**State of Minnesota**

**Department of Commerce**

**Division of Energy Resources**

**Utility Information Request**

Docket Number: E015/CN-12-1163 Date of Request: July 7, 2014

Requested From: David R. Moeller, Senior Attorney Response Due: July 17, 2014

Analyst Requesting Information: Stephen Rakow

Type of Inquiry: [ ] Financial [ ] Rate of Return [ ] Rate Design
 [ ] Engineering [ ] Forecasting [ ] Conservation
 [ ] Cost of Service [ ] CIP [ ] Other:

***If you feel your responses are trade secret or privileged, please indicate this on your response.***

Request

No.

14 Please explain what “frequency response issues” as discussed on page 106 of the Petition means.

**Response:**

The example provided in the text on page 106 of the Petition is that a three phase AC fault in the Winnipeg area could cause simultaneous commutation failure for all HVDC converter stations in the area. During a commutation failure, no power is transmitted through the converter station. In the event of a simultaneous commutation failure of all converter stations in the Winnipeg area, the interruption of a large amount of power in a relatively weak southern Manitoba power system would cause a rapid rate of frequency decay. The southern Manitoba system is therefore highly dependent on strong AC ties to the United States, which are not interrupted by commutation failures, to maintain acceptable system frequencies in the event of a simultaneous failure of HVDC converter stations.

The Project as proposed would provide an additional AC tie line from southern Manitoba to the United States, improving frequency response capability during a simultaneous HVDC commutation failure event. An HVDC alternative to the Project would not provide the same benefits and when combined with the increased Manitoba – United States transfers that are driving the need for the Project, could actually erode Manitoba Hydro’s ability to maintain acceptable system frequencies during a simultaneous commutation failure.

Response by: Christian Winter\_\_\_\_\_\_\_\_\_\_\_\_\_ List Sources of Information:

Title: Transmission System Planning Engineer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Department: System Performance & Transmission Planning\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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