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October 10, 2017

Mr. Daniel Wolf
Executive Secretary
Minnesota Public Utilities Commission
121 7th Place East, Suite 350
St. Paul, MN 55101-2147

Re: Bent Tree Wind Farm Noise Monitoring – Monitoring Report
Docket No. ET6657/WS-08-573

Dear Mr. Wolf:

We are in receipt of the Bent Tree Wind Farm Noise Monitoring Report dated August 30, 2017 (“Report”) prepared by DNV GL-Energy and the September 28, 2017 letter from the Department of Commerce’s Energy Environmental Review and Analysis (EERA) staff to the Commission. We are sending this letter to draw to the Commission’s attention some features of the Report and the Report’s underlying methodology that we believe to be significant to evaluation of the Report and steps that may follow. Specifically, we believe that: (1) underlying meteorological conditions and wildlife activity may have been mistakenly identified as exceedances that would be appropriately reclassified as “explainable;” and (2) when appropriately reclassified and interpreted, the Report indicates that the compliance rate at the Langrud and Hagen sites is at, or very near, 100%.

Even without any reclassification, the reported number of exceedances at the Langrud site (seven hours) out of 17 days is less than 1.5% and the reported number of exceedances at the Hagen site (nine hours) out of 408 hours is less than 2.1%. It is important to recall that these sites also had less than 5% exceedances when studied in 2011 and re-studied in 2014, when the Commission determined that no additional monitoring would be required. The most recent report by DNV confirms the lack of evidence of turbine-caused noise exceedances, with an even lower rate of exceedances at these two sites, and where the exceedances can reasonably be attributed to other causes as discussed further below.

Accordingly, the expense of further studies of these compliant sites is not justified by the data in the Report, which provides all the data necessary for the Commission to conclude that the operation of Bent Tree is in compliance with noise requirements. Nevertheless, and notwithstanding the lack of evidence of turbine-caused noise exceedances, in the spirit of cooperation WPL will not object to further monitoring. However, WPL reserves its

right to review the results of such sound monitoring and raise any issues or concerns once those results are made available.

1. The Report includes data that should have been excluded due to meteorological and foliage-caused interference.

The Report identifies seven exceedances at the Langrud site and nine exceedances at the Hagen site. However, two of the exceedances at the Langrud site and four from the Hagen site should not have been classified as exceedances, since the data indicates meteorological interference caused by excessive wind speeds and/or precipitation.

Wind-speed readings and meteorological data from the Albert Lea Airport (“AEL”), located near to both the Langrud and Hagen sites, indicate that at the time of several data points identified as exceedances, wind speeds exceeded 11 mph or there was precipitation. The Report recognizes (on Page 9) that with wind speeds higher than 11 mph, the microphones produce significant wind-induced sound effects. As a result, several data points identified in the Report should not have been classified as exceedances.

The following table shows the dates and times of these data points along with the sky conditions, winds, and wind gust data from AEL airport:

Date	Time (1 hour period starting at)	Sky Condition AEL airport	Winds at AEL Airport MPH	Wind Gust at AEL in MPH
Langrud				
14-Jun	6:00 AM	Mostly Sunny	17.9	29.1
18-Jun	5:00 AM	Cloudy	8.9	15.7
Hagen				
13-Jun	10:00 PM	Clear	15.7	22.4
13-Jun	11:00 PM	Clear	13.4	24.6
22-Jun	2:00 AM	T-Storms	11.2	33.6
22-Jun	5:00 AM	Clear	8.9	17.9

Further, because this study was not conducted in the early spring or late fall, these trees were covered in dense foliage. The reliability of the meteorological data was impaired by the heavy foliage surrounding the measurement equipment. The Report acknowledges (at page 13) that the foliage likely interfered with in situ meteorological data collection, but it then uses that data to classify the above-identified data points as exceedances.

The more reliable measurements from the nearby AEL airport demonstrate that these data points occurred at times when wind speeds exceeded 11 mph or precipitation

prevented the equipment from gathering useful data. The data points identified above should be reclassified as “explainable” rather than exceedances.

2. The Report incorrectly classifies noise caused by wildlife activity as exceedances.

The placement of the instrumentation and the timing of the study also very likely resulted in the misidentification of some wildlife noises as exceedances. As previously noted, the equipment was placed near a number of trees. In addition to producing unreliable meteorological data as discussed above, the foliage also serves as a home for a wide array of birds, whose dawn chorus on several days was likely mistakenly identified as exceedances at Langrud and Hagen sites.

Many sound studies are conducted in the early spring or late fall to minimize wildlife noise and interference from foliage. The importance of “seasonal timing” is noted in the Guidance for Large Wind Energy Conversion System Noise Study Protocol and Report of the Minnesota Department of Commerce. Sound engineers often conduct this type of study in the very early spring or late fall, when there is less foliage and environmental noise to interfere with data collection.

Specifically, the Report identifies an additional five exceedances each to the Langrud and Hagen sites which all took place between 4:00 and 6:00 am. The Report admits that the rustling of leaves in the wind and birds chirping are the primary sounds that can be heard in the recordings identified as exceedances. The Report then suggests that further study should be performed to distinguish these wildlife sounds from sounds attributable to the Langrud and Hagen sites. However, the data in the Report acknowledges that wildlife noise can be identified in the recordings as the primary sounds during the supposed exceedances.

Conclusion

Based on these facts, we believe that the Report contains sufficient data to confirm that Bent Tree remains in compliance with noise standards at the Langrud and Hagen sites. This high compliance rate is consistent with past testing. However, in the spirit of cooperation WPL does not intend to object to further monitoring, provided it is conducted in the late fall to avoid exceedances attributable to foliage. Further, WPL reserves the right to review the results of that additional monitoring and to raises any issues as appropriate. We look forward to working with the Commission to demonstrate that the Bent Tree Wind Farm continues to be fully compliant with all applicable laws and regulations.

Sincerely,



Greg Kaelberer
Site Manager
Bent Tree Wind Farm

STATE OF MINNESOTA
BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

Nancy Lange	Chair
Dan Lipschultz	Commissioner
Matt Schuerger	Commissioner
Katie Sieben	Commissioner
John Tuma	Commissioner

**IN THE MATTER OF WISCONSIN
POWER AND LIGHT COMPANY'S
SITE PERMIT APPLICATION FOR
A LARGE WIND ENERGY
CONVERSION SYSTEM**

DOCKET NO. ET6657/WS-08-573

AFFIDAVIT OF SERVICE

STATE OF WISCONSIN)
) ss.
COUNTY OF DANE)

Annette K. Behnke, being first duly sworn on oath, deposes and states:

That on the 11th day of October, 2017, copies of the foregoing Affidavit of Service, together with Wisconsin Power and Light Company's Bent Tree Wind Farm Noise Monitoring Report was served upon the parties on the attached service list, by e-filing, overnight delivery, electronic mail, and/or first-class mail, proper postage prepaid from Madison, Wisconsin.

/s/ Annette K. Behnke

Annette K. Behnke

Subscribed and Sworn to Before Me
This 11th day of October, 2017.

/s/ Kathy M. Chiono

Notary Public, State of Wisconsin
My Commission expires February 5, 2021

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Last Name	First Name	Company Name	Address	Delivery Method	View Trade Secret
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