

**BEFORE
THE OHIO POWER SITING BOARD**

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)
Facility in Republic and Sandusky Counties,)
Ohio.

Case No. 17-2295-EL-BGN

DIRECT TESTIMONY OF

**Ryan Rupprecht
Cardno, Inc.**

on behalf of

Republic Wind, LLC

October 21, 2019

1 **I. INTRODUCTION AND BACKGROUND**

2 **Q-1. Please state your name, current title, and business address.**

3 **A-1.** My name is Ryan Rupprecht. I am a Senior Project Scientist, Practice Lead for the
4 Renewable Energy Group in the Northeast/Mid-Atlantic and Midwest regions, and a
5 Practice Lead for the Eastern Region Siting and Licensing Group for Cardno, Inc.
6 (“Cardno”). My business address is 121 Continental Dr., Suite 308, Newark, Delaware
7 19713.

8 **Q-2. What are your duties in the various positions you hold with Cardno?**

9 **A-2.** I am employed in Cardno’s Science and Environment Division, focusing on permitting and
10 compliance for various energy projects in the Eastern United States and Midwest. I am
11 responsible for developing, managing and performing consulting work involving
12 environmental permitting, terrestrial and aquatic ecological resource studies, wetland and
13 stream delineations, and surface water quality assessments. As a Senior Project Scientist,
14 I manage and participate in environmental permitting projects, overseeing technical experts
15 in biology/ecology, wetland sciences, cultural resources, and rare, threatened and
16 endangered (“RTE”) species habitat assessments. As a Practice Lead, I coordinate and
17 market Cardno’s services for permitting, compliance, and siting and licensing. My duties
18 also include overall quality assurance for projects, keeping current with relevant laws,
19 regulations, rules, policies and guidelines, and adapting our practices to trends and changes
20 in the environmental consulting field. I also support several other renewable (both solar
21 and wind) projects in the Midwest and Eastern United States, as well as manage projects
22 with regard to Clean Water Act compliance, specifically, NPDES permit applications for
23 industrial clients in the Northeastern United States.

24 **Q-3. What is your educational and professional background?**

25 **A-3.** I earned a Bachelor’s of Science degree in biological oceanography from Millersville
26 University in 2000. I have over 15 years of professional environmental experience which
27 encompasses environmental permitting, ecological & water resources studies, and project
28 management. My areas of expertise include renewable energy, siting and licensing, water
29 resources, fisheries, habitat and wildlife evaluation/identification, and sediment evaluation.

1 I have designed, implemented, and/or managed numerous sampling and monitoring
2 programs, including field resource surveys (i.e. wetlands, RTE species habitat), benthic
3 sampling studies, fish sampling studies, sediment characterization studies, aquatic remote
4 sensing/geophysical surveys, and cultural resource studies. I have been employed at
5 Cardno for over 12 years. Prior to working at Cardno, I worked for the URS Corporation
6 for over 2 years in the Water Resources group. At URS, I primarily handled permitting
7 and compliance for the power/energy industry under the Clean Water Act Section 316 (a)
8 & (b), Section 401 and Section 402. I worked for the US Environmental Protection Agency
9 (EPA) prior to URS onboard the ocean survey vessel *Peter W. Anderson* conducting
10 geophysical surveys of the ocean floor, channel dredging monitoring, reef monitoring,
11 water quality and fishery surveys, as well as criminal investigations. For additional
12 information regarding my background, please see my CV, attached (Exhibit RR-1).

13 **Q-4. On whose behalf are you offering testimony?**

14 **A-4.** I am testifying on behalf of the Applicant in the case, Republic Wind, LLC (“Applicant”
15 or “Republic Wind”).

16 **Q-5. What was your role in the Republic Wind Project?**

17 **A-5.** I served as Cardno’s Project Manager for the Republic Wind Project (the “Project”). I was
18 responsible for coordinating field efforts for the wetland delineations and habitat
19 assessments, drafting and reviewing the Ecological Assessment (“EA”), and providing
20 overall coordination between Apex and its consultant, EDR, LLC, for the Project
21 application process. I am responsible for the staffing, budgeting, invoicing, and quality
22 control of Cardno’s work for the Project.

23 **Q-6. What is the purpose of your testimony?**

24 **A-6.** The purpose of my testimony is to summarize the results of Cardno’s studies and to
25 summarize the permits that the Applicant expects to obtain prior to initiating construction
26 in or near surface waters.

II. THE ECOLOGICAL ASSESSMENT

Q-7. What is the Ecological Assessment?

A-7. Cardno developed an Ecological Assessment on behalf of the Applicant, which was attached to the application as Exhibit J to the Amended Application for a Certificate of Environmental Compatibility and Public Need, filed by Republic Wind in case no. 17-2295-EL-BGN (the “Amended Application”) on December 26, 2018. The EA studied and summarized potential land use impacts, based on desktop assessment and on-site field studies of ecological resources. The EA presents the maximum impacts anticipated for the Project. I am one of the authors of the Report and, as the Project Manager for Cardno on the Project, the Report was otherwise prepared at my direction, with my input, and under my supervision.

Q-8. Why is the Ecological Assessment completed?

A-8. The Ohio Power Siting Board (OPSB) regulates the siting of wind projects with a generating capacity of 5 megawatts (MW) or more. Project approval ultimately relies on the issuance of a Certificate of Environmental Compatibility and Public Need (CECPN) by the OPSB. Environmental data requirements are a part of the application, and include:

- A detailed description of the Project infrastructure, typical construction methods, and operations and maintenance activities;
- An overview of the anticipated regulatory requirements;
- A desktop environmental resource assessment of the Project Area, which considers the following:
 - Land Use
 - Geologic setting
 - Soils
 - Water quality/floodplain
 - Wetlands
 - Wildlife resources
- A summary of Federal and State agency coordination;
- Summary of pre-construction wildlife surveys;
- Summary of the field surveys completed to identify and evaluate impacts to wetlands and waterbodies; and

- A summary of potential Project impacts.

As such, the Ecological Assessment was completed to comply with the environmental data requirements of the CECPN application (Ohio Adm. Code Chapter 4906-4-08; Health and safety, land use and ecological information).

Q-9. What are the anticipated general impacts to the Project Area from the construction and operation of the proposed Project?

A-9. Overall, the Project will have limited environmental impacts. The Project is proposed to be built primarily on land that is already being disturbed seasonally/annually for agriculture. Of the 23,851-acre Project Area, only up to 50.5 acres (0.2% of the total Project Area) would be needed for permanent Project infrastructure (turbine foundations and roads) and no longer be available for current land use based on current proposed siting.

Q-10. What are the anticipated surface water impacts to the Project Area?

A-10. Through careful Project design and avoidance measures, Republic has limited waterbody impacts to 0.55 acres of temporary impacts (streams and ditches) and 0.04 acres of permanent impacts. Further, Republic has limited wetland impacts to 0.12 acres of temporary impacts and completely avoided permanent impacts to wetlands. The only permanent waterbody impacts are to ditches for the installation of access roads culverts (0.04 acres or 160 l.f. of channel). The temporary impacts to waterbodies are anticipated from the installation of collection lines and access roads crossing a total of 47 waterbodies (6 streams, 41 ditches) via open cut (0.55 acres or 2,203 l.f. of channel). Temporary impacts to wetlands are anticipated from collection lines due to three wetland crossings (0.12 acres or 5,118 s.f.). There will be an additional 11 waterbody crossings (3 streams, 8 ditches) which will be completed via HDD resulting in no temporary or permanent impacts to the waterbody.

Q-11. What agency consultation was required as part of the Ecological Assessment?

A-11. Consultation with the Ohio Department of Natural Resources (“ODNR”) and United States Fish and Wildlife Service (“USFWS”) is required due to the nature of the potential impacts from the Project. Communications with ODNR and USFWS have been ongoing since at least 2011 to review existing information on wildlife use of the Project Area, implement

appropriate survey protocols to evaluate risk and inform siting considerations, and agree upon appropriate impact avoidance and minimization measures, as well as monitor potential impacts for resources falling under jurisdictional authority.

Q-12. What federal agencies will be involved in ecological authorization of the Project?

A-12. The Project is located within the jurisdiction of the US Army Corps of Engineers Buffalo District. The Project does not anticipate any impacts to traditionally navigable waters (TNW) under Section 10 of the Rivers and Harbors Act. Republic has also completed detailed field delineations of wetlands and waters that were used by the design team to minimize potential impacts to delineated surface waters within the Project Area. Based on current design, impacts to wetland and streams do not meet the criteria requiring a preconstruction notification being submitted to the USACE; therefore, Republic will self-certify under USACE NWP 12.

The USFWS requires that projects that have the potential to result in “take” of individuals or impact to Designated Critical Habitat for these species under the Endangered Species Act (ESA) must receive permit authorization from the USFWS. The same goes for compliance with the Bald and Golden Eagle Protection Act (BGEPA) and Migratory Bird Treaty Act (MBTA). Republic has been in coordination with USFWS regarding methodology and results of pre-construction surveys for species protected under the ESA, BGEPA, and MBTA.

Q-13. What State agencies will be involved in ecological authorization of the Project?

A-13. The ODNR and Ohio Environmental Protection Agency (OEPA) will both be involved in interdisciplinary review of the Project. ODNR will provide guidance on pre- and post-construction monitoring protocols, the potential presence of rare, threatened, and endangered (RTE) species within an area, potential effects to stream quality, and other natural resource concerns (e.g., tree clearing).

The OEPA has jurisdiction over isolated wetlands within the Project Area. The OEPA will administer this jurisdiction through Section 401 of the Clean Water Act and R.C. 6111.02 to 6111.028 for issuance of a Water Quality Certificate. An Isolated Wetland Permit would

1 be required if isolated wetlands are impacted and would be issued by the OEPA via Water
2 Quality Certification application.

3 The Project will also require a National Pollution Discharge Elimination System
4 Construction General Permit based on the assessment that 1 or more acres of land
5 disturbance would occur during construction. A storm water pollution prevention plan will
6 be prepared for the Project that will describe the use of sound engineering and/or
7 conservation practices and implementation of SESC and storm water management
8 practices addressing all phases of construction.

9 **Q-14. Are authorizations pursuant to state and federal law, as discussed above, anticipated**
10 **to be received for the Project?**

11 **A-14.** The OPSB is the lead State of Ohio entity on significant utility projects such as the Project.
12 Upon approval, the OPSB will provide a CECPN, which will incorporate the majority of
13 the authorization for construction for the State of Ohio. The USACE will regulate
14 disturbance to Federal resources (i.e., WOTUS), this could also include the regulatory
15 involvement of OEPA.

16 **Q-15. Based upon the proposed layout of the Project, what federal authorizations are**
17 **anticipated?**

18 **A-15.** Based on the proposed layout the following federal authorizations are anticipated:

19 **Clean Water Act authorizations**

- 20 • The overall goal of the Federal Clean Water Act (CWA) is to restore and protect
21 the physical, chemical, and biological integrity of the nation's waters. The sections
22 of the CWA applicable for wind projects are Section 404 (permits for the discharge
23 of dredge and fill material to surface waters), Section 401 (Water Quality
24 Certifications or 401 WQC), and Section 402 (National Pollution Discharge
25 Elimination System permits).
- 26 • The Nationwide Permit (NWP) program is maintained by the USACE under the
27 authority of Section 404 of the CWA. These permits have been issued by the
28 USACE to authorize activities which are deemed to have minimal individual or
29 cumulative impact to the environment. By issuing these permits, USACE relieves

1 some of the administrative burden of the applicant and Federal government. The
2 NWP's are reissued every 5 years, the current NWP's were effective March 2017. In
3 addition to the general conditions and permit-specific criteria of the NWP's, the
4 USACE has worked cooperatively with the State of Ohio (via OEPA) to develop
5 regional conditions to the NWP's. The regional conditions allow district-specific
6 resource concerns to be adequately addressed and help to increase compatibility
7 between Federal and State's permitting programs.

- 8 • Nationwide Permits cover a variety of activities that are applicable to the
9 construction of wind energy projects that may impact WOTUS; there are two
10 NWP's that are primarily used in wind energy projects:

- 11 ○ NWP 12 covers the construction, maintenance, repair, and removal
12 of utility lines and associated facilities in WOTUS, which includes
13 collection lines, associated substations, foundations for overhead
14 utility line towers, poles and anchors, and access roads. NWP 12
15 has an impact threshold of 0.5 acre of WOTUS for each single and
16 complete project (i.e., a crossing). Additional regional conditions
17 for Ohio include the development of a restoration plan showing how
18 all temporary fills and structures will be removed and how the areas
19 will be restored to pre-Project conditions for all work in WOTUS
20 having impacts greater than 0.10 acre.

- 21 ○ NWP 14 may be used for construction, expansion, modification, or
22 improvement of linear transportation projects (e.g., roads, highways,
23 railways, trails, airport runways, and taxiways) in WOTUS, which
24 may include project access roads or local road improvements. NWP
25 14 has an impact threshold of 0.5 acre of WOTUS for each single
26 and complete project.

27 Republic has worked to minimize and avoid impacts to regulated resources wherever
28 possible. Based on the Project as proposed, each impact to a WOTUS would be authorized
29 under NWP 12 (Utility Line and Associated Activities) with no pre-construction
30 notification requirement to the USACE.

31 **Q-16. Based upon the proposed layout of the Project, what state authorizations are**
32 **anticipated?**

33 **A-16.** Based on the proposed layout the following state-level authorizations are anticipated:

- The 401 WQC and IWP Section of the OEPA reviews applications for projects that propose the placement of fill or dredged material into WOTUS as well as isolated waterbodies and wetlands that do not have a significant nexus to TNW, which are considered waters of Ohio (as defined under OAC Rule 3745-1-02 (b)(77)¹).
- Areas where projects are eligible, ineligible, or may be eligible to use a NWP for 401 coverage are identified in OEPA's Stream Eligibility Map.² The Republic Wind Project has proposed infrastructure in all three water quality areas; however, impacts are limited to Eligible areas as follows:
 - **Eligible Areas:** The majority of the Project (approximately 397.02 acres) falls within the "Eligible Area"; therefore, as long as the Project meets the Ohio 401 Certification Special Limitation and Conditions described below, no individual WQC is needed except if there are impacts to the following resources:
 - **Category 3 wetlands:** (Note: Current Project siting has no anticipated impacts to Category 3 wetlands)
 - **≥0.10 acres of wetland:** (Note: Current Project siting has no anticipated impacts to wetlands ≥0.10 acres)
 - **Possibly Eligible Areas:** Some of the Project (approximately 8.45 acres) is within area designated as Possibly Eligible; however, there are no impacts planned to WOTUS or waters of the state in this designation area.
 - **Ineligible Areas:** Some of the Project (approximately 0.06 acre) is within area designated as Ineligible; however, there are no impacts planned to WOTUS or waters of the state in this designation area.

If the Project cannot meet the 2017 NWP 12 Ohio 401 Certification special limitations and conditions, then an Individual 401 WQC Permit will be obtained.

III. CONCLUSION

Q-17. What is your overall assessment of the Project's ecological impact?

A-17. Republic has designed the Project to avoid and minimize impacts to wetlands, waterbodies, woodlots, and aquatic and terrestrial wildlife species to the extent practicable. A summary

¹ Ohio Adm.Code 3745-1-02.

² <https://oeпа.maps.arcgis.com/apps/webappviewer/index.html?id=e6b46d29a38f46229c1eb47deefe49b6>

1 of potential impacts to existing environmental features within the Project Area are
2 presented in Tables 7-2 and 7-3 of the EA. These anticipated impacts will likely be lower
3 for the finalized proposed infrastructure, as these numbers are based on maximum
4 construction impacts (i.e., the numbers include alternative turbines and associated
5 infrastructure).

6 **Q-18. Does this conclude your testimony?**

7 **A-18.** Yes, it does, except that I reserve the right to update this testimony to respond to any further
8 testimony in this case.

CERTIFICATE OF SERVICE

I hereby certify that the foregoing Direct Testimony of Ryan Rupprecht was served upon the following parties of record via regular or electronic mail this 21st day of October 2019.



Devin D. Parram

cendsley@ofbf.org

lcurtis@ofbf.org

amilam@ofbf.org

jclark@senecapros.org

jvankley@vankleywalker.com

cwalker@vankleywalker.com

mulligan_mark@co.sandusky.oh.us

mleppla@theoec.org

tdougherty@theoec.org

ctavenor@theoec.org

jodi.bair@ohioattorneygeneral.gov

Ryan Rupprecht

Current Position

Senior Project Manager

Discipline Area

- > Project Management
- > Environmental Sampling & Permitting
- > Fisheries/Biology
- > Geotech/Sediment
- > Geographic Information Systems (GIS)
- > Environmental Data Management & Analysis

Years' Experience

15 Years

Joined Cardno

2007

Education

- > B.S. Biological Oceanography, Millersville University, 2000

Summary of Experience

Mr. Ryan Rupprecht has 15 years of experience in environmental permitting, ecological and water resources studies, and project management. Mr. Rupprecht currently is the national practice lead for Wind Energy within the Cardno's Renewables Group and the Practice Lead for the Eastern Region Siting and Licensing Energy Group. His area of expertise include renewable energies, siting and licensing, water resources, fisheries, habitat and wildlife evaluation/identification, and sediment evaluation, and has technical experience in geophysical/bathymetric studies. He has designed, implemented, and managed numerous sampling and monitoring programs, including benthic sampling studies, fish sampling studies, sediment characterization studies; aquatic remote sensing/geophysical surveys, field resource surveys (wetlands, RTE species habitat), and cultural resource studies. Mr. Rupprecht currently manages a number of projects which include alternative energy, shoreline restoration, and permitting and ecological studies support for wind/solar generation, refineries and transmission lines.

Significant Projects

Project Manager – Apex, Republic Wind Farm, Ohio

Environmental assessment of a utility-scale wind facility in Northern Ohio, including conducting assessment of surface waters, wetland delineations, ecological communities, and threatened & endangered species in support of an application for a Certificate of Environmental Compatibility and Public Need (CECPN) to the Ohio Power Siting Board. Field activities included wetland delineations, stream assessments, & habitat evaluation RTE species including eagles & bats.

Project Manager – Exelon, Seneca Wind Farm, Ohio

Cardno is the lead consultant for Exelon in support of an application for a Certificate of Environmental Compatibility and Public Need (CECPN) to the Ohio Power Siting Board. Cardno is advising Exelon on strategic strategy for streamlining the filing process and developing key application material for OPSB filing submittal.

Project Manager – EverPower Scioto Ridge Wind Farm, Ohio

Environmental assessment of a utility-scale wind facility in central Ohio, including conducting assessment of surface waters, wetland delineations, ecological communities, and threatened & endangered species in support of an application for a Certificate of Environmental Compatibility and Public Need (CECPN) to the Ohio Power Siting Board. Filed activities included wetland delineations, stream assessments, & habitat evaluation RTE species including eagles & bats. Provided expert testimony to OPSB on ecological assessment of the Scioto Wind Farm.

Project Manager – Open Road Hillcrest Solar Farm, Ohio

Environmental assessment of a utility-scale solar facility in south western Ohio, including conducting assessment of surface waters, wetland delineations, ecological communities, and threatened & endangered species in support of an application for a Certificate of Environmental Compatibility and Public Need (CECPN) to the Ohio Power Siting Board. Cardno coordinated with ODNR and USFWS on behalf of Open Road to resolve wildlife concerns. Filed activities included wetland delineations, stream assessments, & habitat evaluation. Provided expert testimony to OPSB on ecological assessment of the Solar Farm.

Project Manager – Apex, Dakota Wind Project – South Dakota

Environmental assessment of a utility-scale wind facility in South Dakota, including conducting assessment of surface waters, wetland delineations, ecological communities, and threatened & endangered species in support of permit applications. Filed activities included wetland delineations, stream assessments, & habitat evaluation. Projected impact calculations and agency coordination.

Project Manager – EverPower, Confidential Wind Project, Maryland

Environmental assessment of a utility-scale wind facility in northern Maryland, including conducting assessment of surface waters, wetland delineations, ecological communities, and threatened & endangered species in support of permit applications. Filed activities included wetland delineations, stream assessments, & habitat evaluation RTE species including eagles & bats.

Project Manager – BP Renewables Long Prairie Wind Farm, Ohio

Environmental assessment of a utility-scale wind facility in eastern Ohio, including conducting assessment of surface waters, wetland delineations, ecological communities, and threatened & endangered species in support of an application for a Certificate of Environmental Compatibility and Public Need (CECPN) to the Ohio Power Siting Board. Filed activities included wetland delineations, stream assessments, & habitat evaluation RTE species including eagles & bats

Project Manager – Open Road Willowbrook Solar Farm, Ohio

Environmental assessment of a utility-scale solar facility in south western Ohio, including conducting assessment of surface waters, wetland delineations, ecological communities, and threatened & endangered species in support of an application for a Certificate of Environmental Compatibility and Public Need (CECPN) to the Ohio Power Siting Board. Cardno coordinated with ODNR and USFWS on behalf of Open Road to resolve wildlife concerns. Filed activities included wetland delineations, stream assessments, & habitat evaluation. Provided expert testimony to OPSB on ecological assessment of the Solar Farm.

Project Manager – EverPower, Confidential Wind Project, Pennsylvania

Environmental assessment of a utility-scale wind facility in southwestern Pennsylvania, including conducting assessment of surface waters, wetland delineations, ecological communities, and threatened & endangered species in support of permit applications. Filed activities included wetland delineations, stream assessments, & habitat evaluation RTE species including eagles & bats.

Project Manager – EDF Renewables Silver Creek Wind Farm, PA

Critical issues analysis of potential impacts on sensitive resources (Wetlands, RTE plants, birds & bats), cultural resources, and land use for permitting and construction of the proposed project. Activities included evaluate and rank habitat for risk and potential construction impact; agency consultation and coordination, site field evaluation, and report.

Project Manager – EverPower, Confidential Wind Project, Pennsylvania

Environmental assessment of a utility-scale wind facility in central Pennsylvania, including conducting assessment of surface waters, wetland delineations, ecological communities, and threatened & endangered species in support of permit applications. Filed activities included wetland delineations, stream assessments, & habitat evaluation RTE species including eagles & bats

Project Manager – Open Road Alamo Solar Farm, Ohio

Environmental assessment of a utility-scale solar facility in south western Ohio, including conducting assessment of surface waters, wetland delineations, ecological communities, and threatened & endangered species in support of an application for a Certificate of Environmental Compatibility and Public Need (CECPN) to the Ohio Power Siting Board. Cardno coordinated with ODNR and USFWS on behalf of Open Road to resolve wildlife concerns. Filed activities included wetland delineations, stream assessments, & habitat evaluation. Provided expert testimony to OPSB on ecological assessment of the Solar Farm.

Project Manager – Indiana Bat Surveys for a Confidential Wind Farm- Michigan.

Cardno provided environmental support for a confidential Wind Farm, which encompasses approximately 27,000 acres within an agricultural region of southern Michigan. Utilizing the *USFWS 2013 Revised Range-wide Indiana Bat Summer Survey Guidelines* Cardno performed a Phase 1 Bat Habitat Assessment and determined 14 mist netting locations. Cardno is currently supporting the client with coordination of survey protocols and permit approvals with the FWS and Michigan DNR.

Project Manager – Open Road Angelina Solar Farm, Ohio

Environmental assessment of a utility-scale solar facility in western Ohio, including conducting assessment of surface waters, wetland delineations, ecological communities, and threatened & endangered species in support of an application for a Certificate of Environmental Compatibility and Public Need (CECPN) to the Ohio Power Siting Board. Cardno coordinated with ODNR and USFWS on behalf of Open Road to resolve wildlife concerns. Filed activities included wetland delineations, stream assessments, & habitat evaluation. Provided expert testimony to OPSB on ecological assessment of the Solar Farm.

Project Manager – Aviation Constraints Analysis for a Confidential Wind Farm- Michigan.

Cardno conducted a FAA and Military Radar Study for a Confidential Wind Farm in Michigan. The study analyzed the prospective project area and its unique environment of aeronautical factors against criteria from Federal Aviation Regulations Part 77, *Safe, Efficient Use and Preservation of the Navigable Airspace*; FAA Order JO 7400.2H, *Procedures for Handling Airspace Matters*; and FAA Order 8360.3B, *United Standard for Terminal Instrument Procedures (TERPs)*, following the same criteria as the FAA for proposed turbines greater than 500 feet in height.

Publications

- > T. Bradley, H. Farahmond, R. Rupprecht, and F. Pan. "Novel Genes Involved In Adaptation of Salmon to the Marine Environment." IV International Congress on the Biology of Fishes; Manaus, Brazil Aug 1- 4, 2004
- > Pan, F., Zarate, J., Choudary, A., Rupprecht, R., Bradley, T. A Homology of Mammalian and Amphibian Cold Inducible RNA Binding Protein (CIRP) is Up-regulated by Osmotic Stress but Not Cold Stress in Salmon. *Biochemie* Volume 86, issue 7, July 2004. pp 451- 461
- > Rupprecht, R., Kilgore, C., and Gunther, R., "Riparian and Wetland Buffers for Water-Quality Protection." *Stormwater* Nov.-Dec. 2009, Vol 10, No. 8: 46-51.

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

10/21/2019 5:11:26 PM

in

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

Summary: Testimony of Ryan Rupprecht on behalf of Republic Wind, LLC electronically filed by Teresa Orahod on behalf of Devin D. Parram