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<http://blogs.wivb.com/2009/02/20/another-snowmaker-enroute-pattern-change-in-the-distance/> (visited March 1, 2009)




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1.  **Bob D** Says:  
[February 20th, 2009 at 2:01 pm](#)

I've watched the radar today and have noticed 2 stationary spots in Wyoming county. My question is, Are these returns from the Sheldon and Bliss/Eagle windpower projects?

2.  **Don Paul** Says:  
[February 20th, 2009 at 2:09 pm](#)

I know one of those spots is a wind turbine complex. The 2nd one may be, but I haven't talked to the NWS about that one.


3.  **z** Says:  
[February 20th, 2009 at 2:23 pm](#)

Bob, Don,


The answer is yes for both Sheldon and Bliss/Eagle. The NWS can/has recently removed the radar derived precipitation from these locations, but nothing can be done regarding the reflectivity or the doppler derived wind (which is particularly problematic when assessing storm rotation near wind farms). Unlike mountains which are mainly a problem out West, airplanes which have a distinct radar signature and can easily be removed from a radar dataset (after all, radar was initially \*designed\* to detect planes and weather was actually getting in the way), and

stationary items like buildings/antennae, the wind towers are spread over large areas with rotating blades moving at variable speeds. As a result, there is no “distinct” radar signature associated with these and they cannot currently be removed from the radar display.



z

4.  *Mike* Says:  
[February 20th, 2009 at 2:30 pm](#)

Thanks don

5.  *Don Paul* Says:  
[February 20th, 2009 at 3:20 pm](#)

Thanks, z.


6.  [...] ]
7.  z Says:  
[February 25th, 2009 at 12:04 pm](#)

Regarding weather radar and wind turbines at the beginning of this blog, here are a few links that provide additional information on this topic:

- 1) <http://www.roc.noaa.gov/news/NNautumn08d1.pdf>
- 2) [http://www.roc.noaa.gov/windfarm/windfarm\\_index.asp](http://www.roc.noaa.gov/windfarm/windfarm_index.asp)

Information contained in the above links start off easy, but get rather technical after the first few sections.

z

8. [...] ]
9.  *Don Paul* Says:  
[February 27th, 2009 at 8:14 pm](#)

**WIND TURBINE FARMS:** Potentially a bigger problem for Weather Radar than I'd realized—

Finally had a chance to finish one of the articles posted by z on February 25th at 12:04m. Some of you heard or saw me point out some relatively newer ground clutter problems in Wyoming County due to largescale wind turbine deployment. These tall structures with spinning blades create both highly reflective fixed targets which cannot currently be eliminated by software in the NWS WSR 88-D Doppler radar (or any other local radar), as well as spurious indications of precipitation in the scattering and reflection of radar energy cause by the moving portion of the

target—the spinning blades. The University of Oklahoma Atmospheric Radar Research Ctr is working on developing algorithms and filters which may eventually be able to deal with these false echoes, but NOAA says it will be several years before any fix can be applied to the nation’s 88-D radar network. If you look at 88-D reflectivity or velocity data, the clutter in Wyoming County has grown quite substantial (mainly in the western half of the county). This clutter can be best detected by looping the radar display. These false echoes can, if not treated properly, cause false precipitation accumulations in the 88-D’s database, and can—to some extent—interfere with the detection of precipitation and velocity data near and just past these targets. That’s not a good thing, meteorologically.

In other parts of the country, wind turbines in closer proximity to the NWS 88-D have caused potentially serious problems. In one cited and illustrated case, the Dodge City NWS radar velocity algorithms put out a false tornado vortex signature with a closer-in wind turbine farm.

Since wind turbine farms are going to be increasing rapidly, particularly with the President’s energy initiatives, the location of these farms may become a greater threat to the proper operation and detection capabilities of the nation’s (NWS) Doppler network. In fact, close-in turbines can reflect so much energy back to the 88-D’s receiver that the receiver can be damaged.

Unfortunately, since most of these turbines are going up on privately held lands, there are currently no legal requirements which would take into consideration problems caused by too close a proximity to the nation’s first line of defense in storm and severe storm detection and warning.

Please don’t interpret this post as an “anti-wind energy” editorial. I’m pointing out that little consideration has been given thus far to the location of these clean energy generators in terms of weather radar interference and degradation. I can only hope this issue is made known to more wind turbine farm developers, and that there is better communication between NOAA, state and local governments, zoning boards, etc. It’s clear that where possible, these turbines should NOT be located too close to NWS weather radars, at least not while we lack the technology to mitigate their effects on weather radars.

10. [. . .]

11.  *applejack* Says:

[February 28th, 2009 at 7:56 am](#)

It’s pretty funny that even though the bliss/wethersfield and sheldon windparks have been erected for over a year-now that they are now causing a problem for the radar?????

12.  z Says:

[February 28th, 2009 at 8:58 am](#)

applejack,

I don't recall/cannot find the complete timeline for the Eagle wind farm, but the Sheldon farm was built during the summer of 2008 and did not become operational until the late summer/fall. Wind farms become a problem when they become operational, and both locations have been a problem throughout the late summer/fall.

Meteorologists are trained to interpret radar signatures and it's pretty easy to ignore stationary radar "clutter" from a few locations, but it is still a problem when a storm passes over these locations. If you were to add 10, 20, or more wind farms, you'd make it much more difficult for meteorologists to separate the man made clutter from real meteorological signals.

Meanwhile, automated algorithms have a very difficult time with these new manmade signals. An untrained radar user would/will have a hard time with false radar echoes, some of which could be interpreted as a tornadic signature.

NWS and researchers are working on a means for removing wind turbine clutter. But, research takes time, and it will be a while (years) for such research gets into an operational radar.

I, like Don, don't want to confuse this issue with pro vs anti alternative energy, but it is an issue with storm detection.

Z

13.  Mike Says:

[February 28th, 2009 at 9:30 am](#)

Don or Z. Are the residents around these wind farms in any danger of not being warned of severe weather when it approaches? Can you take into consideration these radar echos and accuratley say there is or is not a tornado in the immediate area? Lucky for us tonados are not all that common in our area. Although there was one a few years back that hit south Warasw just over the hill from the Bliss wind farm.

14.  z Says:


[February 28th, 2009 at 9:57 am](#)

Mike,

The answer to you question really depends on a large number of factors. If the event was ongoing, it wouldn't be too much of a problem except for the fact that meteorologists wouldn't be able to determine if the storm was intensifying or weakening. However, if the storm were developing right over a wind farm, it \*could\* delay a warning for a few/several minutes and reduce lead time.

You've sort of hit the nail on the head with the worst case scenario.


Z

15.  z Says:  
[February 28th, 2009 at 9:59 am](#)

Stretch,


WIVB/NWS can verify this as I don't have a complete climate record in front of me, but I think it was 91mph on Jan 14, 1950.

z

16.  z Says:  
[February 28th, 2009 at 9:59 am](#)

Stretch:

<http://www.wbuf.noaa.gov/webclimo/JAN14.htm>

17.  *Mike* Says:  
[February 28th, 2009 at 10:25 am](#)

Thanks for the response Z. Those windfarms are close to the area where thunderstorms develop. By this i mean the area "out of the Lake Erie shadow effect". I have lived in Franklinville for 32 years and Arcade for 6 years. Often times i have seen storms form over our area or just to the east due to the lakes influence.

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- [\*\*Don Paul\*\*](#)