

May 7, 2017

**SENT ELECTRONIC COMMUNICATION**

**State of Minnesota  
Minnesota Public Utilities Commission**

***Subject – Big Blue Wind Farm - Wind Turbine Noise Complaints***

To whom it may concern,

This letter is in reference to the wind turbine “clicking” noise concerns reported by neighbors living near the Big Blue wind farm project owned by Big Blue Wind Farm, LLC. and located at 8261 320th Ave., Blue Earth, MN 56013, and to outline the plan Gamesa Wind US, LLC (“GWUS”) has defined in order to mitigate the source of the noise on the affected turbines.

The noise experienced has varying levels and does not appear to follow a specific frequency. It is typically more noticeable while the wind turbine is producing at low wind speeds. During high winds the noise levels are attenuated and go as unperceived.

The turbines meet the noise level requirements as per the IEC-61400-14 standard governing wind turbine sound emissions, however GWUS understands that some local residents are unhappy about the reported sounds, and we have been diligently working on identifying the source of the noise. Identifying the source has been challenging, but GWUS believes that the noise is being generated at the bolted joint between the main shaft and the hub.

GWUS proposes certain actions to be performed on a sample of turbines at Big Blue to validate their effectiveness as a permanent solution to the reported sounds. The hypothesis is that the micro movement of the flanges allows the shank of the bolts to come in contact with the bolt hole and produces the noise. The actions consist of replacing the bolts with studs in order to achieve a consistent nominal preload of 600kN. The validation is set to take place at the end of May, 2017.

Additionally, as a containment action, Big Blue Wind Farm, LLC and GWUS are working towards configuring the wind farm control strategy during power curtailment protocol to pause of the turbines with higher noise emission. We consider this should reduce the sounds perceived by the neighbors.

Sincerely,



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Field Support Manager, Services Engineering

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