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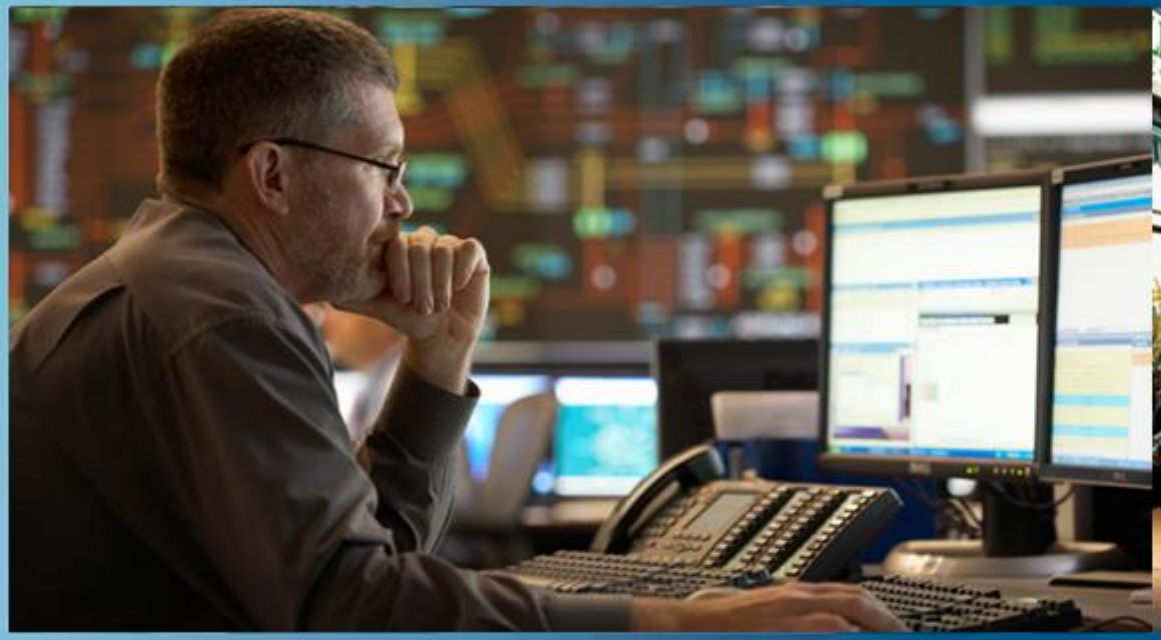
Visibility Technical Working Group

Data Requirements for Wind Generation Facilities
March 16, 2011



Overview

- The IESO would like to thank stakeholders for submitting comments and additional study material to assist in developing wind facility data requirements.

- We considered stakeholder feedback received during the working group session and in writing following the session in making revisions to the data requirements.

Revised Static Data Requirements

7	Cut out temperature	The maximum and minimum ambient temperature (in °C) at which the wind turbine will be shut down to prevent physical damage.

- Revision made to reflect stakeholder feedback.

Revised Dynamic Data Requirements

#	Measurement Type	Unit of Measure	Height of Measurement	Precision (to the nearest…)
1	Wind Speed	Metres per Second (m/s)	Hub height	0.1 m/s
2	Wind Direction	Degrees from True North	Hub height	1 degree
3	Ambient Air Tempurature	Degrees Celsius (°C)	Hub height or 2m	0.1 °C
4	Barometric Pressure	Hectopascals (HPa)	Hub height or 2m	60 Pa
5	Relative Humidity	Percentage (%)	Hub height or 2m	1.0%
~~6~~	~~Ice Conditions~~	~~Flagged when present~~	~~Hub height~~	~~Flagged~~

- Revisions made to update edit errors and reflect stakeholder feedback.
- Icing conditions was removed to reflect lack of consistent data availability. Flagging of icing conditions will be addressed with central forecaster.

Revised Dynamic Data Collection Requirement

The IESO proposes that dynamic data elements numbered 1 through 5 inclusive in the above table ~~would~~ be collected ~~from a standalone meteorological tower~~ such that no turbine is further than 5km from the nearest nacelle mounted meteorological data collection point~~tower~~. ~~These dynamic data elements would be collected from the standalone meteorological tower at turbine hub height.~~

Each wind facility shall provide dynamic data elements numbered 1 through 5 inclusive in the above table from standalone meteorological towers that are located in areas that are representative of the microclimate and winds at hub height on the prevailing upstream side of the wind farm. Wind facilities shall provide data from multiple meteorological towers per the following table.

Facility Size	Total number of meteorological towers per facility
Less than 10MW	None
10MW to less than 100MW	1 minimum
100MW to less than 200MW	2 minimum
200MW to less than 300MW	3 minimum
Etc.	

Revised Dynamic Data Collection Requirement Continued

- Nacelle mounted data collection is a more cost effective solution for the bulk of data measurements across a facility.
- Existing facilities have multiple meteorological towers, with larger MW facilities having more met towers.
- Other NA jurisdictions generally have a requirement for at least one meteorological tower.
- Meteorological towers provide a valuable source of free stream data used to optimize the relationship between met variables and facility-specific power output and to correct weather forecast model errors.
- The IESO considers it reasonable that the meteorological tower requirement scale with the size of facility.

Revised Dynamic Data Communication Requirement

4. Dynamic Data communication

All dynamic data would be communicated to the IESO ~~at a frequency and by a means as~~ per IESO approved methodologies and standards.

- The communication of dynamic data should be consistent with the methods and standards discussed in the earlier presentations.