

**BEFORE
THE OHIO POWER SITING BOARD**

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

**PREFILED TESTIMONY
OF
Andrew Conway
SITING, EFFICIENCY, AND RENEWABLE ENERGY DIVISION
DEPARTMENT OF RATES AND ANALYSIS
OHIO POWER SITING BOARD STAFF**

STAFF EX. ____

October 28, 2019

1 1. Q. Please state your name and your business address.

2 A. My name is Andrew Conway. My business address is 180 E. Broad Street,
3 Columbus, Ohio 43215.

4

5 2. Q. By whom are you employed?

6 A. I am employed by the Public Utilities Commission of Ohio (Commission).

7

8 3. Q. Please describe your job title and duties?

9 A. I am employed as an Engineering Specialist in the Siting, Efficiency, and
10 Renewable Energy Division of the Rates and Analysis Department. In this
11 position, I review technical issues associated with energy efficiency
12 applications, renewable energy applications, assigned areas in Applications
13 for a Certificate of Environmental Compatibility and Public Need to
14 construct major utility facilities and economically significant wind farms,
15 and other duties as assigned.

16

17 4. Q. Would you briefly state your educational background and work history?

18 A. I have a Bachelor of Science degree in Chemical Engineering and minor in
19 Chemistry from the University of Toledo. I am also a registered profes-
20 sional engineer in the State of Ohio.

21

1 To maintain registration as a professional engineer I have taken continuing
2 education courses relevant to the practice of engineering that include
3 technical, ethical or managerial material. I have taken courses specific to
4 wind farms, geotechnical exploration, renewable energy installation, and
5 safety.

6
7 From 2001 to 2009, I was employed by the Ohio Environmental Protection
8 Agency as an environmental specialist. From 2009 to present, I have been
9 employed in my current position at the Commission.

10
11 I have provided analysis on at least 17 wind farms, nine solar farms, and ten
12 natural gas combined cycle power plants submitted to the OPSB.

13 I have also inspected and visited numerous wind farms in various stages of
14 design, construction, and operation.

15
16 5. Q. Have you previously testified before the OPSB?

17 A. Yes. I previously testified in cases before the Board.

18
19 6. Q. What is the purpose of your testimony in this proceeding?

20 A. I am sponsoring portions of the Staff Report of Investigation (Staff Report)
21 and Supplement to the Staff Report of Investigation (Supplemental Report).
22 Specifically, I was the primary analyst for portions of the Staff Report

1 pertaining to the Turbine Foundations (on page 34), Wind Velocity (on
2 page 39), Safety (on pages 39-41), Communications (on pages 41-42),
3 Decommissioning (on pages 42-43), the Air, Water, Solid Waste, and
4 Aviation section (on pages 50-54), and the Water Conservation Practice
5 section (on page 59). I was also the primary analyst for the aviation section
6 of the Supplemental Report.

7
8 7. Q. Why are those particular Staff Report sections (Turbine Foundations, Wind
9 Velocity, Safety, Communications, Decommissioning, Air, Water, Solid
10 Waste, and Aviation section, and the Water Conservation Practice section)
11 important?

12 A. These sections are generally outlined in R.C. 4906.10, Ohio Adm.Code
13 4906-4-08, or Ohio Adm.Code 4906-4-09 as factors relevant to the proper
14 siting of wind farms.

15
16 Also, R.C. 4906.10 (A)(5) obligates the board to consult with the.
17 Ohio Department of Transportation Office of Aviation.

18
19 8. Q. Did you consult the Ohio Department of Transportation Office of Aviation
20 (ODOT-OA) regarding the Republic Wind Farm project?

21 A. Yes. Initially, I sent two emails on 3/6/2019 to the ODOT-OA. These
22 emails had a link to the Application docket, Aviation related sections from

1 the Application, a Google Earth file of the proposed wind farm, and
2 anticipated staff report filing date. During the course of the investigation
3 and since that initial email, I continued to correspond with ODOT-OA.

4
5 Throughout the course of the investigation, I forwarded to the ODOT-OA
6 aviation related data requests, responses to those requests, and aviation
7 related material, emails from the Department of Defense, and the aviation
8 consultant reports.

9
10 The ODOT-OA responded, in accordance with R.C. 4561.341, by letters
11 dated 4/11/2019, 7/18/2019, and 9/27/2019. The ODOT-OA letter dated
12 9/27/2019 is the latest and most comprehensive consultation on the project.

13
14 9. Q. Are you testifying to any specific conditions in the Staff Report?

15 A. Yes. I endorse and recommend that at least the following conditions
16 become part of a certificate:

- 17 • General Condition 10:
- 18 • Public Services, Facilities, and Safety Conditions 42, 43, 47, 48, 49,
19 50, and 51:
- 20 • Air, Water, Solid Waste, and Aviation Conditions 52, 53, 54, 55, 56,
21 and 57; and
- 22 • Supplemental Report Condition 59.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

10. Q. How did you analyze, evaluate, and investigate the proposed Republic Wind Farm?

A. In order to learn about the project and its potential impacts I did the following: I attended the pre-application meeting on 11/29/2016. I attended a public information meeting held on 12/11/2018. I spoke with concerned citizens and company representatives at that public information meeting. I attended the local public hearing held on 9/12/2019. I also performed site inspections and Applicant interviews on 8/2/2018 and 3/27/2019.

I reviewed the Application submitted on 2/26/2018, 12/26/2018 and the modification dated 6/28/2019. I specifically read and focused on those sections pertaining and relevant to the Turbine Foundations, Wind Velocity, Safety, Communications, Decommissioning, Air, Water, Solid Waste, and Aviation, and Water Conservation Practice.

I sent data requests to the Applicant on 3/22/2019, 4/3/2019, 4/10/2019, 8/16/2019, and 9/17/2019.

I reviewed and analyzed geographic information system data submitted by the Applicant that was transformed into Google Earth maps of the wind

1 farm. Notably, I overlaid published military aviation training routes over
2 the wind farm map. Also, I confirmed distances from turbines to
3 neighboring objects.

4
5 I discussed the proposed wind farm project potential impacts with
6 representatives of the Department of Defense and LifeFlight. I exchanged
7 emails with the airport manager of Fostoria Metropolitan Airport.

8
9 I reviewed the FAA Determination of No Hazard letters, analysis from
10 ODOT-OA, and a wind turbine number cross reference table provided by
11 the Applicant.

12
13 I contacted the turbine manufacturers and received their input, notably
14 Nordex.

15
16 Through this information I was able to glean the nature of the probable
17 environmental impacts associated with the proposed wind farm, determine
18 if the Applicant minimized those adverse environmental impacts, and
19 determine whether the Applicant would likely comply with Ohio's air
20 pollution, water pollution, solid waste, and aviation regulations. My
21 analysis and recommendations to inform the Board are contained in the
22 Staff Report and Supplemental Report.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

11. Q. On page 62 of the Application, the Applicant discusses the concept of a safety area. Specifically, the Application states “In the unlikely event that a wind turbine were to catch fire, it would typically be allowed to burn itself out while maintenance and fire personnel maintain a safety area around the turbine to protect against the potential for spot ground fires that might start due to sparks or falling material.” What is that safety area?

A. [REDACTED]

According to the Applicant, the turbines and equipment will be installed in accordance with National Fire Protection Association 70E code standards. The Applicant states that in the event of a turbine fire, the Applicant would disconnect power to the turbine, set and maintain a temporary safety area, and allow the fire to burn itself out. The Applicant stated it would develop an emergency action plan during both construction and operation.

12. Q. Condition 10 states that “At least 30 days prior to the preconstruction conference, the Applicant shall submit to Staff, for review and acceptance,

one set of detailed engineering drawings of the final project design, including the facility, construction staging areas, and any other associated facilities and access points, so that Staff can determine that the final project design is in compliance with the terms of the certificate. The final project layout shall be provided in hard copy and as geographically referenced electronic data. The final design shall incorporate all conditions of the certificate and references at the locations where the Applicant and/or its contractors must adhere to a specific condition in order to comply with the certificate. The detailed engineering drawings of the final project design and foundation design shall include the identity of the registered professional engineer(s), structural engineer(s), or engineering firm(s), licensed to practice engineering in the state of Ohio who reviewed and approved the designs.” Why is this condition necessary?

- A. This is a typically recommended condition to assure the Board that the detailed engineering drawings are consistent with the Certificate issued by the Board and adhere to common engineering practices to protect the public health, safety, and welfare. Electric generation facilities, including wind farms, typically submit detailed engineering drawings of the final project design and foundation design to the Board.

Staff notes that there is Karst topography in the project area, which requires avoidance and special consideration during foundation design and

1 installation. The Applicant was not aware that Vestas V150, Siemens
2 Gamesa SG145, or Nordex N149 models have been previously been
3 installed in North America. But, Staff notes that the Vestas V150 is
4 currently under construction at the Paulding Wind Farm IV. For these
5 reasons, Staff recommends that the detailed engineering drawings of the
6 final project design and foundation design include the identity of the
7 registered professional engineer(s), structural engineer(s), or engineering
8 firm(s), licensed to practice engineering in the state of Ohio who reviewed
9 and approved the designs.

- 10
- 11 13. Q. Condition 42 states that “The Applicant shall not construct turbines 10, 38,
12 or 43 as proposed, because these do not meet the minimum setback outlined
13 in Ohio Adm.Code 4906-4-08(C)(2).” Why is this condition necessary?
- 14 A. According to Ohio Adm.Code 4906-4-08(C)(2), each wind turbine must be
15 at least 1,125 feet in horizontal distance from the tip of the turbine's nearest
16 blade at 90 degrees to the property line of the nearest adjacent property at
17 the time of certification application. The minimum setback calculates to
18 1,371 feet from the turbine base to nearest adjacent property. Turbine 10 is
19 less than that distance to State Route 19. Turbines 38 and 43 are less than

1 those distances to State Route 18.¹ Staff views these state routes as other
2 property.

3
4 [REDACTED]
5 [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]

11
12 Staff notes that the turbine models and locations proposed for turbines 10,
13 38, and 42 were not proposed until December 26, 2018 or later, which is
14 well after the effective date of Ohio Adm. Code 4906-4-08(C)(2)(b).

15
16 14. Q. Condition 43 states that “The Applicant shall not construct turbine 42 as
17 proposed, because it does not meet the setback to an existing pipeline”.

18 Why is this condition necessary?

19 A. The pipeline setback has been recommended by Staff since 2011, and is
20 currently set forth in Ohio Administrative Code 4906-4-08 (C)(2)(c).

¹ Carr, Dalton. “RE: Republic Wind, 17-2295-EL-BGN, data request (4/3/2019)”. 4/10/2019. Email.

1
2 In the event of turbine collapse at location 42, then the nearest gas pipeline
3 could be stressed, damaged, or disrupted. This could affect the owners and
4 customers of that gas pipeline, as well as nearby persons and properties.
5

6 15. Q. In the testimony of Dalton Carr on behalf of Republic Wind, LLC at
7 question 48, the Applicant has recommended that the Board modify
8 Condition 43, do you concur with that proposed modification?

9 A. No. The proposed modification to Condition 43 is based on a future action
10 of the Applicant. Staff has not received specific information about a new
11 location for turbine 42. Staff can not confirm that a new location would
12 comply with the criteria outlined in R.C. 4906.10. Therefore, Staff
13 recommends that Condition 42 remain unchanged.
14

15 16. Q. After a certificate is issued, can the Applicant relocate/microsite the wind
16 turbines from those locations proposed in the application and as modified
17 and/or clarified in supplemental filings, replies to data requests, and
18 recommendations in the Staff Report and Supplemental Report?

19 A. No. The Applicant has indicated the latitude and longitude of each turbine
20 location down to the degree, minute, and hundredth second. Any change to
21 those locations would not be accepted by Staff without modification by the
22 Board. Deviations from the proposed turbine locations would be

1 investigated and corrected; potentially by complaint or enforcement
2 procedures pursued through the Board. Generally, R.C. 4906.98 and
3 4906.99 may be applicable.
4

5 17. Q. Condition 47 states that “The Applicant shall denote on the set of detailed
6 engineering drawings of the final project design the microwave paths and
7 procedures to avoid interference with those microwave paths by
8 construction equipment within the 300-foot radius workspace around each
9 turbine and specifically for turbines 4, 7, 23, 27, 32, 39, 45, and 49.” Why
10 is this condition necessary?

11 A. This was recommended because Staff found that construction equipment
12 (e.g. cranes) would interfere with known microwave paths. According to
13 page 9 of the Application, the Applicant would create a 300-foot workspace
14 around each of these proposed turbines. In this workspace the Applicant
15 would use cranes to perform necessary work to construct the wind turbine
16 and install the wind turbine blades.

17
18 Microwave communication systems are wireless point-to-point links that
19 communicate between two antennas and require clear line-of-site
20 conditions between each antenna. Also, according to page 100 of the
21 Application, to “assure an uninterrupted line of communications, a
22 microwave link should be clear, not only along the axis between the center

1 point of each antenna, but also within a mathematical distance around the
2 center axis known as the Fresnel Zone.”

3
4 On Figures 4 through 8 of the Microwave Study performed by ComSearch
5 on behalf of Republic Wind (Exhibit Z of the Application), ComSearch
6 found that there are multiple known microwave paths around turbines 4, 7,
7 23, 27, 32, 39, 45, and 49. A construction crane near these eight turbines
8 would likely cross and could obstruct these microwave paths.

9
10 Staff recommends that the Applicant denote avoidance procedures of the
11 beam paths on the construction plans, so that construction cranes are not
12 placed in the beam paths during construction.

13
14 18. Q. Condition 48 states “At least 30 days prior to construction, the Applicant
15 shall submit to Staff relevant portions of the turbine manufacturer’s turbine
16 restart procedures due to vibration, ice accumulation, lightning storm,
17 collector or feeder line failure.” Why is this condition necessary?

18 A. The Applicant explained it has restart procedures and protocols after an
19 automatic shutdown event. Specifically, automatic shutdowns due to excess
20 vibration, ice, lighting storms, high wind and temperature events are
21 specified in its turbine manuals. Republic Wind explains it will comply
22 with the applicable safety procedures when restarting a turbine. Republic

1 Wind explained that the restart procedures and protocols are designed to
2 ensure the safe return to operation/restart without the turbines being a
3 danger to on-site personnel or the public.²
4

5 As the Applicant explained in response to a Staff data request, if one of
6 these events “takes a turbine or turbines out of service site representatives
7 are dispatched to investigate. This includes if needed a climb uptower for
8 investigation. Only after the site including turbines are safe to bring back
9 online will the site team initiate a start.”³ Staff recommends that the
10 Applicant submit relevant portions of the turbine manufacturers’ restart
11 procedures so that Staff may confirm these practices and protocols.
12

13 19. Q. Condition 49 states “At least 30 days prior to construction, the Applicant
14 shall prepare through interested and pertinent persons, a plan for at least
15 one predesignated emergency-response landing zone within the project
16 area. The Applicant shall include the location of this landing zone in its
17 emergency response plan.” Why is this condition necessary?

18 A. Staff received a general concern about the Republic Wind farm from
19 LifeFlight, a medical air ambulance company that operates in the project
20 area.

² Staff Report, p. 4

³ Carr, Dalton. “RE: Republic Wind, 17-2295-EL-BGN, data request (3/22/2019)”. 3/29/2019. Email.

1
2 The concern is that there will be limited/reduced landing zones within the
3 wind farm project area. Patients requiring air ambulance service would
4 need to be re-routed to predesignated landing zones outside the wind farm
5 project area. Staff's research on the subject has found that a predesignated
6 landing zone can be a cleared field marked by safety cones or a concrete
7 pad. The Applicant indicated that it held a round-table discussion with local
8 emergency services and critical care transport pilots. On a site visit, the
9 Applicant indicated that it would put local emergency and air ambulatory
10 services in touch with the Applicant's 24-hour emergency operation center
11 to coordinate shutdown of the turbines during medical emergencies.

12
13 The Applicant stated that it intends to require its contractors to implement
14 its emergency action plan(s) and consult with all necessary local emergency
15 services, including medical facilities. The Applicant also stated that it
16 intends to provide proper equipment, in accordance with R.C. 5727.75 (F),
17 to fire and emergency responders to enable them to respond to emergencies.
18 Staff encourages continued coordination between critical care transport
19 pilots, the Applicant, and local emergency services. Staff recommends that
20 the Applicant explore constructing one predesignated landing zone within
21 the project area to mitigate impacts to LifeFlight and other air ambulatory

1 services. The location of this landing zone shall also be marked in its
2 emergency response plan.

3
4 20. Q. How did you research predesignated landing zones?

5 A. I read the October 4, 2018 letter from LifeFlight and discussed the subject
6 through phone calls with Mike Conrad and Brian Conroy of LifeFlight.
7 LifeFlight would prefer a maintained concrete or asphalt area that has been
8 improved for helicopter landings by FAA recommended lighting, markings,
9 and obstacle clearance.

10
11 I also reviewed the MedFlight's website:

12 <http://www.medflight.com/lzlecture.html>. OPSB Staff's research on the
13 subject has found that a predesignated landing zone can be a cleared field
14 marked by safety cones or a concrete pad. Another wind developer
15 indicated that it has installed predesignated landing zones for use during its
16 construction phase.

17
18 21. Q. Condition 50 states that "At least 30 days prior to the preconstruction
19 conference, the Applicant shall complete a microwave path study that
20 identifies all existing microwave paths that intersect the wind farm project,
21 and a worst-case Fresnel zone analysis for each path. A copy of this study
22 shall be provided to the path licensee(s), for review, and to Staff for review

1 and confirmation that the Applicant is complying with this condition. The
2 assessment shall conform to the following requirements:

- 3 (a) An independent and registered surveyor, licensed to survey
4 within the state of Ohio, shall determine the exact locations
5 and worst-case Fresnel zone dimensions of all known
6 microwave paths or communication systems operating within
7 the project area, including all paths and systems identified by
8 the electric service providers that operate within the project
9 area. In addition, the surveyor shall determine the center point
10 of all turbines within 1,000 feet of the worst-case Fresnel
11 zone of each system, using the same survey equipment.
- 12 (b) Provide the distance in feet between the nearest rotor blade
13 tip of each surveyed turbine identified within section (a)
14 above and the surveyed worst-case Fresnel zone of each
15 microwave system path.
- 16 (c) Provide a map of the surveyed microwave paths, center
17 points, and boundaries at a legible scale.
- 18 (d) Describe the specific, expected impacts of the project on all
19 paths and systems considered in the assessment.”

20 Why is this condition necessary?

- 21 A. Ohio Adm.Code 4906-4-08(A) requires the Applicant to analyze the
22 potential for the proposed wind farm to interfere with microwave

1 communication systems. As discussed in the answer to question 17 above,
2 microwave communication systems are wireless point-to-point links that
3 communicate between two antennas and require clear line-of-site
4 conditions between each antenna.

5
6 The Applicant identified 41 licensed microwave paths intersecting the
7 project area. A Worst-Case Fresnel Zone (WCFZ) was calculated for each
8 of the microwave paths identified. The WCFZ represents the area or path in
9 which a turbine or other structure might cause a deflection of microwave
10 signals. Staff concurs with the Applicant that currently none of the
11 proposed wind turbine locations would obstruct the WCFZ of the licensed
12 microwave paths in the project area. However, Staff has found that the
13 number of microwave paths, which are used for telecom, have increased in
14 recent years. Additionally, the microwave network may change during the
15 course of an OPSB certificate.

16
17 During my experience with wind farm siting, I have found that construction
18 of wind farms is often delayed. During this delay, new microwave
19 communication systems are sometimes built. This condition is needed so
20 that the Applicant can determine avoidance, mitigation, or minimization
21 measures prior to construction.

1 This condition helps to assure the Board that microwave paths and other
2 communications systems used by electric service providers are confirmed
3 immediately prior to construction.
4

5 22. Q. Condition 51 states that “All existing licensed microwave paths, and
6 licensed communication systems shall be subject to avoidance or
7 mitigation. The Applicant shall complete avoidance or mitigation measures
8 prior to commencement of construction for impacts that can be predicted in
9 sufficient detail to implement appropriate and reasonable avoidance and
10 mitigation measures. After construction, the Applicant shall mitigate all
11 observed impacts of the project to microwave paths, and licensed
12 communication systems within seven days or within a longer time period
13 acceptable to Staff. Avoidance and mitigation for any known point-to-point
14 microwave paths, and licensed communication systems shall consist of
15 measures acceptable to Staff, the Applicant, and the affected path owner,
16 operator, or licensee. If interference with an omni-directional or multi-point
17 system is observed after construction, mitigation would be required only for
18 affected receptors.” Why is this condition necessary?

19 A. During my experience with wind farm siting, I have found that construction
20 of wind farms is often delayed. During this delay, new microwave
21 communication systems are sometimes built. This condition is needed so

1 that the Applicant can put avoidance, mitigation, or minimization measures
2 in place immediately prior to construction.

3
4 This condition helps to assure the Board that impacts to existing microwave
5 paths are avoided or mitigated. Also, the condition allows input from the
6 affected microwave path owner, operator, or licensee.

7
8 23. Q. Condition 52 states that “The Applicant shall meet all recommended and
9 prescribed Federal Aviation Administration (FAA) and Ohio Department of
10 Transportation Office of Aviation (ODOT-OA) requirements to construct
11 an object that may affect navigable airspace. This includes submitting
12 coordinates and heights for all structures exceeding 199 feet AGL for
13 ODOT Office of Aviation and FAA review prior to construction, and the
14 non-penetration of any FAA Part 77 surfaces.” Why is this condition
15 necessary?

16 A. This is a recommended condition to assure the Board that the FAA and
17 ODOT-OA have reviewed those objects that have Part 77 impacts and
18 related aviation regulations prior to construction.

19
20 The ODOT Office of Aviation has access to the same aeronautical studies
21 submitted to the FAA and often performs a simultaneous review. The
22 ODOT Office of Aviation implements R.C. 4561.31, which is a

1 construction permit program for structures affecting airport operations.

2 According to the ODOT Office of Aviation, its duty is to protect Federal
3 Aviation Regulations Part 77 surfaces (14 CFR 77) which is slightly
4 different than the FAA analysis. For proposed major utility facilities and
5 economically significant wind farms, participation in the Ohio Power Siting
6 Board process, pursuant to R.C. 4561.31(E) and R.C. 4906.10(A)(5)
7 replaces the permitting process.

8
9 The ODOT-OA provided a consultation letter, in accordance with R.C.
10 4561.341, to OPSB dated 9/27/2019. In the letter, the ODOT-OA advised
11 that all 50 wind turbine structures would constitute an obstruction to air
12 navigation.

13
14 Also, in the letter the ODOT-OA advised that in order to waive the
15 obstruction standard, that conditions of the FAA are complied with.

16
17 Condition 52 implements ODOT-OA's condition that is necessary in order
18 for the obstruction standard to be waived. The condition assures the Board
19 that the Applicant will comply with FAA requirements and ODOT-OA
20 requirements. This condition also protects from modification or movement
21 of the wind turbine which may warrant further consultation with ODOT-
22 OA or analysis from the FAA.

1
2 This is a usually recommended condition that also assures the Board that
3 the Applicant will have the FAA Determination of No Hazard letters for the
4 wind turbines and cranes if needed. The cranes may be covered by the
5 aeronautical study for the wind farm or may need a separate FAA
6 authorization.

7
8 The prohibition against nonpenetration of FAA Part 77 surfaces specifically
9 applies to those turbines identified in Conditions 56, 57, and Supplemental
10 Report Condition 59.

11
12 24. Q. Condition 53 states that “At least 30 days prior to the preconstruction
13 conference, the Applicant shall file in this docket a copy of the FAA
14 Determination of No Hazard letter for the permanent meteorological
15 towers.” Why is this condition necessary?

16 A. This condition is recommended to assure that the Board that the Applicant
17 has all of the FAA Determination of No Hazard letters for the permanent
18 meteorological towers. This also assures the Board that the locations
19 reviewed by the Board, ODOT-OA, and FAA match.

20
21 25. Q. Condition 54 states that “The Applicant shall file in this docket copies of
22 the FAA temporary construction permits for any work activity involving

1 construction cranes when they are received, but no later than seven days
2 prior to crane deployment.” Why is this condition necessary?

3 A. This is a usually recommended condition to assure that the Board that the
4 Applicant has all of the FAA Determination of No Hazard letters or proper
5 authorization for the cranes. Staff has found that the cranes may be covered
6 by the aeronautical study for the wind farm or may need a separate FAA
7 authorization. Since the use of cranes is temporary, the FAA authorizations
8 for these may require a notice to airmen publication, notice to the Seneca
9 County Airport, Fostoria Metropolitan Airport, and/or notice to the
10 Sandusky County Regional Airport. The notice to airmen is an
11 alert/publication to the flying public about local airport/airspace conditions.
12

13 26. Q. Condition 55 states that “The Applicant shall use NVG (night vision
14 goggle) compatible lighting for at least turbines 10, 15, 17, 18, 19, 20, 21,
15 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 40, and 41 that are
16 within the military aviation training route.” Why is this condition
17 necessary?

18 A. A representative of the Department of Defense on behalf of the Air Force
19 emailed me on 3/13/2019 and requested that Republic Wind install Night
20 Vision Goggle compatible obstruction lighting on all structures as a
21 condition of their finding of “No Unacceptable Risk to National Security”
22 from the proposed wind farm.

1
2 The Department of Defense representative explained that night vision
3 goggle compatible lighting requirements are outlined in FAA Advisory
4 Circular 150/5345-43J. This circular is available on the FAA website here:
5 [https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5345-](https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5345-43J.pdf)
6 [43J.pdf](https://www.faa.gov/documentLibrary/media/Advisory_Circular/150-5345-43J.pdf)
7

8 Turbines 10, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31,
9 32, 33, 34, 35, 40, and 41 would be in the military aviation training route.
10

11 27. Q. Condition 56 states “The Applicant shall only construct a Vestas V136 with
12 a tip height of 492 feet at turbine 3, in order to avoid interference with the
13 non-directional beacon runway approach at Seneca County Airport.” Why
14 is this condition necessary?

15 A. ODOT-OA advises that the location and height of wind turbine 3 impacts
16 the nondirectional beacon navigation system for a runway approach to
17 Seneca County Airport unless the turbine height is lowered. Only the
18 Vestas V136 turbine model, with a tip height of 492 feet, would work at
19 this location to avoid this impact to the Seneca County Airport.
20

21 Condition 56 implements one of ODOT-OA’s condition that is necessary in
22 order for the obstruction standard to be waived at turbine location 3. The

1 condition assures the Board that the nondirectional beacon navigation
2 system for a runway approach to Seneca County Airport can continue to be
3 used.

4
5 28. Q. Condition 57 states “Provide in this docket, prior to construction proof of a
6 resolution/letter from the Sandusky County Regional Airport authority
7 indicating that it concurs with the construction of turbines 1, 2, 3, and 10 as
8 these turbines would otherwise exceed the 14 CFR Part 77.17(a)(2) surface
9 of the Sandusky County Regional Airport.” Why is this condition
10 necessary?

11 A. ODOT-OA advised that the location and height of wind turbines 1, 2, 3,
12 and 10 would constitute an obstruction to air navigation by exceeding the
13 14 CFR Part 77.17(a)(2) surface of the Sandusky County Regional Airport
14 by significant heights. None of the turbines proposed by the Applicant can
15 meet these height restrictions. ODOT-OA advised that this obstruction can
16 be waived. To waive the obstruction standards, these turbines would need
17 to comply with the FAA conditions in the DNH letter. Also, the Applicant
18 would need to obtain acceptance/concurrence from the Sandusky County
19 Regional Airport Authority with the impact to airspace navigation from
20 those four turbines. This could be through a resolution or signed letter.

1 Condition 57 implements one of ODOT-OA's condition that is necessary in
2 order for the obstruction standard to be waived at turbine locations 1, 2, 3,
3 and 10. Condition 57 assures that Board that the Sandusky County
4 Regional Airport is aware and agreeable to impacts from these turbines
5 prior to construction.

6
7 Staff notes that turbine location 3 has three conditions (52, 56, and 57) that
8 must be satisfied prior to construction.

9
10 29. Q. Supplemental Report Condition 59 states "The Applicant shall only
11 construct a turbine where the total height will be below the no effect height
12 of 1,400 feet above mean sea level for turbine locations 6, 9, 11, 12, 13 14,
13 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35,
14 38, 40, and 41." Why is this condition necessary?

15 A. The ODOT-OA provided a consultation letter, in accordance with R.C.
16 4561.341, to OPSB dated 9/27/2019. In that letter, the ODOT-OA advised
17 that all 50 wind turbine structures would constitute an obstruction to air
18 navigation.

19
20 Also, in that letter, ODOT-OA stated it had received input from the Seneca
21 County and the Fostoria Metropolitan airports regarding some of the
22 turbines proposed for the wind farm. ODOT-OA advised that in order to

1 eliminate the obstruction standard for those turbines affecting Seneca
2 County and Fostoria Metropolitan airports, that certain terms, conditions,
3 and modifications are necessary by the Applicant.

4
5 Seneca County Airport sent correspondence to the FAA objecting to any
6 impacts that reduce the utility of the airport.

7
8 By letter dated August 1, 2019, the Fostoria Metropolitan Airport manager
9 informed the FAA, OPSB, and ODOT-OA that he has specific concerns
10 that 12 wind turbines proposed by Republic Wind would exceed the 14
11 CFR Part 77.17 (a)(3) for various instrument flight rules procedures and
12 negatively impact the Fostoria Metropolitan Airport. Specifically, the
13 airport manager objected to these 12 wind turbines impacting the minimum
14 vectoring altitudes for the runway 27 GPS instrument approach procedure.
15 Because the letter was not received on time by the FAA, it was not
16 evaluated by the FAA during its aeronautical study period.

17
18 Staff provided a copy of the Fostoria Metropolitan Airport's letter to
19 Republic Wind and consulted with he ODOT-OA about the concerns raised
20 by the airports.

1 Regarding the Fostoria Metropolitan Airport, the ODOT-OA advises that
2 proposed heights of wind turbines at locations 6, 9, 11, 12, 13, 15, 19, 20,
3 21, 22, 24, and 29 are obstructions to air navigation. ODOT-OA advises
4 that in order to eliminate the obstructions to air navigation, that the heights
5 of wind turbines at these locations be reduced so that the total height will be
6 below the no effect height (NEH) of 1,400 feet above mean sea level
7 (AMSL). The NEH is the height at or below which there is no effect on the
8 airport or its approaches.

9
10 Regarding the Seneca County Airport, the ODOT Office of Aviation
11 advises that proposed heights of wind turbines at locations 14, 16, 17, 18,
12 23, 25, 26, 27, 28, 30, 31, 32, 33, 34, 35, 38, 40, and 41 are obstructions to
13 air navigation. The ODOT-OA advises that in order to eliminate the
14 obstructions to air navigation, the total heights of wind turbines at these
15 locations be reduced so that the total height will be below the NEH of 1,400
16 feet AMSL.

17
18 I recommended Supplemental Report Condition 59 to implement ODOT-
19 OA's conditions that are necessary in order for the obstruction standard to
20 be eliminated by the Applicant at these turbine locations.

1 30. Q. Did the Applicant propose wind turbine models and locations that would be
2 below the No Effect Height?

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

14
15 31. Q. To your knowledge, has the Applicant communicated to Seneca County or
16 Fostoria Metropolitan airports?

17 A. No. The Applicant has indicated to me (August 2019 phone call with
18 Dalton Carr and by March 2019 email) that it has not reached out to the two
19 particular airports.⁴ Typically, wind farm developers do contact those local

⁴ Carr, Dalton. "RE: Republic Wind Data Request". 3/15/2019. Email.

1 airports in order to discuss consideration of mitigation measures for the
2 adverse impacts from the wind farm development.

3
4 32. Q. Does this conclude your testimony?

5 A. Yes, it does. However, I reserve the right to submit supplemental testimony
6 as new information subsequently becomes available or in response to
7 positions taken by other parties.

PROOF OF SERVICE

I hereby certify that a true copy of the foregoing Prefiled Testimony of Andrew Conway, submitted on behalf of the Staff of the Ohio Power Siting Board, was served via electronic mail, upon the following parties of record, this 28th day of October, 2019.

/s/ Jodi J. Bair

Jodi J. Bair
Assistant Attorney General

Parties of Record:

Sally W. Bloomfield (0022038)
Dylan F. Borchers (0090690)
Devin D. Parram (0082507)
Dane Stinson (0019101)
Bricker & Eckler LLP
100 South Third Street
Columbus, OH 43215-4291
614.227.2300 (telephone)
614.227.2390 (facsimile)
sbloomfield@bricker.com
dborchers@bricker.com
dparram@bricker.com
dstinson@bricker.com

Counsel for Republic Wind, LLC

Miranda R. Leppla (0086351)
Trent A. Dougherty (0079817)
Christopher D. Tavenor (0096642)
The Ohio Environmental Council
1145 Chesapeake Avenue, Suite I
Columbus OH 43212
614.487.7506 (telephone)
(614) 487-7510 (facsimile)
mleppa@theoec.org

Chad A. Endsley (0080648)
Leah F. Curtis (0086257)
Amy M. Milam (0082375)
Ohio Farm Bureau Federation
280 North High Street, P.O. Box 182383
Columbus, OH 43218-2383
614.246.8256 (telephone)
614.246.8656 (facsimile)
cendsley@ofbf.org
lcurtis@ofbf.org
amilam@ofbf.org

*Counsel for Ohio Farm Bureau
Federation*

Jack Van Kley (0016961)
Christopher A. Walker (0040696)
Van Kley & Walker LLC
120 West Second Street, Ste 1700
Dayton, OH 45402
937.226.9000 (telephone)
937.226.9002 (facsimile)
jvankley@vankleywalker.com
cwalker@vankleywalker.com

tdougherty@theoec.org
ctavenor@theoec.org

Counsel for Local Resident Intervenors

*Counsel for Ohio Environmental
Council and Environmental
Defense Fund*

Derek W. DeVine (0062488)
Joshua D. Clark (0097037)
Seneca County Prosecutor
79 South Washington
Tiffin, OH 44883
419.448.4444 (telephone)
419.443.7911 (facsimile)
dwd@senecapros.org
jclark@senecapros.org

Mark E. Mulligan (0024891)
Sandusky County Prosecutor's Office
100 North Park Avenues Suite 220
Fremont, OH 43420
419.334.6221 (telephone)
419.334.6232 (facsimile)
mulligan_mark@co.sandusky.oh.us

*Counsel for Petitioner the Board of
Trustees of York Township, Sandusky
County, Ohio*

*Counsel for Seneca County
Commissioners, Adams Township, Scipio
Township, Reed Township, and Seneca
County Park District*

Dennis & Leslie Hackenburg
6015 County Road 191
Bellevue Oh 44811
dennyh7@frontier.com

Michael & Tiffany Kessler
4133 N Township Road
Republic Oh 44867
mkessler7@gmail.com

Pro Se Counsel

Pro Se Counsel

Administrative Law Judges:

Jay S. Agranoff (0039645)
Amrita A. Sanyal (0089269)
Public Utilities Commission of Ohio
180 East Broad Street
Columbus, OH 43215-3763
614.644.7694 (telephone)
614.728.8373 (facsimile)
Jay.Agranoff@puco.ohio.gov
Anna.Sanyal@puco.ohio.gov

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

10/28/2019 3:41:20 PM

in

Case No(s). 17-2295-EL-BGN

Summary: Testimony of Andrew Conway electronically filed by Mrs. Kimberly M Naeder on behalf of OPSB