

September 5, 2017

Ms. Tricia L. DeBleeckere  
Minnesota Public Utilities Commission  
121 7<sup>th</sup> Place East STE 350, St. Paul, MN 55101

RE: Big Blue Site Permit Major Deviations

Dear Ms. DeBleeckere

Big Blue made some major deviations from the permit, to what they actually built. It's like they applied for one project, but built a totally different project. They did not adhere to the Site Permit granted by the PUC on August 17, 2011.

#### **1. Turbine Noise Study Model Changed**

Initially in December of 2010, when Big Blue applied for a 36 MW windfarm they were unsure which turbine they would erect so they studied the GE SLE 1.5 MW and the REpower MM92 2 MW machines. In May of 2011 they changed the layout to the Gamesa G97 2MW machine however they never modeled the noise impacts of changing from the MM92 to the G97. (Docket ID #201114-62080-01) However all of the technical details in section 5 of the application stays the same. In other words, they took the noise and shadow flicker from the MM92 study, and applied it to the G97.

Noise Emission Data (LwaRef) is the turbine manufacturer's noise analysis. The Big Blue project was modeled using the LwaRef of the MM92 turbine (Docket ID #201012-57190-06) which is 1.4 dba quieter than the G97 turbine.

REpower MM92 LwaRef=105 dba (Docket ID #201012-57186-10 page 22 Sec 8.3 Noise attenuation Wind Pro calculations of the MM92)

Gamesa G97 LwaRef = 106.4 dba (The Big Blue G97 turbines were never modeled for this project, so I had to use Google to find a similar project using G97's to find the LwaRef. project Hoge-Vag-20140512-VB 2014)

*This is the Repower MM92 turbine that was initially modeled for noise for the project.*



*This is the Gamesa G97. This is the turbine that was built, but not modeled for noise.*



This is a screenshot from the Site Permit showing the Repower MM92 turbine modeled for noise.

WindPRO version 2.6.1.252 Jan 2009

Project: **Big Blue**

PrintedPage: 10/06/2010 9:48 AM / 1  
 Licensed user: **Energy Development Group of Idaho, LLC**  
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Calculated: 10/06/2010 9:10 AM/2.6.1.252

**DECIBEL - Main Result**

Calculation: REpower, v. 4

**Noise calculation model:**  
 ISO 9613-2 General  
 Wind speed: 3.0 m/s - 15.0 m/s, step 1.0 m/s  
 Ground attenuation: General, Ground factor: 1.0  
 Meteorological coefficient, C0: 0.0 dB  
 Type of demand in calculation: 1: WTG noise is compared to demand (DK, DE, SE, NL etc.)  
 Noise values in calculation: All noise values are mean values (Lwa) (Normal)  
 Pure tones: Pure and Impulse tone penalty are added to WTG source noise  
 Height above ground level, when no value in NSA object: 5.0 m Allow override of model height with height from NSA object  
 Deviation from "official" noise demands. Negative is more restrictive, positive is less restrictive.: -2.0 dB(A)

Scale 1:250,000  
 New WTG Noise sensitive area

**WTGs**

UTM WGS84 Zone: 15			WTG type		Status data		Noise data											
East	North	Z	Row	Description	Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Color	Name	Fast wind speed [m/s]	LeaRef [dB(A)]	Last wind speed [m/s]	LeaRef [dB(A)]	Pure tones [dB(A)]	Occure data
452,725	4,828,104	345.0	07.57	385.1 m	Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
452,080	4,828,246	345.0			Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
452,725	4,828,239	355.0	08.07	418.8 m	Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
454,151	4,830,333	355.0			Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
454,271	4,830,217	351.7			Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
451,082	4,829,711	386.4	REpower MM 92 2000	92.514 Hz L...	Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
452,027	4,831,024	335.0	04.07	550.7 m	Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
452,505	4,831,668	335.0			Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
454,054	4,831,003	335.3			Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
452,027	4,829,485	345.0	REpower MM 92 2000	92.514 Hz L...	Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
399,912	4,828,738	345.0	REpower MM 92 2000	92.514 Hz L...	Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
454,207	4,829,402	335.0	REpower MM 92 2000	92.514 Hz L...	Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
452,505	4,828,728	335.1	REpower MM 92 2000	92.514 Hz L...	Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
452,198	4,831,085	335.1	REpower MM 92 2000	92.514 Hz L...	Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
452,426	4,832,483	335.0	REpower MM 92 2000	92.514 Hz L...	Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
399,684	4,829,810	335.3	54.87	399.3 m	Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
452,014	4,828,236	345.0			Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7
452,943	4,830,261	335.0			Yes	REpower	MM 92-2000	2,000	92.5	80.0	EMD	Level 0 - guaranteed - SD-2-WT-SE-1-A-2N - 9502005	3.0	90.4	15.0	105.0	0 dB	Generic 7

Notice: One or more noise data for this WTG is generic or input by user

Calculation Results

This is a screenshot from the noise model in Site Permit showing the Gamesa G97 turbine that they built.



Why was this project able to change the turbine, when the noise emitted is higher than what was allowed under the permit? Would the setback requirement have changed? **Not all turbines are created equal**. The fact is, Big Blue never knew how noisy this turbine and blade configuration would be because they never modeled the project using the machines they built.

As you can see, the Big Blue project has some major deviations from the Site Permit that have never been addressed by the Minnesota Public Utilities Commission, nor have these deviations been explained by Big Blue. Therefore I ask the Site Permit be suspended until the PUC and Big Blue can fix each issue, or revoke the Site Permit completely so decommissioning can begin.

Sincerely,

Dan Moore  
Farmer  
Blue Earth, Mn