

Supplement to the Staff Report of Investigation

Republic Wind Farm
Republic Wind, LLC

Case No. 17-2295-EL-BGN

October 18, 2019



Power Siting
Board

Mike DeWine, Governor | Sam Randazzo, Chairman

**In the Matter of the Application of Republic Wind, LLC)
for a Certificate of Environmental Compatibility and)
Public Need for a Wind-Powered Electric Generating) Case No. 17-2295-EL-BGN
Facility in Seneca and Sandusky Counties, Ohio)**

Supplement to the Staff Report of Investigation

Submitted to the
OHIO POWER SITING BOARD

BEFORE THE POWER SITING BOARD OF THE STATE OF OHIO

**In the Matter of the Application of Republic Wind, LLC)
for a Certificate of Environmental Compatibility and)
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Chairman, Public Utilities Commission	Director, Department of Natural Resources
Director, Department of Agriculture	Public Member
Director, Development Services Agency	Ohio House of Representatives
Director, Environmental Protection Agency	Ohio Senate
Director, Department of Health	

To the Honorable Power Siting Board:

In accordance with the Ohio Revised Code (R.C.) 4906.07(C) and rules of the Ohio Power Siting Board (Board), the staff of the Public Utilities Commission of Ohio (Staff) completed its investigation in the above matter and submitted its findings and recommendations in its Staff Report on July 25, 2019 for consideration by the Board. Since that time, new information regarding impacts from operational noise and aviation have compelled the Staff to supplement that Staff Report.

The findings and recommendations contained in this Supplement to the Staff Report include the results of Staff coordination with the Ohio Department of Transportation (ODOT).

In accordance with R.C. 4906.07(C) and 4906.12, copies of this supplement to the Staff Report have been filed with the Docketing Division of the Public Utilities Commission of Ohio and served upon the Applicant or its authorized representative, the parties of record, and pursuant to Ohio Administrative Code 4906-3-06, the main public libraries of the political subdivisions in the project area.

This Supplement to the Staff Report presents the results of Staff's investigation conducted in accordance with R.C. Chapter 4906 and the rules of the Board, and does not purport to reflect the views of the Board nor should any party to the instant proceeding consider the Board in any manner constrained by the findings and recommendations set forth herein.

Respectfully submitted,



Tamara S. Turkenton
Director, Rates and Analysis

Background

On July 25, 2019, the Ohio Power Siting Board Staff filed its Staff Report of Investigation (Staff Report) regarding the Republic Wind Farm. Since that time, new information regarding impacts from operational noise and aviation have compelled the Staff to supplement that Staff Report. Notably, on September 27, 2019, the ODOT Office of Aviation sent the Staff an updated letter in accordance with R.C. 4561.341. In addition to all the terms and conditions of the July 25, 2019 Staff Report, Staff recommends that any certificate issued by the Board for the proposed facility include two additional conditions as described and set forth in this supplemental report.

Public Services, Facilities, and Safety

Operational Noise

On September 12, 2019, at the public hearing on this application, a resident in the project area informed Staff that her house was not on the sound study map as a receptor. When Staff asked the Applicant about this receptor and the possibility of other missing receptors, the Applicant stated that the receptor in question was modeled on earlier sound studies but was not included on the latest sound study. The Applicant also stated that there were nine other receptors not initially modeled in the sound studies. On October 10, 2019 the Applicant supplied Staff with the noise model results for the omitted receptors. Based on the model results, the noise impacts at all of the omitted receptors would be within the noise limit of ambient plus 5 dBA. The ambient noise for the project area was determined by the Applicant to be 41 dBA. It is Staff's opinion that occupants at the missing receptor locations should have been given information on potential noise impacts much earlier in the process. Therefore, Staff recommends that the Certificate be conditioned to prohibit constructing any turbine that is modeled to impact a previously non-modeled receptor above the ambient level of the project area.

RECEPTORS OMITTED BY THE FIRST SOUND STUDY								
Missing Receptor Location	Siemens SG 4.5-145	Nordex N149 4.5 MW	Nordex N149 4.8 MW	Nordex N149 5.5 MW	Nordex N149 5.7 MW	Vestas V150 4.2 MW	Vestas V150 5.6 MW	Vestas V136 3.6 MW
2656 County Road 276 Bellevue, Ohio	37	37	37	35	36	36	36	36
2627 County Road 276 Bellevue, Ohio	40	40	40	39	40	40	40	40
5762 County Road 191 Bellevue, Ohio	37	37	37	36	37	37	37	37
5720 County Road 191 Bellevue, Ohio	36	37	37	35	36	36	36	36
5720 County Road 191 Bellevue, Ohio	36	36	36	35	36	36	36	36
5831 County Road 191 Bellevue, Ohio	39	39	39	38	39	39	39	39
5915 County Road 191 Bellevue, Ohio	40	41	41	39	40	40	40	40

RECEPTORS OMITTED BY THE FIRST SOUND STUDY (CONTINUED)

Missing Receptor Location	Siemens SG 4.5-145	Nordex N149 4.5 MW	Nordex N149 4.8 MW	Nordex N149 5.5 MW	Nordex N149 5.7 MW	Vestas V150 4.2 MW	Vestas V150 5.6 MW	Vestas V136 3.6 MW
5981 County Road 191 Bellevue, Ohio	41	41	41	40	41	40	40	40
5981 County Road 191 Bellevue, Ohio	42	42	42	41	41	41	41	41
4857 Township Road 81 Bellevue, Ohio	39	39	39	38	39	39	39	39

The turbine location modeled to produce an impact greater than the ambient level is turbine location 37.

Staff recommends the addition of a new condition to address this situation:

The Applicant shall not use turbine models Siemens Gamesa SG145 (4.5 MW), Nordex N149 (4.5 MW), or Nordex N149 (4.8 MW) at turbine location 37.

Aviation

As described in the July 25, 2019 Staff Report, the Federal Aviation Administration (FAA) and ODOT Office of Aviation administer regulatory programs to evaluate and authorize certain obstructions near airports and provide navigable airspace analysis.

During the FAA review of the Republic Wind project, the FAA found that 33 proposed wind turbines would exceed the 14 CFR Part 77.17 (a)(3) for various instrument flight rule (IFR) procedures for the Seneca County and Fostoria Metropolitan airports.^{1, 2} Staff notes that the Applicant provided different structure identification numbers to the FAA than it provided to the OPSB. A cross-reference table is attached to this report.

Seneca County Airport sent correspondence to the FAA objecting to any impacts that reduce the utility of the airport.

By letter dated August 1, 2019, the Fostoria Metropolitan Airport manager informed the FAA, OPSB, and ODOT Office of Aviation that he has specific concerns that 12 wind turbines proposed by Republic Wind would exceed the 14 CFR Part 77.17 (a)(3) for various IFR procedures and negatively impact the Fostoria Metropolitan Airport.³ Specifically, the airport manager objected to these 12 wind turbines impacting the minimum vectoring altitudes for the runway 27 GPS instrument approach procedure. Because the letter was not received on time by the FAA, it was not evaluated by the FAA during its aeronautical study period.

1. Part 77 surfaces such as approach, transitional, and horizontal surfaces are FAA defined airspaces or clearance areas around airports.

2. Page 10 of the FAA's Aeronautical Study No. 2018-WTE-11673-OE dated June 26, 2019.

3. "Public Comment of Dave Sniffen, Airport Manager, Fostoria Metropolitan Airport" Case No. 17-2295-EL-BGN, August 15, 2019.

Staff provided a copy of Fostoria Metropolitan Airport's letter to Republic Wind and consulted with the ODOT Office of Aviation about these concerns.

The Applicant noted that, during the FAA process, Fostoria Metropolitan Airport was afforded an opportunity to file comments during the FAA circularization process. Fostoria Metropolitan Airport did not file comments with the FAA on time. Republic Wind stated it has conferred with the FAA and the FAA has indicated that Fostoria's petition letter is invalid because it was not received on time. Capitol Airspace Group, a consultant for the Applicant, prepared a report on this issue, concluding that aircraft can continue to utilize altered instrument approach procedures after the Republic Wind Farm is built, in a similar manner as used today.

ODOT Office of Aviation

The ODOT Office of Aviation has access to the aeronautical studies submitted to the FAA and often performs a simultaneous review. The ODOT Office of Aviation updated its R.C. 4561.341 letter on September 27, 2019, after receiving the written concerns from Fostoria Metropolitan Airport and receiving clarification of the objections to the wind turbines from the Seneca County Airport. In conducting its ongoing review, the ODOT Office of Aviation has a different standard of review than the FAA. The ODOT Office of Aviation reviews proposed structures under Ohio statute R.C. 4561.34 standard that the "consideration of safety shall be paramount to considerations of economic or technical factors." The FAA reviews proposed structures to a different standard.

Regarding the Fostoria Metropolitan Airport, the ODOT Office of Aviation advises that proposed heights of wind turbines at locations 6, 9, 11, 12, 13, 15, 19, 20, 21, 22, 24, and 29 are obstructions to air navigation. ODOT Office of Aviation advises that in order to eliminate the obstructions to air navigation, that the heights of wind turbines at these locations be reduced so that the total height will be below the no effect height (NEH) of 1,400 feet above mean sea level (AMSL). The NEH is the height at or below which there is no effect on the airport or its approaches.

Regarding the Seneca County Airport, the ODOT Office of Aviation advises that proposed heights of wind turbines at locations 14, 16, 17, 18, 23, 25, 26, 27, 28, 30, 31, 32, 33, 34, 35, 38, 40, and 41 are obstructions to air navigation. The ODOT Office of Aviation advises that in order to eliminate the obstructions to air navigation, the total heights of wind turbines at these locations be reduced so that the total height will be below the NEH of 1,400 feet AMSL.

Additionally, the ODOT Office of Aviation found that wind turbines at locations 47 and 48 would constitute an obstruction to air navigation by exceeding 14 CFR Part 77.17(a)(3) for various IFR procedures for the Seneca County Airport. Seneca County Airport has not specifically objected to wind turbines at locations 47 and 48.

Turbine Models Below the No Effect Height

Staff reviewed the tip heights of the wind turbine models to compare to the NEH of 1,400 AMSL total height restriction. The Applicant proposed to use the Vestas V136 turbine model with a tip height of 492 feet at up to ten locations in the wind farm. Based on Staff's analysis, this turbine model would comply with the total height restriction at any of the wind turbine locations mentioned in this Supplement to the Staff Report. Staff found that the Vestas V150 and Siemens Gamesa SG145 turbine models with a tip height of 591 feet would comply with the total height restrictions and the NEH at turbine locations 6, 12, and 38. Based on Staff's analysis, no other proposed turbine models would comply with the NEH of 1,400 feet AMSL total height restriction.

Recommended Findings

Staff recommends that the Board accept this Supplement to the Staff Report as supplemental to the July 25, 2019 Staff Report and include, in addition to the conditions already detailed in the Staff Report, the recommended conditions outlined below as applicable to this facility.

Recommended Conditions:

Following a review of the application filed by the Republic Wind LLC, and the record compiled to date in this proceeding, Staff recommends that the following two additional conditions be added to the 57 conditions already recommended:

- (58) The Applicant shall not use turbine models Siemens Gamesa SG145 (4.5 MW), Nordex N149 (4.5 MW), or Nordex N149 (4.8 MW) at turbine location 37.
- (59) The Applicant shall only construct a turbine where the total height will be below the no effect height of 1,400 feet above mean sea level for turbine locations 6, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 38, 40, and 41.

Wind Turbine Structure Identification Number Cross Reference Table			
OPSB Filing Name	FAA Filing Name	Latitude FAA	Longitude FAA
T1	T48	41-12-53.43	83-04-09.64
T2	T49	41-13-06.44	83-04-09.61
T3	T1	41-12-37.25	83-04-03.47
T4	T2	41-11-35.43	83-01-42.77
T5	T3	41-11-24.59	83-01-38.02
T6	T4	41-10-38.60	83-01-19.26
T7	T5	41-11-36.43	83-01-18.76
T8	T6	41-11-24.61	83-01-15.57
T9	T7	41-09-56.58	83-00-36.58
T10	T8	41-12-12.33	83-00-36.22
T11	T9	41-10-32.09	83-00-31.46
T12	T10	41-10-45.43	83-00-21.83
T13	T11	41-10-26.99	83-00-17.02
T14	T12	41-08-33.95	82-57-57.68
T15	T13	41-09-23.84	82-57-58.08
T16	T14	41-08-13.29	82-57-48.84
T17	T15	41-08-59.01	82-57-47.94
T18	T16	41-08-32.55	82-57-43.53
T19	T17	41-09-56.42	82-57-05.85
T20	T18	41-10-19.54	82-57-05.90
T21	T19	41-10-13.78	82-56-54.00
T22	T20	41-10-19.37	82-56-41.92
T23	T21	41-09-25.77	82-56-38.69
T24	T22	41-11-10.90	82-56-05.13
T25	T23	41-09-30.74	82-56-00.47
T26	T24	41-10-21.62	82-55-55.84
T27	T25	41-09-28.09	82-55-46.14
T28	T50	41-10-25.58	82-55-42.88
T29	T26	41-11-36.25	82-55-37.06
T30	T27	41-10-23.14	82-55-29.26
T31	T28	41-11-38.57	82-54-58.92
T32	T29	41-11-47.60	82-54-51.93
T33	T30	41-12-25.06	82-54-43.03
T34	T31	41-12-02.13	82-54-38.80
T35	T32	41-11-40.37	82-54-34.99
T36	T33	41-15-38.49	82-54-24.34
T37	T34	41-15-56.46	82-54-24.42
T38	T35	41-14-08.52	82-54-18.88
T39	T36	41-15-37.57	82-54-06.43
T40	T37	41-10-14.57	82-53-27.66
T41	T38	41-09-58.14	82-53-19.70
T42	T39	41-14-50.37	82-52-25.36
T43	T40	41-15-05.72	82-52-19.26
T44	T41	41-14-55.91	82-52-11.95
T45	T42	41-15-06.22	82-52-00.06
T46	T43	41-14-55.74	82-51-52.65
T47	T44	41-13-49.46	82-51-06.32
T48	T45	41-14-03.74	82-51-04.28
T49	T46	41-14-39.24	82-51-04.55
T50	T47	41-14-48.98	82-50-45.66



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Summary: Staff Report of Investigation Supplement electronically filed by Mr. Matt Butler on behalf of Staff of OPSB