

FILE
Ohio Power Siting Board
Sam Randazzo, Chairman
180 E. Broad Street
Columbus, Ohio 43215

17-2295-EL-BGN

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September 20, 2019

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Dear Mr. Randazzo,

Technician mm Date Processed 09/27/19

"Karst can cause a litany of problems for a wind power project, and it is good practice to evaluate karst risk before proceeding with a proposed project." The following statement was written by William Bangsund, Barr Engineering Co. and Kenneth S. Johnson, Oklahoma Geological Survey. It was written in response to Oklahoma's Watonga Wind Project, Blaine County, Oklahoma, that was proposed over a karst area. This is the link to the paper in its entirety:

<https://pdfs.semanticscholar.org/2637/1d26539f34ea7e70ca6dea9a8a62d06391a4.pdf>

I opened with this statement because karst and wind turbines don't mix. The Watonga Windpower was discontinued due to the susceptibility of a wind turbine to subside, even though APEX spokesman stated otherwise in a newspaper article. The article in its entirety is contained below.

<https://www.thenews-messenger.com/story/news/local/2019/08/02/fragile-karst-terrain-worries-neighbors-proposed-wind-field/1859554001/>

The karst area located in Oklahoma is substantially smaller than the karst region that covers Seneca, Sandusky, Erie, Huron, and Lake Erie. In fact the karst location located in the above counties is the largest in Ohio and second largest in the United States!

The aquifer that is within the karst system directly flows into Lake Erie. We already have witnessed the algae blooms. That is what happens when farm chemicals, animal waste, and other pollutants make their way into a very delicate ecosystem.

"Karst regions require special care to prevent contamination of vulnerable groundwater supplies and to avoid building in geologically hazardous areas. Living in karst environments may result in destabilization of the delicate equilibrium between surface and underground components of karst, resulting in alteration of drainage patterns and increasing incidents of catastrophic sinkhole collapse, particularly in areas of unplanned urban growth." <https://www.americangeosciences.org/sites/default/files/karst.pdf>

Our Department of Natural Resources has been studying the karst region in our area since the 1980's. They have specifically focused on the four county area and have written a wonderful informational brochure. The ODNR as well as other academia resources have consistently stated that, "The different types of karst features may pose infrastructure complications; roads, utilities, houses, and other facilities built in karst areas are at risk of subsidence, collapse, or other damage. In order to provide a reference for future planning on both the local and regional scale, the Ohio Geological Survey has produced this map book identifying the known and suspected karst areas in the vicinity of Bellevue, Ohio."

https://geosurvey.ohiodnr.gov/portals/geosurvey/PDFs/OpenFileReports/OFR_2013-1.pdf

It's concerning to me that with so much information available to us through our own DNR and other government sources that Ohio would even entertain the idea of putting 600+ turbines over a fragile environment. There have been no wind turbines built over a karst environment because of the catastrophic results of putting pilings through a fragile karst which has great potential for collapse. It is also detrimental to an aquifer system that provides drinking water to thousands of homes. By putting those pilings through a system filled with underground water (aquifer) you have forced that

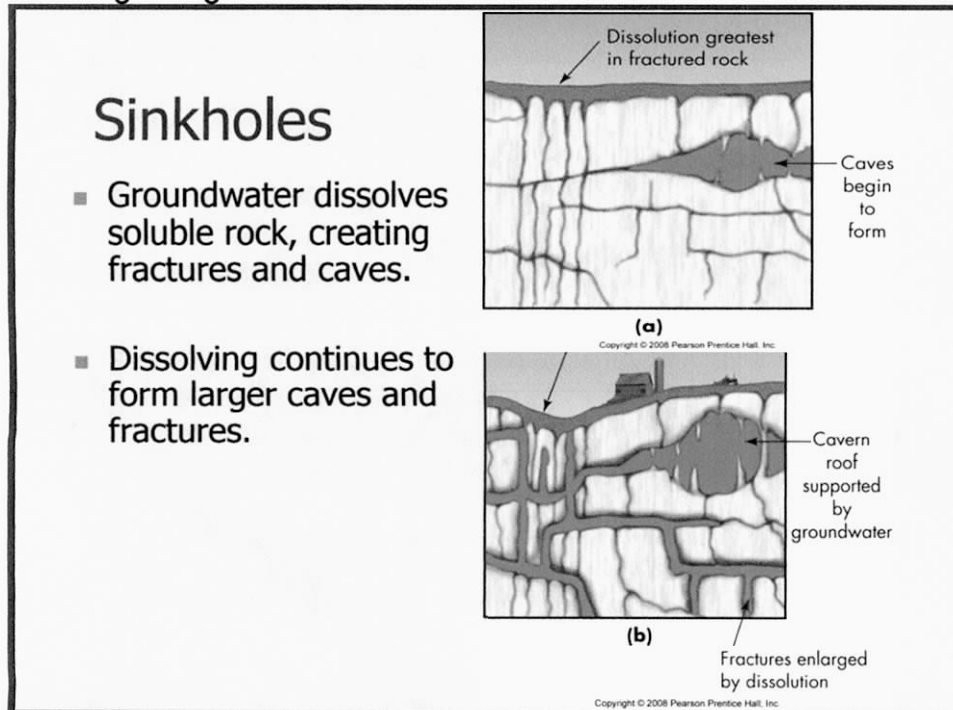
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water to go to other areas that haven't flooded before. Imagine the economic impact that would have on our state and the residents that live there. This will flood farmers fields which already have a propensity for flooding in our four counties.

Wind power is not a sound energy, it is intermittent, and depends on coal and oil to run when the wind isn't blowing. Also, without massive subsidies wind power would not exist. It takes millions of dollars per year and only puts 4% back into the electrical grid, therefore: it absolutely does not benefit Ohio citizens. In fact, putting wind turbines over a karst area will in essence cause an economic collapse, when homes and fields are flooded and our water is contaminated. The water that will be contaminated runs directly into Lake Erie. This is bigger than one wind project and one county! It concerns multiple windfarms and multiple counties and Lake Erie. Each wind turbine will have a base of 10 feet but will also contain multiple pilings which are driven 30 feet into the karst to stabilize the turbine and then they will fill it with concrete. Sounds simple except each of those pilings that are driven in will destabilize the karst, contaminate water, and have great potential to subside! You block one path of an aquifer, that water has to go somewhere, so it can flood places that had never flooded before.

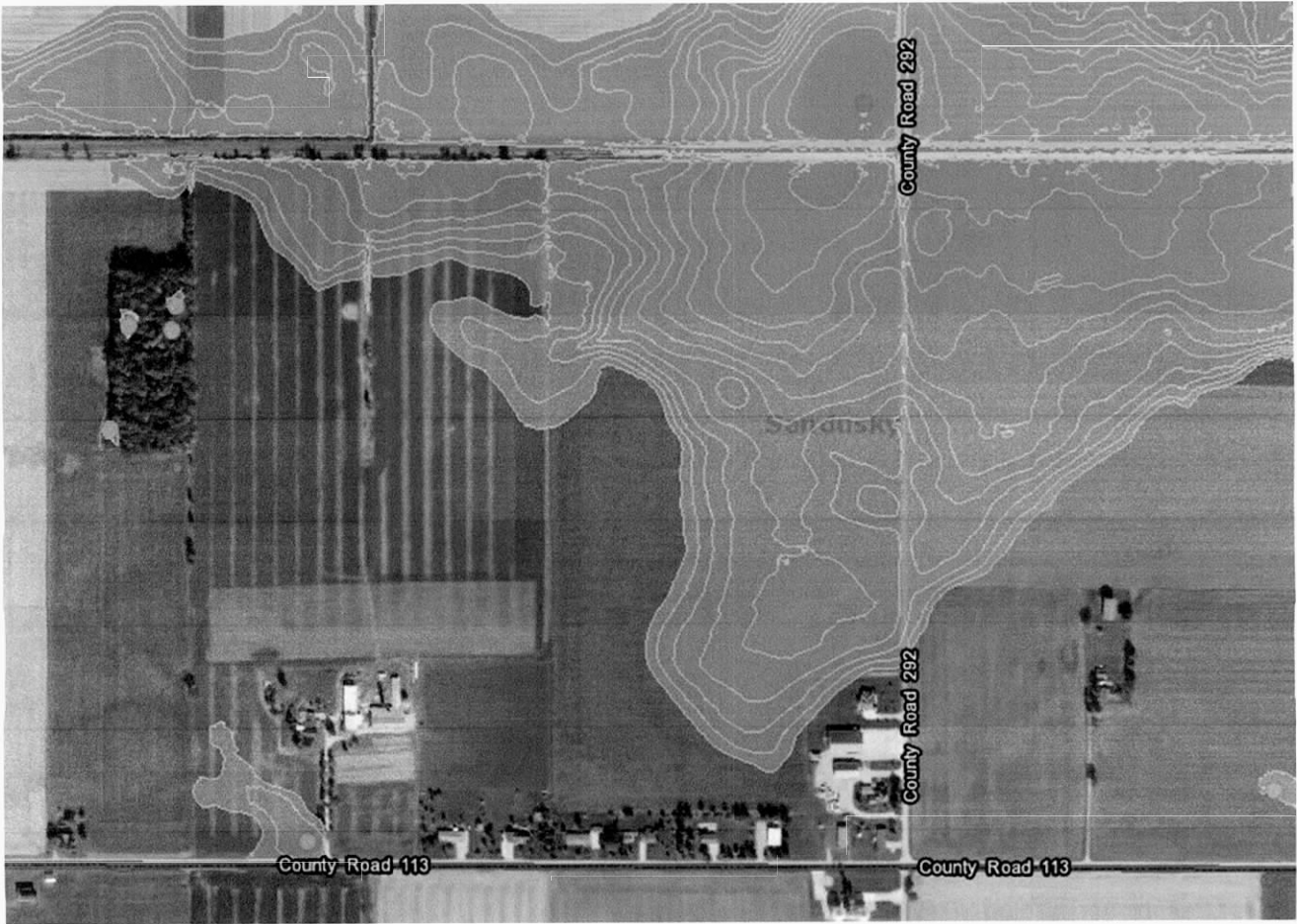
Why would APEX pick the most vulnerable place in Ohio to build these turbines? APEX stated, "If a turbine location is determined to be in a potential karst area, additional testing is conducted." Mr. Smith is a lease holder in Republic Wind Farm, and has several sinkholes on his property. By his own admission APEX has done NO testing on his property, a known karst area!! This should be concerning to all of us that they said they would do additional testing and have not done that!

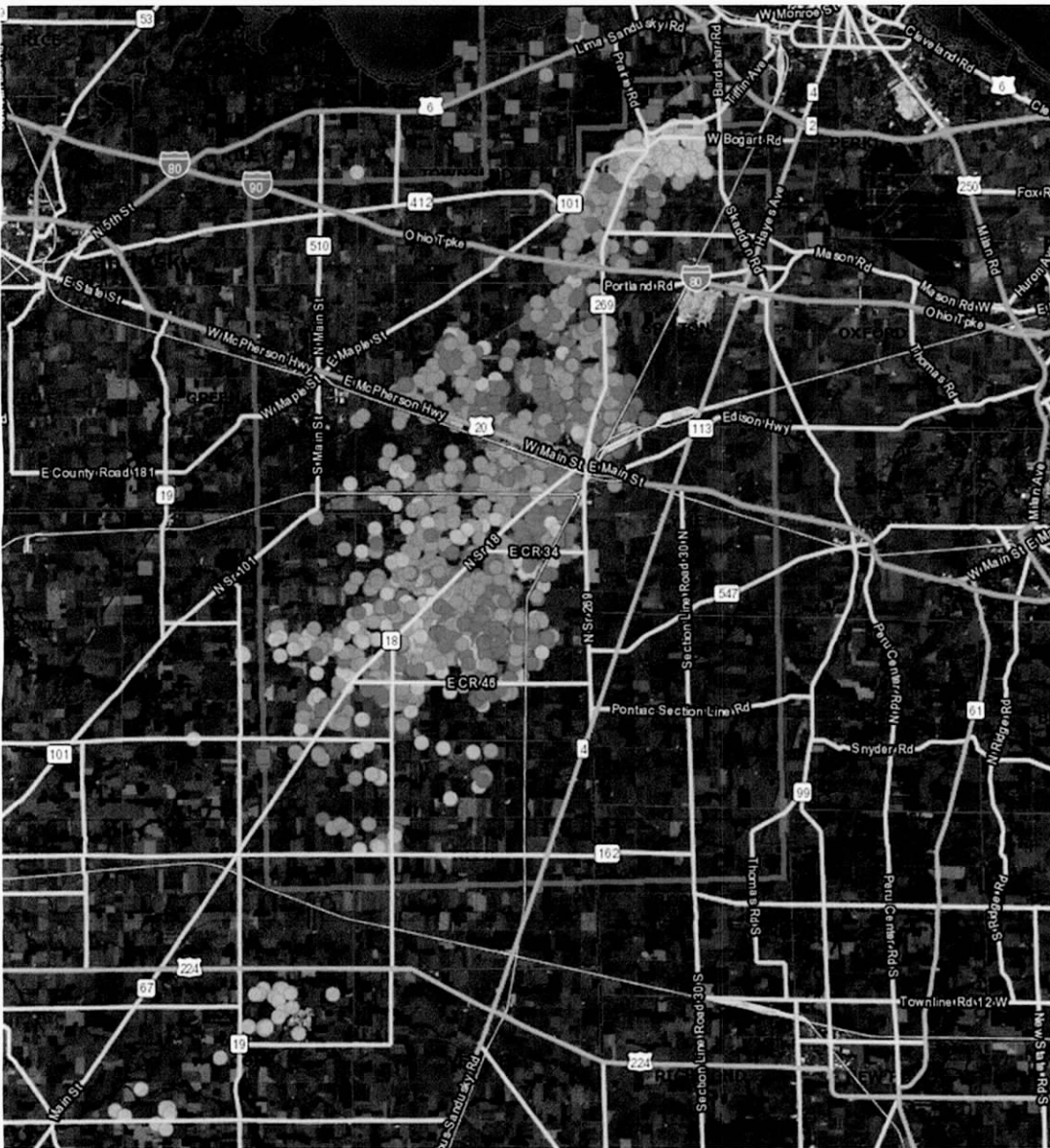
If my words have not convinced you about what the karst is capable of, hopefully the pictures enclosed will give you a better picture. Our Department of Natural Resources has done extensive work regarding the karst area. Please use that information!



http://www.geo.hunter.cuny.edu/~fbuon/GEOL_231/Lectures/Karst%20Landforms.pdf

You can see by the fractures in the above picture why the public citizens are concerned with water contamination, and wind turbines subsiding.





The photo on the previous page is just one dot on the karst map above. Three turbines will be in the midst of that karst area. Eleven wells in just one dot will be at risk for contamination. Times that by the number of dots above! The pictures above are from the ODNR interactive karst map.

We lost our due process when the Reineke referendum was defeated. I have three turbines going in directly behind me and can not speak at the public meeting in Columbus. You are my voice as well as thousands of others. Please do the right thing and protect our water, our homes, and our very special ecosystem.

I respectfully ask that you please deny application 17-2295-EL-BGN, Republic Wind Farm and future wind farms built over the fragile karst area.

Deborah J. Didion
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