



Power Siting Board

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Kim Wissman

April 7, 2014

David E. Nash, Esq.
Andrea M. Salimbene, Esq.
McMahon DeGulis LLP
1335 Dublin Road, Suite 216A
Columbus, Ohio 43215

Application for Certificate of Environmental Compatibility and Public Need LEEDCo-Icebreaker Wind-Powered Electric Generation Facility Case Number 13-2033-EL-BGN

Dear Mr. Nash:

This letter is to inform you that the above referenced application, filed with the Ohio Power Siting Board (Board) on February 7, 2014, and supplemented on February 18, 2014, has been found to not comply with Chapters 4906-01, et seq., of the Ohio Administrative Code (OAC). This means that the Board's Staff has not received sufficient information to begin its review of this application.

The following is a listing of insufficiencies found during the Board Staff's completeness review of this application.

1. **4906-17-05(A)(1)(a)**, Provide a map of proposed facility. Provide maps illustrating location(s) of the Operations and Maintenance building, and permanent meteorological towers.
2. **4906-17-05(A)(1)(c)**, Geography and topography mapping. Provide on maps the location(s) of natural gas and hazardous liquid pipeline(s) within the project area and the distance to the closest wind turbine. Provide on maps the transportation routes that will be utilized and location(s) of staging area(s).
3. **4906-17-05(A)(4)(a)(b)**, Technical Data. Provide detailed information used to determine the suitability of the lakebed for supporting installation and long-term stability of the wind turbines at the proposed turbine locations. See attached ODNR letters for more specific details concerning ice ridge formations.
4. **4906-17-05(A)(5)(b)**, Hydrology and wind. Provide an analysis of the prospects of high winds for the project area, including the probability of occurrences and likely consequences of various wind velocities, and describe plans to mitigate any likely adverse consequences.



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5. **4906-17-05(B)**, Layout and construction. Provide traffic and road wear impact studies, specific information on rail and ship infrastructure, specific information on upgrades of Ohio ports, specific options and details to access the turbines during frozen or semi-frozen conditions, and navigational hazard and mitigation techniques.
6. **4906-17-05(C)(2)(c)**, Turbine manufacturer's safety standards. Provide a complete copy of the manufacturer's safety manual or similar document.
7. **4906-17-05(D)(2)(b)**, System studies. Provide the PJM system impact study.
8. **4906-17-08(A)(1)**, Demographic. The applicant shall provide existing and ten-year projected population estimates for communities within five miles of the proposed project area site(s). The application states that this section is not applicable because the turbines are sited seven miles off shore. However, this section would be applicable to the project because the transmission line and substation are sited inland. Provide demographic data within five miles of the associated transmission line and substation.
9. **4906-17-08(A)(2)(c)**, Noise. Indicate the location of any noise-sensitive areas within one-mile of the proposed facility. Conduct studies and provide results that indicate negligible noise impacts to aquatic species. See attached ODNR letters for more specific details noise impacts to aquatic species.
10. **4906-17-08(A)(4)**, Ice throw. Describe the potential impact from ice throw at the nearest property boundary, including commercial and recreational uses of Lake Erie (i.e., fishing, shipping, military exercises, boating, swimming/diving, etc.), and the Applicant's plans to minimize potential impacts, if warranted. See attached ODNR more specific details on structure marking, lighting, and recreational boating community comments.
11. **4906-17-08(A)(5)**, Blade shear. Describe the potential impact from blade shear at the nearest property boundary, including commercial and recreational uses of Lake Erie (i.e., fishing, shipping, military exercises, boating, swimming/diving, etc.), and the Applicant's plans to minimize potential impacts, if warranted.
12. **4906-17-08(B)(1)(c)(d)(e)**, Ecological Impacts. Provided results of wildlife surveys, based on Ohio Department of Natural Resources (ODNR) and U.S. Fish and Wildlife Service (USFWS) protocols, for aquatic species; a summary of impact of the proposed facility on birds, bats, and aquatic species; and, a list of major aquatic



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species. See attached ODNR and USFWS letters for more specific details on protocols and comments.

13. **4906-17-08(B)(2)(a)(c) and 4906-17-08(B)(3)(a)(c)(d)**, Ecological Impacts during Construction and Operation. Estimate the impact of construction and operation on aquatic species within the project area boundaries, including the corridor for the 69 kV electric cable. Describe the procedures to be utilized to avoid, minimize, and mitigate both the short- and long-term impacts due to construction and operation. Describe any plans for post-construction monitoring of wildlife impacts. See attached ODNR and USFWS letters for more specific details on these topics.
14. **4906-17-08(C)(1)(b)**, Land use. Provide the number of residential structures within one thousand feet of the boundary of the proposed facility, and identify all residential structures for which the nearest edge of the structure is within one hundred feet of the boundary of the proposed facility. The map provided does not satisfy this requirement.

Once the materials listed above are received, Staff will conduct a review to determine compliance with Chapters 4906-01, et seq., of the OAC. If the application is found to be in compliance, at that time, a subsequent letter will be sent outlining instructions on serving the completed application, filing proof of service, and will list the necessary application fee.

Please be reminded that under Section 4806.04 of the Ohio Revised Code (ORC), the applicant shall not commence to construct any portion of the facility prior to obtaining a certificate from the Board.

If you have any questions regarding the above, you may contact Klaus Lambeck at 614-644-8244 or Don Rostofer at (614) 728-3783.

Sincerely,

Todd Snitchler
Chairman
Ohio Power Siting Board

cc: Lorry Wagner, President of LEEDCo

- Attachments: 1. ODNR Letter, dated April 7, 2014
2. USFWS Letter, dated March 24, 2014, RE: Icebreaker Wind Facility



Ohio Department of Natural Resources

JOHN R. KASICH, GOVERNOR

JAMES ZEHRINGER, DIRECTOR

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April 7, 2014

Don Rostofer
Ohio Power Siting Board
180 East Broad Street
Columbus, Ohio 43215-3793

Re: 14-104; Icebreaker Wind Facility – Lake Erie Energy Development Corporation (LEEDCo.) – Case No.: 13-2033-EL-BGN

Project: The project involves the construction of a wind facility in Lake Erie. The proposal calls for 6 Siemens SWT 3.0-113 wind turbines for a total of 18 MW.

Location: The project is located in Lake Erie, Cleveland Township, Cuyahoga County, Ohio. The proposed locations for the turbines are in grid cells 25-116, 25-117, 25-132, and 25-148. The proposed transmission line will also include impacts to grid cells 25-149, 25-164, 25-165, 26-151, 26-166, 26-167, 26-168, 26-183, 26-184, 26-185, 26-200, and 26-201.

The Ohio Department of Natural Resources (ODNR) has completed a review of the above referenced project. These comments were generated by an inter-disciplinary review within the Department. These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the National Environmental Policy Act, the Coastal Zone Management Act, Ohio Revised Code and other applicable laws and regulations. These comments are also based on ODNR's experience as the state natural resource management agency and do not supersede or replace the regulatory authority of any local, state or federal agency nor relieve the applicant of the obligation to comply with any local, state or federal laws or regulations.

Fish and Wildlife: The Division of Wildlife (DOW) offers the following comments.

During 2009, LEEDCo coordinated with the ODNR Division of Wildlife (DOW) on pre-construction wildlife surveys. In August 2009, ODNR DOW provided pre-construction bird and bat survey recommendations. These survey recommendations provided in 2009, included surveys assessing raptor use, raptor nest monitoring, waterfowl use, bat acoustic surveys and radar monitoring using two marine radar units simultaneously. On September 30, 2010 the ODNR DOW also provided LEEDCo with open water sampling requirements for four proposed locations. The aquatic sampling protocol included fish hydroacoustic monitoring, fish trawls, fish gill netting, zooplankton sampling, water chemistry analyses, substrate mapping, aerial surveys of boat usage, fishing pressure, and benthos surveys. Since these initial recommendations, the Applicant has altered the boundary of the site and scope of the proposed project. Moreover, additional wildlife data within the project area has been obtained through the ODNR DOW offshore pelagic bird surveys and standard annual fisheries and fish community surveys. Consequently, the ODNR DOW provided on August 15, 2013 revised sampling requirements for aquatic surveys.

Despite this early coordination with the DOW, it appears that the OPSB application submitted is incomplete and the requested pre-construction surveys are incomplete. Results from standardized pre-construction surveys on birds and bats, and aquatic resources in the proposed project area are meant to document the level and timing of species activity, diversity and abundance of species, and to characterize

the physical characteristics at the proposed location. Results of these studies are used by ODNR DOW, to provide biological assessments of perceived risks that a proposed turbine facility may have either directly through mortalities or indirectly through avoidance behaviors, on Ohio's fish and wildlife resources. The following comments are being provided pursuant to Ohio Revised Code (ORC) §§ 1531, and 1533.08 which provides the ODNR DOW, under its jurisdiction, the authority to protect, propagate, manage and preserve the game or wildlife of this State and to enforce, by proper actions and proceedings, the laws of the State of Ohio. This letter does not fulfill the Applicant's need to coordinate with ODNR DOW regarding avoiding impacts to Ohio's fish and wildlife resources, any proposed minimization strategies, mitigation efforts planned, as well the post-construction monitoring at the proposed facility. Prior to issuance of an OPSB Certificate, it is ODNR's recommendation that LEEDCo sign ODNR DOW's *Cooperative Wind Facility Agreement*. If LEEDCo elects to not sign this agreement, the company will assume the liability of the potential risks that the Icebreaker Wind Facility operating turbines may have on birds and bats, as well as the impact of construction on any fish and wildlife species. Additionally, it is recommended that coordination occur with our partnering agency, USFWS Ohio Field Office, specifically concerning the Migratory Bird Treaty Act (16 U.S.C 703-712; MBTA), the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544, 87 Stat. 884; ESA), and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d; BGEPA). The ODNR DOW provides the following specific comments regarding the completeness of LEEDCo's application.

Bird and Bat Assessments

LEEDCo has conducted minimal bird and bat assessments. The DOW and USFWS have discussed with the Applicant questions and concerns in regards to the "Spring-Fall 201 Avian and Bat Studies Report Lake Erie Wind Power Study" which have not been addressed to date. These questions are essential in our assessment of the validity of the methodologies that were conducted to date. More specifically our questions and request for additional data with regards to the radar study were included in a letter from Jeff Gosse at the USFWS on November 15, 2013. Specifically the DOW requests the following:

1. To assess the degree of interference related to weather, side-lobes, building interference on the crib, waves, insects, etc. that can influence the target counts that were determined in the LEEDCo assessment, the DOW requests the clutter maps used at each radar site for both the VSR and HSR antennas and a series of TrackPlots or each sites and antenna.
2. Page 12 and 17 of the report indicate "clear air"—how was this determined?
3. Page 7, the orientation of the VSR was indicated to be east-west which may reduce the radar's ability to track targets moving north, thus it was recommended that the orientation be slightly offset.
4. What were the methods used to reduce insect clutter? The application suggests that there wasn't much insect clutter (page 8-10) but later contradicts this statement.
5. There was a contradiction in what the VSR offset was (Page ii and Page 11). Please provide the offset parameters.
6. There was a contradiction in the onshore survey dates; please provide accurate dates.
7. What was the total number of days with useable data when offshore (both 11 and 13 were indicated)?
8. How were the initial settings established? Did they remain constant? If not what were the adjustments and why? Were any settings changed between spring 2010 onshore, offshore, and fall 2010 offshore?

9. Please provide specific data from both radars (VSR and HSR). If one radar had issues (insect, wave clutter), was the other radar removed from the dataset during the time period?
10. The report provides a daily and seasonal mean TPRS/heights/ percentages, which may mask times of greater risks. Please provide plots with timelines plotted in hourly increments to assess this.
11. Please provide directional graphs and data separated by four time periods to include dawn, dusk, and night.
12. Please provide the medians and 50 m band graphs of heights of targets rather than the means.
13. Please narrow the categories for targets within the RSZ.
14. Unfortunately, data that was collected during high winds was removed from the report. Bird migrations can occur during periods of high wind, as suggested by USFWS data.
15. Were virga rain tracks included? If so, this may bias the counts and height estimates. If removed, please provide how they were identified and removed.
16. Why was 5.4 m subtracted from the altitude measurements? Is this the height of the crib? If so, then 5.4 m should be added.
17. What was the timeline for the acoustic data? Has this been correlated with the radar results?
18. Page 63 suggested that the crib lighting may have attracted bats (and insects), thus the potential reasoning for the number of bat calls. The number of bat passes from the acoustic data (38.0 passes/detector-night) is nearly double that of any other pre-construction surveys conducted in Ohio.
19. The boat surveys monitoring birds appear to be biased relative to the results provided through the acoustic surveys.
20. It was suggested that risks to birds migrating in the project area were minimal. Based on the pelagic bird surveys conducted by the Division of Wildlife during 2011 and 2012, the results suggest that the area proposed is within areas of larger numbers of ring-billed and herring gulls. Both migrating water birds and waterfowl may be impacted by this wind facility through direct impact as well as displacement.

Aquatic Resources

As detailed above and suggested in the application, DOW previously provided LEEDCo with aquatic sampling protocols for use in developing information to assess the suitability of the project with respect to impacts to fisheries and fish communities. These included surveys to assess the fish and lower trophic level community composition and abundance (fish hydroacoustic sampling, fish trawling, fish gill netting, benthic invertebrate sampling, and zooplankton sampling) physical characteristic surveys (water chemistry, and substrate mapping) and fisheries surveys (aerial creel surveys) at the proposed project location. These pre-construction surveys are intended to document the level and timing of species activity, diversity and abundance of species, and to characterize the physical characteristics at the project location. Subsequently, LEEDCo was provided with a revised Aquatic Sampling Protocol in August 2013, due to changes in the nature of the project. These revised protocols included surveys to assess fish and lower trophic level community composition and abundance (fish hydroacoustics sampling, fish trawling, benthic invertebrate sampling, larval fish sampling, benthic invertebrate sampling, zooplankton sampling, and phytoplankton

sampling), physical characteristics (water chemistry, substrate surveys, and hydrodynamic surveys), fish behavioral surveys (acoustic telemetry, fish hydroacoustic sampling, and noise assessment surveys), and fisheries surveys (aerial creel surveys) at the proposed project location. At this time, no aquatic assessment surveys have been provided to ODNR DOW for evaluation of the above characteristics, thus this application should be deemed incomplete.

Specific ODNR DOW comments on what was presented related to aquatic resources include the following:

- 1) 4906-17-08 Social and Ecological Data Section A.2.c 2nd paragraph (pg 54) – “This operational noise, while it may be audible to some fish in the near vicinity to the turbine towers, is not expected to be sufficiently loud to result in substantial behavioral changes or injury to fish species”. The presumption that the noise impacts to fish species will be negligible is not supported by scientifically collected data. The applicant provides no proof of negligible impacts. Additionally, the ODNR DOW Offshore Aquatic Sampling Protocol identifies noise impacts and requires sampling to quantify these; however, the applicant does not indicate that they will implement this sampling protocol to address this point.
- 2) 4906-17-08 Social and Ecological Data Section A.2.c 2nd paragraph (pg 54) – “For invertebrates, BelBner and Sorydl (2006) posed that colonization of wind turbines by invertebrates is an indication that noise and vibration do not have a significant adverse effect on invertebrates.” Again the presumption that noise impacts to benthic invertebrate communities in the project will be negligible is not supported by scientifically collected data. The Applicant provides no evidence of negligible impacts. Additionally, the ODNR Aquatic Species Sampling protocol identifies sampling requirement pre- and post-construction to quantify these effects; however, the applicant does not indicate that they will implement this sampling protocol to address this point.
- 3) 4906-17-08 Social and Ecological Data Section B.1.c (pg 56) – “LEEDCo’s surveys have focused on those organisms potentially placed at risk by the construction and operation of this project. Those animals include benthic (or sediment-dwelling) aquatic macroinvertebrates, and mobile terrestrial organisms.....include extensive discussion of aquatic and terrestrial life,....” The Applicant presents no information on the survey of animal life within the facility boundary in the application; therefore, this aspect cannot be evaluated by the DOW. Additionally, the Applicant’s presumption that only benthic aquatic macroinvertebrates are the only organisms potentially placed at risk is not supported by the guidance provided by ODNR DOW staff. The ODNR DOW Offshore Aquatic Sampling Protocol details survey design and data collection parameters that are necessary to evaluate risk of the project, but the Applicant has presented no information from these surveys nor indicated that they will implement this sampling protocol.
- 4) 4906-17-08 Social and Ecological Data Section B.1.e (pg 57) – “Economically valuable species are likely to be found in the Project Area, but it is not a rare habitat, nor is it likely a preferred habitat for any of these fisheries species.” The Applicant presented no analysis of habitat distribution at the Project Area; therefore, the presumption is not supported by data. The ODNR DOW Offshore Aquatic Sampling Protocol details survey design and data collection parameters that are necessary to evaluate impacts to habitat, but the applicant has presented no information from these surveys nor indicated that they will implement this sampling protocol.
- 5) 4906-17-08 Social and Ecological Data Section B.1.e (pg 57) – “Sensitive (T&E) species were evaluated in the Draft EA.....none of these species have been found in the Project Area.” The Applicant presented no data to indicate that there was an attempt to sample T&E species in the Project Area. The ODNR Offshore Aquatic Sampling Protocol details survey design and data collection parameters that are necessary to evaluate T&E species distribution in the project area,

but the Applicant has presented no information from these surveys nor indicated that they will implement this sampling protocol.

- 6) 4906-17-08 Social and Ecological Data Section B.2.a (pg 59) – “During cable installation, bottom sediment will likely become suspended within the water column, but impacts will remain local, short in short duration, and will have *de minimus*, unmeasurable environmental and ecological impact. Although a limited number of macroinvertebrates will likely be removed during the construction process, the effects will be minor and temporary. Fish will be affected by the short-term construction, but the effects will be temporary, localized, and small in scale.” The Applicant presents no analysis of construction impacts to fish and invertebrates in the area, therefore, the presumption is not supported by data. The ODNR DOW Offshore Aquatic Sampling Protocol details survey design and data collection parameters that are necessary to evaluate impacts fish and invertebrates, but the applicant has presented no information from these surveys nor indicated that they will implement this sampling protocol.
- 7) 4906-17-08 Social and Ecological Data Section B.3.a (pg 60) - The Applicant presents no analysis of operations impacts to the area, therefore, this presumption is also not supported by data. The ODNR DOW Offshore Aquatic Sampling Protocol details survey design and data collection parameters that are necessary to evaluate impacts physical habitat, but the applicant has presented no information from these surveys nor indicated that they will implement this sampling protocol.
- 8) 4906-17-08 Social and Ecological Data Section B.3.b (pg 60) - The Applicant presents no analysis of operations impacts to major species in the area; therefore, the presumption is not supported by data. The ODNR DOW Offshore Aquatic Sampling Protocol details survey design and data collection parameters that are necessary to evaluate impacts to major species, but the applicant has presented no information from these surveys nor indicated that they will implement this sampling protocol.
- 9) 4906-17-08 Social and Ecological Data Section B.3.d (pg 60) - The Applicant presents no detailed post- (or pre-) construction monitoring of wildlife impacts. The ODNR DOW Offshore Aquatic Sampling Protocol details pre- and post-survey design and data collection parameters that are necessary to evaluate impacts to wildlife, but the Applicant states that “construction and post-construction aquatics (sic) surveys to complement the pre-construction desktop studies” will be conducted.

Additional Comments

The Applicant did not provide any commitments to assess the potential impacts to wildlife and fisheries during the post-construction phase of development. DOW recommends that if the project becomes operational, that post-construction (as well as pre-construction) monitoring be conducted at the facility, and should be a condition on the OPSB Certificate of Operation. Several monitoring studies should be continued through the post-construction monitoring period. These studies will be used to assess potential behavioral changes in fish and wildlife due to the presence of wind turbines.

Post-construction monitoring of avian and bat strikes at off-shore wind facilities pose a unique challenge due to the lack of searchable area under the turbines. Currently, the only practical way of documenting strikes is through the use of thermal or infrared imaging. Units should be affixed to a random subset of turbines, but may include specific turbines in areas of concern if so noted by the ODNR DOW or USFWS based on pre-construction monitoring results. The number of turbines monitored will depend on the number of the turbines at the facility. Monitoring for bird and bat mortality should be conducted continuously from 1 April to 15 November.

The ODNR DOW appreciates the opportunity to review this application for its completeness and will look forward to providing additional comments for OPSB's staff on any revised applications for LEEDCo's proposed Icebreaker Offshore Wind Energy project. Based on the above comments, the ODNR DOW believes, at this time, the application is not complete enough to conduct a proper technical review.

Coastal Management: The Office of Coastal Management offers the following comments.

LEEDCo obtained a submerged lands lease in accordance with ORC Section 1506.11 commencing 1 February 2014 and ending 31 January 2064. The proposed locations of the turbines differ slightly with the legal description within the Lease, but this could be due to the conversion from the geodetic coordinates (WGS84) provided in the Ohio Power Siting Board application to the State Plane Coordinate System (NAD83) provided in the Lease area description.

Pursuant to the Coastal Zone Management Act of 1972, as amended, and its corresponding federal regulations, any U.S. Army Corps of Engineers permit for the proposed project may not be issued until a Federal Consistency concurrence is issued by ODNR. To ensure Consistency with the applicable enforceable policies of the Ohio Coastal Management Program, an ODNR *Shore Structure Permit* (if necessary), *State of Ohio Submerged Lands Lease*, and an Ohio Environmental Protection Agency *401 Water Quality Certification* must be obtained by the applicant.

Watercraft: The Division of Watercraft offers the following comments.

This proposal would affect recreational navigation in the waters of Lake Erie. As such, these structures must be marked appropriately for both day and night to avoid potential problems regarding recreational navigation. We recommend these structures be marked according to the regulations and standards of the U.S. Coast Guard.

Also, we are unsure as to the overall opinions of the recreational boating community regarding these structures and may offer additional comments and/or suggestions in the future.

Geological Survey: The Division of Geological Survey offers the following comments.

Ice ridges that form on Lake Erie can exceed 30 feet in height and can be grounded on the lake bottom. As a wind-driven ridge advances, the base can erode channels in the substrate that can exceed six feet in depth. This process is documented in a video collected in 1982 by Ontario Hydro during a study of ice ridge processes. There are concerns that the applicant's proposed design may not reflect knowledge of the potential magnitude of Lake Erie ice ridge formation.

ODNR appreciates the opportunity to provide these comments. Please contact John Kessler at (614) 265-6621 if you have questions about these comments, would like a copy of the video referenced above or need additional information.

John Kessler
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United States Department of the Interior

FISH AND WILDLIFE SERVICE

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March 24, 2014

Mr. Klaus Lambeck
Ohio Power Siting Board
180 East Broad Street
Columbus, OH 43215-3793

TAILS: 31420-2009-TA-0721

Re: Icebreaker Wind Facility, 13-2033-EL-BGN

Dear Mr. Lambeck:

This is in reference to the Lake Erie Energy Development Corporation's ("LEEDCo") application to the Ohio Power Siting Board for a Certificate of Environmental Compatibility and Public Need (Certificate) for the proposed Icebreaker Wind Facility. The proposed project involves the installation of up to six 3.0 MW wind turbine generators, underground collection cables, and connection to an existing substation. The total generating capacity of the facility will not exceed 18 MW.

The project is located approximately seven to nine miles off the coast of Cleveland in Lake Erie. Approximately 60.6 acres (10.5 ac of permanent disturbance) of lakebed will be disturbed and 11 miles of interconnection cable will be needed. This project plans to connect to an existing substation in Cleveland. The majority of this project will occur within Lake Erie with only the substation interconnection occurring on land; no impacts to wetlands or forested area are anticipated.

The U.S. Fish and Wildlife Service (Service) received your letter requesting our review of the application for the informational completeness on February 10, 2014, and we submit this letter in response. The following comments are being provided pursuant to the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d; BGEPA), the Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA), the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1544, 87 Stat. 884; ESA), the Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j, not including 742 d-l; 70 Stat. 1119), as amended.

The Service, LEEDCo, their representatives, and the Ohio Department of Natural Resources (ODNR) have been involved in discussions regarding this proposed project since 2008. We have participated in meetings, and engaged in numerous conference calls and emails regarding this project.

Unlike onshore facilities, the Service currently does not have standardized pre-construction monitoring protocols to assess impacts of offshore wind facilities. The Service worked closely with the ODNR in developing a pre-construction monitoring protocol for this offshore wind energy facility which was the first of its kind for the region. LEEDCo conducted the following pre-construction wildlife surveys requested by ODNR and the Service: bat acoustic monitoring April 1 – November 10, 2010; and radar monitoring April 1-May 31 and August 15-October 13, 2010. Two additional surveys were conducted; these were not part of the studies recommended by ODNR and the Service (avian acoustic surveys, and boat based nocturnal surveys). Due to the potential impacts to fisheries ODNR and the Service requested several surveys to assess the importance of the area as a fishery. LEEDCo has yet to complete these studies.

GENERAL COMMENTS:

Currently there are no offshore wind facilities in North America, additionally there are very few (potentially only 1) wind facilities sited in a freshwater environment world-wide. The LEEDCo project has always been, and continues to be, proposed as a “demonstration project” or “pilot-project.” Information gathered from this project will be used to assess the feasibility of developing commercial-scale wind facilities in Lake Erie, or the Great Lakes as a whole. As such, it is essential to have scalable pre- and post-construction studies to evaluate potential impacts to fish and wildlife Trust resources. Within the documents provided as part of the OPSB application LEEDCo provided results from portions of the recommended pre-construction monitoring (e.g., bird and bat monitoring), but portions of the recommended pre-construction monitoring were not conducted at all (fisheries monitoring), and no post-construction studies were proposed to assess potential impacts to birds, bats, and fisheries. Therefore, the Service finds that this application is incomplete. More specific comments on various issues of concern to the Service are presented below.

MIGRATORY BIRDS

Migratory birds are a Federal Trust resource entrusted to the Service by the MBTA. The proposed project location is between 7-9 miles off the coast of Cleveland, thus lacks habitat for many species of birds that breed in Ohio. The site is approximately 3.5 miles from an area designated by The Audubon Society as the Cleveland Lakefront Important Bird Area (IBA). This area was selected as an IBA due to the large concentrations of waterfowl and gulls that congregate there during spring and fall migration (also wintering waterfowl, gulls, and eagles) (Ritzenthaler 2008). The waters around Cleveland provide important overwintering habitat for gulls (herring, ring-billed, Bonaparte's, great black-backed, etc.), ducks (greater and lesser scaup, red-breasted and common mergansers, goldeneye, bufflehead, redhead, canvasback), common loons and horned grebes. During winter flocks of over 10,000 birds are not uncommon near Cleveland and the maximum daily counts for red-breasted merganser in some years has reached 250,000 (Ritzenthaler 2008). Additionally, several locations (Wendy Park, Edgewater Park, Cleveland Lakefront Preserve, etc.) along the lakeshore are known for their large concentrations

of passerines during migration. Within the Avian Risk assessment it contends that “the Icebreaker site does not appear to be on a heavily used migration path for waterfowl or seabirds.” While large numbers of birds may not feed within the area, they are likely to cross through the area to reach their overwintering areas near shore and they do congregate in large numbers within just a few miles of the project. Due to the lack of offshore wind facilities in North America several LEEDCo documents cite the experiences of Europe to draw information. Yet several European countries have banned offshore facilities from within 12 miles of the shoreline (Rein et al. 2013), this may be in part due to the congregations of waterfowl found near shore.

Thus, the Service believes that waterfowl are at risk of mortality and possibly displacement from the Icebreaker project. LEEDCo should develop a Bird and Bat Conservation Strategy (BBCS) that outlines minimization measures, monitoring methods, and adaptive management that will be implemented to protect these species.

The boat landing that will be at the base of each turbine may attract species such as double-crested cormorants, herring and ring-billed gulls. Herring gull, lesser black-backed gull, great black-backed gull fly within the rotor swept zone between 30-35% of the time (Furness 2013). Also, during the pelagic bird surveys that were conducted by ODNR large numbers of ring-billed and herring gulls were observed feeding on the bi-catch of commercial fishing vessels. It is unclear whether commercial fishing vessels will be using this area, which could increase incidences of bird collisions by increasing the number of birds in the area. Thus, waterbirds are at risk from the project and LEEDCo should address these species in the BBCS.

LEEDCo’s Environmental Assessment states that between 4-13% migrants fly within the height of modern wind turbine rotors, and that tens- to hundreds of millions of birds migrate over Lake Erie. Based upon these numbers it would mean that between 400,000-13,000,000 songbirds fly at rotorswept height when flying over Lake Erie. Within the “Final Avian Risk Assessment 2013” it states that “Fatality numbers and species impacted at the offshore site are likely to be similar, on a per turbine basis, to those found at projects that have been studied in eastern North America.” Post-construction studies at onshore Canadian wind facilities average 8.2 ± 1.4 birds per turbine (Zimmerling et al. 2013) and 6.86 birds per turbine for the United States (Loss et al. 2013). If waterfowl and waterbird mortality rates will be similar to those of European facilities, as suggested in the Avian Risk Assessment (see below), and if baseline songbird mortality rates will be similar to onshore facilities, it’s likely that total bird mortality on a per turbine basis may be greater than at onshore facilities due to the increased abundance of waterfowl and waterbirds near the turbines.

Mortality estimates from European offshore wind facilities.

- 0.01-1.2 birds/turbine (Winkelman 1989, 1992a, 1992b, 1992c, 1995)*
- 6 birds/turbine (Painter et al. 1999)*
- 4-23 birds/turbine (Everaert et al. 2001)

* These numbers may not be corrected for searcher efficiency and carcass removal (Langston and Pullan 2003).

As part of the review of this project the Ohio Ecological Services Field Office sent the Spring – Fall 2010 Avian and Bat Studies Report Lake Erie Wind Power Study (TetraTech 2012) to a team of individuals in our Regional Office that conducts radar monitoring of birds and bats. This group provided 11 pages of comments and questions related to the radar report to LEEDCo on November 15, 2013 (attached). The Service has yet to receive a response to these questions. Without clarification on these questions the Service is unable to assess the results of the radar monitoring report and thus we believe that this application is incomplete.

BATS

Less than a decade ago the biggest threats to bat populations were loss of hibernacula and destruction of summering habitat. Since then, the expansion of the wind industry and the spread of white-nose syndrome (WNS), a novel fungal disease rapidly spreading across the Midwest, have caused the death of millions of bats (USFWS 2012; Arnett and Baerwald 2013). Populations of cave bats have declined so significantly, mostly attributed to WNS, that the Service has proposed listing the northern long-eared bat (*Myotis septentrionalis*) as a federally endangered species¹. The Service is also currently conducting status reviews for two additional species, the little brown bat (*Myotis lucifugus*) and tri-colored bat (*Perimyotis subflavus*). Both of which were documented acoustically offshore at during the LEEDCo study.

While the offshore environment does not appear to provide habitat for tree-roosting bats, presence of habitat does not seem to be a good predictor of bat mortality at wind turbines during fall migration. Bat mortality at some wind facilities in agricultural landscapes in the Midwest has been occurring at rates as high as 49 bats per megawatt per year (Good et al. 2011), and when this mortality rate is applied across all operating wind facilities in the Midwest, it results in substantial total bat mortality. Research has indicated that bat mortality at operating turbines can be significantly reduced by feathering the turbine blades at low wind speeds.

LEEDCo's Bat Risk Assessment states that "relatively small numbers of migratory bats are likely to encounter the project." Long distance migrants such as eastern red (*Lasiurus borealis*), hoary (*Lasiurus cinereus*), and silver-haired (*Lasiurus noctivagans*) bats are known to cross large bodies of water and can be found far from shore (Pelletier et al. 2013). The report states that 3.7 passes/detector-night were recorded at the offshore location and compares that to what was recorded onshore in Cleveland (38.0 passes/detector-night) to conclude that impacts to bats from the Icebreaker project would be less than a comparable on-shore project.

¹ The proposed listing of northern long-eared bat, which was proposed in October of 2013, was not included in either the Bat Risk Assessment or the Summary of Sensitive Species. See "Endangered Species Comments" below.

The offshore acoustic monitoring conducted as part of LEEDCo's application detected bat activity at higher rates than during pre-construction monitoring that has occurred at 2 land-based operating wind facilities in Ohio. Timber Road and Blue Creek wind facilities in Paulding County, recorded 2.78 and 1.31 passes/detector-night respectively. Based upon this information it is unclear as to whether this offshore wind facilities will pose less of a threat to bats than onshore facilities. Additionally, there are several factors that confound the results of acoustic surveys. Since all offshore acoustic monitoring had to be conducted from the Cleveland Crib, acoustic monitoring sites were co-located with radar monitoring locations. Radar has been shown to reduce bat activity, potentially due to electromagnetic fields causing discomfort (Nicholls and Racey 2007). Large concentrations of insects were also observed swarming above the Cleveland Crib. Bats have been observed pausing during migration to take advantage of congregations of insects around offshore wind turbines (Ahlén et al. 2007, 2009). Thus there is a factor that may reduce bat activity, and one that may increase bat activity, therefore it is unknown if either influenced the number of detections recorded at this site. Regardless, 95% of the calls recorded were of the three species most susceptible to collisions with wind turbines. To date the only mechanism known to reduce bat mortality at wind turbines is to curtail turbines during nights of low wind speed, which is the period when bats are most susceptible to being struck.

Thus, the Service believes that bats are at risk from the project and LEEDCo should address these species in the BBCS. Should this facility be constructed, the Service requests that a condition be included within the Certificate requiring the curtailment of turbines at least up until the manufacturer's cut-in speed is reached at night during the fall migratory period. This measure should not affect energy generation, but may measurably reduce bat mortality.

ENDANGERED SPECIES COMMENTS:

The proposed project is located in Cuyahoga County, in Ohio. There are five species of birds or bats that are federally endangered, threatened, proposed, or candidate species that may occur in Cuyahoga County: Indiana bat (*Myotis sodalis*)^{Endangered}, northern long-eared bat^{Proposed Endangered}, Kirtland's warbler (*Setophaga kirtlandii*)^{Endangered}, piping plover (*Charadrius melodus*)^{Endangered}, and red knot (*Calidris canutus rufa*)^{Proposed Threatened}.

Cuyahoga County has confirmed records for Indiana and northern long-eared bats. While northern long-eared bats may be relatively scarce in Ontario, as mentioned in the Bat Risk Assessment, they are captured at ~47% of mist-net sites in Ohio and comprise ~12% of the bats captured. Both of these species may travel several hundred miles between their summering habitat and winter hibernacula (Griffin 1945, Winhold and Kurta 2006).

While Indiana bats have been documented to fly over Lake Erie (Niver 2013, personal communication), given that no maternity colonies are known to occur in Canada, and that the majority of their hibernacula are to the south of the project area, it is unlikely that Indiana bats will encounter the LEEDCo project. Northern long-eared bats are a forest dwelling species,

feeding on insects gleaned from vegetation or in mid-air (Lee and McCracken 2004). Though historically abundant, the northern long-eared bat has rarely been found during mortality surveys at onshore wind facilities. Since this facility is not located near any forested area and because northern long-eared bats seem to be less susceptible to collision mortality from wind turbines it is unlikely that northern long-eared bats will encounter the LEEDCo project.

Piping plovers, red knots, and Kirtland's warblers all migrate through Ohio. Only the piping plover has historically nested within the state. The Great Lakes population of piping plover nests primarily in Michigan and consists of approximately 63 pairs of birds. Kirtland's warblers nest in young stands of Jack pines primarily in Central Michigan. Their current population is over 3,000 individuals (USFWS 2012). Red knots nest in the high arctic, and winter along both coasts of North America. While the vast majority of the red knot population migrates along the coastline, occasionally small numbers of birds have been found in Ohio, typically along marshes in the western basin of Lake Erie. The proposed location for the facility does not have suitable habitat for these species. Most observations of these species occur in the western basin of Lake Erie, where there is more stopover habitat. Finally, given the scale of the project it is the Service's believe at this time that it is unlikely these species will encounter the LEEDCo project.

BALD EAGLE COMMENTS:

Bald eagles are protected under the MBTA and are afforded additional legal protection under the BGEPA. BGEPA prohibits, among other things, the killing and disturbance of eagles. Due to the proposed project location and the distance this facility is from the shoreline, the Service believes that take of eagles is unlikely during the breeding, egg laying and incubation, chick rearing, and fledging periods. However, bald eagles winter along the shoreline of Lake Erie and are regularly observed along the lakeshore in Cuyahoga County (avianknowledge.net). In winter when ice forms along the shoreline it may force wintering birds closer to the proposed facility. Within the last several years Lake Erie has almost completely frozen over. As the ice builds along the shoreline it forces ducks, gulls, etc. further into the lake. Eagles, which will feed on fish and waterfowl, will congregate along the leading edge of the ice, or near open leads in the ice. Should the ice extend far enough, as it did this past winter, it may put waterfowl and eagles in close proximity to the turbines. Thus, bald eagles may be at risk from the Icebreaker project. The Service recommends that LEEDCo develop a BBCS to address this issue. If take of eagles cannot be avoided LEEDCo should work with the Service's Division of Migratory Birds to obtain an eagle take permit.

Within in the "Summary of Sensitive Species" the Applicant states that "the nearest [bald eagle] nest is located is located near Sandusky (Peterjohn and Rice 1991)", this information is outdated. In the 23 years since the original Breeding Bird Atlas was conducted the bald eagle population has expanding significantly. Ohio now has over 200 nesting pairs of bald eagles; the nearest known nest to the proposed project area is located in Cuyahoga County, approximately 11 miles away.

FISHERIES:

One of the responsibilities of the Service is to manage interjurisdictional fisheries, i.e., fisheries that are managed by more than one state or nation. The waters of Lake Erie are managed by four states (Michigan, Ohio, Pennsylvania, and New York), and Canada. A component of the pre-construction survey project developed jointly between ODNR and the Service were studies to assess the fisheries in the proposed project area. These studies have yet to be completed, thus this application should be deemed incomplete.

COORDINATION WITH THE U.S. ARMY CORPS OF ENGINEERS:

This project will require a section 10 permit of the River and Harbors Act and authorization under section 401 of the Clean Water Act. Both are administered by the U.S. Army Corps (Corps) of Engineers (Buffalo District). The Service reviews permit applications under these laws and works with the Corps to address fish and wildlife impacts. The Service will consult with the Corps under Section 7 of the ESA, if necessary, and will provide additional comments to the Corps under the National Environmental Policy Act.

POST-CONSTRUCTION MONITORING:

One of the purposes of a small-scale demonstration project is to assess the viability and potential impacts of the project. As such, if constructed this project should have a valid post-construction monitoring plan that is approved by both the ODNR and Service. Any and all results of post-construction mortality studies must be provided to both ODNR and the USFWS. This should be included as a condition of their Certificate.

The Service appreciates the opportunity to comment on this application, and looks forward to continued collaboration on this project. If you have questions, or if we may be of further assistance in this matter, please contact Keith Lott at extension 31 in this office.

Sincerely,



Mary Knapp, Ph.D.
Field Supervisor

Cc: Ms. Jennifer Norris, ODNR, DOW, Columbus, OH
Mr. Nathan Reardon, ODNR, REALM, Columbus, OH
Mr. Joe Loucek, OEPA
Mr. Joe Krawczyk, USACE, Buffalo, NY

Attachment: "Review of: Spring-Fall 2010 Avian and Bat Studies Report lake Erie Wind Power Study (Prepared by TetraTech, A. Svedlow et al.) by USFWS Region 3 Radar Team."

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Summary: OPSB Chair Letter Regarding Compliance electronically filed by Mr. Donald E. Rostofer on behalf of Snitchler, Todd A. Mr.