AESO Discussion Paper – Short-Term Wind Integration
Stakeholder Comment Matrix

Section	Subsection	Stakeholder Response
4.0 Policy Coherence	**<u>Wind Integration Principles</u>** 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. 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.	MEG Energy Corp. ("MEG Energy") supports the AESO identified principles for the integration of wind to Alberta's interconnected system with minor adjustments as provided below: • Any potential suite of wind integration tools <u>must not adversely impact</u> the safe and reliable operation of the system. Wind integration tools cannot ensure the safe and reliable operation of the system but do need to ensure that, when employed, they do not adversely impact the safe and reliable operation. • Market solutions are preferable to administrative solutions. • The energy market merit order is primarily a tool for balancing energy requirements on the system. • All generation should be treated fairly while recognizing their unique characteristics. • Ancillary services are a tool to protect the system from events that cannot <u>be reasonably anticipated and planned for.</u> • <u>To the greatest extent possible, costs of wind integration mechanisms should be allocated on a cost causation basis</u>. • <u>Wind integration tools should be consistent with, and promote, a FEOC market</u>.

6.0 Short-Term Integration Tools	**6.1 Energy Market Merit Order** Stakeholder feedback on using the EMMO to integrate wind generation is requested with the following key points: • 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?	In light of the principles identified in section 4.0 above, MEG Energy suggests the following: • The AESO institute a must offer, must comply requirement for wind (supported by a wind forecast). Must offer, must comply obligations could be managed through both wind power management services and "wind firming" services which could be procured in a centralized or decentralized manner. A must offer, must comply obligation for wind would be consistent with the following principles: o Any potential suite of wind integration tools must not adversely impact the safe and reliable operation of the system. Neither of wind power management or wind firming services would adversely impact the safe and reliable operation of the system; in fact, these services would enhance the safe and reliable operation of the system. o Market solutions are preferable to administrative solutions. Reliance on over-dispatching the EMMO to manage the variability of wind generation is a quasi-administrative solution. The over-dispatched units' offers were most probably premised on being dispatched for energy and not premised on being dispatched, up and down, to manage the variability of wind. The AESO, in directing the units to ramp up and down to respond to wind variability, is employing a quasi-administrative solution. o The energy market merit order is primarily a tool for balancing energy requirements on the system. As the AESO stated in the discussion paper, "The EMMO supplies ramp rate to the market by its nature, but persistently dispatching multiple units for short periods to achieve a higher system ramp rate results in impacts to generating unit operators, price responsive load and other market participants.

		While EMMO may be dispatched in this manner on an as needed basis, **it is not a desirable practice**." [emphasis added]. Units that are prepared to be frequently dispatched for short periods and incur impacts to the facilities can offer into the wind firming service market. o All generation should be treated fairly while recognizing their unique characteristics. A must offer, must comply obligation would be applicable to all generation supply thereby leveling the competitive field. o Ancillary services are a tool to protect the system from events that cannot be reasonably anticipated and planned for. With the commencement of wind forecasting, the variability of wind can be reasonably anticipated and managed through the use of both wind power management and wind firming services as appropriate. o To the greatest extent possible, costs of wind integration mechanisms should be allocated on a cost causation basis. The costs of both wind power management and wind firming services would be allocated to wind. o Wind integration tools should be consistent with, and promote, a FEOC market. A must offer, must comply obligation for all generation supply would be consistent with, and promote, a FEOC market. • In both the short term and the long term, tools such as wind power management and wind firming services should be used in place of over dispatching EMMO or procuring additional ancillary services to manage the variability of wind.
	6.2 Operating Reserve	Given MEG Energy's detailed comments in section 6.1, MEG Energy will not comment further in this section other than to

	<u>Regulating Reserve</u>
	
	• 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?
	  o Based on the volume required to accommodate forecast wind energy?
	  o Based on a tradeoff between the cost of incremental reserve and the value of lost wind production?
	  o 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?
	  o 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.
	  o Is it appropriate and FEOC to activate standby RR near real-time
		reiterate that MEG Energy does not support the use of ancillary services as a tool for wind integration in the short nor long term.
		
		However, if the AESO is querying whether it should procure different “classes” of operating reserve to meet its WECC obligation for ancillary services, then MEG Energy would support the classification of operating reserves requirements and procurement into fast ramping services and slow ramping services. Distinguishing between these two products may allow the AESO to procure and dispatch the “right” amount of ramp services thereby minimizing over-dispatch and its attendant impact on SMP volatility, maintenance costs for the ramped units and increased cost for load.

	(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?	
	6.2 Operating Reserve **<u>Contingency Reserve</u>** • 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? o This reserve could be tailored for specific hours when wind is forecast to ramp down and load forecast to ramp up, for example. o The alternative is likely to fully dispatch EMMO for ramp rate requirements when wind energy unexpectedly declines. o This is consistent with the use of contingency reserve to replace lost generation from other resources.	Given MEG Energy's detailed comments in section 6.1, MEG Energy will not comment further in this section other than to reiterate that it does not support the use of ancillary services as a tool for wind integration in the short or long term. .

	• 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? o Reserve would need to be activated prior to an actual problem. o 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 sufficient contingency reserve to manage unexpected loss of generation?	
	6.3 Wind Power Management • Under what conditions is it appropriate to use WPM? o In advance of conditions that might place the system at risk? 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? o When the wind ramp is not	MEG Energy suggests that there are a number of conditions under which wind power management is appropriate: • Wind power management can be procured as a service by which the variability of wind can be managed, the costs of which are charged to wind generators. • Wind power management can be used to direct a reduction of supply under supply surplus conditions. MEG Energy reiterates that it does not support the use of regulating reserves or contingency reserves as tools for wind integration in the short or long term.

	forecast? This implies the AESO purchase sufficient ancillary services to accommodate forecast ramps. o When the wind ramps up more rapidly than the EMMO can accommodate without over dispatching? 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. o Under supply surplus conditions? • Should the AESO establish a WPM market solution or is pro-rata appropriate? o How would a WPM market interact with the solution for supply surplus and/or congestion management? o Would participation be limited to wind facilities and how would costs be allocated? • 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? o Is this an appropriate cost for load to bear since wind can manage this operational challenge through	

	a WPM protocol?	
	6.4 Wind Power Forecast • Should the system be able to accommodate forecast wind generation? o Purchase sufficient reserve to accommodate forecast wind generation. o 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? o If the forecast creates obligations for wind facilities, does it also create obligations for the system to absorb the forecast without using WPM?	In light of the principles identified in section 4.0, MEG Energy supports a wind power forecast (whether on a facility basis or an aggregate basis) resembling a must offer, must comply obligation in both the short and long term. In both the short term and the long term, tools such as wind power management and wind firming services should be used in place of over dispatching EMMO or procuring additional ancillary services to manage the variability of wind.
	6.5 Summary of Integration Options **<u>Short-Term Requirements</u>** • Determine the volume, mix and procurement strategy for incremental ancillary services as wind capacity increases • Develop a process to implement WPM • Develop guidelines on the use of WPM in real time or near real time	MEG Energy suggests that a better result would ensue from establishing processes and options for managing wind integration for the long term. If short term options are truly required they should be consistent with the principles of managing wind integration in the long term. Wind power management is an example of an option that could be utilized in the short term and would be appropriate for the long term.

	6.5 Summary of Integration Options **<u>Potential Long-Term Direction</u>** 1. Mitigate wind power primarily through the use of centrally procured ancillary services o Minimal use of WPM o No must offer must comply obligation for wind o A ramping service would be developed 2. Mixed solution o WPM used to mitigate wind ramp up events o Reserve to mitigate wind ramp down events o A ramping service may be developed o 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 o Wind power forecast could be part of a must offer must comply	MEG Energy supports the adoption of option 3 as described by the AESO and has provided detailed comments of such in section 6.1.

	obligation o Could require wind to be firm at T – 2 o Wind firming service developed either by the market or by AESO	