

Docket EL18-053

Garrett Homan

[REDACTED]

Hermantown, MN, 55811

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The proposed Deuel Harvest Wind project will not adequately protect the public or non-participants from the risks associated with ice throw from wind turbines. The existing setbacks do not meet the wind turbine manufacturers recommendations for the required safety distances surrounding turbines in freezing weather.

The following excerpts are from the “GE Power and Water, Technical Documentation, Wind Turbine Generator Systems 1&2MW Platform, Safety Manual” which is included in the public docket for the OPSB Application for Seneca Wind and can be easily found online.

#### Section 8.4 Special Dangers - Icing

If people or objects near the wind turbine generator system (within the distance R\*) could be endangered by pieces of ice thrown off during operation, GE Energy always recommends the use of an ice detector.

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However, ice may form on the rotor blades considerably more quickly than on the ice sensor on the nacelle. As a result, there is a residual risk for the reliable detection of ice build-up on the rotor blades.

...

If an ice detector is not used, it is advisable to cordon off an area around the wind turbine generator system with the radius R\* during freezing weather conditions, in order to ensure that individuals are not endangered by pieces of ice thrown off during operation.

$$*R = 1.5 \times (\text{hub height [m]} + \text{rotor diameter [m]})$$

(Recommendation of the German Wind Energy Institute DEWI 11/1999)

Freezing weather conditions are common in Deuel County during the fall, winter, and spring months, so the risk of icing is significant in this project and must be addressed. As stated in the GE Safety Manual, ice will form more quickly on blades than nacelles (which current ice accretion research explains is due to speed and geometry effects), so even if an ice detector is installed on the turbine there still is a risk of icing being present on the blades and not triggering the detectors.

Table 8-2 from the project application provides specifications for the wind turbine mod-

**Table 8-2: Wind Turbine Specifications**

<b>Manufacturer</b>	<b>Turbine Name</b>	<b>Hub Height</b>	<b>Rotor Diameter</b>	<b>Tip Height</b>	<b>MW Rating</b>
General Electric (GE)	GE 2.3-116	80 m (263 ft)	116 m (381 ft)	138 m (452 ft)	2.3
General Electric	GE 2.82-127	88.6 m (291 ft)	127 m (417 ft)	152.1 m (499 ft)	2.82

els included.

Therefore,

$$R^*_{\text{GE2.3-116}} = 1.5 \times (80 \text{ m} + 116 \text{ m}) = 294.0 \text{ m} = 964.6 \text{ ft}$$

$$R^*_{\text{GE2.82-127}} = 1.5 \times (88.6 + 127) = 323.4 \text{ m} = 1061.0 \text{ ft}$$

Existing setbacks from property lines and the public right of way are 110% per Deuel County ordinances section 1215.03. For the GE 2.3–116 model, that setback distance is 497.2

feet. For the GE 2.82-127 model, that distance is 548.9 feet. As one can see, both of these minimum setback distances do not meet GE's safety manual recommendations and therefore do not adequately protect the public or neighbors from the risks of ice throw, which can lead to property damage, serious bodily injury, or even death. Therefore, the project should be denied as is if any turbines are located less than 964.6 ft or 1061.0 ft (depending on the sited model) from non-participating property lines or public right of ways because it doesn't meet the requirements