Date of Request for Comment: April 7, 2017	**Contact:** Kalvin Kroker
Period of Comment: April 7, 2017 through May 5, 2017	**Phone:** 403.315.5384
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Listed below is the summary description of changes for the proposed new Section 304.9. Please refer back to the Letter of Notice under the "Attachments to Letter of Notice" section to view the actual proposed content changes to the ISO rules. Please place your comments/reasons for position underneath (if any).

1. ISO Rules	Market Participant Comments and/or Alternate Proposal
New The AESO is seeking comments from market participants with regard to the following matters: 1. Do you agree or disagree with the proposed new Section 304.9? If you disagree, please provide comments. 2. Are there any subsections where the language does not clearly articulate the requirement for either the AESO or a market participant? If yes, please indicate the subsections and suggest language that would improve the clarity.	*Comment # 1: Regarding 'Data Collection Equipment and Availability Requirements' section 4(2) – will two complete sets of devices (temperature, RH, barometric pressure and precipitation) be required at hub height and 35 m? What specific devices need to be installed at hub height and at 35m? It would be helpful if 304.9 specifically stated what sensors are required at what heights. These devices will be installed for a number of years (20?) and failures will occur. In a wind facility, is it possible to install the temperature, RH, barometric pressure and precipitation sensors at ground level to allow for easier maintenance? Repairing or replacing sensors at height requires the scheduling of climbers and safe climbing conditions. Repair times could be several weeks for instruments installed at height. Having as many sensors as possible at ground level may negate the need* to have two of each sensor as the wind facility operator can have spares on hand which could be *replaced at any time and in most weather conditions. WSP recommends that anemometer and wind vanes be installed at hub height and 35 m and the remaining sensors be installed at ground level. Best practice is to install anemometers in redundant pairs for each height. Logic within the data logger can be used to compare the two wind speed values and only send the valid one to AESO. Having this failover system in place will provide more time to the wind facility operator to arrange for repairs. There are ultrasonic sensors available with heavy duty heating that would be very suitable for this application as they do not have any moving parts and do not require maintenance so will be accurate over the many years they are deployed. The robust heating will keep them operational in all but the most extreme icing conditions. Ultrasonic sensors measure both wind speed and direction so a mechanical wind vane, which are prone to icing, will not be required either. All boom dimensions should follow the IEC 61400-12-1 standards to minimize flow distortion. It is also recommended that facility operators maintain all meteorological equipment as per the manufacturer's recommendations.* *Comment # 2: Regarding 'Data Collection Equipment and Availability Requirements' section 4(2) – section*

	4(2) states 'two (2) sets of meteorological data collection equipment' . This could be interpreted that two data acquisition devices (data loggers) are required. *Comment # 3: Regarding 'Data Collection Equipment and Availability Requirements' section 4(2b) – in a wind facility, lower blade tip height would be more useful in wind turbine performance analysis than a standard 35 m. Hub heights are increasing, so it is possible the forecasters would benefit long term from a lower blade tip height specification rather than a standard 35 m.* *Comment # 4: Regarding 'Data Collection Equipment and Availability Requirements' section 4(3) – section 4(3) describes the required number of meteorological data collection equipment required on a solar facility. Is there a similar section in 304.9 that describes the number of meteorological stations required for wind facilities varying in size?* *Comment # 5: Regarding 'Data Collection Equipment and Availability Requirements' section 4(6) – what is meant by 'gross real power capability'. A brief description/clarification would be useful. Also, how is this data to be submitted, in what format and over what period? Does AESO require a prediction of turbine availability for a future number of hours/days? One option would be for AESO to host a central website through which all wind and solar operators enter their forecasted outages. Having this in a central location would facilitate a common interface for all users. The data collected on this site could then be easily merged with the real-time and static data that AESO is collecting for forecasting purposes. WSP has developed forecasting software for a number of wind farms within Alberta and could assist in the development of this website if required.* *Comment # 6: Regarding 'Data Transfer Technical Specification' section 5(2) – how is the data to be submitted? Will the forecasting data be submitted along with the SCADA data specified in the functional specification directly from the site RTU?* *Comment # 7: Regarding 'Data Transfer Technical Specification' section 5(3) – a 48 hour repair period is too short for sensors that are installed at heights. Most wind facilities will need to schedule a climber and may need to wait for acceptable climbing conditions. 48 hours is reasonable for sensors installed at ground level. Mandating redundant wind speed and direction sensors at each height that automatically failover to the known good sensor would increase data availability and provide the operator a wider window to repair the sensor.* *Comment # 8: Table 1 – What is meant by an 'Ice-up Parameter'? Is this a calculated value or the output of an icing sensor? If it is an icing sensor, at what height(s) should the icing sensor be installed? It is possible to derive an icing flag from temperature, humidity and pressure values. WSP could provide some recommendations on how to specify the icing flag calculation if requested by AESO. Some turbines will also indicate icing conditions in their SCADA feed to the RTU. WSP has used this flag to control other*

	processes (road warning signs) in previous projects.