

1 Q. **Wind power**

2 **Re: Amended Application, p. 4.15, lines 13-14; Exhibit 9, Addendum, p. 2**

3 Citation 1:

4 From a system planning perspective, Hydro no longer assumes that wind
5 generation will be available to supply system capacity requirements.

6 Citation 2:

7 In addition, Hydro's system planners do not reflect the capacity of wind in
8 capacity planning.

9 Upon what studies does Hydro base its conclusion that wind generation will not be
10 available to supply system capacity requirements?

11 Do other Canadian utilities also attribute zero capacity value to wind generation?

12 Please provide references in support of your response.

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15 A. Please see Hydro's responses to NP-NLH-043 (Revision 1, Nov 28-14) and CA-NLH-
16 021 (Revision 1, Dec 12-14) for a description of the information on which Hydro
17 bases its conclusion that wind generation may not be available to supply system
18 capacity requirements. Based on this information, while the wind farms supply
19 capacity at times, they cannot be depended on to be available during the system
20 peak or near peak periods due to variable nature of wind conditions.

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22 While most other Canadian utilities do attribute some capacity value to wind
23 generation at peak periods (*NERC 2014-15 Winter Reliability Assessment –*
24 *November 2014*¹), Manitoba Hydro attributes zero capacity value to wind
25 generation on winter peak (*NERC 2014-15 Winter Reliability Assessment –*

¹ http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/2014WRA_final.pdf.

1 November 2014², page 18) due to expected weather conditions at the time of the
2 winter peak.

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4 Manitoba Hydro is a part of MISO (Midcontinent Independent System Operator).
5 From MISO's *Planning Year 2014-2015 Wind Capacity Credit*³ – December 2013
6 report, page 4:

7 Since 2009 MISO has embarked on a process to determine the
8 capacity value for the increasing fleet of wind generation in the MISO
9 system. The MISO process as developed and vetted through the MISO
10 stakeholder community consists of a two-step method. The first-step
11 utilizes a probabilistic approach to calculate the MISO system-wide
12 Effective Load Carrying Capability (ELCC) value for all wind resources
13 in the MISO footprint. **The second-step employs a deterministic**
14 **approach using the historical output of each wind resource, which**
15 **considers each wind resource's location.**
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17 Of interest is step two: "[t]he second-step employs a deterministic approach using
18 the historical output of each wind resource, which considers each wind resource's
19 location". This is the methodology that Hydro employs.

² http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments%20DL/2014WRA_final.pdf.

³ <https://www.misoenergy.org/Library/Repository/Study/LOLE/2014%20Wind%20Capacity%20Report.pdf>.