

**BEFORE  
THE OHIO POWER SITING BOARD**

In the Matter of the Application of	)	
<b>Republic Wind, LLC</b> for a Certificate to	)	Case No. 17-2295-EL-BGN
Site Wind-Powered Electric Generation	)	
in Seneca and Sandusky Counties, Ohio	)	

**PETITION TO INTERVENE OF SENECA COUNTY RESIDENTS**

Pursuant to R.C. 4906.08(A)(3) and O.A.C. 4906-2-12, Seneca County residents Chris & Danielle Zeman, Carol Burkholder, Duane & Deb Hay, Gary & Dawn Hoepf, David Hoover, Jeff Hoover, Greg & Laura Jess, Mike & Tiffany Kessler, Doug & Jennifer Myers, Kevin & Jennifer Oney, Duane Robinson, and John & Lisa Wilson (the "Local Residents") hereby petition the Ohio Power Siting Board for an order granting their intervention as parties in this proceeding.

This Petition to Intervene is supported by the Memorandum in Support set forth below.

Respectfully submitted,

/s/ John F. Stock  
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**MEMORANDUM IN SUPPORT OF**  
**PETITION TO INTERVENE**

**A. INTRODUCTION**

On February 2, 2018, Republic Wind, LLC (“Applicant”) filed its application (the “Application”) for a certificate of environmental compatibility and public need to construct a 200MW, 58-turbine wind-powered electric generation facility (the “Project”) in Seneca and Sandusky counties. On May 23, 2018, the Board entered a notice deeming the Application to be complete and directing Applicant to serve the complete Application pursuant to O.A.C. 4906-3-07. Applicant served the complete Application, and delivered notice to local public libraries, on May 24 and 25, 2018, respectively.

The Local Residents are long-time residents of Seneca County. They own property and live in Seneca County. They pay Seneca County property taxes. They are consumers of electricity. Their homes will be subjected to excessive noise emitted by Applicant’s wind turbines. They watch and enjoin the birds, bats, and bald eagles that will be harmed and killed Applicant’s wind turbines. Applicant’s wind turbines will diminish the value of their homes. They seek to intervene in this proceeding to protect these personal interests that will be detrimentally affected if Applicant is permitted to construct its Project in close proximity to their homes, as Applicant proposes in its Application. They are entitled to intervene in this proceeding.

**1. Noise In Excess of the World Health Organization’s 40 dBA Threshold For Adverse Health Effects**

The areas of Seneca County in which Applicant proposes to construct its Project, in close proximity to the Local Residents’ homes, are particularly inappropriate for such a noisy and disruptive development. The proposed Project area is much more densely populated than

locations often selected for the siting of wind turbine projects of this size. As a result, when one factors in the 3 dBA margin of error in Applicant's noise modeling calculations (*see* ISO International Standard 9613-2, Table 5 -- the methodology for the noise calculations used by Applicant), more than 560 non-participating residences may be subjected to continual noise from Applicant's wind turbines at volumes exceeding the World Health Organization's ("WHO") 40 dBA threshold for nighttime noise that causes deleterious health effects. The homes of many of the Local Residents are included in that group. In fact, the number of residences that would be subjected to noise in excess of the WHO 40 dBA health standard will be substantially higher than 560, as Applicant artificially lowers the noise levels for up to seventeen (17) turbines in its noise modeling (by assuming that the turbines will be operated at less than peak capacity). Such non-participating residents will be subjected to the risk of incurring the adverse health effects -- loss of sleep, fatigue, headaches, irritability, and the like <sup>1</sup> -- typically caused by such continual, excessive wind turbine noise.

Applicant asserts that a 46 dBA average nighttime noise level ( $L_{eq}$ ) is the proper limit for its wind turbine noise. Applicant arrives at the 46 dBA standard by adding 5 dBA to its 41 dBA measurement of the existing average ambient nighttime noise in the Project area. However, the Local Residents' noise expert will establish that Applicant's proposed noise limit is fatally flawed for numerous reasons. First, Applicant manipulated its measurement of the existing average ambient noise to inflate that calculation. For example, Applicant placed its "Mixed Residential" noise monitor near the parking lot of the Flat Rock Care Center -- nearer to that

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<sup>1</sup> The adverse health effects commonly experienced by people subjected to excessive wind turbine noise include loss of sleep, sleep interruption, fatigue, headaches, dizziness, irritability, anxiety, and stress. This cluster of common adverse health effects has been labeled "Wind Turbine Syndrome." *See Wind Turbine Syndrome*, Dr. Nina Pierpont (K-Selected Books 2009) at 194 ("... [T]he definitive result of my report is that wind turbines cause the symptoms of Wind Turbine Syndrome (WTS).").

parking lot than any non-participating house is located. By doing so, Applicant's monitor recorded the "spiking" noise of cars starting and driving in the lot at night, thereby greatly increasing the "average" nighttime noise level calculated by Applicant.<sup>2</sup>

Second, Applicant's calculation of a 41 dBA average ambient noise level is inflated by its failure to screen out wind noise picked up by the noise monitors. Application, Exhibit H at 17, 19 ("Strong winds were common throughout the monitoring period. . . . Weather patterns (mostly wind) also influenced sound levels."); Exhibit H, Figures 17 - 37. This is a fundamental error in the proper measurement of ambient noise levels. Interfering wind noise should be filtered out of ambient noise measurements to obtain valid measurements. *See ANSI/ASA American National Standard S12.100-2014, Methods to Define and Measure the Residual Sound in Protected Natural and Quiet Residential Areas* at viii.

Third, Applicant's use of an "average" ( $L_{eq}$ ) noise measurement -- reflecting long periods of little noise punctuated by momentary spikes of louder noise -- does not accurately reflect how quiet the Seneca County Project area actually is at night. The Seneca County nighttime is not a constant, raucous clamor of 41 dBA (few would be able to sleep) -- but the quiet Seneca County nighttime would be a constant clamor or 46 dBA noise if Applicant's turbines were permitted to run all night long. The true measure of the Seneca County "background" or "residual" nighttime noise -- the noise measured during the long night periods when momentary noise spikes are not occurring -- is the  $L_{90}$  noise measurement.<sup>3</sup> That residual nighttime noise level is quite low,

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<sup>2</sup> "The Mixed Residential monitor was the closest monitor to a residential area ('in town'). It recorded the highest average levels *as a result of frequent use of the nearby Flat Rock Care Facility*." Application, Exhibit H at 18.

<sup>3</sup> American National Standards Institute/Acoustical Society of America American National Standard S12.100-2014: ". . . The main purpose of this standard is to develop procedures to estimate the residual sound levels in an area where these levels are used to evaluate the effects of a noise source, with two examples being *wind turbine noise in quiet rural areas* and transportation noise in U.S. National Parks and wilderness areas. *Id.* at viii (Emphasis added). "Residual sound" is defined as "at a specific time, the all-encompassing sound, being usually a composite of sound from many sources from many directions, near and far, remaining at a given position in a given situation when all

averaging 23 dBA by Applicant's own measure. Application, Exhibit H, Table 2. And Applicant admits these facts:

The relatively larger difference between equivalent continuous levels ( $L_{eq}$ ) and lower tenth percentile levels ( $L_{90}$ ) at most of the [monitoring] sites indicate that the soundscapes are dominated by *transient events* resulting from human activity.

...

\* \* \*

. . . These [ $L_{eq}$ ] levels were higher than the  $L_{90}$  for the same period, which indicates that the maximum sound levels over the period *were brief*, but relatively high. . . . The overall  $L_{90}$  [for the "North Boundary" monitor], *as an indication of the residual sound level*, was lower: *27 dBA overall, 28dBA daytime, 25 dBA nighttime*. (Emphasis added).

Application, Exhibit H, 19 - 20. This very low nighttime noise level is what would be expected for a rural area like Seneca County if one uses appropriate sound measurement methodologies. Nighttime residual sound levels in rural areas like Seneca County that are measured using the accepted methods of ANSI/ASA American National Standards S12.9 and S12.100 are routinely under 30 dBA ( $L_{90}$ ).

Finally, even if one ignores Applicant's artificial lowering of its noise calculation (by assuming the turbines operate at less than peak capacity), given the 3 dBA margin of error in Applicant's calculations, more than 150 non-participating residences still may be subjected to noise in excess of Applicant's unhealthy, inflated 46 dBA limit.<sup>4</sup>

## 2. Shadow Flicker in Excess of the Accepted 30 Hours Per Year Limit

Large industrial wind turbines like Applicant's cause "shadow flicker" on nearby residences -- the strobing of shadows across the residence as the blades of the turbines rotate through the sun that shines on the residence. This strobing of light and shadows on a residence

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uniquely identifiable discrete sound sources are eliminated, rendered insignificant, or otherwise not included. NOTE: *Residual sound may be approximated by the percentile sound level exceeded during 90-95 percent of the measurement period.*" *Id.* at Section 3.2 (Emphasis added).

<sup>4</sup> Curiously, Applicant's calculations arrive at a noise level of precisely 46 dBA (with the 3 dBA margin of error) for an additional 106 non-participating residences.

can be extremely annoying, causing anxiety, irritability, and headaches to the residents. As a result, it is generally recognized that residences should not be subjected to any more than 30 hours of shadow flicker per year to protect occupants from adverse health effects. *See, e.g., Wind Energy & Wind Park Siting and Zoning Best Practices and Guidance for States* (National Association of Regulatory Utility Commissioners, January 2012) at 31.

Applicant acknowledges the generally-recognized 30-hour limit for shadow flicker imposed upon occupied residences. Application at 86. Yet Applicant's own Shadow Flicker Report (Application, Exhibit I) reveals that, in a worst case scenario, at least thirty (30) non-participating residents may be subjected to shadow flicker from Applicants turbines for 30 hours or longer -- with non-participating residents being subjected to up to more than fifty-one (51) hours of shadow flicker. Applicant cannot be permitted to impose these health-threatening levels of shadow flicker upon the non-participating residents of Seneca County.

### 3. **Killing of Migratory Birds, Bald Eagles, and Bats**

Applicant's industrial size wind turbines will kill migratory birds. The Local Residents will proffer the testimony of an avian expert to establish that Seneca County is located in the midst of avian nocturnal migratory pathways that are populated with hundreds of thousands, if not millions, of birds each spring and fall. Nearly all song bird (passerine) migration occurs at night. Yet Applicant has performed no avian nocturnal migration radar studies. None -- despite Applicant's admission that "[i]n the Midwestern and Eastern United States, *night migrating song birds have accounted for a majority of the fatalities at wind turbines.*" Application at 136 (Emphasis added). Instead, Applicant conducted a diurnal study (observing by sight and sound the local, daylight activity of birds, between dawn and 10 a.m.), and by those local daytime observations attempts to guess what might happen during nocturnal migrations. In short,

Applicant has no clue as to the likelihood that its proposed Project will kill significant numbers of migratory birds during their annual spring and fall nocturnal migrations. Applicant cannot even begin to make its required showing of “the probable environmental impact” of its Project (R.C. 4906.10(A)(2)) on migrating birds, much less show that its siting of the Project “represents the minimum adverse environmental impact” to the vast numbers of birds migrating through Seneca County. *See* R.C. 4906.10(A)(3).

In addition, there are at least sixteen (16) active bald eagles nests in Seneca County -- placing those protected birds at risk of death in violation of the federal Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*). Exhibit A attached hereto is a map of Seneca County depicting the location of currently active bald eagle nests. The outdated (2012) bald eagle study cited by Applicant (Application at 115) found only three (3) active bald eagles nests, six (6) years ago. Today, there are many more bald eagles resident in the Project area, putting bald eagles at much greater risk of death from Applicant’s turbines.

Finally, Seneca County is home to numerous bat species that would be killed by Applicant’s proposed turbines. Applicant’s own bat studies confirm that the Project area is populated with an endangered bat species, the Indiana bat. Application at 117 (“Indiana bats are known to occur in the vicinity of the Project Area.”). Applicant’s proposed Project puts these endangered bats at risk of death in violation of the federal Endangered Species Act (16 U.S.C. 1531 *et seq.*).

#### **4. Marring of Local Viewsheds**

Applicant’s enormous (up to 591 feet) turbines would be a blight on the rural, residential viewsheds of Seneca County. Many of the Local Residents have chosen to live their entire lives in rural Seneca County for the very purpose of avoiding offensive and invasive industrial

developments such as Applicant's Project. Applicant should not be permitted to use the Board's certification process to destroy the Local Residents' otherwise peaceful rural surroundings.

**5. Diminution of Property Values**

All of the foregoing detrimental impacts of Applicant's Project -- but especially the excessive and unhealthy noise and shadow flicker -- diminish the value of the Local Residents' homes. By constructing its Project, Applicant would effect a "taking" of the Local Residents' property without compensation.

The Local Residents possess legally-protectable interests that will be adversely affected by Applicant's proposed Project. The Local Residents are entitled to intervene in this proceeding pursuant to R.C. 4906.08(A)(3) and O.A.C. 4906-2-12.

**B. INTERVENTION STANDARD**

The Local Residents meet all requirements for intervention in these proceedings as set forth in R.C. 4903.08(A) and O.A.C. 4906-2-12(B)(1). The Board may consider the following when determining petitions to intervene:

- (a) The nature and extent of the person's interest;
- (b) The extent to which the person's interest is represented by existing parties;
- (c) The person's potential contribution to a just and expeditious resolution of the issues involved in the proceeding; and
- (d) Whether granting the requested intervention would unduly delay the proceeding or unjustly prejudice an existing party.

O.A.C. 4906-2-12(B)(1). See also *In the Matter of the Application of Clean Energy Future—Lordstown, LLC*, No. 14-2322-EL-BGN, slip op. at 2, ¶5 (Ohio Power Siting Bd. July 28, 2015) (setting forth factors the Board considers in resolving motions to intervene); *In the Matter of the*



*Application of Columbus Southern Power Co.*, No. 01-2153-EL-BTX, slip op. at 3, ¶8 (Ohio Power Siting Bd. Jan. 29, 2004) (same).

The Ohio Supreme Court has interpreted this rule as providing that “[a]ll interested parties may intervene in [Board] proceedings upon a showing of good cause.” *State, ex rel. Ohio Edison Co. v. Parrott*, 73 Ohio St.3d 705, 708 (1995) (citation omitted). Accordingly, the Board has granted numerous petitions to intervene filed by property owners whose property would be affected by a proposed project. See *In the Matter of the Application of Buckeye Wind LLC*, No. 13-360-EL-BGA, slip op. at 5-6, ¶¶12-14 (Ohio Power Siting Bd. Nov. 21, 2013) (granting motion of proposed intervenors who claimed that the wind project would have “potential impacts” on “their residences, land, roads, and community”).<sup>5</sup>

### C. THE LOCAL RESIDENTS ARE ENTITLED TO INTERVENE

#### 1. The Local Residents Have Real And Substantial Interests In This Proceeding

The Local Residents are long-time residents of Seneca County. They have set forth above the important interests they are entitled to protect in this proceeding. To summarize:

- **Noise In Excess of WHO 40 dBA Health Threshold.** The proposed Project may produce turbine noise in excess of the WHO’s 40 dBA health standard at more than 560 non-participating residences. And even up to 153 non-participating residences may be subjected to turbine noise in excess of Applicant’s proposed unhealthy, artificially-inflated 46 dBA limit. These non-participating residents, including Local Residents, will be subject to the risk of incurring symptoms of Wind Turbine Syndrome.

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<sup>5</sup>See also *In the Matter of the Application of Champaign Wind, LLC*, No. 12-160-EL-BGN, slip op. 3-6, ¶¶19-23, 25 (Ohio Power Siting Bd. Aug. 2, 2012) (granting motion to intervene of “property owners who own real estate and reside within the footprint of the” wind turbine project and who “have a direct and substantial interest in [the] matter, in light of the potential visual, aesthetic, safety, and nuisance impacts of the wind project on their residences, land, and community”); *In the Matter of the Application of American Transmission Systems, Inc.*, No. 12-1636-EL-BTX, slip op. at 1-2, ¶¶3-6 (Ohio Power Siting Bd. May 21, 2014) (granting motions to intervene of property owner along the possible alternate route of a proposed transmission line).

- **Excessive Shadow Flicker.** Applicant's Project may subject up to thirty (30) non-participating residences to excessive amounts of shadow flicker. Such non-participating residents also will be subjected to the risk of incurring symptoms of Wind Turbine Syndrome.
- **Killing of Migratory Birds, Bald Eagles, and Bats.** Applicant's turbines will kill migratory birds. They present a substantial risk of killing bald eagles in violation of the Bald and Golden Eagle Protection Act. They present a substantial risk of killing endangered Indiana bats in violation of the Endangered Species Act. The Local Residents, who watch and enjoy this local wildlife, have the right to protect it from the dangers of Applicant's Project.
- **Marring of Local Viewsheds.** Applicant's 591 foot turbines will mar the Local Residents' beautiful, rural viewshed. The Local Residents have the right to protect the viewsheds of their homesteads.
- **Diminution of Property Values.** The numerous adverse effects visited on the Local Residents' homes by the proposed Project will diminish the value of their property. That loss of value is, in effect, a taking of their property for which they are not compensated. The Local Residents have the right to protect themselves from such direct economic harm.
- **Increased Cost of Electricity.** The cost of electricity generated by the proposed Project will be higher than competitively-bid electricity sold to the PJM system from other generators, notwithstanding the use of taxpayer funds to subsidize construction of the Project. This market distortion harms all ratepayers, including the Local Residents.

## 2. **The Local Residents' Interests Are Not Already Adequately Represented**

The Local Residents' interests are not adequately represented by the existing parties in this case. No existing party to this action has a direct interest in: (1) protecting the Local Residents, and other non-participating Seneca County residents, from the Project's excessive wind turbine noise to which they will be subjected in their homes; (2) protecting the non-participating Seneca County residents from the excessive shadow flicker that the Project will visit upon their homes; (3) protecting the birds, bald eagles, and bats in Seneca County that the Local Residents regularly watch and enjoy; (4) preserving the beautiful rural viewsheds that the

Local Residents enjoy from their long-established homesteads; (5) protecting the Local Residents' economic interests and preventing the diminution in the value of their homes; and (6) preserving affordable, and reliable electricity supplies for Seneca County consumers. They would be the only parties to this proceeding who actually reside in Seneca County and the only parties who would be required to live every day of their lives surrounded by Applicant's turbines. Absent intervention, the Local Residents will have no effective means to protect their vital interests in this proceeding.

**3. The Local Residents Will Contribute To A Just And Expeditious Resolution Of Issues**

The Local Residents' intervention will contribute to a just and expeditious resolution of the issues in this proceeding. They have unique, independent perspectives on the issues before the Board in this case. They possess direct, personal interests that only they, "on the ground" in Seneca County, can adequately protect. Their participation is crucial to an informed, balanced, and fair disposition of the interests of all parties who will be affected by the Board's findings and determinations in this proceeding. They will be bound by all of the Board's determinations in this case.

**4. The Local Residents' Intervention Will Neither Delay This Proceeding Nor Prejudice Parties**

The Local Residents' intervention will neither unduly delay this proceeding nor unjustly prejudice any existing party. They will abide by all Board deadlines and present their evidence in a clear and concise manner.

For the foregoing reasons, the Local Residents request the Board to grant this Petition to Intervene.

Respectfully submitted,

/s/ John F. Stock

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### **CERTIFICATE OF SERVICE**

The Ohio Power Siting Board's e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to this case. In addition, the undersigned certifies that a copy of the foregoing document also is being served upon the persons below via electronic mail this 19th day of June, 2018.

/s/ John F. Stock

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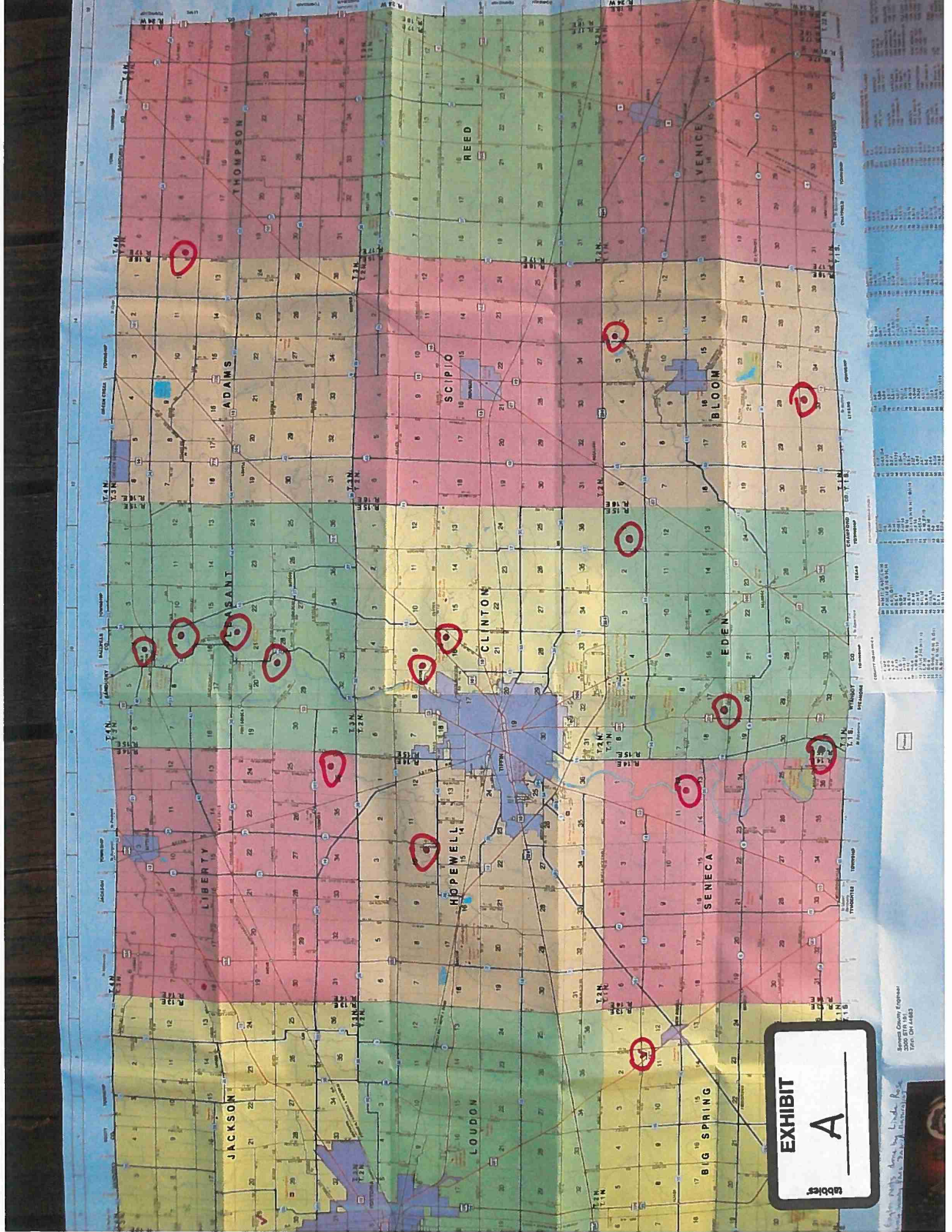


EXHIBIT  
A

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Summary: Petition to Intervene of Seneca County Residents electronically filed by John F Stock on behalf of Chris Zeman and Danielle Zeman and Carol Burkholder and Duane Hay and Deb Hay and Gary Hoepf and Dawn Hoeph and David Hoover and Jeff Hoover and Greg Jess and Laura Jess and Mike Kessler and Tiffany Kessler and Doug Myers and Jennifer Myers and Kevin Oney and Jennifer Oney and Duane Robinson and John Wilson and Lisa Wilson