

Public Utilities Commission
Capitol Building, 1st floor
500 E. Capitol Ave.
Pierre, SD 57501-5070

RE: EL21-018 North Bend Wind Project in Hughes/Hyde Counties

PUC Commissioners:

I'm writing in regards to my concerns about specific locations of industrial wind turbines (IWT) proposed in the North Bend Wind Project footprint and the significant impact they will have on an aerial applicator's ability to safely and effectively apply crop protection products.

I am a retired aerial applicator pilot with more the 42 years of experience. Through the years I've experienced flying near IWT's; in particular in southwest Minnesota. Considerably smaller than these being proposed and not as densely populated, I learned in a real hurry even $\frac{3}{4}$ of a mile away the turbulence and sheer magnitude of their size prevented me to safely and effectively fly.

Two locations of concern:

Cropland Location: SW $\frac{1}{4}$ Section 11 – 111-74: Proposed IWT location 08 is to the north, 15 to the east, 22 to the south and 14 to the west. Each of the IWT's look to be within 800-1000' from the property line.

Cropland Location: NE $\frac{1}{4}$ Section 10 – 111-74: Proposed IWT location 08 is to the east and location 14 is to the south. These two IWT locations look to be within 1000' from the property line. Location 09 to the east and location 21 to the south look to be within $\frac{2}{3}$ of a mile of the property line.

At a 140 mph, an aerial applicator is traveling at more than 205 feet/second. This allows only 4-5 seconds to either fly around it, or navigate the impossible task of starting at 10' AGL (above ground level) and climbing more than 700' to pass over the tip of a blade with a mere 100' buffer. A number of inputs make this not only extremely dangerous but physically impossible to safely and effectively apply crop protection products. Adding a multitude of additional IWT's in the same area only amplifies this complexity.

As a result of the weight of a loaded (or half loaded) airplane, aerial applicators are limited in the height of their turns to 300'-400' before re-entering a field. You can't simply pull up out of a field border, fly over an IWT, and safely reduce your altitude to 10' AGL.

It's naïve to think aerial applicators can simply fly around or over multiple IWT's located in large sections. It's also naïve to believe there is no "dirty air" and turbulence associated with IWT's. This same turbulence that significantly impacts an aircraft's flying ability also creates additional problems with drift as the vortices from the massive blades can carry these products to non-target locations.

Aerial applicators are essential to agriculture. When conditions are too wet to apply products by ground rigs, we're called upon. When dangerous pesticides need to be applied for insect control, aerial is the answer. When products need applied that ground rigs will destroy by driving on or over the top, aerial remedy's that. Without responsible placements of IWT's, significant negative economic impacts are inevitable. Thank you for your time.

Sincerely,

Mike Bollweg
Owner – Custom Air Inc. (Ret)