marginal price and pool price when wind power is available as well as the resultant cleaner environment, it would be appropriate for load to pay for the cost of wind following services.</p> <p>Suncor requests that the AESO provide adequate information to assist market participants in responding to the questions posed in section 6.2 – regulating reserve and contingency reserve.</p>
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6.2 Operating Reserve

Contingency Reserve

- Should the AESO use mandatory active contingency reserve to manage unexpected decreases in wind generation if allowed by NWPP?
- Should the AESO carry incremental active contingency reserve to insure against decreases in wind generation?
 - This reserve could be tailored for specific hours when wind is forecast to ramp down and load forecast to ramp up, for example.
 - The alternative is likely to fully dispatch EMMO for ramp rate requirements when wind energy unexpectedly declines.
 - This is consistent with the use of contingency reserve to replace lost generation from other resources.
- Should standby contingency reserve be activated in near-real time to manage the system, i.e. the system would carry more than the minimum active contingency reserve in some hours to manage wind variability?
 - Reserve would need to be activated prior to an actual problem.
 - The accuracy of the wind forecast inside T - 2 or even T - 30 minutes will determine the likelihood of activating standby reserve only when required.
- Should unexpected decreases in wind generation be treated equivalently to other generation contingencies, i.e. the system carries

	<p>sufficient contingency reserve to manage unexpected loss of generation?</p>	
	<p>6.3 Wind Power Management</p> <ul style="list-style-type: none"> • Under what conditions is it appropriate to use WPM? <ul style="list-style-type: none"> ○ In advance of conditions that might place the system at risk? <p>For example, if wind is at a high level and expected to ramp down concurrently with the morning load ramp up, should WPM be used proactively or should a solution such as activating standby contingency reserve be used?</p> ○ When the wind ramp is not forecast? <p>This implies the AESO purchase sufficient ancillary services to accommodate forecast ramps.</p> ○ When the wind ramps up more rapidly than the EMMO can accommodate without over dispatching? <p>This allows wind production to increase only as fast as the EMMO can ramp down and implies that incremental ancillary services will not be purchased to accommodate potential wind ramp up events.</p> ○ Under supply surplus conditions? • Should the AESO establish a WPM market solution or is pro-rata appropriate? <ul style="list-style-type: none"> ○ How would a WPM market interact with the solution for supply surplus and/or congestion management? ○ Would participation be limited to wind 	<p>Suncor suggests that it is in loads best interest, in terms of a lower pool price and a cleaner environment, that the AESO not use wind power management to administratively manage the variability of wind power. Variability of wind conditions are best managed through the usage of wind following services. The AESO should consider the merit and structure for wind following services that permits all generators, including wind, to offer to constraint ramps up and down in the event of wind power variability.</p>

	<p>facilities and how would costs be allocated?</p> <ul style="list-style-type: none"> • In the long-term, should the AESO develop an ancillary service that accommodates wind ramps up by reducing production from in merit generators and/or wind facilities themselves? <ul style="list-style-type: none"> ○ Is this an appropriate cost for load to bear since wind can manage this operational challenge through a WPM protocol? 	
	<p>6.4 Wind Power Forecast</p> <ul style="list-style-type: none"> • Should the system be able to accommodate forecast wind generation? <ul style="list-style-type: none"> ○ Purchase sufficient reserve to accommodate forecast wind generation. ○ The alternative is to rely on more WPM and /or over dispatching EMMO. • Should the wind power forecast for individual facilities (or the aggregate wind forecast) resemble a must offer must comply obligation in the long-term? <ul style="list-style-type: none"> ○ If the forecast creates obligations for wind facilities, does it also create obligations for the system to absorb the forecast without using WPM? 	<p>As per the comments provided in section 4.0, Suncor suggests it is appropriate to require a forecast of facility output and turbine availability as a reasonable and fair alternative to a must offer, must comply obligation for wind generation. This forecast can be employed to procure sufficient additional wind following services to manage the variability of wind power.</p>
	<p>6.5 Summary of Integration Options</p> <p><u>Short-Term Requirements</u></p> <ul style="list-style-type: none"> • Determine the volume, mix and procurement strategy for incremental ancillary services as wind capacity increases • Develop a process to implement WPM 	<p>Suncor suggests it would be appropriate for the AESO to establish processes and options for managing wind in the short term that are appropriate for employment in the long term and are consistent with the identified principles. As per the comments in section 4.0, the AESO should release the data gathered during the two year pilot period to inform the discussion on the volume, mix and procurement strategy for wind following services to replace reliance on EMMO as the means to manage wind power variability. Suncor recognizes that in the interim</p>

	<ul style="list-style-type: none"> • Develop guidelines on the use of WPM in real time or near real time 	<p>the AESO will need to continue its reliance on EMMO as it transitions to procuring wind following services.</p>
	<p>6.5 Summary of Integration Options</p> <p><u>Potential Long-Term Direction</u></p> <ol style="list-style-type: none"> 1. Mitigate wind power primarily through the use of centrally procured ancillary services <ul style="list-style-type: none"> ○ Minimal use of WPM ○ No must offer must comply obligation for wind ○ A ramping service would be developed 2. Mixed solution <ul style="list-style-type: none"> ○ WPM used to mitigate wind ramp up events ○ Reserve to mitigate wind ramp down events ○ A ramping service may be developed ○ Could entail a form of must offer must comply obligation for wind generators particularly to control ramp ups 3. Create similar obligations for wind generators as exist for other generators <ul style="list-style-type: none"> ○ Wind power forecast could be part of a must offer must comply obligation ○ Could require wind to be firm at T – 2 ○ Wind firming service developed either by the market or by AESO 	<p>As per Suncor’s comments on the summary of integration options for short term requirements, the AESO should establish processes and options for managing wind in the long term that are consistent with the identified principles.</p> <p>Suncor recommends that wind power variability be managed through the deployment of centrally procured wind following services rather than EMMO or administratively directed wind power management and that wind power forecasting be a reasonable and fair alternative to a must offer, must comply obligation for wind power.</p>