

BEFORE THE MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS
600 North Robert Street
St. Paul, MN 55101

FOR THE MINNESOTA PUBLIC UTILITIES COMMISSION
121 Seventh Place East, Suite 350
St Paul, MN 55101-2147

IN THE MATTER OF THE PETITION
FOR CERTIFICATES OF NEED FOR
THREE 345 kV TRANSMISSION LINE
PROJECTS WITH ASSOCIATED
SYSTEM CONNECTIONS

Docket No. ET2,E002 et al./CN-06-1115

REBUTTAL TESTIMONY OF HWIKWON HAM
ON BEHALF
OF THE MINNESOTA OFFICE OF ENERGY SECURITY

JUNE 16, 2008

REBUTTAL TESTIMONY OF HWIKWON HAM
IN THE MATTER OF APPLICATION FOR CERTIFICATES OF NEED FOR THREE 345 KV
TRANSMISSION LINE PROJECTS WITH ASSOCIATED SYSTEM CONNECTIONS

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1 **I. INTRODUCTION**

2 **Q. Please state your name.**

3 A. My name is Hwikwon Ham.

4
5 **Q. Are you the same Hwikwon Ham who previously submitted Direct Testimony on**
6 **behalf of the Minnesota Office of Energy Security (OES) in this proceeding?**

7 A. Yes.

8
9 **Q. What is the purpose of your Rebuttal Testimony?**

10 A. I am offering rebuttal testimony to the following parties' witnesses:

- 11 • North American Water Office and Institute for Local Self-Reliance (jointly,
12 NAWO-ILSR) witness:
13 ○ Mr. Michael Michaud; and
14 • Citizens Energy Task Force (CETF) witness:
15 ○ Dr. Arne C. Kildegaard.

16 Also, I attached my updated Q&A based on my June 13, 2007 errata filing at the
17 end of this testimony.

18
19 **II. REBUTTAL TESTIMONY**

20 A. *RESPONSE TO NAWO-ILSR*

21 **Q. What is the purpose of your offering rebuttal to NAWO-ILSR's Direct Testimony?**

22 A. Section II of the direct testimony of NAWO-ILSR's witness Mr. Michaud addresses
23 forecasting issues along with the new Minnesota conservation and renewable mandate

1 statute. He states that the forecast used by the Applicants is obsolete and inaccurate due
2 to new 2007 Minnesota conservation and renewable mandate statute.

3
4 **Q. How do you respond?**

5 A. First, I remind parties in the proceeding that OES addresses these issues in our Direct
6 Testimonies using the approach we presented to the potential parties during a meeting on
7 October 29, 2007.

8
9 **Q. Please explain the background for this meeting and re-summarize OES's approach**
10 **to this issue.**

11 A. In 2007 the Minnesota Legislature passed a law that requires Minnesota electric utilities
12 to conserve 1 to 1.5 percent of retail energy sales and to generate 25 to 30 percent of
13 energy need from renewable energy sources. To incorporate the effects of these two
14 significant issues in this proceeding, OES held a meeting with potential parties to this
15 proceeding including Mr. Michaud to propose the OES's method and invite comments on
16 this method. I used this method to incorporate the new requirements and incorporated
17 this method in my Direct Testimony based on OES's witness Mr. Davis's calculation of
18 the new DSM requirement and Ms. Peirce's calculation of additional renewable resource
19 needed.

20
21 **Q. Did any parties state an objection to the OES's method in prefiled Direct**
22 **Testimony?**

1 A. No. I reviewed all the parties' direct testimonies, and I did not find anyone objecting to
2 OES's method proposed earlier.

3
4 **Q. Based on these observations, what do you conclude regarding the forecasting issues**
5 **raised by Mr. Michaud?**

6 A. I refer to the section V of my Direct Testimony which has addressed his concerns.
7 Moreover, I note that the OES has gone to great lengths to inform parties about the
8 analytical approaches we would use in this proceeding so that parties would have ample
9 time to be aware of these issues and develop alternative approaches if needed.

10
11 *B. RESPONSE TO CETF*

12 **Q. What is the purpose of your offering rebuttal to CETF's Direct Testimony?**

13 A. Line 15 of page 10 to line 11 of page 11 of the Direct Testimony of CETF's witness Dr.
14 Kildegaard indicates that the Applicants should consider voluntary curtailment as an
15 alternative to address local reliability issues. I provide information in this testimony
16 regarding the feasibility of real-time pricing to address local reliability.

17
18 **Q. Can Real-Time-Pricing adequately alleviate the local reliability concerns?**

19 A. No. The first requirement for real-time pricing to be a viable alternative to local
20 transmission improvements is that the pricing must be communicated at the time of need
21 so that consumers receive the proper price signal at the time of need. I do not believe
22 such communication is possible at this time to any significant degree. First of all, there is

1 no guarantee that, at the time of local area peak, the MISO energy price will reflect the
2 local peak regardless of the existence or magnitude of VOLL (Value of Lost Load). For
3 example, at the time of local peak, if MISO has enough low cost energy available to
4 serve all the need, the MISO energy price may not be high enough to signal to customers
5 to voluntarily curtail their load. Second, at this point, a utility cannot send a different
6 price signal to different areas of its service area. A utility typically receives the market
7 price of energy for its load zone from the MISO market. A utility with a single load
8 zone will get only a single price signal from the MISO market. Therefore, a utility
9 typically cannot send a different price signal to its different service areas. Moreover, I
10 note that real-time pricing is a signal for consumers to respond, but it is not a
11 dispatchable, dependable resource. To the extent that consumers choose not to respond
12 to the price signals and curtail load when needed for the system, there can be reliability
13 effects not just on these customers, but on all customers in the area. For these reasons, I
14 conclude that at this time the real-time pricing cannot reliably replace local transmission
15 need even in a part.

17 **III. UPDATED Q&A BASED ON MY JUNE 13, 2008 ERRATA FILING**

18 **Q. Please explain the purpose of your June 13, 2008 errata filing.**

19 A. Based on OES witness Mr. Shaw's errata, I updated my calculation of non-renewable
20 interconnection need and total interconnection need.

1 **Q. Why was it necessary to update your calculation?**

2 A. Because the total interconnection need and non-renewable interconnection need are
3 essential parts of my analysis on the reasonableness of the Applicants' forecast, it is
4 important that the record reflect my calculation accurately based on the errata.

5
6 **Q. Do you have a change in your recommendation based on your June 13, 2008 errata**
7 **filing?**

8 A. No. As I stated in my Direct Testimony, I conclude that the peak demand forecasts used
9 in the engineering studies are reasonable.

10
11 **Q. Does this conclude your Rebuttal Testimony?**

12 A. Yes.