Appendix B
Consultation Letters and Other Correspondence

This appendix contains copies of correspondence associated with the University of Delaware Lewes Campus Onsite Wind Energy Project, including consultation letters between the DOE and the U.S. Fish and Wildlife Service (USFWS), the Delaware State Historic Preservation Officer (SHPO), and potentially affected Indian tribes. Correspondence included in this section is grouped by correspondent (for example, correspondence between DOE and the USFWS is grouped together) and presented in the following order:

Letter Date	Description	Page
DNREC – University of Delaware; DNREC – DOE		
August 31, 2009	Letter from Delaware Department of Natural Resources and Environmental Control (DNREC) to University of Delaware, College of Earth, Ocean, and Environment	B-4
December 22, 2009	Letter from Delaware DNREC, Division of Water Resources to University of Delaware, College of Earth, Ocean, and Environment	B-13
December 23, 2009	Letter from Delaware DNREC, Division of Soil and Water Conservation to Sustainable Energy Developments (SED), Inc.	B-15
December 23, 2009	Letter from Delaware DNREC, Division of Fish and Wildlife to Sustainable Energy Developments (SED), Inc.	B-17
July 8, 2010	Letter from Delaware DNREC, Division of Soil and Water Conservation to U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy	B-19
August 13, 2010	Letter from Delaware DNREC, Division of Soil and Water Conservation to DOE Office of Energy Efficiency and Renewable Energy	B-20
August 27, 2010	Letter from Delaware DNREC to DOE Office of Energy Efficiency and Renewable Energy	B-31
October 15, 2010	Delaware Coastal Zone Management Zone Program Federal Consistency Certification by the University of Delaware, College of Earth, Ocean, and Environment	B-33
October 29, 2010	Letter from Delaware DNREC, Division of Soil and Water Conservation to University of Delaware, College of Earth, Ocean, and Environment	B-36
FAA		
December 30, 2009	"Determination of No Hazard to Air Navigation" from the Federal Aviation Administration to the University of Delaware	B-38
Delaware SHPO		
April 30, 2010	Letter from DOE, Golden Field Office, to Delaware State Historic Preservation Officer	B-40

Letter Date	Description	Page
May 11, 2010	Letter from Delaware State Historic Preservation Officer (Division of Historical and Cultural Affairs) to DOE Office of Energy Efficiency and Renewable Energy	B-45
May 24, 2010	Letter from Delaware State Historic Preservation Officer (Division of Historical and Cultural Affairs) to DOE Office of Energy Efficiency and Renewable Energy	B-47
June 5, 2010	Letter from Delaware State Historic Preservation Officer (Division of Historical and Cultural Affairs) to DOE Office of Energy Efficiency and Renewable Energy	B-48
July 19, 2010	Letter from Delaware State Historic Preservation Officer (Division of Historical and Cultural Affairs) to DOE Office of Energy Efficiency and Renewable Energy	B-50
October 18, 2010	Letter from DOE Office of Energy Efficiency and Renewable Energy to Delaware State Historic Preservation Officer (Division of Historical and Cultural Affairs)	B-51
October 22, 2010	Letter from Delaware State Historic Preservation Officer (Division of Historical and Cultural Affairs) to DOE Office of Energy Efficiency and Renewable Energy	B-54
USFWS		
April 30, 2010	Letter from U.S. Department of Energy (DOE), Golden Field Office, to Chesapeake Bay Field Office, U.S. Fish and Wildlife Service	B-55
July 15, 2010	Letter from Chesapeake Bay Field Office, U.S. Fish and Wildlife Service to Department of Energy, Golden Field Office	B-60
July 29, 2010	Letter from Chesapeake Bay Field Office, U.S. Fish and Wildlife Service to Office of Energy Efficiency and Renewable Energy, Department of Energy	B-62
August 17, 2010	Letter from Chesapeake Bay Field Office, U.S. Fish and Wildlife Service to Office of Energy Efficiency and Renewable Energy, Department of Energy	B-63
September 24, 2010	Letter from Chesapeake Bay Field Office, U.S. Fish and Wildlife Service to University of Delaware (with copy to the Department of Energy)	B-68
September 30, 2010	Letter from University of Delaware to Chesapeake Bay Field Office, U.S. Fish and Wildlife Service	B-70
November 3, 2010	Letter from Chesapeake Bay Field Office, U.S. Fish and Wildlife Service to Office of Energy Efficiency and Renewable Energy, Department of Energy	B-72
Indian Tribes		
May 20, 2010	Letter from DOE Office of Energy Efficiency and Renewable Energy to The Delaware Nation	B-73

Letter Date	Description	Page
June 16, 2010	Email from the Cultural Preservation Department, The Delaware Nation to J. Summerson, DOE Office of Energy Efficiency and Renewable Energy	B-77
May 20, 2010	Letter from DOE Office of Energy Efficiency and Renewable Energy to the Stockbridge Munsee Community of Wisconsin	B-78
May 25, 2010	Letter from Stockbridge-Munsee Tribal Historic Preservation Office to DOE Office of Energy Efficiency and Renewable Energy	B-80
May 20, 2010	Letter from DOE Office of Energy Efficiency and Renewable Energy to the Lenape Indian Tribe of Delaware, Inc.	B-81
August 17, 2010	Letter from the Lenape Indian Tribe of Delaware to the DOE Office of Energy Efficiency and Renewable Energy	B-83
October 18, 2010	Letter from DOE Office of Energy Efficiency and Renewable Energy to the Lenape Indian Tribe of Delaware	B-84
May 20, 2010	Letter from DOE Office of Energy Efficiency and Renewable Energy to the Nanticoke Indian Association, Inc.	B-86
July 22, 2010	Letter from DOE Office of Energy Efficiency and Renewable Energy to the Delaware Tribe of Indians	B-88
August 4, 2010	Letter from the Delaware Tribe of Indians to DOE Office of Energy Efficiency and Renewable Energy	B-91

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

OFFICE OF THE
SECRETARY

PHONE: (302) 739-9000
FAX: (302) 739-6242

August 31, 2009

Jeremy Firestone
Associate Professor, College of Earth, Ocean, and Environment
Senior Research Scientist, Center for Carbon-free Power Integration
University of Delaware
Newark, DE 19716 USA

Dear Mr. Firestone:

Thank you for giving the members of the Department of Natural Resources and Environmental Control (DNREC), Regulatory Advisory Service (RAS) the opportunity to comment on your proposed wind turbine project.

Attached is a summary of key points expressed. Information is included regarding environmental permit requirements, regulatory requirements, and other considerations and procedures that should be addressed. Please be advised that the report is advisory and may not include permits and regulatory requirements and restrictions for activities that our RAS members were unable to determine from the information provided.

Should you have any questions concerning the suggestions made by the RAS members, you may contact me or the individual members directly (names and phone numbers are included with comments).

Sincerely,

Kimberly Chesser

Kimberly Chesser
Ombudsman
Small Business Assistance Program
(302) 739-9909
Kimberly.Chesser@state.de.us

Delaware's Good Nature depends on you!

Regulatory Advisory Service
Advisory Project Report
University of Delaware
Wind Turbine – Lewes Campus
RAS Project #2009-05

Small Business Assistance Program, Office of the Secretary

Comments Provided by: Kim Chesser
Phone: (302) 739-9909
Fax: (302) 739-6242
Email: kimberly.chesser@state.de.us

The Small Business Assistance Program is responsible for the management of the Regulatory Advisory Service (RAS) and is responsible for preparing the RAS report. Please feel free to contact me for any questions or concerns you may have regarding the RAS meeting or this report. You may also contact me for any other questions that may arise regarding your environmental issues.

Wetlands and Subaqueous Lands Section, Division of Water Resources

Comments Provided by: Laura Herr
Phone: (302) 739-9943
E-Mail: Laura.Herr@state.de.us

Comments:

The Wetlands and Subaqueous Lands Section supports the concept of building and deploying a wind turbine by the University and believes that such an effort could potentially offer valuable opportunities for study. Six possible locations for the turbine were presented at the meeting.

Locations 1 and 3 do not appear to involve any direct impacts to State-regulated wetlands or subaqueous lands and would not require permits from our office. While their close proximity to wetlands presents some concerns, it may also afford the chance to study some of the key potential adverse impacts associated with construction and operation of a wind turbine. However, this opportunity can only be seized if the University first obtains meaningful and comprehensive background data to characterize the existing condition and use of the marsh in the vicinity of the Lewes campus and Roosevelt Inlet, prior to construction of the turbine. We would recommend that the University commit to obtaining such information and data as part of their wind turbine deployment effort.

At Location 2, the turbine location itself does not appear to have any direct impacts to State-regulated wetlands, but access to the location from the south and east would necessitate construction of a road which might impact federal wetlands. We advised the University regarding the difficulty and expense of obtaining federal permits for work in waters and wetlands. As such, any location, or alternate access to a location, which avoids impacts to wetlands will reduce the considerable time and money required to get permits in place. As part of this discussion, I mentioned the "provisional JD" process which can reduce the amount of time required to get a jurisdictional determination from the Corps.

Locations 4 and 5 are in State-regulated wetlands. The WSLS cannot support the construction of a wind turbine and access road in State-regulated wetlands, as the turbine is not a water-dependent use and there is a presumption that land-based alternatives are available. Even if the water dependency requirement were not in place, we would still oppose these locations based on the adverse impacts to wetlands associated with construction, maintenance and access. We would also have to consider the precedent and potential cumulative impacts associated with permitting the first wind turbine to be constructed in State wetlands. The wetlands at these locations are also regulated by the Corps of Engineers. Even if permits could be granted, the expense associated with compensation for the wetland impacts would be considerable.

Location 6 is in the Beach Plum Island Nature Preserve. As such, the WSLS agrees with the position of the Division of Parks and Recreation, as presented by Phil Gallo at the August 12th meeting, that this is not an appropriate location for the wind turbine.

Coastal Zone Management Section, Division of Soil and Water

Comments Provided by: Susan Love
Phone: (302) 739-9283
E-Mail: Susan.Love@state.de.us

Comments:

Sarah Cooksey and Susan Love attended the August 12 RAS meeting to discuss siting of a 2MW wind turbine on or near the Lewes Campus. Based upon that discussion, we offer the following comments:

General Comments:

The site analysis that was conducted by UD's contractor on the six sites took into consideration land ownership, geotechnical concerns, some permitting issues and setbacks from residences. It did not take into consideration direct or secondary impacts to natural resources. Construction and operation of a utility scale wind turbine on any of the six sites presented at the meeting could have unforeseen impacts on local wildlife who use the adjacent marshes, dune systems and waterways for nesting, feeding and migration. Because four of the six sites included in the assessment are likely unfeasible due to permitting, resource and/or roadway issues, the University

is strongly encouraged to conduct assessments on additional unconstrained upland sites. Prior to selecting any site, the University should conduct a detailed assessment of wildlife use of the region and develop an analysis of potential impacts.

However, it is our understanding that at this time, the University is not planning detailed studies on wildlife impacts resulting from the operation of the turbines; rather, the studies will focus on operational and technical issues. We strongly encourage the university to conduct detailed pre- and post construction studies on wildlife nesting and foraging use; including radar studies. The US Fish and Wildlife Service has issued interim guidance for avoiding and minimizing impacts to wildlife from wind turbine development and committees are currently working to finalize a new document. These guidelines provide a minimum baseline for methods that should be followed to avoid and minimize impacts to wildlife. The document can be found online: http://www.fws.gov/habitatconservation/wind.html

Coastal Zone Federal Consistency

Federal permits and licenses, including Army Corps of Engineers permits and some Federal Energy Regulatory Commission licenses, must be consistent with the policies of Delaware's Coastal Zone Management Program. If any Federal permit or license is required, UD should consult with the Delaware Coastal Programs to determine whether a Consistency Certification will be required. Information on Coastal Zone Federal Consistency Certifications can be found online:
http://www.swc.dnrec.delaware.gov/coastal/Pages/DCMP%20Federal%20Consistency.aspx

Location 1&3

We support the comments provided by the Wetlands section and echo the need for pre and post installation studies of adjacent wildlife. UD should ensure that operations at the disposal facility are not disrupted by construction or operation of a wind turbine.

Location 2

We support and echo the comments provided by the Wetlands section. In addition, if a site is selected that requires Federal permits, a Coastal Zone Federal Consistency Certification will likely be required. This certification process is in addition to the State and Federal wetlands permitting processes.

Location 4 & 5

We support the comments submitted by the Wetlands section. Federal permits from the Army Corps would likely be required; this would also trigger the Coastal Zone Federal Consistency certification process. For reasons outlined by the Wetlands section, coupled with a high

likelihood for wildlife impacts, these sites would have difficulty obtaining a Consistency Certification and their use was strongly discouraged by DNREC staff in attendance.

Location 6

Location 6 has significant potential for resource impacts, has potential funding limitations due to the Coastal Barrier Resources Act and would require permits under DNREC's regulations for beach protection and use of beaches. Due to its resource sensitivity, this location is strongly discouraged by DNREC staff in attendance at the meeting.

This site is within a designated State Nature Preserve, and is near a colony of nesting terns. DPR and DFW will be providing additional information about these issues.

Besides its location within a Nature Preserve, this site is also located on a Federally designated Barrier Island. The Federal Coastal Barrier Resources Act prohibits federal funds to be used for development projects on designated barrier islands. It is unclear how construction of a wind turbine would be viewed by the Federal government under this legislation, however, UD would be well advised to investigate this legislation and its potential impact on this and any future plans for constructing wind turbines directly on the coast.

DNREC's Regulations for Beach Protection and Use of Beaches prohibit any construction seaward of the DNREC building line – by state law, all construction must be located entirely landward of the building line. Construction on the beach landward of the building line requires a permit or letter of approval from the DNREC Shoreline and Waterway Management Section. An aerial photo with the building line depicted was provided to Dr. Firestone at the meeting. In addition, it should be noted that Section staff reported that the Beach Plum Island area has a history of erosion; and that a tower fell into the Bay during a storm in 1992.

Planning, Preservation and Development Section, Division of Parks & Recreation

Comments Provided by: Phil Gallo
Phone: 302-739-9231
E-mail: Phillip.Gallo@state.de.us

Comments:

The following comments pertain to the proposed wind turbine presented at the meeting of 8/12/09 and described in the report entitled *University of Delaware, Technical Analysis for On-Site Wind Generation, Lewes Campus, Summary of Project Status*, prepared by SED (Sustainable Energy Developments Inc.), dated Monday, July 27, 2009.

The Division of Parks and Recreation is generally supportive of the proposed wind turbine project and the many benefits it would provide.

General Comment: Locations 1, 2, 3, 4 and 6 are on property owned by the Division of Parks and Recreation.

Location 1 does not have adequate setback (600 feet) from the proposed Park Road realignment. (Note: The proposed realignment has been developed in a cooperative effort with the University to reroute through traffic to the west around the campus rather than through it as is currently the case. At the request of the University, the final alignment is as far away from the campus as feasible to minimize impact to the University and to preserve undeveloped space. It is anticipated that the road construction will begin next spring and be completed in summer of 2010.)

Location 2 does appear to have adequate setback from the proposed Park Road realignment.

Location 3 is within the proposed Park Road realignment and therefore not available as a location for the wind turbine.

Location 4 does not have adequate setback from the proposed Park Road realignment. It is in wetlands which are a designated State Natural Area and planned to be dedicated as a State Nature Preserve.

Location 5 is not on property owned by the Division of Parks and Recreation.

Location 6 is on Beach Plum Island, a dedicated State Nature Preserve. Construction of the turbine at this location would require approval of the General Assembly. It is recommended that, due to this location's status as a nature preserve and ecological importance, it be withdrawn from consideration.

Access to the dredge spoils area: As part of the Park Road realignment project, the existing access road to the spoils area is to be removed and regraded to create a stormwater filter strip. Any new access road to the spoils area should be connected to realigned Park Road.

Delaware Natural Heritage and Endangered Species Program, Division of Fish & Wildlife

Comments Provided by: Anthony T. Gonzon, Jr.
Phone: (302) 653-2880 ext. 123
e-mail: Anthony.Gonzon@state.de.us

Comments:
Following the August 12 RAS meeting regarding the proposal by the University of Delaware for the installation of a 2 MW wind turbine near Lewes, Delaware, the Delaware Division of Fish and Wildlife offer the following comments:

The Delaware Division of Fish and Wildlife recognizes the importance in exploring possibilities for alternative energy sources and supports the concept of planning and constructing a wind-

5

based power generation system by the University of Delaware at their Lewes campus. With the current initiatives in wind-generated power production, we believe this project would benefit all parties involved as state and national interests move forward in producing cleaner and more efficient energy sources.

The Delaware Division of Fish and Wildlife acknowledges that the proposed project may negatively impact native wildlife, in particular birds and bats. Regardless of the location of the tower, birds and bats are at risk of colliding with the structure or support hardware, may be attracted to the structure for nesting, roosting, or foraging, or may be discouraged from utilizing habitats impacted by the construction and operation of the project. However, we also acknowledge that this proposal is of a small scale (one turbine) and presents an opportunity to study the impacts of *land-based, coastal* wind turbines on birds and bats in DE. We agree that although we know there will likely be some impacts to birds and bats, we do not yet know the extent of those impacts or how to address potential threats to wildlife resources.

Bats:
Migrating bats, as opposed to resident bats, are most likely to be impacted by the proposed project as they are more likely to follow the shoreline during migration. Given the close proximity of the structure to the shoreline at Locations 4, 5 or 6, we would discourage placement at those sites.

Shorebirds and Beach-nesting Birds:
The NHESP does not have any significant concerns for migratory shorebird impacts. Regarding beach-nesting birds, Location 6 is ca. 500 feet from areas on Beach Plum Island Nature Preserve where least terns (*Sternula antillarum*) (S1)[1] have nested in recent years. The habitat in this area of the preserve is suitable for American oystercatcher (*Haematopus palliatus*) (S1) nesting. The turbine itself and the infrastructure needed for its upkeep would likely cause disturbance that would prevent oystercatchers from nesting nearby and may discourage least terns, from nesting at the site in the future. In addition, Location 5 overlooks shoreline that is used by American oystercatcher for foraging and resting. Placing a wind turbine at Location 5 might discourage oystercatchers from utilizing this location, and therefore, this location is not favored.

From a beach-nesting shorebird standpoint, all other proposed locations are not likely to cause any adverse impacts.

Neotropical Migrant Songbirds:
Because of the general location is near the coast, it is naturally within the flight path of many neotropical migrants. Although there is some probability of the structure being a strike hazard during nocturnal migration for many of these species, impacts from a single tower will likely not

[1] **State Rank**: S1- extremely rare within the state (typically 5 or fewer occurrences); S2 very rare within the state (6 to 20 occurrences);S3-rare to uncommon in Delaware, B - Breeding; N - Nonbreeding; SX-Extirpated or presumed extirpated from the state. All historical locations and/or potential habitat have been surveyed; SH- Historically known, but not verified for an extended period (usually 15+ years); there are expectations that the species may be rediscovered; SE-Non-native in the state (introduced through human influence); not a part of the native flora or fauna, SNR-not yet ranked in Delaware, SNA-occurences in DE of limited conservation value

have any population-level effects on many species. In addition, given the low density of forested habitat immediately around the general area, the site should not be considered a major draw for migrant songbirds during the spring and fall.

Raptors:
Raptors may be more of an issue with concerns particularly during migration. The Atlantic and Delaware Bay coastlines serve as a migratory corridor for several species, including American Kestrel, Merlin, and Peregrine Falcon. Coastal areas also host large numbers of migrating Osprey. However, since raptors are diurnal migrants, most birds should be able to avoid collision. One potential concern is that of strikes by raptors pursuing prey. Lastly, the structure should not encourage use by raptors, particularly Osprey, as a perch or nesting site. Overall, no raptor population-level effects are expected.

Waterfowl:
Negative impacts to waterfowl are likely to be minimal, as with many of the other avian groups. Collisions with the structure or associated hardware are the most direct threat. Large numbers of Snow Geese (*Chen caerulescens*) migrate through and overwinter near this site. This species, given the large number of individuals overwintering, is most likely to be involved in collisions; however, no population level impacts are expected.

Recommendations:
Overall, we believe that this is a good opportunity to study the impacts of wind energy on bats and birds. Our preferred site would be Location 1. There is less surrounding forest and fewer trees would need to be cleared. In addition, Location 1 would most likely result in the fewest impacts to adjacent wetlands, if any. From a wildlife perspective, this site would likely have the fewest cumulative negative impacts on migratory birds, waterfowl, and bats. Because of the distance from suitable nesting and roosting habitats for beach-nesting birds, Location 1 is not expected to produce any negative impacts for that group. However, if it is determined that major impacts to birds or bats are occurring as a result of this wind turbine, we recommend that a plan to reduce and minimize collisions and other threats be developed prior to construction.

With regard to bats, we also recommend the use of acoustic monitoring to evaluate bat species composition in the vicinity of the possible options.

We also recommend lighting that is consistent with reducing bird/bat collisions, reduction/elimination of guy wires, and the use of perch deterrents. We also discussed recommending the removal of trees around the turbine so there was less of a draw for birds (particularly migrants) ,but believe the learning opportunity overrides what would be an untested recommendation.

Lastly, we recommend intensive study of the turbine on the impacts it has on wildlife resources. Both pre- and post-monitoring for impacts to bats and birds should be conducted to fully assess impacts.

Because current University-proposed studies will focus on operational and technical issues and not necessarily on wildlife, we recommend that the University of Delaware plan for and initiate pre-construction studies on wildlife nesting and foraging use, including radar studies to assess area use. Such studies should be followed by post-construction monitoring to continue assessing use and possible avoidance. We strongly recommend the University review and implement guidance to reduce negative impacts on wildlife published by the US Fish and Wildlife Service. The guidelines can be found at http://www.fws.gov/habitatconservation/wind.html and should be considered prior to developing any studies or monitoring protocol. We also invite the University to contact the Division for further assistance in the development of such studies and monitoring procedures.

Sediment and Stormwater Management Section, Division of Soil and Water

Comments Provided by: Elaine Webb
Phone: (302) 739-9921
E-Mail: Elaine.Webb@state.de.us

Comments:

If the project will cause land disturbance exceeding 5,000 square feet for utility installation, building construction, parking lot construction, etc., a Sediment and Stormwater Plan must be approved prior to beginning the construction activity. In addition, if the construction activity requires a Sediment and Stormwater Plan, a Notice of Intent would also need to be submitted. Please contact Elaine Webb, DNREC Division of Soil and Water Conservation, at (302) 739-9921 for submittal requirements.

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES &
ENVIRONMENTAL CONTROL
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

WETLANDS & SUBAQUEOUS
LANDS SECTION

TELEPHONE (302) 739-9943
FACSIMILE (302) 739-6304

December 22, 2009

Nancy M. Targett, Dean
University of Delaware
College of Earth, Ocean, and Environment
111 Robinson Hall
Newark, DE 19716

Re: Proposed location of a wind turbine in relation to State-regulated wetlands at the University of Delaware's Lewes Campus, 700 Pilottown Road, Lewes, Sussex County, Delaware.

Dear Ms. Targett:

The Wetlands and Subaqueous Lands Section (WSLS) received an e-mail request on your behalf from Matt Vanderbrook at Sustainable Energy Developments, Inc. dated December 17, 2009, requesting that we verify that a proposed wind turbine would be located outside of State-regulated wetlands. An aerial photograph was attached to the e-mail showing the proposed location. After review of the photo and the Department's wetland regulatory maps, it was determined that the proposed wind turbine, and the access to it as described in Matt's December 17th e:mail, are in an area outside of the State's wetland jurisdiction and thus no wetland permit will be required to erect the wind turbine at that designated location.

A copy of a portion of the relevant State wetland map (No. DNR 087) is attached for your records. Thank you for contacting the WSLS for this wetland determination. If you have any further questions regarding this matter, please contact our office at (302) 739-9943. Thank you.

Sincerely,

Laura M. Herr
Section Manager
Wetlands and Subaqueous
Lands Section

cc: Susan Love, Delaware Coastal Programs

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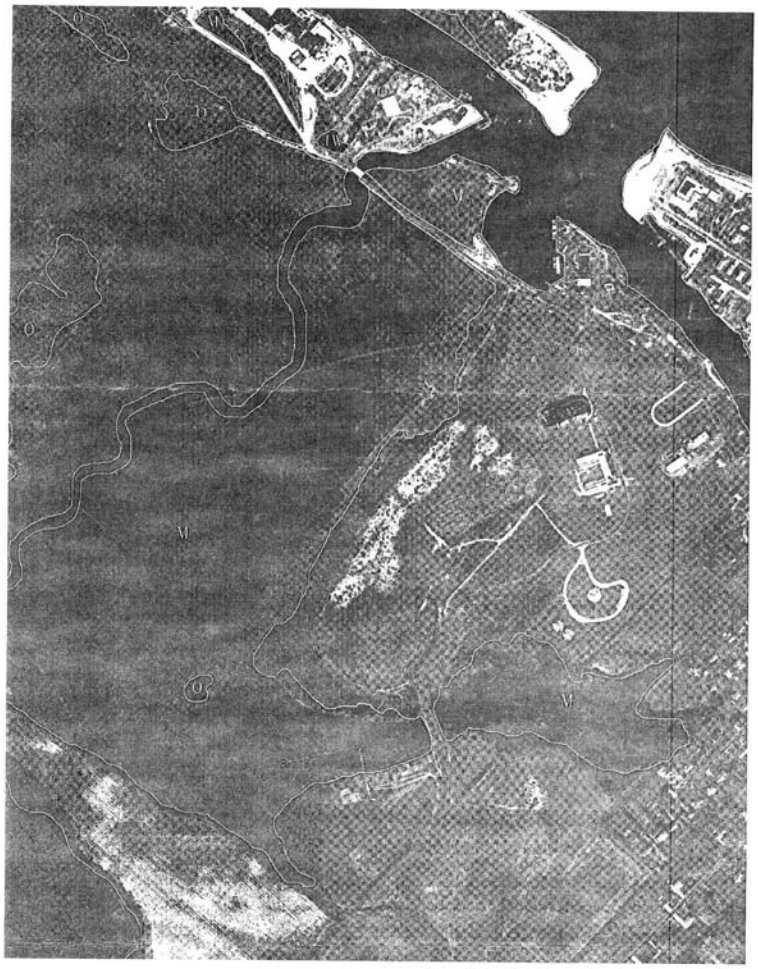

Section of State Regulatory Map # 87, which depicts the boundaries of the State's Wetland Jurisdiction.

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL
DIVISION OF SOIL AND WATER CONSERVATION
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

DELAWARE COASTAL
MANAGEMENT PROGRAM

TELEPHONE: (302) 739-9283
FAX: (302) 739-2048

December 23, 3009

Matthew Vanderbrook
Project & Policy Manager
Sustainable Energy Developments, Inc.
317 Route 104
Ontario, NY 14519

Re: Delaware Coastal Zone Management Program Comments
University of Delaware Proposed Wind Turbine Location (GC 09.017)

Dear Mr. Vanderbrook:

Thank you for following up with the Delaware Coastal Programs (DCP) regarding placement of the proposed University of Delaware wind turbine at the Lewes campus. At the August 12, 2009 meeting of the DNREC Regulatory Advisory Service, the University was seeking input on six potential sites; three of these sites had the potential for significant resource impacts. At the time, the DNREC encouraged selection of a site around the confined disposal facility or at another upland location.

The selected site, located between the original sites 1 & 2 and along the northern side of the confined disposal facility, will minimize potential impacts to significant coastal resources. However, birds and bats will continue to be at risk for collisions with turbine blades and support structures, and wildlife use of the surrounding area could be impacted by noise and increased human disturbance. While the DCP recognizes the importance of alternative energy and is generally supportive of the selected location, we wish to reiterate that the construction of this turbine represents an opportunity to fully study and characterize the potential resource impacts resulting from construction and operation of commercial scale wind turbines in coastal locations. We strongly encourage the University to conduct comprehensive wildlife and habitat use surveys prior to construction and during operation of the turbine. In addition, many potential impacts can be reduced or eliminated through thoughtful turbine design. We encourage you to use guidelines published by the U.S. Fish and Wildlife Service for land-based wind turbines (available online at www.fws.gov/habitatconservation/wind.html) to reduce potential impacts.

A Coastal Zone Federal Consistency Certification is required for certain Federal licenses and permits issued within the State of Delaware. According to the information provided to us, the selected site does not have any wetland impacts that would necessitate Federal permits and no

Susan E. Love
GC09.017
December 23, 2009

additional Federal authorities have been identified that would trigger Federal Consistency requirements. If you discover that Federal permits from the Federal Energy Regulatory Commission, Federal Aviation Administration or other Federal entities are required for this project, please contact us for further information about whether a Federal Consistency certification will be required. Additional information about Delaware's Coastal Zone Federal Consistency Certification program can be found on our website: http://www.swc.dnrec.delaware.gov/coastal/Pages/DCMP%20Federal%20Consistency.aspx

We appreciate the opportunity to comment on the final turbine location and encourage you to continue to coordinate closely with this and other DNREC offices during the project planning and design phases, and throughout the monitoring phases. Information and experiences gathered from this pilot project will be extremely valuable as Delaware increases its energy production from renewable sources. Please contact me at (302) 739-9283 or Susan.Love@state.de.us if you have any questions or need additional information.

Sincerely

Susan E. Love, Planner
Delaware Coastal Programs

Cc: Kim Chesser, OTS
Phil Cherry, OTS
Anthony Gonzan, DFW
Laura Herr, DWR
Phil Gallo, DPR

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL
DIVISION OF FISH & WILDLIFE
NATURAL HERITAGE & ENDANGERED SPECIES
4876 HAY POINT LANDING ROAD
SMYRNA, DELAWARE 19977
TELEPHONE: (302) 653-2880
FAX: (302) 653-3431

December 23, 2009

Matthew Vanderbrook
Project & Policy Manager
Sustainable Energy Developments, Inc.
317 Route 104
Ontario, NY 14519

RE: University of Delaware Wind Energy Project located near Lewes, DE and Wildlife Threats

Dear Mr. Vanderbrook,

At your request in an email dated December 17, 2009, the Delaware Division of Fish and Wildlife respectfully submits this letter regarding threats and impacts to wildlife resulting from the development of the University of Delaware Wind Energy Project proposed near Pilottown Road in the town of Lewes, Delaware.

The Delaware Division of Fish and Wildlife recognizes the importance in exploring possibilities for alternative energy sources and supports the concept of planning and constructing a wind-based power generation system by the University of Delaware at their Lewes campus. With the current state and national initiatives in wind-generated power production, we believe this project would benefit all parties involved as state and national interests move forward in producing cleaner and more efficient energy sources.

The Division acknowledges that this project is small scale (one turbine) and presents an opportunity to study the impacts of *land-based, coastal* wind turbines on birds and bats in Delaware during all phases of the project. The Division believes this project will not have significant population-level effects on wildlife. However, we do anticipate that the proposed project is likely to affect individuals of local wildlife, particularly birds and bats. Regardless of the location of the facility within the project site, birds and bats are at risk of colliding with the structure or support hardware, may be attracted to the structure for nesting, roosting, or foraging, or may be discouraged from using habitats impacted by the construction and operation of the project. Although we do not yet know the magnitude of these impacts on a local scale, we expect the effects to be minimal. Again, this project represents an opportunity to study these effects, and resulting data can assist with guiding operation at this site and provide information to assist in development of future wind energy projects.

We also acknowledge that the selected location (between proposed Sites 1 and 2) was preferred by the Division over the other proposed sites, particularly given its distance from the immediate coastline. From a wildlife perspective, the selected site would likely have the least impact on migratory birds, marsh-nesting birds, raptors, waterfowl, and bats. Due to the distance from suitable nesting and

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STATE OF DELAWARE
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roosting habitats, the Division does not anticipate any negative impacts for beach-nesting birds. Additionally, the Division acknowledges that proposed intensive monitoring and study of wildlife threats and impacts serves in the greater interest of protecting native wildlife populations in Delaware and in the responsible planning of future wind energy development within the State.

The Division formally requests to be involved in the development and implementation of research and monitoring for native wildlife and to be included to receive any interim performance reports and final products as a result of the studies.

Lastly, the Division submits the following specific recommendations:

- With regard to bats, we recommend the use of acoustic monitoring to evaluate bat species composition in the vicinity of the possible options. The Division also recommends lighting that is consistent with reducing bird/bat collisions, reduction/elimination of guy wires, and the use of perch deterrents. Information regarding these recommendations can be found at the web address below. We request, prior to development and implementation of any study and monitoring of birds, bats, or other wildlife, that those responsible for these activities correspond with the Division so that we can provide technical assistance.

- We strongly recommend the developers review and implement guidance to reduce negative impacts on wildlife published by the US Fish and Wildlife Service. The federal guidelines can be reviewed at http://www.fws.gov/habitatconservation/wind.html and should be considered prior to developing any studies or monitoring protocol.

If you have any questions, please contact me at 302-653-2880 or at Anthony.Gonzon@state.de.us.

Sincerely,

Anthony T. Gonzon, Jr.
Environmental Scientist
DE Natural Heritage and Endangered Species Program
DE Division of Fish and Wildlife, DNREC
4876 Hay Point Landing Road
Smyrna, DE 19977

CC: Eugene Moore, DFW; Karen Bennett, DFW; Edna Stetzar, DFW; Susan Love, DCP; Laura Herr, DWR; Phillip Gallo, DPR; Philip Cherry, OTS; Kim Chesser, OTS

Delaware's Good Nature Depends on You!

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL
DIVISION OF SOIL AND WATER CONSERVATION
89 KINGS HIGHWAY
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DELAWARE COASTAL
MANAGEMENT PROGRAM

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July 8, 2010

Jane Summerson
Office of Energy Efficiency and Renewable Energy
US Department of Energy
1000 Independence Ave. SW
Washington, DC 20585

RE: Draft EA, University of Delaware Wind Turbine
Comment Period Extension Request

Dear Dr. Summerson:

The Delaware Coastal Programs (DCP) has received and is currently reviewing the Draft Environmental Assessment for the University of Delaware Lewes Campus Onsite Wind Energy Project. In order to ensure that you receive the best information possible in response to the Draft EA, the DCP is coordinating comments from several sections of the Department of Natural Resources and Environmental Control. As you know, the document is lengthy, and contains several detailed reports in the Appendixes. Although we as a Department are attempting to expedite our comment period, the 30-day comment period does not allow for both review by specific programs and coordination of comments Department-wide. In addition, the document is still circulating within the stakeholder community and many stakeholders may not have yet had a chance to review thoroughly. As such, the DCP would like to formally request a 10 day comment period extension. This extension will allow for our Department to provide you with thoroughly coordinated and well-organized comments, as well as providing the stakeholder community with additional time to review and respond.

Thank you in advance for consideration of this request. Please do not hesitate to contact me at Sarah.Cooksey@state.de.us or (302) 739-9283 if you have any questions.

Sincerely,

Sarah W. Cooksey, Administrator
Delaware Coastal Programs

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL
DIVISION OF SOIL AND WATER CONSERVATION
89 KINGS HIGHWAY
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DELAWARE COASTAL
MANAGEMENT PROGRAM

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August 13, 2010

Jane Summerson
Office of Energy Efficiency and Renewable Energy
US Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Re: Delaware Department of Natural Resources and Environmental Control comments regarding the Draft Environmental Assessment of the University of Delaware Lewes Campus Onsite Wind Energy Project

Dear Dr. Summerson:

Thank you for the opportunity to review and provide input on the Draft Environmental Assessment for the University of Delaware Lewes Campus Onsite Wind Energy Project. As you are aware, the State of Delaware is a strong supporter of clean energy technologies and is actively seeking to improve its clean energy production capacity. The University of Delaware turbine is an important first step for the State.

It is our understanding that the Department of Energy is providing partial funding on a reimbursable basis for construction of the turbine at the Lewes Campus and that this Environmental Assessment is required by the National Environmental Policy Act as a part of funding requirements for the Department of Energy. As such, the Department of Natural Resources and Environmental Control (DNREC) would like to ensure that the Environmental Assessment contains accurate information and that impacts to surrounding resources are fully considered and discussed. The attached comments outline the views and expert opinion from the DNREC Division of Fish and Wildlife, Division of Parks and Recreation and the Delaware Coastal Programs.

The Draft EA concludes that this project has minimal potential for population level impacts to birds and bats and few impacts to cultural resources and surrounding landowners resulting from noise and visual disruptions (including shadow flicker). However, some impacts will be experienced as noted in the draft EA, including individual mortality to birds and bats. In order to both support a Finding of No Significant Impact (FONSI) and to increase the State's understanding of these potential resource impacts, the Department strongly encourages the Department of Energy to work with the University to jointly develop and implement a research and mitigation plan to offset any unavoidable impacts to cultural resources, adjacent landowners and avian and bat resources. During the development of this project, the University did meet with several programs within the Department of Natural Resources and Control in order to solicit comments on the proposed location, however, as very little site specific data was gathered prior

to constructing the turbine, it is important that a scientifically based mitigation plan be developed and implemented.

The mitigation plan need not be included in the Final EA, however, it should be fully outlined and committed to in writing by the end of this calendar year and any funding provided by DOE should be granted contingent on development and implementation of the plan moving forward. This plan should contain monitoring for avian and bat mortality, and should contain adaptive management measures that would guide the operation of the turbine should mortality reach unacceptable limits for Federal or State listed rare and endangered species. Such mortality limits should be agreed to jointly by the U.S. Fish and Wildlife Service, the DNREC Natural Heritage Program, the Department of Energy and the University of Delaware. This plan should also contain mitigation measures and operational procedures that would reduce noise and shadow flicker impacts to nearby residents, should these impacts be determined to be unacceptable. My staff are available to work with you on development of mitigation actions and adaptive management measures.

In light of the importance of renewable energy to our environment, the Department of Energy should also strongly consider assisting in the funding of the requested monitoring activities, mitigation measures and adaptive management planning. Dedicated funding for these purposes will ensure that monitoring and mitigation can be accomplished.

Finally, the Coastal Zone Management Act of 1972 requires that State and local government activities utilizing Federal funding sources be consistent with State Coastal Zone Management Policies. As such, consistency with Delaware's approved Coastal Zone Management Policies should be discussed within the Environmental Assessment and a Federal Consistency Certification should be submitted to this office with the Final Environmental Assessment. Additional information about Delaware's Coastal Zone Federal Consistency Program, including our policy document and applicant instructions, is available online at http://www.swc.dnrec.delaware.gov/coastal/Pages/FederalConsistency.aspx.

Please contact me or my staff for more information. We look forward to working with the Department of Energy on this, and future, alternative energy development proposals.

Sincerely,

Sarah W. Cooksey, Administrator
Delaware Coastal Programs

Enclosure (1)

Cc: File GC09.017
Karen Bennett – DFW
Phil Cherry – OTS
Charles Salkin -- DPR

Comments compiled from the Delaware Department of Natural Resources and Environmental Control in response to the Draft Environmental Assessment of the University of Delaware Lewes Campus Onsite Wind Energy Project

The following sections provide specific questions, amendments and additional information for particular sections of the EA as submitted by DNREC staff from the Division of Fish and Wildlife, Division of Parks and Recreation and the Delaware Coastal Programs:

1.1 NEPA and Related Procedures

The Coastal Zone Management Act of 1972 and compliance with the approved coastal zone management policies of Delaware should be described in this section. In addition, other federal statutes and compliance, such as the Endangered Species Act and Section 106, should also be described here.

1.2.2 UD Purpose and Need

We believe that this project could provide key research opportunities, particularly with regard to avian impacts from wind turbines in coastal settings; however, the research aspect of the project is not well described. In order to have a justifiable purpose and need, specific research that will be conducted within the first three years of turbine operation and how it fulfills research gaps should be clearly specified and described.

1.3.1 UD Actions

In this section and in several other sections throughout this document, the Department is incorrectly identified as the "Division of Natural Resources and Environmental Control." Please amend to read "Department of Natural Resources and Environmental Control."

1.3.2 DOE Actions

Coordination with the Delaware Coastal Programs in fulfillment of the Federal Coastal Zone Management Act should be included in this section.

1.3.2.2 State Historic Preservation Officer

The DNREC Department of Parks and Recreation conducted a cultural survey very close to the project site in the past year as part of Parks' due diligence on the connector road project (it was not done to meet any regulatory requirements). A copy of the report has been forwarded to DOE for consideration.

2.2.1 Wind Turbine

Section 2.2.1 locates the project in a "disturbed area adjacent to its College . . " It should be noted that this parcel is actually owned by DNREC, Division of Parks and Recreation. The

University has signed a Memorandum of Agreement with the Division that allows them use of this area for the turbine. Nowhere in the EA is this stated.

The paragraph at the top of page 2-7 refers to the "University of Delaware Road that starts at Road 266." In fact the southern portion of that road beginning at Road 266 (New Road) is owned by DNREC until it reaches the main campus.

2.2.3 Permits and Approvals

At the time of initial consultation with UD, the Delaware Coastal Programs indicated that a Coastal Zone Management Federal Consistency Certification was not required because there was no federal trigger. Since that time, the University secured the funding from the Department of Energy. As a result of this Federal funding action, a Coastal Zone Federal Consistency Certification should be submitted to the Delaware Coastal Programs office. Please update Table 2-1 to indicate that as the Federal funding agency, DOE will be fulfilling the requirements of the Federal Coastal Zone Management Act.

The University's consultation with the DNREC Division of Parks and Recreation should be included in Table 2-1. While the Division is not a regulatory agency, UD obtained approvals and formal permission to utilize Division property for the wind project.

As a point of clarification, it may be worthwhile to mention in the text of this section that Delaware does not have any specific Statewide or local regulations that guide or restrict the siting or operation of wind turbines.

2.3.3. Alternatives

It should be noted that several of the six potential locations initially reviewed by DNREC agencies were within State owned land, and that the final selected location is owned by the Division of Parks and Recreation.

3. Affected Environment and Environmental Consequences

This section should contain an analysis of the approved coastal zone management policies of the State of Delaware and discuss consistency with these policies as required under the Coastal Zone Management Act of 1972.

3.1.1. Affected Environment

Please refrain from using the term "swamp." Swamp has a negative connotation for the vast majority of the public. Please instead use a more technically correct term such as non-tidal wetland or palustrine wetland.

3.2.1 Affected Environment

The area of the Great Marsh near the turbine is owned by the State of Delaware and is a designated State Natural Area. State Natural Areas are areas of unusual natural significance placed on a statewide inventory for protection as laboratories for scientific research, as reservoirs of special natural resources, or as unique habitats for plant and animal species (7 Del Code 7303). Similarly, the nearby Beach Plum Island is also a DNREC property and is formally dedicated as a Nature Preserve. State Nature Preserves are Natural Areas that have been permanently protected by conservations easement and have the highest level of protection of any lands in the state (7 Del Code 7303, 7308). It is very important that the EA recognize and discuss these surrounding natural resources and the potential effect that the turbine may have on them.

3.2 Biological Resources

3.2.1.1 Avian Species

Raptors

This section identifies the Phase I Avian Risk Assessment Report (Appendix D) as the primary source for information on avian species. Overall, this assessment was thorough, incorporating multiple data sources to "*determine the potential for displacement and collision impacts to birds from the construction and operation of the Project*" (Appendix D, pg 1.). However, the report dismisses raptor migration as, "*[t]he Project site is sufficiently inland from Cape Henlopen and barrier beaches to be off the main raptor migration path...*" (Appendix D, pg 2). Consequently, the EA does not address raptor migration through the project site in any detail. Although no significant raptor mortalities are expected, it cannot be assumed that this site is outside the main raptor migration path. The site is located approximately 0.5 miles from the immediate Delaware Bay coast north of Cape Henlopen within an open expanse of saltmarsh, which makes this area suitable for raptor movement and migration *within* the main raptor migration path. Although many raptors migrate from Cape May, NJ to Cape Henlopen and Delaware's barrier beaches by crossing the Delaware Bay, some are likely to follow the western Delaware Bay coast south, passing over and through the project site. Additionally, for raptors crossing the Delaware Bay, some species may be more apt to make landfall to the northwest of Cape Henlopen, such as the American kestrel and the sharp-shinned hawk (Kerlinger 1989). Once migrant raptors cross the Bay from New Jersey, they may disperse in the local area, including around and near the turbine site, to forage before continuing south.

Additionally, the Phase I Avian Risk Assessment Report (Appendix D) indicates the area may be used by foraging raptors, including state rare breeding species. Neither the EA nor the Phase I Avian Risk Assessment Report identify how many foraging raptors would be expected; particularly during fall migration when higher numbers of several species would likely occur within and near the project area. Raptors may be more likely to strike turbines while focused on foraging rather than migration.

The U.S. Department of Energy (DOE) should consider reviewing hawk watch data for the past two years (2008 & 2009) during fall migration at the Cape Henlopen Hawk Watch

(www.hawkcount.org). During that time, a dedicated compiler was present providing greater coverage and a more accurate snapshot of the species assemblage and abundance during that time.

3.2.1.2. Bats

The Draft EA states that a "*small number of bats might rest in the trees and dense shrubs around the perimeter of the project site,*" yet the applicant has not conducted any survey work to determine which bat species might be using the area. In 2009, six species of bats (and over 700 calls) were recorded with acoustics installed on the 'Hugh R. Sharp' research vessel docked at the University of Delaware's Lewes facilities (Angela Sjollema, pers. comm.) indicating that there could be more bat activity in the area than anticipated. Furthermore, the following statement is inaccurate: "*there are no structures or natural features on or within 0.5 mile of the site where large numbers of bats would roost or hibernate, and no unique features that would attract large numbers of foraging bats.*" The large marsh adjacent to the site could attract large numbers of foraging bats and nearby water bodies (Lewes Canal and Delaware Bay) could also attract foraging bats. Additionally, pathways for migrating bats are unknown in the area but bats could be funneled through the area and become attracted to the turbine and/or the nearby foraging opportunities. Bat foraging distances are related to location and abundance of prey. One study of red bats in Kentucky recorded foraging distances of up to 7.4 km from the roost site (Stringer et al. 1999). This evidence suggests that it is likely that bats are using the project area and it is impossible to guess the level of bat activity without studies at this site. Though the opportunity to conduct pre-construction bat activity at this site has passed, post-construction monitoring should now be incorporated into the mitigation plan to evaluate potential impacts.

3.2.1.3 Federally Listed Species

This section of the EA explains why the EA either does not address a particular federally listed species due to a lack of expected impacts or goes on to provide further details. The statement "*…sea turtles, which also are not further discussed because this project would not affect potential beach nesting areas, increase light emissions inland from nesting areas, or otherwise affect these species*" is somewhat misleading. Sea turtles are not known to nest in Delaware so impacts to nesting areas either directly or from light emissions is a non-issue. The reason the project will not impact sea turtles is because impacts to the Delaware Bay and Atlantic Ocean are not part of the project. Sea turtles are found in the Delaware Bay and in Atlantic Ocean waters of Delaware for foraging, but not for nesting.

On page 3-11, the EA mentions Delmarva fox squirrel and states that the only known population in Delaware is at "Big Hook National Wildlife Refuge" (the correct name of this refuge is "Prime Hook National Wildlife Refuge"). This information is incorrect; there are two populations in Delaware: a naturally occurring population at the Nanticoke Wildlife Area and a population that is persisting from a 1980s group of translocated individuals at Prime Hook National Wildlife Refuge.

Likewise, the document does not acknowledge seabeach amaranth (*Amaranthus pumilus*), which is listed as Threatened under the federal Endangered Species Act. This annual plant species

currently occurs on Atlantic Ocean beaches in Delaware at Cape Henlopen State Park and Delaware Seashore State Park, well outside the project area. Habitat for this species is not found within the turbine project site.

Although these corrections regarding federally listed species are not vital to the purpose of the EA, it is important that basic facts regarding these species are accurate and that "no effect" determinations are based on correct and relevant habitat, distribution and other life history factors.

3.2.2.1.2. Avian Mortalities

Mortality Estimates

The EA acknowledges that an estimated 1-8 birds are killed per year (pg. 3-14) at wind energy projects in the United States, based on information provided in Appendix D, including literature and data referenced on pages 83 through 90. Additionally, the Avian Risk Assessment references avian mortality data collected in 2007 and 2008 at a wind turbine facility in New Jersey within a coastal setting, including saltmarsh. These are the only referenced data collected from wind turbines sited in or near a saltmarsh. However, in late 2009, an additional report was compiled for monitoring at this site, summarizing modeling data to account for the adjusted avian mortalities encountered. This report is not referenced by either the EA or the Avian Risk Assessment (Appendix D) (this report can be found at http://www.njcleanenergy.com/files/file/Renewable_Programs/Wind/ACUA_Quarterly%20report_to-date_Jan-Aug09_1c.pdf). A review of this most recent report indicates that, over 3 years, a range of approximately 16 to 31 birds were killed at each tower, including 4 osprey (only 3 reported found during the study) and a peregrine falcon. An examination of some simple statistics of this summary would produce a mean of 7.75 birds per tower per year. When you include one standard deviation, the result would range from 1.8 to 13.7 birds per tower per year. Because this 2009 report and other reports listed above for bats were conducted in a similar setting as the UD/Gamesa project and in relatively close proximity to Delaware, the DOE should place greater weight in their findings when addressing bird (and bat) mortality and risk.

Raptors

The majority of fall raptor migration occurring near the project site follows a path from Cape May, NJ to Cape Henlopen, DE and points south. As such, raptors (with the exception of bald eagles) are not discussed further in this section of the EA. However, as indicated above in comments for *3.2.1.1 Avian Species*, raptors will still occur within the vicinity of the project site, particularly during migratory periods. The New Jersey data indicates only four raptors were killed during their surveys, including 3 ospreys (one in July, two in August). Because coastal areas are suitable for both nesting and foraging for this species and because resident ospreys are likely to follow the bay shore south during fall migration, resident ospreys may experience a higher level of risk in comparison to other raptors. The DOE should indicate the potential for mortalities during higher periods of raptor abundance (spring and fall migration) and for ospreys throughout the migratory and breeding periods in Delaware.

Bald Eagles

Although we do not expect the take of a resident bald eagle, the DOE EA highlights the impact of an unintentional take under the federal Bald and Golden Eagle Protection Act. Although current resident nesting bald eagles are located 3 miles or greater from the project site, a resident adult still has potential to forage within the project area. Additionally, a resident eagle pair may establish a territory and/or nest site closer in proximity to the project site in the future. This would not only increase the risk of contact and use of the project area, but also increase the risk of consequential effects (i.e., direct mortality, injury, loss of nesting pair) if an eagle is taken. Loss of an adult from a nesting pair could result in nest failure and/or abandonment. Hatch-year eagles would also frequent the area within a nesting territory, placing them at greater risk if they forage within the project site.

Beach-nesting Birds

Shorelines along oceans and bays are dynamic and the habitats they contain may be subject to change. Should coastal storms substantially change habitats on Beach Plum Island Nature Preserve (BPINP), habitat may be created that is suitable for piping plover nesting. If piping plover nest at BPINP, potential plover foraging habitat in the vicinity of the turbine should be monitored closely for presence of piping plover.

Migratory Shorebirds, including Red Knot

The EA relies heavily on the Phase I Avian Risk Assessment Report (Appendix D) to determine potential consequences to avian resources from the wind turbine. This report concludes that migratory shorebirds, including red knots (Candidate for listing under the Federal Endangered Species Act), are primarily drawn to the region to feed on horseshoe crab eggs on bay shore beaches or utilize "the saltmarsh zone" and, therefore, would be not be impacted by the wind turbine. However, both the Phase I Avian Risk Assessment Report and the EA fail to recognize the potential threat to migratory shorebirds as they transition migratory flights from the ocean coast to bay shore beaches and marshes. Although there is uncertainty as to the exact flight paths of this transition, one path could bring migratory shorebirds in close proximity to the turbine. There is real potential for migratory shorebirds to come in close proximity to the wind turbine in the spring as they fly from the ocean beaches or arrive on migratory flights from Northern Brazil to Delaware Bay beaches. There is also reason to believe that migratory shorebirds could fly from the Delaware Bay shore marshes and beaches to Gordon's Pond and back during fall migration; the flight path these birds use is unknown and could take them through this project site area. Shorebird mortality at a nearby coastal wind turbine farm in New Jersey have been documented indicating a need to carefully monitor the impacts this turbine has on both migratory shorebirds during spring and fall migration as well as nesting shorebirds during the breeding season (see http://www.njcleanenergy.com/renewable-energy/technologies/wind/jersey-atlantic-wind). Although relatively few shorebird mortalities were recorded in New Jersey, the site is much different in Delaware as it attracts a larger proportion of migrating shorebirds during spring migration indicating that shorebird mortality could be much higher than what was observed at a similar site in New Jersey.

3.2.2.1.3. Bat Mortalities

The EA acknowledges that bats would be killed by this project and suggests the numbers killed would be similar to other non-forested areas (1-19 bats/year). In this same section it states that there is no data on bat mortalities from wind turbines in similar coastal marsh habitat. However, a study is being conducted on a wind farm in Atlantic City, NJ (reports can be found at http://www.njcleanenergy.com/renewable-energy/technologies/wind/jersey-atlantic-wind). This wind farm appears to be in a similar location; on uplands near an expansive salt marsh along the NJ coast. After a very cursory examination of their report, it is clear that bats are being impacted by the turbines. This study recorded 58 dead bats of two species (red and hoary) during their post construction surveys. Using models along with their data, they estimated mortality to be approximately 46 bats per turbine per year; higher than estimated bird mortality. The 2009 report discusses how number of animals killed varied with time of year (highest for bats during fall migration) and location of turbine (for birds). The information from this, and likely other, reports, should be used by UD to design their research and mitigation plan.

3.5 Noise

The discussion of the impact of noise should also include an evaluation of the potential effects of noise on habitat use in the adjacent Great Marsh, which is known to provide foraging and breeding habitat for a number of species, including State listed rare birds. Are there studies in other locations indicating the effects of increased noise on nesting and foraging use? Will noise likely change any habitat utilization?

3.6 Aesthetics and Visual Resources

There is no mention of the visual impact to properties to the north and west of the project site. To the north of the project site is a wide expanse of protected and conservation lands, including Beach Plum Island Nature Preserve and Prime Hook National Wildlife Refuge. The turbine is also visible from as far away as the New Jersey coast and Slaughter Beach, Delaware. Impacts to coastal residents north of the turbine and visitors to the natural areas of coastal Delaware should also be considered in this analysis and in making a determination whether an adverse effect exists.

3.12 Unavoidable Adverse Impacts

The EA identifies several unavoidable impacts to biological resources, cultural resources, visual resources and noise generation. A mitigation and avoidance plan for minimization of these impacts should be developed and implemented.

3.9.1 Land Use

This section is a bit misleading. UD does have an easement to use the area for dredge spoils. A separate agreement between UD and the Division of Parks and Recreation allows for the construction of the wind project; no other development at the site is allowed without a separate written agreement.

Rather than saying that "County records show . . ," the text of this section should simply acknowledge that the land is owned by DNREC.

The County would have no zoning noted for the property because it is in the City of Lewes. The City controls the zoning designation for this parcel. City zoning designation should be described in this section.

This section also contains misinformation about the Great Marsh Preserve. The wetlands immediately adjacent to the wind project site are part of the Great Marsh Natural Area, as noted above.

4. Cumulative Impacts

The text of the EA reports that the University knows of no other future projects in the area that would create impacts that could be cumulative with the subject of this EA. However, the University is actively seeking opportunities to develop a commercial scale wind turbine test facility and has signed a cooperative agreement with the National Renewable Energy Lab to move forward with planning of an offshore test facility in State waters. While any test site location has yet to be decided or designed, we should point out that impacts to bird and bat populations would certainly be cumulative if additional turbines were constructed within the Lewes area, and visual and noise impacts would also likely be cumulative. In addition, the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEM) recently received interest from two wind developers in response to its Request for Interest (RFI) for commercial wind development in Federal waters offshore Lewes and Rehoboth Beach. Because no bird or bat survey data is yet available for the project, the potential for cumulative impacts is not yet known, but should be a consideration.

Appendix D

On pages 1, 12, 23 and 59, least terns are said to be listed under the federal Endangered Species Act (ESA). In fact, only the California and Interior populations are covered under the ESA.

Section 3.0
Least terns nest regularly on BPINP. Most recent nesting areas have been within 150 meters of Roosevelt Inlet. Nesting at this location should be noted on the bulleted list on pages 12 and 13.

Section 5.2
BPINP should be included as a state protected area.

Literature Cited:

Kerlinger, P. 1989. *Flight strategies of migrating hawks.* University of Chicago Press. Chicago, Ill. 375 pp.

Sjollema, A., email communication with Holly Niederriter, DNREC Natural Heritage Program January, 2010

Stringer, Jeffrey W.; Loftis, David L., eds. 1999. Proceedings, 12th central hardwood forest conference; 1999 February 28-March 1-2; Lexington, KY. Gen. Tech. Rep. SRS-24. Asheville,NC: U.S. Department of Agriculture, Forest Service.

STATE OF DELAWARE
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August 27, 2010

Dr. Jane Summerson
Office of Energy Efficiency and Renewable Energy
US Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Re: Delaware Department of Natural Resources and Environmental Control comments regarding the Draft Environmental Assessment of the University of Delaware Lewes Campus Onsite Wind Energy Project - **Supplemental**

Dear Dr. Summerson:

This letter is a supplement to comments filed by DNREC on August 13, 2010 regarding the Draft Environmental Assessment (EA) for the University of Delaware Lewes Campus Onsite Wind Energy Project. I would like to add to and clarify some statements made in the aforementioned letter.

This agency wholeheartedly supports moving Delaware's energy generation portfolio toward a greater reliance on renewable sources. The University of Delaware wind turbine that is the subject of the EA is another important element in this goal. You may know that DNREC was instrumental in the passage of legislation this year that establishes a goal of having 25 percent of our energy supply generated by renewable sources by 2025 – one of the most aggressive goals in the nation. Our previous letter perhaps did not strongly enough endorse the project or the importance we place on finding clean renewable energy sources upon which to base our future – and our appreciation to the University for its leadership in this arena.

We do not believe that the environmental or other issues we raised in our previous comments rise to a level of significance whereby a Finding of No Significant Impact could not be issued by DOE.

We should also clarify our suggestions for mitigation and additional study to determine environmental impacts. The EA correctly points out several areas, especially with respect to avian and bat issues, where additional research on the impacts of the facility is needed. We support that research and the development of a monitoring plan for the future and stand ready to assist the University where requested. It is premature to suggest that any mitigation is warranted at this time, but should data suggest unanticipated impacts beyond those identified in the EA and

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that rise to a level of significant concern, DNREC would be willing to work with the University to determine if any measures could be reasonably implemented to minimize those impacts.

With respect to shadow flicker and noise, the EA notes that neither of these issues is expected to be at all significant, nor do these impacts appear to violate any state standards or protocols with respect to these issues. We noted these minimal impacts in our comments, and therefore our suggestion for mitigation is inconsistent and unwarranted at this time.

Our comments on Section 3.6 of the EA (Aesthetics and Visual Resources) require clarification. In our comments we note that the EA failed to consider visual impacts to the north and west of the subject property and as far away as New Jersey. We did not mean to suggest that such impacts were, in the opinion of this agency, at all significant, simply that they were not mentioned in the EA.

Finally, in our comments concerning cumulative impacts, we failed to note for DOE that we have, in recent communications with the University, informed it that any additional development of turbines in the waters of the Delaware Bay would be problematic and not likely to be permitted given the lack of resource data and the sensitivity of environmental, transportation and other issues. In addition, we understand that the University has no additional plans for another on-shore unit. Though the University desires to develop an offshore test site in state jurisdictional ocean waters, we believe the likelihood of cumulative impacts from other turbines in the Lewes vicinity is minimal but would be better able to make a judgment about cumulative impacts with additional avian and bat survey data once a site is selected.

Thank you for the opportunity to furnish additional comments.

Sincerely,

David S. Small
Deputy Secretary

UNIVERSITY OF DELAWARE

COLLEGE OF EARTH, OCEAN, AND ENVIRONMENT

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Delaware Coastal Zone Management Zone Program
Federal Consistency Certification

Applicant: University of Delaware

Contact: Dr. Nancy Targett, Dean
University of Delaware
College of Earth, Ocean, and Environment
111 Robinson Hall
302.831.2841

State of Consistency: The University of Delaware (UD) has determined that the UD Lewes Wind Turbine Project complies with Delaware's approved Coastal Management Program and has been conducted in a manner consistent with such program.

Necessary Data and Information: Below is a list of information compiled to comply first with state and then federal NEPA requirements.

1. ***Activity.*** The activity consisted of the installation of a single, 2-megawatt Gamesa G-90 wind turbine on a dredge spoils area adjacent to UD's College of Earth, Ocean, and Environment (CEOE) campus in Lewes, Delaware. UD owned the dredge spoils area until July 19, 2002, when it was conveyed to the State. At that time, UD retained an easement on the dredge spoils area. DNREC Division of Parks and Recreation manages the conveyed property. On February 2, 2010, DNREC and UD entered into an agreement confirming and clarifying that under the easement UD could utilize the dredge spoils area for any lawful purpose, including the placement of a wind turbine. The Great Marsh borders the dredge spoils area and Canary Creek is approximately 0.2 mile to the northwest, and the Roosevelt Inlet of Delaware Bay, about 0.3 mile to the northeast. Land disturbance for the project was limited to the dredge spoils area. It included a foundation and an approximate 3,200 square-foot pad associated with the foundation, and a construction laydown area of approximately 200 by 100 feet. There was an existing gravel road that runs from Pilottown Road to the dredge spoils area; this road was upgraded to support delivery of the wind turbine. There are no regulated wetlands on the project site, although DNREC has indicated that the existing access road crosses a small, non-jurisdictional wetland that does not trigger state or federal permitting. UD initially considered six possible locations for the wind turbine project and

met with DNREC Regulatory Advisory Service (RAS) in August 2009, As documented in an August 31, 2009 letter and memorandum from DNREC, DNREC preferred that the project be located between proposed locations 1 and 2, and that the site be accessed by the existing road so as to avoid sensitive habitat, including wetlands, and to accommodate DNREC's desire to construct a boat access road on a portion of the dredge spoil site. UD modified the location of the project consistent with DNREC's preferences. The Coastal Management Program by letter dated December 23, 3009 (we assume, 2009), stated that the location selected will "minimize potential impacts to significant coastal resources." Also by letter dated December 23, DNREC's Division of Fish and Wildlife stated that it believed that the project "will not have significant population-level effects on wildlife" and later described the expected effects as "minimal." DNREC's Wetland and Subaqueous Lands Section determined on December 22, 2009, that the turbine location and access road are outside of any regulatory wetlands. DNREC approved UD's Sediment and Stormwater Plan on March 1, 2010 (No. 2010-006). After the project was complete, DNREC concluded its stormwater review on July 1, 2010, noting that "All disturbed areas were seeded, stabilized, and have reached acceptable vegetation stabilization. The site was in excellent condition at the time of review." DNREC issued the project a dewatering permit (No. 230685) on March 30, 2010. By letter dated August 27, 2010, DNREC Deputy Director David Small informed the US Department of Energy, that DNREC had no objections to DOE issuing a Finding of No Significant Impact (FONSI) under the NEPA process.

2. ***Review of DCMP Comprehensive Update and Routine Program Implementation.*** This indicates that the project is consistent with DCMP policies, including:

    a. *Coastal Waters Management*—DNREC approved UD's Sediment and Stormwater Plan on March 1, 2010 (No. 2010-006). After the project was complete, DNREC concluded its stormwater review on July 1, 2010, noting that "All disturbed areas were seeded, stabilized, and have reached acceptable vegetation stabilization. The site was in excellent condition at the time of review."

    b. *Subaqueous Lands and Coastal Strip*—DNREC's Wetland and Subaqueous Lands Section determined on December 22, 2009, that the turbine location and access road are outside of any regulatory wetlands.

    c. *Public Lands Management*—UD owned the dredge spoils area until July 19, 2002, when it was conveyed to the State. At that time, UD retained an easement on the dredge spoils area. DNREC Division of Parks and Recreation Manages the conveyed property. On February 2, 2010, DNREC and UD entered into an agreement confirming and clarifying that under the easement UD could utilize the dredge spoils area for any lawful purposes, including the placement of a wind turbine.

    d. *Historical and Cultural Areas*—The State Historical Preservation Officer concluded that the project activities "did not disturb any archeological resources." (July 19, 2010) letter.

2

e. *Living Resources*—Studies conducted prior to construction indicated that there would be no population level impact on wildlife. However, in a letter dated, September 30, 2010, from Nancy Targett, Dean, to US FWS, UD committed to undertaking a post-construction avian and bat monitoring beginning in spring 2011 and to set up an advisory committee that will include US FWS and DNREC. UD also agreed to institute adaptive management if species-specific thresholds are exceeded.

f. *Air Quality Management*—No permits were required.

3. ***Other Issues Relevant to the CZMA Consistency Request.***

a. Under the CZMA, state coastal zone management plans may only include enforceable policies (as embodied, e.g., in laws and regulations). In other words, the CZMA does not provide DNREC with additional policies to regulate the activities in the coastal zone, it merely ensures that activities that would otherwise not be required to go through state processes to be consistent with state policies. As the state process concluded prior to the federal process, and UD was in compliance with all enforceable state policies, as recognized by DNREC in that state process, UD also is in compliance with the requirements of the CZMA.

b. While DNREC encouraged UD to undertake pre- and post-construction avian and bat monitoring studies, in the state process, no such studies were required as a matter of law. Nevertheless, UD employed an experienced contractor to undertake a Phase 1 Avian Risk Assessment. That assessment concluded that "impacts are likely to be minimal and not biologically significant." UD also employed contractors to undertake visual, acoustic, and shadow flicker studies. These and other studies can be found at http://www.ceoe.udel.edu/lewesturbine/background.shtml and at http://nepa.energy.gov/1469.htm. Information on public fora organized by and public outreach undertaken by UD can be found at http://www.ceoe.udel.edu/lewesturbine/news.shtml. By letter dated, September 30, 2010, from Nancy Targett, Dean, to US FWS, UD committed to undertaking post-construction avian and bat monitoring beginning in spring 2011. With this, UD has gone beyond the DCMP.

4. **Determination of Consistency with Requirements.** Based on a review above, the UD Wind Turbine Project proposed by UD (applicant), its associated facilities and their effects are all consistent with the enforceable policies of the Delaware Coastal Management Program.

Signature Nancy M. Targett **October 15, 2010**

Nancy Targett
Dean, College of Earth, Ocean, and Environment
University of Delaware

3

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES & ENVIRONMENTAL CONTROL
DIVISION OF SOIL AND WATER CONSERVATION
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

DELAWARE COASTAL
MANAGEMENT PROGRAM

TELEPHONE: (302) 739-9283
FAX: (302) 739-2048

October 29, 2010

Dr. Nancy Targett
Dean, College of Earth, Ocean and Environment
University of Delaware
111 Robinson Hall
Newark, DE 19716-3501

RE: Delaware Coastal Management Federal Consistency Certification
University of Delaware Lewes Wind Turbine (FC 11.006)

Dear Dr. Targett:

The Delaware Coastal Management Program (DCMP) has received and reviewed your consistency determination request and supplemental material for the above referenced project. Based upon our review and pursuant to National Oceanic & Atmospheric Administration regulations (15 CFR 930), the DCMP conditionally concurs with your consistency determination for federal funding from the U.S. Department of Energy for the construction of a 2-megawatt Gamesa G-90 wind turbine on a State-owned dredge spoils area adjacent to the University's campus in Lewes, Sussex County, Delaware. The intended purpose of this project is to provide research opportunities on technical aspects of wind turbine operations in coastal environments and to provide a carbon-free source of energy for the Lewes campus.

This concurrence is based upon the following conditions:

1. The University will develop and implement a monitoring plan to assess impacts to birds and bats resulting from the operation of this turbine, as set forth in your letter dated September 30, 2010 to Dr. Leopoldo Miranda, Supervisor of the U.S. Fish and Wildlife Service Chesapeake Bay Field Office. This study will commence no later than spring, 2011.

2. The University shall institute adaptive management practices should impacts exceed thresholds for species of concern, as set forth in your letter dated September 30, 2010 to Dr. Leopoldo Miranda, Supervisor of the U.S. Fish and Wildlife Service Chesapeake Bay Field Office.

October 29, 2010
FC 11.006
Page 2 of 2

3. The University shall convene an advisory committee to provide guidance and assistance with the development of the monitoring plan, assessment of impact thresholds and implementation of adaptive management practices as set forth in your letter dated September 30, 2010 to Dr. Leopoldo Miranda, Supervisor of the U.S. Fish and Wildlife Service Chesapeake Bay Field Office.

4. The University shall provide copies of monitoring reports to this office.

If you have any questions please do not hesitate to contact me or Susan Love of my staff at (302) 739-9283.

Sincerely,

Sarah W. Cooksey, Administrator
Delaware Coastal Programs

SWC/sel

Cc: David Small, OTS
Phil Cherry, OTS
Lee Ann Walling, OTS
Karen Bennett, DFW
Eugene Moore, DFW
Jane Summerson, USDOE

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-WTE-10287-OE

Issued Date: 12/30/2009

Nancy Targett
University of Delaware
111 Robinson Hall
Newark, DE 19716

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Wind Turbine University of Delaware - Lewes Wind Turbine
Location:	Lewes, DE
Latitude:	38-46-58.55N NAD 83
Longitude:	75-09-53.92W
Heights:	415 feet above ground level (AGL)
	426 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 12/30/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

Page 1 of 2

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. This determination is based, in part, on the foregoing description which includes specific coordinates and heights . Any changes in coordinates will void this determination. Any future construction or alteration requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

If we can be of further assistance, please contact our office at (404) 305-7081. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2009-WTE-10287-OE.

Signature Control No: 659536-121164066 (DNE -WT)
Michael Blaich
Specialist

Page 2 of 2

Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

Timothy A. Slavin, Director, State Historic Preservation Officer
Delaware Department of State, Division of Historic and Cultural Affairs
21 The Green
Dover, DE 19901

April 30, 2010

Dear Mr. Slavin:

SUBJECT: University of Delaware – Lewes Campus Onsite Wind Energy Project, Sussex County, Delaware

The U.S. Department of Energy (DOE) is proposing to provide funding to the University of Delaware (UD) to install a 1- to 2-megawatt wind turbine adjacent to its College of Marine and Earth Studies campus in Lewes, Delaware. Because a portion of the project would be funded by an appropriation through DOE, this project must meet requirements for federal actions under Section 106 of the National Historic Preservation Act.

The wind turbine would be interconnected to the UD facility and would be used for research and development purposes as well as supplying electrical energy to the campus and electrical grid. Attachment 1 to this letter shows the proposed location of the turbine on the U.S. Geological Survey's Lewes Quadrangle, 7.5 Minute Series map. The hub of the wind generator would be at a height of 80 meters (262 feet) above the ground surface. The diameter of the rotor would be 90 meters (295 feet); so the top of the rotor would extend half that distance above the hub (409 feet). The proposed construction, or installation, location is an existing dredge spoils area to the west of the UD campus, roughly 1,200 feet from the nearest campus facility. In addition, it is at least 1,200 feet from the nearest residence. Land disturbance at the turbine site would include a 1,200-square-foot pad with a deep foundation system, a transformer, and a construction laydown area of roughly 200 by 100 feet in size. The project would include a new access road from the northeast into the wind turbine location. This new access road would either connect to a proposed road running between the wind turbine location and the UD campus and extending to Pilottown Road, or it would follow the existing gravel access road that currently extends to Pilottown Road. The proposed road, running between the wind turbine location and the UD campus, is not part of this proposed action. Attachments 2 and 3 provide aerial views of the project site: the first showing the location of the University of Delaware campus in the general Lewes area, and the second showing a closer view of the campus and its relation to the proposed wind turbine location.

DOE has no reason to believe the project would cause any effects to historic or archaeological resources in the Lewes area; the site is vacant land that has been used as a dredge spoils area. The wind turbine would, however, be visible from a relatively large area. An environmental assessment currently is being prepared for this project to meet the requirements of the National Environmental Policy Act. A copy of the assessment will be sent to your office for review and comment later this year.

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To aid in the preparation of this environmental assessment, and to meet obligations under Section 106 of the National Historic Preservation Act to take into account the effects of undertakings by federal agencies on historic properties, DOE is requesting any additional information your office has on historic properties that are present within 1 mile of the proposed project site. Please respond to Jane Summerson at the following address:

Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
202-287-6188
jane.summerson@hq.doe.gov

Sincerely,

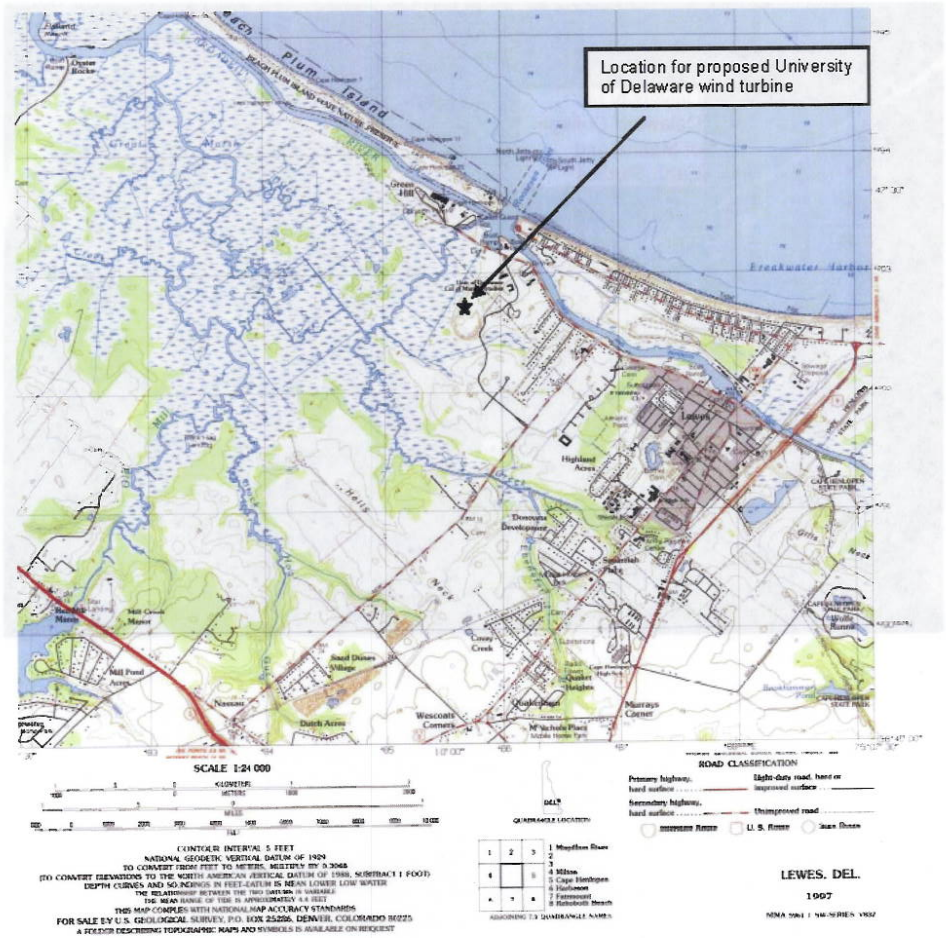
Carol Battershell
Acting Executive Director of Field Operations
Golden Field Office

Attachments

1. Site Location Map
2. Aerial view of the Lewes, Delaware area
3. Aerial view of the University of Delaware Campus

CC w/attachments: Mr. Dan Parsons, Historic Preservation Planner
Sussex County Department of Engineering

Attachment 1: Site Location Map



Attachment 2: Aerial view of the Lewes, Delaware area

Attachment 3: Aerial view of the University of Delaware Campus

State of Delaware
Historical and Cultural Affairs

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400 Fax: (302) 739.5660

May 11, 2010

Ms. Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

RE: Wind Energy Project, University of Delaware Campus, Lewes, Sussex County, DE

Dear Ms. Summerson:

On May 5, 2010, our office received a letter from your Golden Field Office initiating consultation on a project to install a 1- to 2-megawatt wind turbine adjacent to its College of Marine and Earth Studies Campus in Lewes, DE. The letter described the dimensions and location of the wind turbine and requested information from our office on the historic properties located within a one-mile radius of the wind turbine's location.

There are seven properties listed in the National Register of Historic Places which are within one mile of the turbine's location (see enclosed map). They are:

- Lewes Historic District (S-290) – portion of the district along Pilottown Road between Queen and Marina Streets
- William Russell House (S-160) – 410 Pilottown Road (listed individually but also within the Lewes Historic District boundaries)
- Thomas Maull House (S-175) – 542 Pilottown Road
- Fisher's Paradise (S-140) – 624 Pilottown Road
- DeVries Pallisade Site (S-174) – Southeast side of Pilottown Road, north of New Road
- Pagan Creek Dike (S-314) – Canary Creek, north of New Road
- Roosevelt Inlet Shipwreck Underwater Archaeological Site (S-10147) – Lewes Harbor

Seven additional historic buildings and structures have been identified within the one-mile radius; we believe these are not eligible for the National Register. Nine additional archaeological sites have been identified within this area; their eligibility for the National Register has not been evaluated.

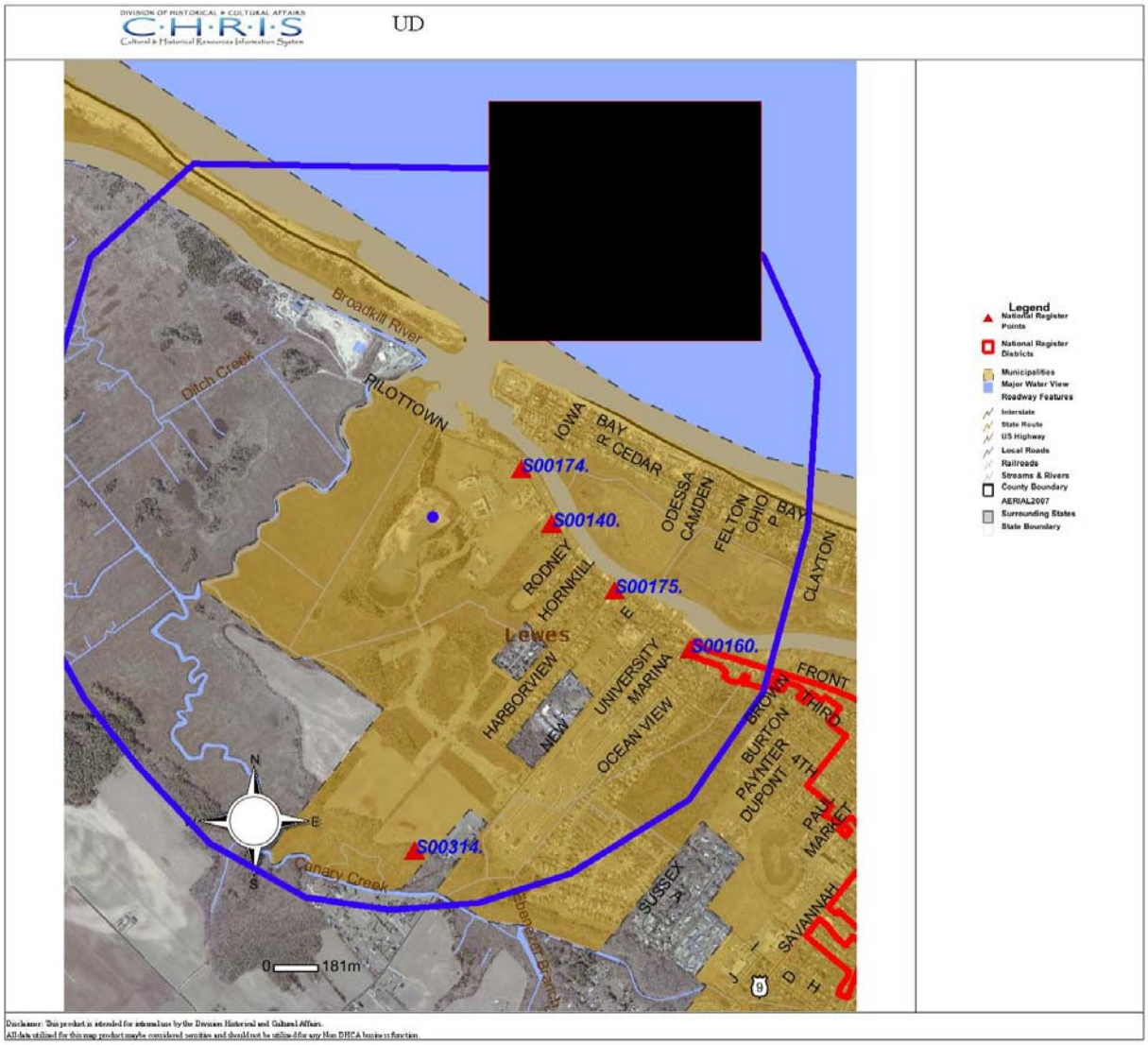
If you require further information or have additional questions, please contact me. I can be reached at 302-736-7400 or timothy.slavin@state.de.us.

Sincerely,

Timothy A. Slavin
Director and State Historic Preservation Officer

c: Carol Battershell, DOE, Golden Field Office
Dan Parsons, Sussex County

SAVING DELAWARE HISTORY


DIVISION OF HISTORICAL + CULTURAL AFFAIRS
C·H·R·I·S
Cultural & Historical Resources Information System
UD
Broadkill River
Ditch Creek
PILOTTOWN
IOWA
BAY
R. CEDAR
ODESSA
CAMDEN
FELTON
OHIO
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CLAYTON
S00174.
S00140.
S00175.
S00160.
S00314.
RODNEY
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Lewes
HARBORVIEW
NEW
UNIVERSITY
MARINA
OCEAN VIEW
BROWN
FRONT
THIRD
BURTON
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4TH
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National Register Districts
Municipalities
Major Water View
Roadway Features
Interstate
State Route
US Highway
Local Roads
Railroads
Streams & Rivers
County Boundary
AERIAL2007
Surrounding States
State Boundary
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All data utilized for this map product maybe considered sensitive and should not be utilized for any Non DHCA business function.

State of Delaware
Historical and Cultural Affairs

21 The Green
Dover, DE 19901-3611
Phone: (302) 736.7400 Fax: (302) 739.5660

May 24, 2010

Ms. Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

RE: Wind Energy Project, University of Delaware Campus, Lewes, Sussex County, Delaware

Dear Ms. Summerson:

On May 18, 2010 a field review was conducted by two archaeologists from the Delaware Division of Historical and Cultural Affairs on the site of the installed wind turbine that is adjacent to the University of Delaware's College of Marine and Earth Studies Campus in Lewes, Delaware. The purpose of this site visit was to evaluate concerns that archaeological properties may have been disturbed by the construction of the wind turbine and its access road.

Based on their findings, the archaeologists' have concluded that the wind turbine itself is located on a dredge spoil area which has been in use for several decades, and that the access road to the wind turbine site is on the same alignment as the road which allowed access to the dredge spoil site. As a result, a determination has been made that the construction of the wind turbine and access road are located on soils which have been previously disturbed, and that there are no adverse impacts to archaeological resources from this aspect of the construction.

The archaeologists did not have an opportunity to test the infrastructure and associated right-of-way related to connecting the electricity to the college or any other part of the electrical grid. Consequently, we do not know if this is above or below ground or if it is in previously disturbed corridors. When further information on this aspect of the project is provided, we will be happy to undertake an additional archaeological field review.

If you require further information or have additional questions, please contact me. I can be reached at 302-736-7400 or tim.slavin@state.de.us.

Sincerely,

Timothy A. Slavin, Director
and State Historic Preservation Officer

CC: Dan Parsons, Sussex County Preservation Planner

State of Delaware
Historical and Cultural Affairs

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400 Fax: (302) 739.5660

June 5, 2010

Ms. Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

RE: Wind Energy Project, University of Delaware Campus, Lewes, Sussex County, DE

Dear Ms. Summerson:

On June 3, 2010, we conducted a field review to assess the visibility of the Lewes Wind Turbine on the seven properties which we named in our letter of May 11, 2010 as those within a one mile radius of the site that were listed on the National Register of Historic Places. All visual assessments were from street level.

The visibility of the wind turbine at the University of Delaware Lewes Campus from the historic properties is as follows:

- Lewes Historic District (only a portion of the historic district located along Pillottown Road is within the one mile radius but other locations throughout the district were assessed) –
  - along Pilottown Road - not visible
  - along the streets running northwest from Savannah Road - not visible
  - along the streets running southeast from Savannah Road to Kings Highway - top only visible at 1½ mile distance
  - when viewing the Lewes Historic District from its eastern boundary at the bridge over the Lewes and Rehoboth Canal – top half visible at 1½ mile distance
- William Russell House (410 Pilottown Road which is listed individually but also within the Lewes Historic District boundaries) – see comments above for Pilottown Road
- Thomas Maull House (542 Pilottown Road) – not visible as it is blocked by houses and trees
- Fisher's Paradise (624 Pilottown Road) – visible through trees; visibility may be greater in winter
- DeVries Pallisade Site (SE side of Pilottown Road) – fully visible from St. Peter's cemetery and commemorative monument
- Pagan Creek Dike (Canary Creek, north of New Road0 – slightly visible through trees, seasonal loss of vegetation will increase visibility
- Roosevelt Inlet Shipwreck Underwater Archaeological Site (Lewes Harbor) – visibility not assessed

If you require further information or have additional questions, please contact me. I can be reached at 302-736-7400

or tim.slavin@state.de.us.

Sincerely,

Timothy A. Slavin
Director and State Historic Preservation Officer

c: Carol Battershell, DOE, Golden Field Office

State of Delaware
Historical and Cultural Affairs

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400 Fax: (302) 739.5660

Dan Parsons, Sussex County

State of Delaware
Historical and Cultural Affairs

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400 Fax: (302) 739.5660

July 19, 2010

Ms. Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

RE: Wind Energy Project, University of Delaware Campus, Lewes, Sussex County, DE

Dear Ms. Summerson:

On July 16 , Mr. Craig Lukezic, an archaeologist from our office visited the site of the wind turbine adjacent to the College of Marine and Earth Studies Campus in Lewes, DE. The Assistant Director, Mr. Joseph Scudlark, met with Mr. Lukezic and walked him through the buried utility corridor. Mr. Lukezic observed that the installation of the utility connection occurred in an area that was previously disturbed by the dredging operations and the wind turbine project did not disturb any archaeological resources.

If you require further information or have additional questions, please contact me. I can be reached at 302-736-7400 or timothy.slavin@state.de.us.

Sincerely,

Timothy A. Slavin
Director and State Historic Preservation Officer

c: Carol Battershell, DOE, Golden Field Office
Dan Parsons, Sussex County

SAVING DELAWARE HISTORY

Department of Energy
Washington, DC 20585

October 18, 2010

Timothy A. Slavin
Director, State of Delaware Historical and Cultural Affairs
State Historic Preservation Officer
21 The Green
Dover, DE 19901-3611

Re: Wind Energy Project, University of Delaware Campus, Lewes, Sussex County, DE

Dear Mr. Slavin:

The U.S. Department of Energy (DOE) is in the process of completing its final Environmental Assessment (EA) of the *University of Delaware, Lewes Campus Onsite Wind Energy Project* (DOE/EA-1782). DOE has prepared this EA pursuant to its obligations under the *National Environmental Policy Act* (NEPA) to evaluate the environmental impacts of providing Federal financial assistance to the University of Delaware (UD) for an onsite wind turbine (Wind Energy Project) adjacent to the College of Earth, Ocean, and Environment Campus located in Lewes, Delaware. DOE is coordinating its NEPA efforts with its responsibilities under Section 106 of the *National Historic Preservation Act* (NHPA), and this EA reflects scoping, identification of historic and cultural properties, assessment of effects on them from the construction and operation of the Wind Energy Project, and consultation efforts as prescribed in the Advisory Council on Historic Properties' implementing regulations for the NHPA found at 36 Code of Federal Regulations (CFR) 800.8.

In this letter, DOE provides you with a summary of actions that DOE undertook to comply with the requirements of Section 106 and seeks concurrence from the Delaware State Historic Preservation Office (SHPO) on a proposed determination by DOE of "no adverse effects" for this Federal undertaking. DOE would like to conclude consultation and therefore would appreciate your reply as soon as possible.

Background

As you are aware from your July 2010 review, the Draft EA analyzed impacts that occurred during construction of the wind turbine as well as potential environmental impacts that may occur during the turbine's operation. At the time the Draft EA was finalized, the University of Delaware had already completed construction of a single, 2-megawatt wind turbine and associated project components (including a transformer and construction pad) in an existing dredge spoils area adjacent to the campus; construction of an access road to the turbine site; and installation of an underground electric conduit directly into University facilities. The Area of Potential Effects (APE), used to determine possible effects to historic and cultural properties from the Wind Energy Project, is a 1-mile radius around the project site. DOE received one comment during the 60-day public comment period for the Draft EA that raised potential concerns about impacts on historic properties, namely visual impacts of the wind turbine on the Town of Lewes.

DOE initiated Section 106 consultation in an April 30, 2010, letter from DOE's Golden Field Office to the Delaware SHPO. In early 2009, a cultural resources survey and report was prepared for the project's APE to identify historic properties. Initial findings in the EA were based on conclusions from

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that report and on the information contained in your letter of May 11, 2010. That letter identified seven properties[1] listed in the *National Register of Historic Places* (National Register) and also listed seven additional historic buildings and structures within the APE not believed to be eligible for the National Register and nine archaeological sites for which eligibility had not yet been evaluated.

Moreover, in May and July 2010, archaeologists from your office conducted site visits in order to determine whether adverse impacts to archaeological resources resulted from the construction of the wind turbine and its access road or from installation of its utility connection. Your letters dated May 24, 2010 and July 19, 2010 confirmed that neither activity disturbed archaeological resources.

Your office also conducted a field review to assess the visibility of the Wind Energy project on the seven properties listed in the May 11, 2010 letter. Your letter of June 5, 2010 recounted that the Wind Energy Project is visible to portions of the Lewes Historic District and DeVries Pallisade and may be visible seasonally at the William Russell House, Fisher's Paradise, and Pagan Creek Dike sites.

Eagles, Eagle Habitation, and American Indian Tribes

Because the Wind Energy Project is located near important salt marsh habitat, DOE/EA-1782 addresses the potential impacts to raptors, including eagles, as well as other birds. The potential impacts to eagles is of particular importance to DOE's Section 106 consultation effort because eagles or eagles nests, or both, may be sacred sites to American Indian Tribes, thus making the landscape associated with them eligible for the National Register and subject to protection under Section 101(d)(6)(a) of the NHPA.

In May and June 2010, DOE contacted Tribes that may have had a current or historic presence near the Wind Energy Project site in an effort to determine whether potential eagle habitation nearby might render the landscape a potential historic property of religious and cultural importance. In letters sent to three Federally-recognized Tribes (The Delaware Nation, the Delaware Tribe of Indians, and the Stockbridge-Munsee Community of Wisconsin), and two State-recognized Tribes (the Nanticoke Indian Association and the Lenape Indian Tribe of Delaware), DOE asked the Tribes if eagle habitation is sacred to them. Only the Lenape Indian Tribe responded in the affirmative. In an August 17, 2010, letter to DOE, the Lenape Indian Tribe explained that the Lenape people hold eagles and eagle habitat in high regard and shared that some Lenape men wore a single eagle feather in their headdresses to display reverence to the animal. The letter also stated, however, that the Tribe's review indicated no religious or culturally significant sites in the project area.[2]

Because of the uncertainty about potential impacts to birds and bats by the operating wind turbine generally, and in an effort to minimize impacts to eagles, which are religiously and culturally significant to the Lenape people, DOE will require as a condition of funding that UD implement a monitoring and adaptive management plan for reducing impacts to wildlife. The plan will be developed jointly with the

[1] Historic properties within the APE are identified as follows: Lewes Historic District, William Russell House, Thomas Maull House, Fisher's Paradise, DeVries Pallisade Site, Pagan Creek Dike, and Roosevelt Inlet Shipwreck Underwater Archeological Site.

[2] In a response dated May 25, 2010, the Stockbridge-Munsee Tribal Historic Preservation Officer indicated the University of Delaware wind turbine location was not an area of the Tribes concern. The Delaware Nation responded in a letter dated June 16, 2010, that they would be a consulting party on the project and that the Cultural Preservation Director would be making a determination after review of the project. In a letter dated August 4, 2010, the Tribe Historic Preservation Office of the Delaware Tribe of Indians responded that their review indicated no religious or culturally significant sites in the project area, so they would defer any comments in that regard to the State Historic Preservation Office or the State Archaeologist. The Delaware Tribe of Indians' letter also indicated the Tribe wished to continue as a consulting party and asked that project development be ceased immediately and the Tribe be notified if any human remains were uncovered.

University, US FWS, Delaware Department of Natural Resources and Environmental Control, and nongovernmental conservation groups interested in the Federal undertaking. DOE is in communication with the Lenape Indian Tribe regarding this effort and will provide all five Tribes with which it consulted with a final EA as documentation of UD's efforts to minimize potential adverse effects to sacred cultural resources of American Indian Tribes.

Visual Impacts

Your letter of June 5, 2010 concluded that the UD Wind Energy Project is visible to portions of the Lewes Historic District and DeVries Pallisade and may be visible seasonally at the William Russell House, Fisher's Paradise, and Pagan Creek Dike sites. However, the letter did not characterize these effects as adverse (36 CFR Part 800.5(a)(1)), and DOE received one comment that raised potential concerns about impacts on historic properties, namely visual impacts of the wind turbine on the Town of Lewes. Therefore, DOE seeks your concurrence on a finding of "no adverse effect" for the Wind Energy Project, University of Delaware Campus, Lewes, Delaware, under the provisions of Section 106 of the NHPA. Please provide your concurrence in writing so that it may be added to the administrative record to evidence DOE's full compliance with its Section 106 consultation responsibilities.

If you have any questions or concerns, you may contact me at Jane.Summerson@EE.doe.gov or 202-340-3626. Please accept my thanks for your cooperation and assistance.

Sincerely,

Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

State of Delaware
Historical and Cultural Affairs

21 The Green
Dover, DE 19901-3611

Phone: (302) 736.7400 Fax: (302) 739.5660

October 22, 2010

Ms. Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

RE: Wind Energy Project, University of Delaware Campus, Lewes, DE

Dear Ms. Summerson:

Thank you for your letter of October 15 in which you have provided us with a summary of the actions which the Department of Energy (DOE) took to comply with the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended. In a letter dated May 10, 2010, our office provided a list of seven (7) historic properties which were within a one-mile radius of the wind turbine. In subsequent letters we provided you with comments on both the visual effect of the wind turbine on these historic properties, one of which is an historic district, and of potential impacts to archaeological sites in the areas where the project resulted in ground disturbing activities. In your letter you indicate that only one person has objected to the visual effects of the project during the public comment period allowed for in your Draft Environmental Assessment. Our findings are that there has been no disturbance to any significant archaeological sites.

Therefore, we concur with your finding that the construction of the wind turbine will not adversely effect any properties listed on or eligible for listing on the National Register of Historic Places.

If you have questions, please contact me. I can be reached at timothy.slavin@state.de.us or 302-736-7400.

Sincerely,

Timothy A. Slavin
State Historic Preservation Officer

c: C. Daniel Parsons, Sussex County Preservation Planner

SAVING DELAWARE HISTORY

Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

Mr. Devon Ray
Chesapeake Bay Field Office
U.S. Fish and Wildlife Service
177 Admiral Cochrane Drive
Annapolis, MD 21401

April 30, 2010

Dear Mr. Ray:

SUBJECT: U.S. Department of Energy Request for Species and Critical Habitat List for University of Delaware – Lewes Campus Onsite Wind Energy Project, Sussex County, Delaware

The U.S. Department of Energy (DOE) is proposing to provide financial assistance to the University of Delaware (UD) for the installation of a 1- to 2-megawatt wind turbine adjacent to its College of Marine and Earth Studies campus in Lewes, Delaware. To comply with Section 7(a)(2) of the Endangered Species Act, and the implementing regulations at 50 CFR 402.12(c,d), the DOE is requesting a list of any listed or proposed species or designated or proposed critical habitat that may be present in the project area.

The wind turbine would be located just west of the UD Lewes Campus. The proposed location is shown in the attached map (Attachment 1), which was copied from the U.S. Geological Survey's Lewes Quadrangle, 7.5 Minute Series map.

The wind turbine would be interconnected directly into the UD facility and its operation would include use for research and development purposes as well as providing electrical energy to the campus and to the electrical grid. The hub of the wind generator would be at a height of 80 meters (262 feet) above the ground surface. The diameter of the rotor would be 90 meters (295 feet); so the top of the rotor would extend half that distance above the hub (409 feet). The proposed construction, or installation location is an existing dredge spoils area to the west of the UD campus, roughly 1,200 feet from the nearest campus facility. In addition, it is at least 1,200 feet from the nearest residence. Land disturbance at the turbine site would include a 1,200-square-foot pad with a deep foundation system, a transformer, and a construction laydown area of roughly 200 by 100 feet in size. The project would include a new access road from the northeast into the wind turbine location. This new access road would either connect to a proposed road running between the wind turbine location and the UD campus and extending to Pilottown Road, or it would follow the existing gravel access road that currently extends to Pilottown Road. The proposed road, running between the wind turbine location and the UD campus, is not part of this proposed action. Attachment 2 and 3 provide aerial views of the project site: the first showing the location of the University of Delaware campus in the general Lewes area, and the second showing a closer view of the campus and its relation to the proposed wind turbine location.

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Please forward that list to Jane Summerson at jane.summerson@hq.doe.gov.

If you have any comments or questions about this request or the associated project, please contact Dr. Summerson at 202-287-6188.

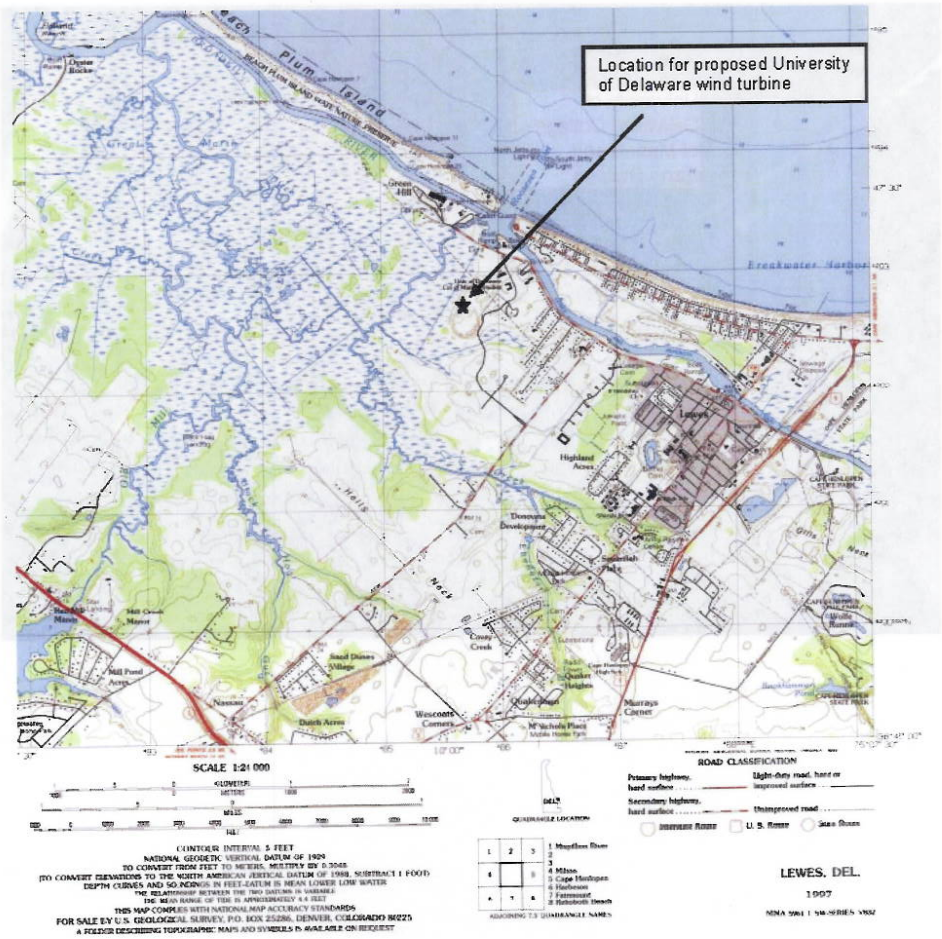
Sincerely,

Carol Battershell
Acting Executive Director of Field Operations
Golden Field Office

Attachments

1. Site Location Map
2. Aerial view of the Lewes, Delaware area
3. Aerial view of the University of Delaware Campus

Attachment 1: Site Location Map



Attachment 2: Aerial view of the Lewes, Delaware area

Attachment 3: Aerial view of the University of Delaware Campus

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
410/573-4575

July 15, 2010

Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, Colorado 80401-3393

RE: U.S. department of Energy Request for Species and Critical Habitat List for University of Delaware – Lewes Campus Onsite Wind Energy Project, Sussex County Delaware

Dear Carol Battershell:

This responds to your letter, received May 5, 2010, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The federally threatened piping plover (*Charadrius melodus*) nests within the vicinity of the above referenced project area. Piping plovers nest above the high tide line on coastal beaches, sandflats at the ends of sandspits and barrier islands, gently sloping foredunes, blowout areas behind primary dunes, sparsely vegetated dunes, and washover areas cut into or between dunes. Feeding areas include intertidal portions of ocean beaches, washover areas, mudflats, sandflats, wrack lines, and shorelines of coastal ponds, lagoons, or salt marshes. The most up to date information regarding piping plover activity or location may be obtained by contacting Holly Niederriter of the Delaware Natural Heritage Program. Data on the location of piping plover nests generally becomes available in late spring. Potential impacts on piping plover habitat should be analyzed as a part of your environmental assessment. If such impacts may occur, further section 7 consultation with the U.S. Fish and Wildlife Service may be required.

Except for occasional transient individuals, no other federally proposed or listed endangered or threatened species are known to exist within the project impact area. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Edna Stetzar of the Delaware Natural Heritage and Endangered Species Program at (302) 653-2883 ext. 126. You may also obtain information on how to make such a request by visiting the Program website at www.dnrec.state.de.us/nhp.

Effective August 8, 2007, under the authority of the Endangered Species Act of 1973, as amended, the U.S. Fish and Wildlife Service (Service) removed (delist) the bald eagle in the lower 48 States of the United States from the Federal List of Endangered and Threatened Wildlife. However, the bald eagle will still be protected by the Bald and Golden Eagle Protection Act, Lacey Act and the Migratory Bird Treaty Act. As a result, starting on August 8, 2007, if your project may cause "disturbance" to the bald eagle, please consult the "National Bald Eagle Management Guidelines" dated May 2007.

If any planned or ongoing activities cannot be conducted in compliance with the National Bald Eagle Management Guidelines (Eagle Management Guidelines), please contact the Chesapeake Bay Ecological Services Field Office at 410-573-4573 for technical assistance. The Eagle Management Guidelines can be found at:
http://www.fws.gov/migratorybirds/issues/BaldEagle/NationalBaldEagleManagementGuidelines.pdf.

In the future, if your project can not avoid disturbance to the bald eagle by complying with the Eagle Management Guidelines, you will be able to apply for a permit that authorizes the take of bald and golden eagles under the Bald and Golden Eagle Protection Act, generally where the take to be authorized is associated with otherwise lawful activities. This proposed permit process will not be available until the Service issues a final rule for the issuance of these take permits under the Bald and Golden Eagle Protection Act.

An additional concern of the Service is wetlands protection. The Service's wetlands policy has the interim goal of no overall net loss of Delaware Bay's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands proposed, the U.S. Army Corps of Engineers, Philadelphia District should be contacted for permit requirements. They can be reached at (215) 656-6728.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Andy Moser at (410) 573-4537.

Sincerely,

Leopoldo Miranda
Field Supervisor

cc: Richard Hassel, Chief, Application Section I, COE, Philadelphia, PA
Holly Niederriter, Delaware Division of Fish & Wildlife, Smyrna, DE

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
http://www.fws.gov/chesapeakebay

July 29, 2010

Dr. Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

RE: *Endangered Species Act review of Environmental Assessment for the University of Delaware Lewes Campus Wind Energy Project (DOE/EA-1782D)*

Dear Ms. Summerson:

We have reviewed the referenced document and are providing comments in accordance with Section 7 of the Endangered Species Act (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.).*
Based on the information in the Environmental Assessment and other available information, we concur with the conclusion that the proposed project is not likely to adversely affect the Federally listed piping plover (*Charadrius melodus*). Available information on piping plover habitat use and limited information on plover migratory routes is consistent with the document's conclusion that it is unlikely that piping plovers would be struck or otherwise harmed by the turbine.

However, such mortality or harm cannot be entirely ruled out based on the very limited data concerning plover movement through the area occupied or affected by the turbine. Therefore, the Fish and Wildlife Service (Service) strongly recommends the implementation of a bird mortality monitoring program during operation of the turbine. Should piping plover mortality be determined to occur at the turbine site, further consultation with the Service would be required.

Should you have any questions regarding this response, please contact Andy Moser of my Endangered Species staff at (410) 573-4537.

Sincerely,

Leopoldo Miranda
Supervisor

Cc: Karen Bennett, Delaware Division of Fish and Wildlife

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United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
http://www.fws.gov/chesapeakebay

August 17, 2010

Dr. Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

RE: *Bald and Golden Eagle Act and Migratory Bird Treaty Act review of Environmental Assessment for the University of Delaware Lewes Campus Wind Energy Project (DoE/EA-1782D)*

Dear Ms. Summerson:

Thank you for the 30-day extension to provide comments for the University of Delaware Lewes Campus Onsite Wind Energy Project. Our review and subsequent comments are in accordance with the Migratory Bird Treaty Act (MBTA)(16 U.S.C. 703-712), Bald and Golden Eagle Protection Act (BGEPA)(16 U.S.C. 668-668c) and Executive Order 13186. Comments specific to federally listed species under the Endangered Species Act that may be affected, were previously submitted by this office under separate cover.

Based on the information provided in the draft Environmental Assessment (EA), we have concerns specific to the current placement and long term operation of the 2.0-megawatt Gamesa wind turbine at the Lewes University of Delaware (UD) campus. The Service has serious concerns as to why representatives from the University of Delaware and Department of Energy (DoE) did not involve the Service with this project until well after the wind tower construction was completed. In fact, it was not until the wind turbine was in operation that a site visit was initiated with the Service. Because the wind turbine is now sited within a distinct migratory bird travel corridor of the Atlantic Flyway, there is an increased likelihood that mortality of migratory birds and bats will result. For this reason, the Service cannot support a Finding of No Significant Impact (FONSI). The Draft EA concludes that the project will have minimal potential for impacts to bird and bat populations. The Service believes that potential adverse impacts to migratory bird and bat species, and possibly bald eagles, are likely to occur given the current location of the wind turbine.

The attached comments will hopefully provide measures for UD and DoE to consider for this, and future alternative energy development proposals in order to minimize long-term adverse impacts to migratory bird and bat populations. We recommend UD to develop a research project to monitor and

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measure the effects of wind turbines on avian and bat species in the Delaware Coastal Bay. Please contact Craig Koppie of my staff at 410/573-4534 should you have any additional questions or concerns.

Sincerely,

for Leopoldo Miranda,
Field Office Supervisor

cc: Karen Bennett, DNREC

Comments from the U.S. Fish and Wildlife Service, Chesapeake Bay Ecological Field Office, Annapolis, MD 21401 in response to the Draft Environmental Assessment of the University of Delaware's Wind Energy Project, Lewes, Delaware

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1.1 NEPA and Related Procedures

The draft EA should identify and implement this Executive Order to protect migratory bird population as follows:

Executive Order 13186 - Established on January 10, 2001, identifies the responsibility of federal agencies to protect migratory birds and their habitats, and directs executive departments and agencies to undertake actions that will further implement the Migratory Bird Treaty Act. Executive Order 13186 includes a directive for federal agencies to develop a memorandum of understanding (MOU) with the Service to promote the conservation of migratory bird populations, including their habitats, when their actions have, or are likely to have, a measurable negative effect on migratory bird populations. Whereas the MBTA only protects migratory birds, Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. The Order encourages federal agencies to undertake several types of conservation actions for migratory birds including: avoiding or minimizing, to the extent practicable, adverse impacts to migratory bird resources when conducting agency activities;.....(*in part*)... and to inventory and monitor bird habitat and populations with the agency's capabilities and authorities to the extent feasible.

1.2.2 UD Purpose and Need

The purpose and need as indicated by the University does not articulate the type of research they anticipate to implement specific to wind energy. The Service recommends the following research priorities: 1) monitoring for avian and bat mortality, and 2) develop potential designs to reduce avian and bat mortality at land and off shore wind projects.

1.3.2. Department of Energy Actions

DoE did not involve all pertinent federal agencies *(i.e.,* U.S. Fish and Wildlife Service) until the project was completed, which greatly reduced opportunities to provide the full range of potential alternatives to reduce impacts to avian and bat populations from the onset. In the future, DOE needs to involve the Service during the preliminary scoping phase and not late in the process.

3.2 Biological Resources

3.2.1.1 Avian Species (Raptors)

We believe the draft EA dismisses the importance of the lower mouth of the Delaware Bay, near Lewes, as a continuing migration corridor from Cape May, NJ. It should be noted that there are several documented migration corridors throughout the United States. Within the eastern United

States, migratory birds follow natural topographic land features each spring and fall season as they trek to breeding or winter grounds in northern or southern latitudes. During these distinct periods, migratory birds follow the contours of mountain ridges and/or coastal bay shoreline formations. Birds migrating along the coast line, become more concentrated as they funnel toward the narrowing peninsula.

Within the mid-Atlantic region, two highly acclaimed bird passage areas have been monitored for decades, north and south of Lewes, Delaware. Many thousands of migrating songbirds and raptors are observed, counted and banded each year at the Cape May Bird Observatory at Cape May, New Jersey, north of Lewes. South of the Lewes Campus is an observation center located at the mouth of the Chesapeake Bay (Kiptopeake) near Cape Charles, Virginia. There, several thousand migratory birds including raptors are captured, banded and released each year, too. Previously banded birds have been encountered at both north and south banding stations over successive annual migration periods, substantiating the regular use of the migration corridor.

The UD wind tower is located near Cape Henlopen State Park at Lewes, Delaware, which is situated near the mouth of Delaware Bay. Birds traveling across the bay heading south from Cape May orient themselves to the nearest land point which is Cape Henlopen and adjacent areas including Lewes. Since 2002, bird counts have been conducted and systematically recorded at this location. Monthly and annual raptor counts at Cape Henlopen including Cape May and Kiptopeake can be found at **www.hawkcount.org**.

Species Protected Under the Bald and Golden Eagle Protection Act

The draft EA provides information specific to nesting bald eagles. According to information provided by DNREC, the nearest two nests are 3 to 5 miles from the wind turbine. We concur with DNREC that within the life of the turbine, there is the possibility of a nesting adult and/or their young to be killed by the wind turbine, especially if new nesting territories become established closer to the tower. Currently, there is not enough information on migratory bald and golden eagles in this area to determine potential frequency of mortality, if any, due to the wind turbine. The Service believes that annual (post construction) monitoring is necessary to determine mortality trends of migratory birds including eagles.

3.2.2 Environmental Consequences

3.2.2.1.2 Avian Mortalities

The southern Delaware Coastal Bay area near Lewes is a mix of inter-tidal marsh, low shrub and interspersed forest communities and open agricultural fields. These areas provide resting and feeding areas for migratory songbirds, raptors and waterfowl. The Service believes that migratory birds, including seasonal nesting birds, are vulnerable to mortality from collision with the rotor-swept area of the wind turbine. During the fall migration, the Service anticipates a higher level of mortality based on the increased numbers of birds moving through the area. Key periods of potential mortality are likely to occur during the months of September-early November as this the peak movement of the fall migration. Weather conditions and time of day play a role in the flight level in which migrating birds will travel near the wind turbine. Windy conditions and thermals during sunny days, present conditions favorable for high level soaring. However, birds are generally found at lower altitudes in

the early and late afternoon hours of the day with a greater likelihood for collision. Raptor species such as merlins, peregrine falcon, sharp-shinned and Cooper's hawks are more likely to be injured or killed as they prey on smaller birds in and around vegetative cover. Low shrub and medium height forest stands create shelter for migratory birds which currently exist close to the active wind turbine.

3.2.2.1.3 Bat Mortalities

The Service concurs with the statement in the draft EA that bats would be killed at some level. We understand that DNREC is familiar with a wind energy project similar to UD's which is located in Atlantic City area of New Jersey's shoreline. It appears that the surveys conducted there have shown 58 dead bats of two species. Using this information, they modeled an estimated mortality of 46 bats per year. We recommend that UD review their model and post construction monitoring plan including information found on the Serivce's web link specific to development of an avian and bat protection plan at http://www.fws.gov.migbird/wind).

4.0 Cumulative Impacts

The Service and DNREC anticipate other entities to surface with interest to pursue alternative energy projects here in Delaware and other near and off-shore areas of Maryland and Virginia. The Delmarva peninsula has been documented as a major migration corridor during the fall and spring for many species of songbirds, shorebirds, raptors and waterfowl. Recently, Important Bird Areas have been designated throughout the mid-Atlantic States due to unique foraging and nesting habitat found in these areas which are essential for reproduction and their continued survival.

It is imperative that as we explore new energy alternatives, appropriate minimization and mitigation plans are developed to insure that cumulative impacts are curtailed to a level not considered adverse at the population level. In this manner, the Service may be able to asses a threshold for a maximum number of wind energy projects in an ecologically important region.

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Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
http://www.fws.gov/chesapeakebay

September 24, 2010

Nancy M. Targett, Ph.D.
Dean, College of Earth, Ocean, and Environment
University of Delaware
111 Robinson Hall
Newark, DE 19716-3501

RE: University of Delaware Wind Turbine in Lewes, DE

Dear Dr. Targett:

Thank you for meeting with us on September 13, 2010 to discuss our concerns over bird and bat impacts from the operation of the 2.0-magawatt Gamesa wind turbine at the Lewes University of Delaware campus. We certainly support renewable energy sources such as windpower, and we acknowledge that the University will be conducting research and educating students with this turbine and future turbines to be erected in offshore waters of Delaware.

In an August 17, 2010 letter to the U.S. Department of Energy, we stated, "Because the wind turbine is now sited within a distinct migratory bird corridor of the Atlantic Flyway, there is an increased likelihood that mortality of migratory birds and bats will result." Because of this reason we did not support a Finding of No Significant Impact (FONSI) for the Draft Environmental Assessment.

After meeting and discussing our concerns with you and Dr. Firestone, we are encouraged by your willingness to monitor and evaluate impacts to bird and bat species as a result of this wind turbine project. As discussed in our meeting, if the University develops an Avian and Bat Protection Plan (ABPP) addressing monitoring and evaluation protocols and how the University will minimize impacts to bird and bats, the Service will be in a position to support a FONSI. This plan should outline an adaptive management approach for further minimization of impacts to bat and bird species if monitoring data shows "significant levels" of bird and bat mortality. The monitoring plan should also include clear methods, objectives, and timelines for post-construction monitoring.

During our meeting, you agreed to form an advisory group that would provide input in the development of this plan and would be comprised, at a minimum, of individuals from the Service, DNREC, and the University of Delaware. We strongly recommend that this group be

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officially formed within 30 days.

In addition to the development of an ABPP by the University, we recommend that the advisory group develops a future research plan that addresses some of the pending questions related to wildlife and windpower. We understand that, at this time, the University may not be able to make a commitment to conduct all of the research identified by this group but would consider implementing studies if funding was available. We will be glad to help you and the University with the development of future proposals and with the identification of potential funding sources to implement research projects.

If you have any questions don't hesitate to contact me at 410-573-4577 or Julie Slacum of my staff at 410-573-4517.

Sincerely,

Leopoldo Miranda
Supervisor

cc: Sarah W. Cooksey, Delaware Coastal Programs, Delaware Department of Natural Resources and Environmental Control
Scott Blake Harris, U.S. Department of Energy
Eugene Greg Moore, State of Delaware, Division of Fish and Wildlife

UNIVERSITY OF DELAWARE

COLLEGE OF EARTH, OCEAN, AND ENVIRONMENT

OFFICE OF THE DEAN

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URL: www.ceoe.udel.edu

September 30, 2010

Dr. Leopoldo Miranda
Fish and Wildlife Service
United States Department of Interior
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

Dear Dr. Miranda,

Thank you very much for your letter of September 24 concerning the environmental assessment of University of Delaware's wind turbine in Lewes, Delaware. I want to reiterate that the University appreciates your comments on steps to be taken from here. Lest there be any misunderstanding, the University is committed to the following, as discussed during your visit to the Hugh R. Sharp campus in Lewes on 13 September 2010.

- **Avian and bat monitoring.** As you know, prior to construction of the turbine we commissioned an evaluation of the impact of a single turbine in the dredge spoil area adjacent to our campus. The conclusion of that evaluation was that we should not expect to have a population level impact on any avian species found in or migrating through the area. However, that evaluation recommended that, post-construction, there be an assessment of avian and bat impacts. That became our highest post-construction research priority and we have already committed funds to such a study. In August we reached out to Greg Shriver, a coastal bird specialist in the University's College of Agriculture and Natural Resources, to ask his help in developing and implementing a study plan/protocol. You may recall that, at our September 13 meeting, Greg Moore from the Division of Fish and Wildlife, Delaware Department of Natural Resources and Environmental Control, spoke highly of Dr. Shriver. We will begin the study no later than spring 2011.

- **Advisory group.** At our meeting I suggested that an advisory group would be helpful in providing guidance as we develop and implement the plan. It would also ensure a mechanism for formal communication around this issue. We plan to create such an advisory group. Its membership will include representatives from FWS and Delaware's DNREC. Other interested parties (such as the Delaware chapter of the Audubon Society) will be welcome to participate. DNREC has already designated Greg Moore as its representative to the group. I will be in contact with you to determine who from FWS should be included. The goal is to identify the group as soon as possible (but before the end of October) and to schedule the first meeting of the advisory group by mid-November. At the meeting the advisory group will be asked to comment on the draft plan for avian and bat monitoring and assessment. We can also hear an overview of the wind-wildlife conference that Jeremy Firestone is attending from 19-21 October.

Dr. Leopoldo Miranda
Page 2
September 30, 2010

- **Adaptive Management.** The original evaluation on avian impact suggested that the wind turbine would be well below any thresholds for population level avian and bat impact. As we collect and analyze the data, we will have seasonal place-based information that we can use to evaluate the actual impact (as opposed to projected impact). When we met, we talked about the fact that different species have different impact thresholds. The data collected through the study will allow us to evaluate this in a species specific way, and in consultation with FWS and the rest of the advisory group, to determine if species specific thresholds are being exceeded. If yes, we are prepared to institute adaptive management practices.

I look forward to working with the FWS as we move forward on this project. The UD coastal wind turbine provides an opportunity to conduct research on a host of issues relevant to the next generation of wind power technologies in the US and to provide real data assessments that will inform other projects. It is our hope and expectation that, in light of the commitments we made at our September 13 meeting and reiterate in this letter, the FWS will now support a Finding of No Significant Impact and will communicate that support to the United States Department of Energy so that the environmental assessment can be completed.

We thank you for your assistance and cooperation.

Sincerely,

Nancy M. Targett

Nancy Targett
Dean, College of Earth, Ocean, and Environment

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
http://www.fws.gov/chesapeakebay

November 3, 2010

Dr. Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585

RE: Support of a FONSI for the Environmental Assessment for the University of Delaware Lewes Campus Wind Energy Project (DoE/EA-1782D)

Dear Dr. Summerson:

In our previous letter to you dated August 17, 2010, we stated that we could not support a Finding of No Significant Impact (FONSI) for the Environmental Assessment (EA) for the Delaware Lewes Campus Wind Energy Project due to potential impacts on birds and bats. On September 13, 2010 we met with Dr. Nancy Targett and Dr. Jeremy Firestone from the University of Delaware to discuss our issues and concerns about siting, constructing, and operating the wind turbine before consulting with the Fish and Wildlife Service (Service) under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

We requested that the University develop an Avian and Bat Protection Plan, addressing monitoring and evaluation protocols, and adaptive management. We also requested that there be an Advisory Group formed this winter, which would include representation from the Service, DNREC, and DE Audubon Society. This group would provide input in the development of the plan and would also assess whether minimization measures (curtailment) would need to be implemented as post construction data becomes available.

In a September 30, 2010 letter from the University of Delaware, they committed to develop an Avian and Bat Protection Plan, and have agreed to form an Advisory group by mid-November.
We believe that the University's commitment to do these things will enable us to support a FONSI for the draft EA developed for this project. If you have any questions feel free to call me at 410-573-4577 or Julie Slacum of my staff at 410-573-4517.

Sincerely,

Leopoldo Miranda

TAKE PRIDE® IN AMERICA

Department of Energy
Washington, DC 20585

May 20, 2010

Mr. Kerry Holton, President
The Delaware Nation
P.O. Box 825
Anadarko, Oklahoma 73005

SUBJECT: University of Delaware – Lewes Campus Onsite Wind Energy Project, Sussex County, Delaware

Dear Mr. Holton:

The U.S. Department of Energy (DOE) is proposing to provide funding to the University of Delaware (UD) to install a 2-megawatt wind turbine adjacent to the College of Earth, Ocean, and Environment campus located in Lewes, Delaware. The UD recently completed installation of the wind turbine, but DOE must fulfill its obligations under the *National Environmental Policy Act* (NEPA), the *National Historic Preservation Act*, and the *Native American Graves Protection and Repatriation Act* before a decision can be finalized on whether to provide funding in support of the project. This letter is to inform you of DOE's intent to prepare and release for public review an environmental assessment addressing the potential environmental consequences of the wind turbine action.

The wind turbine will be interconnected to the UD facility and will be used for research and development purposes as well as supplying electrical energy to the campus and electrical grid. Attachment 1 to this letter shows the location of the turbine on the U.S. Geological Survey's Lewes Quadrangle, 7.5 Minute Series map. The hub of the wind generator is at a height of 262 feet above the ground surface. The diameter of the rotor is 295 feet; so the top of the rotor extends half that distance above the hub. The construction, or installation location is an existing dredge spoils area to the west of the UD campus. This is roughly 1,200 feet from the nearest campus facility, and further from any Lewes residences. Land disturbance at the turbine site includes a 3,200-square-foot octagonal foundation, a transformer, and a construction laydown area of roughly 200 by 100 feet in size.

The project site is accessible by an existing access road extending from Pilottown Road in the northeast to the wind turbine location. Some improvements to this road were necessary in order to transport the wind turbine and other components from Pilottown Road to the wind turbine location. At the completion of the project, the access road will either remain as is, or connect to a new road proposed by the State of Delaware that will run between the campus and the wind turbine and connect at Pilottown Road. The proposed new State road is being built to provide greater access to a boat launch and is not part of this proposed project. Attachment 2 provides two aerial views of the project site: the first shows the location of the University of Delaware campus in the general Lewes area, and the second shows a closer view of the campus and its relation to the wind turbine location.

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DOE does not have any reason to believe the project would affect tribal resources or artifacts; however, the State Historic Preservation Officer has indicated there are nine archeological sites within one mile of the turbine location. None of these sites have been evaluated for their eligibility for the National Register. An environmental assessment currently is being prepared for this project to meet the requirements of the National Environmental Policy Act. A copy of the assessment will be sent to you for your review and comment.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the UD Wind Energy Project and any comments or concerns you have on the potential for this Project to affect these properties. This information is being requested to aid in the preparation of the environmental assessment and to meet DOE's obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about the UD Wind Energy Project, please contact Jane Summerson of the DOE as soon as possible at the address listed in the signature block below.

Sincerely,

J Summerson Ph D

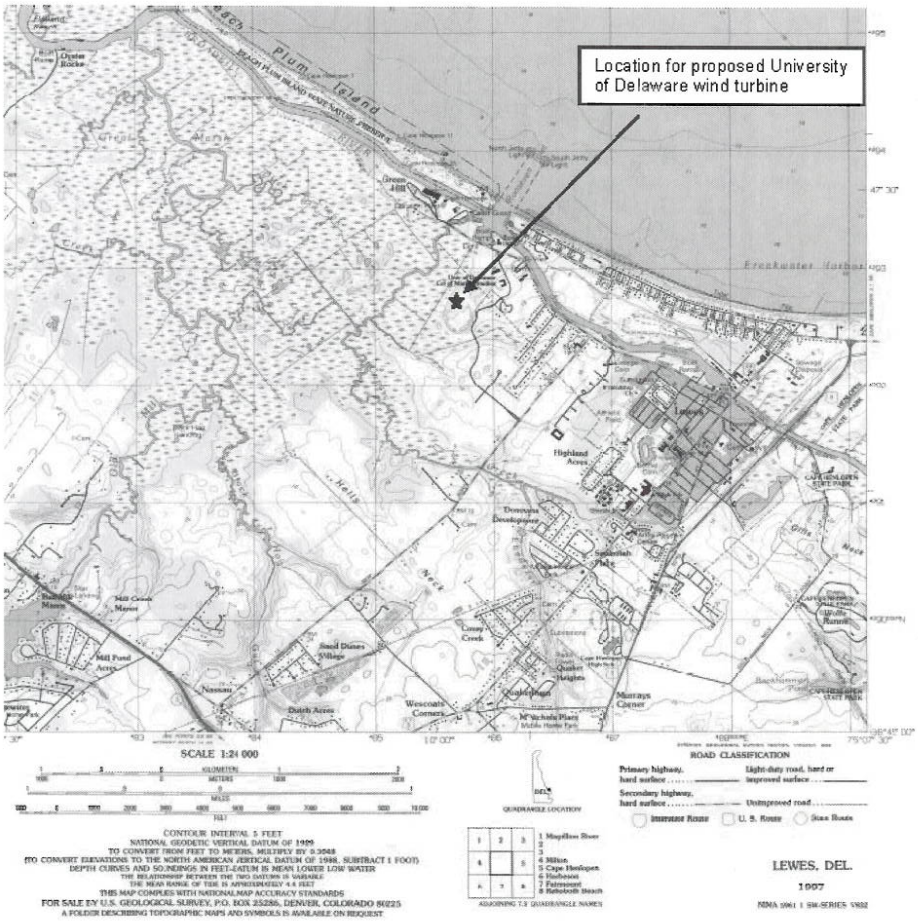
Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
(202) 340-9626
Jane.Summerson@EE.Doe.Gov

Attachments

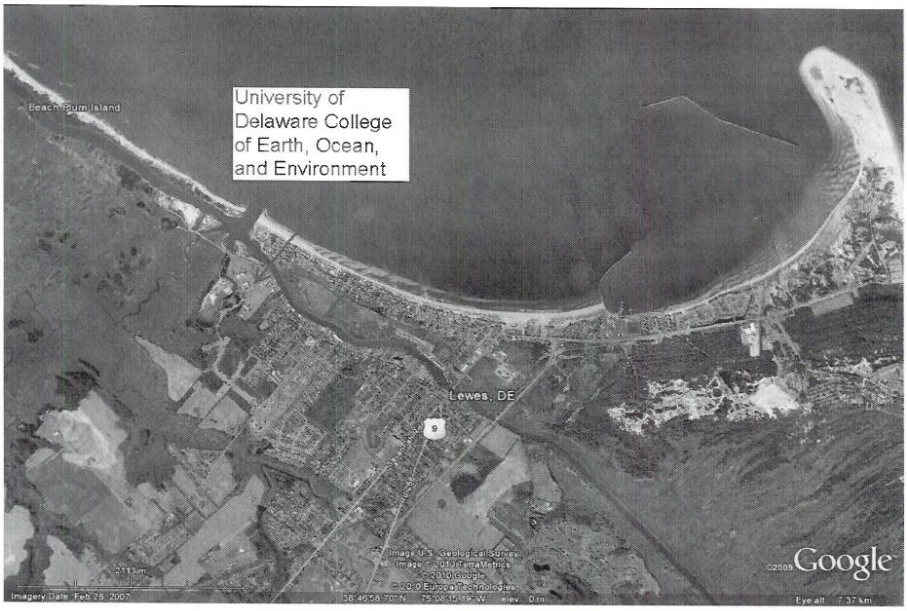
1. Site Location Map
2. Aerial views of the Lewes, Delaware area and of the University of Delaware Campus

CC w/attachments: Ms. Tamara Francis, NAGPRA/Cultural Preservation Director
Delaware Nation
P.O. Box 825
Anadarko, OK 73005

Attachment 1: Site Location Map



Attachment 2: Aerial view of the Lewes, Delaware area



Aerial view of the University of Delaware Campus

From: Jason Ross <JRoss@delawarenation.com>
To: Summerson, Jane
Sent: Wed Jun 16 11:38:03 2010
Subject: re: Lewes Campus Onsite Wind Energy Project

Hello Ms. Summerson,

The Delaware Nation received information May 25th, 2010 regarding the project below.

University of Delaware â€" Lewes Campus Onsite Wind Energy Project
Sussex County, Delaware

The Cultural Preservation Director, Ms. Tamara Francis has reviewed the project and has determined that the Delaware Nation will be a consulting party on this project and would like any updates you have on the project so that Ms. Francis can make a determination of the review.

The Delaware Nation commends you on taking the time and effort to consult, Also we look forward to working with you in order for the Department of Energy to complete this project in a timely manner.

Sincerely,

Jason Ross
Museum/Section 106 Assistant
Cultural Preservation Department
The Delaware Nation
P.O. Box 825
Anadarko, OK 73005
PH# 405) 247-2448
FAX# 405) 247-8905
www.delawarenation.com

Department of Energy
Washington, DC 20585

May 20, 2010

Mr. Robert Chicks, President
Stockbridge Munsee Community of Wisconsin
N8476 Moh-He-Con-Nuck Road
P.O. Box 70
Bowler, Wisconsin 54416

SUBJECT: University of Delaware – Lewes Campus Onsite Wind Energy Project, Sussex County, Delaware

Dear Mr. Chicks:

The U.S. Department of Energy (DOE) is proposing to provide funding to the University of Delaware (UD) to install a 2-megawatt wind turbine adjacent to the College of Earth, Ocean, and Environment campus located in Lewes, Delaware. The UD recently completed installation of the wind turbine, but DOE must fulfill its obligations under the *National Environmental Policy Act* (NEPA), the *National Historic Preservation Act*, and the *Native American Graves Protection and Repatriation Act* before a decision can be finalized on whether to provide funding in support of the project. This letter is to inform you of DOE's intent to prepare and release for public review an environmental assessment addressing the potential environmental consequences of the wind turbine action.

The wind turbine will be interconnected to the UD facility and will be used for research and development purposes as well as supplying electrical energy to the campus and electrical grid. Attachment 1 to this letter shows the location of the turbine on the U.S. Geological Survey's Lewes Quadrangle, 7.5 Minute Series map. The hub of the wind generator is at a height of 262 feet above the ground surface. The diameter of the rotor is 295 feet; so the top of the rotor extends half that distance above the hub. The construction, or installation location is an existing dredge spoils area to the west of the UD campus. This is roughly 1,200 feet from the nearest campus facility, and further from any Lewes residences. Land disturbance at the turbine site includes a 3,200-square-foot octagonal foundation, a transformer, and a construction laydown area of roughly 200 by 100 feet in size.

The project site is accessible by an existing access road extending from Pilottown Road in the northeast to the wind turbine location. Some improvements to this road were necessary in order to transport the wind turbine and other components from Pilottown Road to the wind turbine location. At the completion of the project, the access road will either remain as is, or connect to a new road proposed by the State of Delaware that will run between the campus and the wind turbine and connect at Pilottown Road. The proposed new State road is being built to provide greater access to a boat launch and is not part of this proposed project. Attachment 2 provides two aerial views of the project site: the first shows the location of the University of Delaware campus in the general Lewes area, and the second shows a closer view of the campus and its relation to the wind turbine location.

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DOE does not have any reason to believe the project would affect tribal resources or artifacts; however, the State Historic Preservation Officer has indicated there are nine archeological sites within one mile of the turbine location. None of these sites have been evaluated for their eligibility for the National Register. An environmental assessment currently is being prepared for this project to meet the requirements of the National Environmental Policy Act. A copy of the assessment will be sent to you for your review and comment.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the UD Wind Energy Project and any comments or concerns you have on the potential for this Project to affect these properties. This information is being requested to aid in the preparation of the environmental assessment and to meet DOE's obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about the UD Wind Energy Project, please contact Jane Summerson of the DOE as soon as possible at the address listed in the signature block below.

Sincerely,

J Summerson, PhD

Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
(202) 340-9626
Jane.Summerson@EE.Doe.Gov

Attachments
1. Site Location Map
2. Aerial views of the Lewes, Delaware area and of the University of Delaware Campus

CC w/attachments: Ms. Sherry White, Tribal Historic Preservation Officer
W13447 Camp 14 Road
P.O. Box 70
Bowler, Wisconsin 54416

Note: Attachments to this letter were the same as those shown for The Delaware Nation letter and are not repeated here.

Stockbridge-Munsee Tribal Historic Preservation Office

Sherry White - Tribal Historic Preservation Officer
W13447 Camp 14 Road
P.O. Box 70
Bowler, WI 54416

TCNS#_____ DATE 5/25/10
PROJECT # University of Delaware Lewes Campus, Wind Project
COMPANY NAME Department of Energy

ADDITIONAL INFORMATION NEEDED
_____Site visit by Tribal Historic Preservation Officer
_____Archeological survey, phase 1
_____Literature/record search including colored maps
_____Pictures of site
_____SHPO report
_____Project does not appear to endanger archaeological sites of interest to the Stockbridge-Munsee Tribe.
__X__Out of area

Has site been previously disturbed?_____ _____
Yes No

If yes, to what extent and when?_____

Will the proposed action adversely affect properties listed, or eligible for, listing on the National Register of Historic Places? (buildings, archaeological sites; objects of significance to a Tribe including graves, funerary objects, and traditional cultural properties) _____ _____
Yes No

Should this project inadvertently uncover a Native American site, even after an archaeological survey or if there is a change to the project, we ask that you halt all construction and notify the Stockbridge-Munsee Tribe immediately.

Sincerely,
Sherry White
Sherry White
Tribal Historic Preservation Officer

(715) 793-3970 Email: sherry.white@mohican-nsn.gov

Department of Energy
Washington, DC 20585

May 20, 2010

Chief Dennis Coker
Lenape Indian Tribe of Delaware, Inc.
Lenape Indian Cultural Center
4164 North DuPont Highway
Dover, Delaware 19901

SUBJECT: University of Delaware – Lewes Campus Onsite Wind Energy Project, Sussex County, Delaware

Dear Chief Coker:

The U.S. Department of Energy (DOE) is proposing to provide funding to the University of Delaware (UD) to install a 2-megawatt wind turbine adjacent to the College of Earth, Ocean, and Environment campus located in Lewes, Delaware. The UD recently completed installation of the wind turbine, but DOE must fulfill its obligations under the *National Environmental Policy Act* (NEPA), the *National Historic Preservation Act*, and the *Native American Graves Protection and Repatriation Act* before a decision can be finalized on whether to provide funding in support of the project. This letter is to inform you of DOE's intent to prepare and release for public review an environmental assessment addressing the potential environmental consequences of the wind turbine action.

The wind turbine will be interconnected to the UD facility and will be used for research and development purposes as well as supplying electrical energy to the campus and electrical grid. Attachment 1 to this letter shows the location of the turbine on the U.S. Geological Survey's Lewes Quadrangle, 7.5 Minute Series map. The hub of the wind generator is at a height of 262 feet above the ground surface. The diameter of the rotor is 295 feet; so the top of the rotor extends half that distance above the hub. The construction, or installation location is an existing dredge spoils area to the west of the UD campus. This is roughly 1,200 feet from the nearest campus facility, and further from any Lewes residences. Land disturbance at the turbine site includes a 3,200-square-foot octagonal foundation, a transformer, and a construction laydown area of roughly 200 by 100 feet in size.

The project site is accessible by an existing access road extending from Pilottown Road in the northeast to the wind turbine location. Some improvements to this road were necessary in order to transport the wind turbine and other components from Pilottown Road to the wind turbine location. At the completion of the project, the access road will either remain as is, or connect to a new road proposed by the State of Delaware that will run between the campus and the wind turbine and connect at Pilottown Road. The proposed new State road is being built to provide greater access to a boat launch and is not part of this proposed project. Attachment 2 provides two aerial views of the project site: the first shows the location of the University of Delaware campus in the general Lewes area, and the second shows a closer view of the campus and its relation to the wind turbine location.

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DOE does not have any reason to believe the project would affect tribal resources or artifacts; however, the State Historic Preservation Officer has indicated there are nine archeological sites within one mile of the turbine location. None of these sites have been evaluated for their eligibility for the National Register. An environmental assessment currently is being prepared for this project to meet the requirements of the National Environmental Policy Act. A copy of the assessment will be sent to you for your review and comment.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the UD Wind Energy Project and any comments or concerns you have on the potential for this Project to affect these properties. This information is being requested to aid in the preparation of the environmental assessment and to meet DOE's obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about the UD Wind Energy Project, please contact Jane Summerson of the DOE as soon as possible at the address listed in the signature block below.

Sincerely,

J Summerson PhD

Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
(202) 340-9626
Jane.Summerson@EE.Doe.Gov

Attachments
1. Site Location Map
2. Aerial views of the Lewes, Delaware area and of the University of Delaware Campus

Note: Attachments to this letter were the same as those shown for The Delaware Nation letter and are not repeated here.

LENAPE INDIAN TRIBE OF DELAWARE

August 17, 2010

U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
1000 Independence Ave., SW
Washington, DC 20585

Attn: Dr. Jane Summerson
Re: UD Wind Energy Project Draft EA Comments

Thank you for the opportunity to comment on the above referenced project.

The historic record confirms the area in question is rich in American Indian culturally sensitive materials including ancestral burials. It is hard to imagine the Lenape were not drawn to this site for reasons including worship and resource gathering.

Since this project has already been completed, I assume that sensitive materials were not uncovered or disturbed during the construction process.

We share your agency's concern for our winged brothers and sisters. It is virtually impossible to hold an Eagle in high regard and then not honor the Eagle's habitat. I disagree with the reports assessment that "There is currently no reason to believe that tribes that have a current or historic presence near the University Wind Energy Project site consider eagle habitation (which includes eagles and eagle nests) sacred." Some Lenape men wore a single Eagle feather in their headdress to display their reverence for this magnificent creation.

If I can be of further assistance to you in this matter, please do not hesitate to contact me. I can be reached at 302-730-4601 or lenapedelaware@comcast.net.

Wani'shi (thank you),

Dennis J. Coker, Chief
Lenape Indian Tribe of Delaware

P.O. Box 79, Cheswold, Delaware 19936

Department of Energy
Washington, DC 20585

October 18, 2010

Dennis J. Coker, Chief
Lenape Indian Tribe of Delaware
P.O. Box 79
Cheswold, Delaware 19936

Dear Chief Coker,

The U.S. Department of Energy (DOE) respectfully thanks you for your review and comment on the *Draft Environmental Assessment of the University of Delaware Lewes Campus Onsite Wind Energy Project* (DOE/EA-1782D). The input that you provided to the Department in your August 17, 2010, letter, has been very helpful in DOE's effort to fully identify properties of traditional religious and cultural significance within the vicinity of the University of Delaware Wind Energy Project. Your willingness to share this information has assisted DOE in meeting its responsibilities under Section 106 of the *National Historic Preservation Act* and the *Native American Graves Protection and Repatriation Act of 1990*. Please be assured that DOE will take all information you have provided through our consultation seriously in making the Department's funding decision.

DOE is currently in the process of completing its final Environmental Assessment (EA) of the *University of Delaware, Lewes Campus Onsite Wind Energy Project*. DOE has prepared this EA pursuant to its obligations under the *National Environmental Policy Act* (NEPA) to evaluate the environmental impacts of providing Federal financial assistance to the University of Delaware (UD) for an onsite wind turbine (Wind Energy Project) adjacent to the College of Earth, Ocean, and Environment Campus located in Lewes, Delaware. The purpose of this letter is to allow DOE to respond to concerns from your August 17, 2010, letter with regard to potential effects on resources of traditional, religious or cultural importance to the Lenape Tribe and to inform you that DOE will require as a condition of funding that UD implement a monitoring and adaptive management plan for reducing impacts to wildlife and, in particular, to eagles.

As you are aware from your July 2010 review, the Draft EA analyzed impacts that occurred during construction of the wind turbine as well as potential environmental impacts that may occur during the turbine's operation. At the time the Draft EA was finalized, the University of Delaware had already completed construction of a single, 2-megawatt wind turbine and associated project components (including a transformer and construction pad) in an existing dredge spoils area adjacent to the campus; construction of an access road to the turbine site; and installation of an underground electric conduit directly into University facilities.

In response to your first concern, DOE can confirm that no sensitive materials were uncovered or disturbed during the construction of the UD Wind Energy Project. As part of the Section 106 consultation process, archaeologists from the Delaware State Historic Preservation Office (SHPO) conducted two site visits (following construction) in May and July 2010 in order to ascertain that no adverse impacts to

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archaeological resources resulted from the construction of the wind turbine and its access road or from installation of its utility connection. The Delaware SHPO confirmed by letter dated May 24, 2010 and July 19, 2010 that neither activity disturbed archaeological resources.

In response to your second concern, because the Wind Energy Project is located near important salt marsh habitat, DOE/EA-1782 addresses the potential impacts to raptors, including eagles, as well as other birds. Potential adverse impacts to birds, and specifically to eagles, are of particular importance to the Department due to the biological importance of this wildlife as well as due to the importance that eagles or eagle's nests hold in the cultural and religious traditions of American Indian Tribes. The potential impacts to eagles is also of particular importance to DOE's Section 106 consultation effort because eagles or eagles nests, or both, may potentially be sacred sites to American Indian Tribes, thus making the landscape associated with them eligible for the National Register and subject to protection under Section 101(d)(6)(a) of the NHPA.

Because of the uncertainty about potential impacts to birds and bats by the operating wind turbine generally, and in an effort to minimize impacts to eagles, which are religiously and culturally significant to the Lenape people, DOE will require as a condition of funding that UD implement a monitoring and adaptive management plan for reducing impacts to wildlife. The implementation of an adaptive management plan would enable adjustments in the operation of the wind turbine should eagle mortality be observed at the UD turbine site. The monitoring and adaptive management plan will be developed jointly with the University, US FWS, Delaware Department of Natural Resources and Environmental Control, and nongovernmental conservation groups interested in the Federal undertaking. DOE believes that holding the University to this standard will result in the minimization of potential adverse effects to eagles and their nests, and will thus provide sufficient protection to the landscape associated with eagle habitation as sacred site under Section 101(d)(6)(a) of the NHPA.

With regard to the *Bald and Golden Eagle Protection Act*, the U.S. Fish and Wildlife Service (US FWS) has indicated that if the project could not avoid disturbance to the bald eagle, a proposed permit program, authorizing the take of bald or golden eagles under specific conditions, may be available to UD once the Service has issued a final rule.

If you have concerns related to this letter, please contact me at Jane.Summerson@EE.doe.gov or 202-340-3626. DOE will provide you with a copy of the final EA for the UD wind turbine project once finalized. Please accept my sincere gratitude for your continued assistance in this effort.

Sincerely,

Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Department of Energy
Washington, DC 20585

May 20, 2010

Chief Herman T. Robbins
Nanticoke Indian Association, Inc.
27073 John J. Williams Hwy.
Millsboro, Delaware 19966

SUBJECT: University of Delaware – Lewes Campus Onsite Wind Energy Project, Sussex County, Delaware

Dear Chief Robbins:

The U.S. Department of Energy (DOE) is proposing to provide funding to the University of Delaware (UD) to install a 2-megawatt wind turbine adjacent to the College of Earth, Ocean, and Environment campus located in Lewes, Delaware. The UD recently completed installation of the wind turbine, but DOE must fulfill its obligations under the *National Environmental Policy Act* (NEPA), the *National Historic Preservation Act*, and the *Native American Graves Protection and Repatriation Act* before a decision can be finalized on whether to provide funding in support of the project. This letter is to inform you of DOE's intent to prepare and release for public review an environmental assessment addressing the potential environmental consequences of the wind turbine action.

The wind turbine will be interconnected to the UD facility and will be used for research and development purposes as well as supplying electrical energy to the campus and electrical grid. Attachment 1 to this letter shows the location of the turbine on the U.S. Geological Survey's Lewes Quadrangle, 7.5 Minute Series map. The hub of the wind generator is at a height of 262 feet above the ground surface. The diameter of the rotor is 295 feet; so the top of the rotor extends half that distance above the hub. The construction, or installation location is an existing dredge spoils area to the west of the UD campus. This is roughly 1,200 feet from the nearest campus facility, and further from any Lewes residences. Land disturbance at the turbine site includes a 3,200-square-foot octagonal foundation, a transformer, and a construction laydown area of roughly 200 by 100 feet in size.

The project site is accessible by an existing access road extending from Pilottown Road in the northeast to the wind turbine location. Some improvements to this road were necessary in order to transport the wind turbine and other components from Pilottown Road to the wind turbine location. At the completion of the project, the access road will either remain as is, or connect to a new road proposed by the State of Delaware that will run between the campus and the wind turbine and connect at Pilottown Road. The proposed new State road is being built to provide greater access to a boat launch and is not part of this proposed project. Attachment 2 provides two aerial views of the project site: the first shows the location of the University of Delaware campus in the general Lewes area, and the second shows a closer view of the campus and its relation to the wind turbine location.

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DOE does not have any reason to believe the project would affect tribal resources or artifacts; however, the State Historic Preservation Officer has indicated there are nine archeological sites within one mile of the turbine location. None of these sites have been evaluated for their eligibility for the National Register. An environmental assessment currently is being prepared for this project to meet the requirements of the National Environmental Policy Act. A copy of the assessment will be sent to you for your review and comment.

DOE is initiating consultation and requesting information your tribe may have on properties of traditional religious and cultural significance within the vicinity of the UD Wind Energy Project and any comments or concerns you have on the potential for this Project to affect these properties. This information is being requested to aid in the preparation of the environmental assessment and to meet DOE's obligations under Section 106 of the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act of 1990. If you have any such information, require additional information, or have any questions or comments about the UD Wind Energy Project, please contact Jane Summerson of the DOE as soon as possible at the address listed in the signature block below.

Sincerely,

J Summerson PhD

Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
(202) 340-9626
Jane.Summerson@EE.Doe.Gov

Attachments

1. Site Location Map
2. Aerial views of the Lewes, Delaware area and of the University of Delaware Campus

Note: Attachments to this letter were the same as those shown for The Delaware Nation letter and are not repeated here.

Department of Energy
Washington, DC 20585

July 22, 2010

Chief Jerry L. Douglas
Delaware Tribe of Indians
170 NE Barbara
Bartlesville, Oklahoma 74006

Dear Chief Douglas:

Enclosed is the U.S. Department of Energy's (DOE's) *Draft Environmental Assessment of the University of Delaware Lewes Campus Onsite Wind Energy Project* (DOE/EA-1782D) for your review and comment.

DOE prepared this Draft Environmental Assessment (EA) pursuant to its obligations under the *National Environmental Policy Act* to evaluate the environmental impacts of providing Federal financial assistance to the University of Delaware. DOE proposes to provide $2.43 million to the University of Delaware for an onsite wind turbine adjacent to the College of Earth, Ocean, and Environment Campus located in Lewes, Delaware. This Draft EA analyzes the impacts that occurred during construction of the wind turbine and potential environmental impacts that might occur during the turbine's operation.

At the time this Draft EA was finalized, the University of Delaware had already completed the wind turbine installation. The University constructed a single, 2-megawatt wind turbine and installed associated project components (for example, electrical line, transformer, and construction pad) in an existing dredge spoils area adjacent to the campus. The location of the turbine, on the northwest edge of the City of Lewes, is shown in Figures 2-1 and 2-2 in the Draft EA. The project site is accessible by an existing access road from Pilottown Road (to the north), extending south to the wind turbine location.

The wind turbine interconnects directly into University facilities with underground electrical conduit, and the turbine's operation will include use for research and development purposes as well as providing electrical energy to the University campus and the local electrical grid. The hub of the wind generator is 262 feet above the ground surface and the diameter of the rotor is 295 feet, so the total maximum height of the turbine measured from the top of the rotor to the ground is 410 feet. Land disturbance at the turbine site includes a 3,200-square-foot octagonal foundation, a transformer, and a construction lay down area of approximately 200 by 100 feet in size.

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In this draft EA, DOE evaluated potential impacts to surface water; biological, cultural, aesthetic, and visual resources; occupational and public safety and health; noise; utilities, energy, and materials; and transportation. DOE's analysis found that there may be potential impacts in the following areas:

- The wind turbine's presence and operation could result in occasional bird and bat collisions and fatalities.
- Some individuals may be located in areas of shadow flicker generated by the wind turbine when sun angles are low.
- Some individual may be able to discern the unique sounds generated by a wind turbine.

DOE does not have reason to believe the project affects tribal resources or artifacts; however, the State Historic Preservation Officer has indicated there are nine archaeological sites within 1 mile of the turbine location, and upon inspection of the project site, has verified that the wind turbine project did not disturb any archeological resources. None of these sites has been evaluated for eligibility for the National Register.

DOE, therefore, respectfully asks for information that your tribe might have on properties of traditional religious and cultural significance within the vicinity of the University of Delaware Wind Energy Project and any comments or concerns you have on the potential for this project to affect these properties. This information is being requested to meet DOE's responsibilities under Section 106 of the *National Historic Preservation Act* and the *Native American Graves Protection and Repatriation Act of 1990*. Please be assured that DOE values your input and will take into consideration all information you provide in preparation of the final EA and in making the funding decision.

In addition, DOE has a specific request for Indian tribes with current or historic interest in the project location. Is there any reason your tribe might consider the landscape of the wind turbine a potential historic property of religious and cultural importance due to eagle habitation in the area?

DOE currently has no reason to believe this is a concern for the wind turbine site, but is asking you to identify whether eagle habitation in the project area is sacred to you. DOE is also inviting you and all interested parties to comment on the enclosed draft EA. The draft EA outlines the public comment period as beginning June 18, 2010 and ending July 18, 2010. Please note that DOE has extended the public comment period to August 17, 2010. Comments received after the close of the comment period will be considered to the extent practicable.

If you have information on the religious and cultural significance of the project site you would be willing to share, require additional information, or have any questions or comments about the UD Wind Energy Project, please contact Jane Summerson of the DOE as soon as possible at the address listed in the signature block below. If you would like to comment on the Draft EA, comments can be submitted via email to Jane.Summerson@ee.doe.gov, by letter to Dr. Jane Summerson at the address below, or by fax to 1-202-586-8177. Envelopes and the subject line of emails and faxes should be labeled "UD Wind Energy Project Draft EA Comments."

Sincerely

Jane Summerson
Office of Energy Efficiency and Renewable Energy
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585
(202) 340-9626
Jane.Summerson@ee.doe.gov

Attachment
Draft Environmental Assessment of the University of Delaware Lewes Campus Onsite Wind Energy Project (Draft EA; DOE/EA-1782D)

cc w/attachment: Dr. Brice Obemeyer, NAGPRA Representative/Cultural Resources Contact
Delaware Tribe of Indians
170 NE Barbara
Bartlesville, Oklahoma 74006

Delaware Tribe of Indians
170 NE Barbara
Bartlesville, Oklahoma 74006
(918) 336-5272 FAX (918) 337-6591

August 4, 2010

Jane Summerson
Office of Energy Efficient and Renewable Energy
U.S. Dept. of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Re: UD Wind Energy Project Draft EA Comments

Dear Jane Summerson:

Thank you for informing the Delaware Tribe on the proposed construction and providing us with the archaeological survey report associated with the above referenced project. Our review indicates that there are no religious or culturally significant sites in the project area. As such, we defer comment to your office as well as to the State Historic Preservation Office and/or the State Archaeologist.

We wish to continue as a consulting party on this project and we ask that if any human remains are accidentally unearthed during the course of the construction project that you cease development immediately and inform the Delaware Tribe of Indians of the inadvertent discovery.

If you have any questions, please feel free to contact this office by phone at (918) 335-7026 or by e-mail at bobermey@emporia.edu.

Sincerely,

Brice Obermeyer

Brice Obermeyer
Delaware Tribe Historic Preservation Office
1417 West St
Emporia, KS 66801