

APPENDIX C:
AGENCY COORDINATION AND APPROVALS

Delivered by email

From: Mitch, Brian (Brian.Mitch@dnr.state.oh.us)

Sent: Friday, August 27, 2010 12:21 PM

To: Aaron Godwin (AAaron@conservefirst.com)

Subject: 10-0277; Ohio Wind Schools Wind Turbine Projects



ODNR COMMENTS TO:

Aaron Goodwin, The Renaissance Group, 8281 Euclid Chardon Road, Suite E, Kirtland, Ohio 44094

Project: The project consists of the installation of several single wind turbine projects located in the cities of Archbold, Pettisville, Berea, Cleveland, and Chagrin Falls, Ohio. All turbines will be less than 750kW.

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

Fish and Wildlife: The ODNR, Division of Wildlife (DOW) has the following comments.

Archbold Area Schools Project:

The project is within the range of the Indiana bat (*Myotis sodalis*), a state and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees: Shagbark hickory (*Carya ovata*), Shellbark hickory (*Carya laciniata*), Bitternut hickory (*Carya cordiformis*), Black ash (*Fraxinus nigra*), Green ash (*Fraxinus pennsylvanica*), White ash (*Fraxinus americana*), Shingle oak (*Quercus imbricaria*), Northern red oak (*Quercus rubra*), Slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), Eastern cottonwood (*Populus deltoides*), Silver maple (*Acer saccharinum*), Sassafras (*Sassafras albidum*), Post oak (*Quercus stellata*), and White oak (*Quercus alba*). Indiana bat habitat consists of suitable trees that include dead and dying trees of the species listed above with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees of the species listed above with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. If suitable trees occur within the project area, these trees must be conserved. If suitable habitat occurs on the project area and trees must be cut, cutting must occur between September 30 and April 1. If suitable trees must be cut during the summer months of April 2 to September 29, a net survey must be conducted in May or June prior to cutting. *If no tree removal is proposed, the project is not likely to impact this species.*

The project is within the range of the rayed bean (*Villosa fabalis*), a state endangered and federal candidate mussel species. If there is a history of mussels near the proposed project area, it may be necessary for a professional malacologist approved by the DOW to conduct a mussel survey in the project area. *If no in-water work is proposed, the project is not likely to impact this species and a survey would not be necessary.*

The project is within the range of the Eastern massasauga (*Sistrurus catenatus*), a state endangered and a federal candidate snake species. *Due to the location of the project, the project is not likely to impact this species.*

The ODNR, Ohio Biodiversity Database contains no data at this project site.

Appendix C, Attachment C1

Pettisville Local Schools Project:

The project is within the range of the Indiana bat (*Myotis sodalis*), a state and federally endangered species. The following species of trees have relatively high value as potential Indiana bat roost trees: Shagbark hickory (*Carya ovata*), Shellbark hickory (*Carya laciniosa*), Bitternut hickory (*Carya cordiformis*), Black ash (*Fraxinus nigra*), Green ash (*Fraxinus pennsylvanica*), White ash (*Fraxinus americana*), Shingle oak (*Quercus imbricaria*), Northern red oak (*Quercus rubra*), Slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), Eastern cottonwood (*Populus deltoides*), Silver maple (*Acer saccharinum*), Sassafras (*Sassafras albidum*), Post oak (*Quercus stellata*), and White oak (*Quercus alba*). Indiana bat habitat consists of suitable trees that include dead and dying trees of the species listed above with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees of the species listed above with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. If suitable trees occur within the project area, these trees must be conserved. If suitable habitat occurs on the project area and trees must be cut, cutting must occur between September 30 and April 1. If suitable trees must be cut during the summer months of April 2 to September 29, a net survey must be conducted in May or June prior to cutting. *If no tree removal is proposed, the project is not likely to impact this species.*

The project is within the range of the rayed bean (*Villosa fabalis*), a state endangered and federal candidate mussel species. If there is a history of mussels near the proposed project area, it may be necessary for a professional malacologist approved by the DOW to conduct a mussel survey in the project area. *If no in-water work is proposed, the project is not likely to impact this species and a survey would not be necessary.*

The project is within the range of the Eastern massasauga (*Sistrurus catenatus*), a state endangered and a federal candidate snake species. *Due to the location of the project, the project is not likely to impact this species.*

The ODNR, Ohio Biodiversity Database contains no data at this project site.

Cuyahoga County Fairgrounds Project:

The project is within the range of the Indiana bat (*Myotis sodalis*), a state and federally endangered species. There is a record for this species about 4.3 miles from this project site. The following species of trees have relatively high value as potential Indiana bat roost trees: Shagbark hickory (*Carya ovata*), Shellbark hickory (*Carya laciniosa*), Bitternut hickory (*Carya cordiformis*), Black ash (*Fraxinus nigra*), Green ash (*Fraxinus pennsylvanica*), White ash (*Fraxinus americana*), Shingle oak (*Quercus imbricaria*), Northern red oak (*Quercus rubra*), Slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), Eastern cottonwood (*Populus deltoides*), Silver maple (*Acer saccharinum*), Sassafras (*Sassafras albidum*), Post oak (*Quercus stellata*), and White oak (*Quercus alba*). Indiana bat habitat consists of suitable trees that include dead and dying trees of the species listed above with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees of the species listed above with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. If suitable trees occur within the project area, these trees must be conserved. If suitable habitat occurs on the project area and trees must be cut, cutting must occur between September 30 and April 1. If suitable trees must be cut during the summer months of April 2 to September 29, a net survey must be conducted in May or June prior to cutting. *If no tree removal is proposed, the project is not likely to impact this species.*

The project is within the range of the bald eagle (*Haliaeetus leucocephalus*), a state threatened species. *However, the Ohio Biodiversity Database currently has no records of this species near the project area.*

The project is within the range of the Canada darner (*Aeshna canadensis*), a state endangered dragonfly. *Due to the mobility of this species, the project is not likely to impact this species.*

The project is within the range of the black bear (*Ursus americanus*), a state endangered species, and the bobcat (*Lynx rufus*), a state endangered species. *Due to the mobility of these species, the project is not likely to have an impact on these species.*

The project is within the range of the golden-winged warbler (*Vermivora chrysoptera*), a state endangered bird, the piping plover (*Charadrius melodus*), a state and federally endangered bird species, the king rail (*Rallus elegans*), a state endangered bird, and the yellow-bellied sapsucker (*Sphyrapicus varius*), a state endangered bird. *Due to the location of the project and the habitat requirements of these species, the project is not likely to impact these species.*

The ODNR, Ohio Biodiversity Database contains no data at this project site.

Appendix C, Attachment C1

Kenston Local Schools Project:

The project is within the range of the Indiana bat (*Myotis sodalis*), a state and federally endangered species. There is a record for this species about seven miles from the project area. The following species of trees have relatively high value as potential Indiana bat roost trees: Shagbark hickory (*Carya ovata*), Shellbark hickory (*Carya laciniosa*), Bitternut hickory (*Carya cordiformis*), Black ash (*Fraxinus nigra*), Green ash (*Fraxinus pennsylvanica*), White ash (*Fraxinus americana*), Shingle oak (*Quercus imbricaria*), Northern red oak (*Quercus rubra*), Slippery elm (*Ulmus rubra*), American elm (*Ulmus americana*), Eastern cottonwood (*Populus deltoides*), Silver maple (*Acer saccharinum*), Sassafras (*Sassafras albidum*), Post oak (*Quercus stellata*), and White oak (*Quercus alba*). Indiana bat habitat consists of suitable trees that include dead and dying trees of the species listed above with exfoliating bark, crevices, or cavities in upland areas or riparian corridors and living trees of the species listed above with exfoliating bark, cavities, or hollow areas formed from broken branches or tops. If suitable trees occur within the project area, these trees must be conserved. If suitable habitat occurs on the project area and trees must be cut, cutting must occur between September 30 and April 1. If suitable trees must be cut during the summer months of April 2 to September 29, a net survey must be conducted in May or June prior to cutting. *If no tree removal is proposed, the project is not likely to impact this species.*

The project is within the range of the bald eagle (*Haliaeetus leucocephalus*), a state threatened species. *However, the Ohio Biodiversity Database currently has no records of this species near the project area.*

The project is within the range of the snuffbox (*Epioblasma triquetra*), a state endangered mussel, and the eastern pondmussel (*Ligumia nasuta*), a state endangered mussel. If there is a history of mussels near the proposed project area, it may be necessary for a professional malacologist approved by the DOW to conduct a mussel survey in the project area. *If no in-water work is proposed, the project is not likely to impact these species and a survey would not be necessary.*

The project is within the range of the American emerald (*Cordulia shurtleffi*), a state endangered dragonfly, the frosted whiteface (*Leucorrhinia frigida*), a state endangered dragonfly, and the racket-tailed emerald (*Dorocordulia libera*), a state endangered dragonfly. *Due to the mobility of these species, the project is not likely to impact these species.*

The project is within the range of the black bear (*Ursus americanus*), a state endangered species, and the bobcat (*Lynx rufus*), a state endangered species. *Due to the mobility of these species, the project is not likely to have an impact on these species.*

The project is within the range of the yellow-bellied sapsucker (*Sphyrapicus varius*), a state endangered bird. *Due to the location of the project and the habitat requirements of this species, the project is not likely to have an impact on this species.*

The project is in the range of the snowshoe hare (*Lepus americanus*), a state endangered species. *Due to the location of the project area, the project is not likely to have an impact on this species.*

The ODNR, Ohio Biodiversity Database contains no data at this project site.

Geological Survey: The ODNR, Division of Geological Survey has the following comments.

The Archbold site is on soft lacustrine silt and clay and the bedrock is 150 feet deep. The Pettisville site is on soft lacustrine sand and the bedrock is 145 feet deep. Both of these sites may require deepened foundations.

The Division of Geological Survey has no significant geologic concerns with the other two sites.

ODNR appreciates the opportunity to provide these comments. Please contact Brian Mitch at (614) 265-6378 if you have questions about these comments or need additional information.

Brian Mitch, Environmental Review Manager
Ohio Department of Natural Resources
Environmental Services Section
2045 Morse Road, Building F-3
Columbus, Ohio 43229-6693
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United States Department of the Interior

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September 18, 2009

Mr. Aaron Godwin
The Renaissance Group
10299 Longview Drive
Kirtland, Ohio 44094

TAILS# 31420-2009-TA-1159

Dear Mr. Godwin:

This is in response to your September 14, 2009 letter requesting our review of a proposed wind energy project in Geauga County, Ohio. The project involves installation of a small (225 kW-750 kW), single wind turbine at the Kenston School Site, Geauga County, Ohio. Currently, the project area is composed of an existing school facility. The landscape surrounding the school is residential and forested in nature. This information is solicited to support an application for ARRA stimulus funding.

There are no Federal wilderness areas, wildlife refuges, or designated critical habitat within the vicinity of the project area.

The following comments are being provided pursuant to the Endangered Species Act (ESA), Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Fish and Wildlife Act of 1956. This information is being provided to assist you in making an informed decision regarding wildlife issues, site selection, project design, and compliance with applicable laws.

The Fish and Wildlife Service (Service) supports the development of wind power as an alternative energy source, however, wind power projects can have negative impacts on wildlife and their habitats if not sited and designed with potential wildlife and habitat impacts in mind. Selection of the best sites for turbine placement is enhanced by ruling out sites with known, high concentrations of birds and/or bats passing within the rotoswept area of the turbines or where the effects of habitat fragmentation will be detrimental. In support of wind power generation as a wildlife-friendly, renewable source of power, development sites with comparatively low bird, bat and other wildlife values, would be preferable and would have relatively lower impacts on wildlife.

ENDANGERED SPECIES COMMENTS:

The proposed project lies within the range of the **Indiana bat** (*Myotis sodalis*), a Federally listed endangered species. Since first listed as endangered in 1967, their population has declined by nearly 60%. Several factors have contributed to the decline of the Indiana bat, including the loss and degradation of suitable hibernacula, human disturbance during hibernation, pesticides, and the loss and degradation of forested habitat, particularly stands of large, mature trees. Fragmentation of forest habitat may also contribute to declines. During the winter Indiana bats hibernate in caves and abandoned mines. Summer habitat requirements for the species are not well defined but the following are considered

important:

1. Dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas.
2. Live trees (such as shagbark hickory and oaks) which have exfoliating bark.
3. Stream corridors, riparian areas, and upland woodlots which provide forage sites.

The Service currently has no records for Indiana bats within 5 miles of the project area, and the immediate project area does not support suitable habitat. Therefore, we do not anticipate any impact on this species.

MIGRATORY BIRD COMMENTS:

The Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA) implements four treaties that provide for international protection of migratory birds. The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Bald and golden eagles are afforded additional legal protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Unlike the Endangered Species Act, neither the MBTA nor its implementing regulations at 50 CFR Part 21, provide for permitting of "incidental take" of migratory birds. While bald eagles are known to occur in Geauga County, none are within 5 miles of the project area and the project area does not provide suitable habitat. Therefore, we do not anticipate any impact on this species.

The Service's Office of Law Enforcement serves its mission to protect Federal trust wildlife species, in part, by actively monitoring industries known to negatively impact wildlife, and assessing their compliance with Federal law. These industries include oil/gas production sites, cyanide heap/leach mining operations, industrial waste water sites, and wind power sites. There is no threshold as to the number of birds incidentally killed by wind power sites, or other industry, past which the Service will seek to initiate enforcement action. However, the Service is less likely to prioritize enforcement action against a site operator that is cooperative in seeking and implementing measures to mitigate takes of protected wildlife.

Research into the actual causes of bat and bird collisions with wind turbines is limited. To assist Service field staffs in review of wind farm proposals, as well as aid wind energy companies in developing best practices for siting and monitoring of wind farms, the Service published *Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines* (2003). We encourage any company/licensee proposing a new wind farm to consider the following excerpted suggestions from the guidelines in an effort to minimize impacts to migratory birds and bats.

- 1) Pre-development evaluations of potential wind farm sites to be conducted by a team of Federal and/or State agency wildlife professionals with no vested interest in potential sites;
- 2) Rank potential sites by risk to wildlife;
- 3) Avoid placing turbines in documented locations of federally-listed species;
- 4) Avoid locating turbines in known bird flyways or migration pathways, or near areas of high bird concentrations (i.e., rookeries, leks, refuges, riparian corridors, etc.);

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- 5) Avoid locating turbines near known bat hibernation, breeding, or maternity colonies, in migration corridors, or in flight paths between colonies and feeding areas;
- 6) Configure turbine arrays to avoid potential avian mortality where feasible. Implement storm water management practices that do not create attractions for birds, and maintain contiguous habitat for area-sensitive species;
- 7) Avoid fragmenting large, contiguous tracts of wildlife habitat;
- 8) Use tubular supports with pointed tops rather than lattice supports to minimize bird perching and nesting opportunities;
- 9) If taller turbines (top of rotorswept area is greater than 199 feet above ground level) require lights for aviation safety, the minimum amount of lighting specified by the Federal Aviation Administration (FAA) should be used. Unless otherwise requested by the FAA, only white strobe lights should be used at night, and should be of the minimum intensity and frequency of flashes allowable. Red lights should not be used, as they appear to attract night-migrating birds at a higher rate than white lights;
- 10) Adjust tower height to reduce risk of strikes in areas of high risk for wildlife.

The full text of the guidelines is available at <http://www.fws.gov/habitatconservation/wind.pdf>. The Service believes that implementing these guidelines may help reduce mortality caused by wind turbines. We encourage you to consider these guidelines in the planning and design of the project. We particularly encourage placement of turbines away from any large wetland, stream corridor, or wooded areas, including the areas mentioned previously, and avoid placing turbines between nearby habitat blocks.

Thank you for the opportunity to provide comments on this proposed project. Please contact biologist Megan Seymour at extension 16 in this office if we can be of further assistance.

Sincerely,



Mary Knapp
Mary Knapp, Ph.D.
Supervisor

Cc: Mr. Keith Lott, ODNR, Old Woman Creek, 2514 Cleveland Road East, Huron, OH 44839
Mr. Brian Mitch, ODNR, REALM, Columbus, OH



United States Department of the Interior

FISH AND WILDLIFE SERVICE

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September 2, 2010

DOE Golden Field Office
 c/o Melissa Rossiter
 1617 Cole Boulevard
 Golden, CO 80401

Dear Ms. Rossiter:

This is in response to your Notice of Public Scoping for the proposed Kenston Local Schools Wind Turbine which involves the construction and operation of a single 600 kW wind turbine at the school located at 17419 Snyder road, Chagrin Falls, Geauga County, Ohio. Funding for the project is being sought through the Department of Energy (DOE). The following comments are being provided pursuant to the Endangered Species Act (ESA), Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and Fish and Wildlife Act of 1956. This information is being provided to assist you in making informed decisions regarding wildlife issues, site selection, and project design, and to assist you with complying with the applicable Federal wildlife laws.

The Fish and Wildlife Service (Service) supports the development of wind power as an alternative energy source; however, wind power projects can have avoidable negative impacts on wildlife and their habitats if not sited and designed with potential wildlife and habitat impacts in mind. Generally speaking, selection of the best sites for turbine placement is enhanced by ruling out sites with known, high concentrations of birds and/or bats passing nearby the rotorswept area of the turbines or where the effects of habitat fragmentation will be detrimental.

ENDANGERED SPECIES COMMENTS:

The ESA prohibits the "take" of any listed species. Take is defined as, among other things, to harass, harm, wound, or kill. Harm and harass are further defined by regulation. Harm includes habitat modification or degradation that results in death or injury. Harass means to cause injury by disrupting normal behavior patterns such as breeding, feeding, or sheltering. The ESA also prohibits Federal agencies from funding, authorizing, or carrying-out, in full or in part, any action that is likely to adversely modify critical habitat. For reasons described below, we believe your project *is likely to adversely affect* Indiana bats, although we believe that by relocating the turbine to a position greater than 1000 feet from forest areas, adverse effects could be avoided (please see *Recommendations* section below). The project additionally lies within the range of the **rayed bean** (*Villosa fabalis*) and **eastern massasauga** (*Sistrurus catenatus catenatus*), Federal candidate species. However no suitable habitat for either of these species occurs within the project area and no impact to these species is anticipated.

Indiana Bat

Your proposed project lies within the range of the Indiana bat (*Myotis sodalis*), a federally listed endangered species. Since first listed as endangered in 1967, their population has declined by nearly 60 percent. Several factors have contributed to the decline of the Indiana bat, including the loss and

degradation of suitable hibernacula, human disturbance during hibernation, pesticides, and the loss, fragmentation, and degradation of forested habitat, particularly stands of large, mature trees.

During the winter, Indiana bats hibernate in caves and abandoned mines. These caves are critical for the survival of the species and several have been officially designated as critical habitat. In the spring and fall, Indiana bats migrate between their summer and winter habitats. Knowledge of the migratory behavior of Indiana bats is limited. Anecdotal information and available data give some insights into their flight behavior. Data from a few studies from the eastern portion of the range indicate that Indiana bats will fly at the canopy level during migration. Anecdotal information and data from closely related species, however, indicate that they may also fly at higher elevations especially over open areas. Upon arriving at their summer grounds, females form maternity colonies while males tend to roost singly. Summer habitat for Indiana bats includes roosting, foraging, and commuting areas. Roosting habitat is generally described as wooded areas containing trees or snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities. Foraging habitat includes stream corridors, riparian areas, and upland woodlots, and commuting habitat includes wooded areas, tree-lines or wooded hedgerows and other such wooded pathways that connect roosting and foraging areas. Information to date indicates that Indiana bats predominately forage, roost, and travel within wooded habitats or along their edges and are rarely found in open areas. Drawing from all existing data, we believe it is highly unlikely for summering Indiana bats to use open areas that are greater than 1000 feet from a wooded edge or area. Extensive research has shown that Indiana bats are highly philopatric to both their hibernation and summer areas. Thus, loss or degradation of these traditionally used areas is likely to cause harm to Indiana bats.

Wind energy facilities in various habitats across the U.S. and Canada have been documented to cause “widespread and often extensive fatalities of bats” (Arnett *et al.* 2008). At this time, research into the mechanisms that cause mortality of bats at wind power sites is ongoing but collision and barotrauma associated with moving turbine blades are clear proximate causes of death. Also, research on how to avoid fatalities is continuing. Currently, only a few operational tools have shown some success at avoiding or minimizing take, e.g., feathering of turbines during times when bats are most at risk has been shown to reduce mortality in some situations. Clearly, siting is important measure for avoiding and minimizing impacts. Siting recommendations to avoid impacts during the summer and winter periods are easier to provide, while the uncertainties relating to Indiana bat migration lend some difficulty to predicting where on the landscape we would expect Indiana bats to occur.

We have integrated what we know about Indiana bat ecology, the siting and operational specifics of your project, and what we know about turbine and bat interactions to assess the impacts of your project on Indiana bats. For reasons described below we believe your project is unlikely to adversely affect fall swarming and wintering Indiana bats but may adversely affect migrating and summering Indiana bats.

Winter (and fall swarming) Period

In fall just before entering caves for hibernation, Indiana bats use the surrounding forested area to forage and build up fat reserves for their 6-7 month hibernation period. Data available suggest that Indiana bats will forage up to 10 to 20 miles from their hibernacula. Turbines placed within this fall swarming range may take Indiana bats. As the location of your proposed wind turbine is not within 20 miles of any known or suspected Indiana bat hibernacula, we believe it is unlikely that your project will take Indiana bats during the fall swarming and hibernation periods.

Migration Period

The vast majority of the document fatalities across U.S. and Canada have occurred during the fall migratory season (Arnett *et al.* 2008). Most of these mortalities were “long-distant migratory tree bats,” which are a group of bats that exhibit substantially different behaviors during migration than species like Indiana bat. It is currently suspected that these differences make the long-distant migratory tree bats more

susceptible to exposure to wind turbines than other guilds of bats. Although not as frequently recorded, there have been a notable number of fatalities for other species of bats as well, with a single Indiana bat mortality incident detected at a wind power facility in Indiana. These observations confirm that other bats, including Indiana bats, are also susceptible to mortality from wind turbines during the migration period.

Interactions between bats and wind turbines, particularly small-size, single turbines, are poorly understood, and therefore appropriate siting of wind power facilities to avoid and minimize take remains our most effective tool. Generally speaking, we expect that Indiana bats are substantially less vulnerable to take at small wind facilities. However, there is a confounding factor of blade height with the smaller-sized turbines. As indicated above, we lack data on the height at which Indiana bats fly while migrating. Mortality of little brown bat (*Myotis lucifugus*) at wind facilities across the range indicate that this closely related species migrates at heights typical of the rotorswept area of commercial turbines. This coupled with the record of an Indiana bat killed at a commercial wind facility suggest that Indiana bats may often fly at heights that intersect commercial sized turbines during migration. This mortality event occurred in an unforested area. Thus, we believe that Indiana bats are susceptible to wind turbine mortality anywhere within the range of Indiana bats. At small scale wind sites, the area of exposure is substantially less than the cumulative rotorswept area of a commercial sized facility, and thus, so too is the likelihood of an Indiana bat intersecting a turbine.

In areas where suitable habitat is nearby, however, the risk of mortality during migration is higher. Data from migration studies indicate that Indiana bats will fly at or above the tree canopy level during the migration period. The rotorswept area associated with small-size turbines will intersect the area that Indiana bats are known to use at times during migration. For this reason, we believe in order to minimize the chance of taking Indiana bats during the migratory period, the wind turbine should be located greater than 1000 feet from woodlots and forested streams corridors.

Summer Period

Although monitoring to date shows that mortality is greatest during the fall migration period, substantial bat fatalities have been recorded during the summer, including *Myotis* species. For this reason, we believe turbines sited within or near (1000 ft) suitable Indiana bat summer habitat may lead to the take of Indiana bats.

In addition to the direct take due to collision and barotrauma associated with turbine operation, habitat manipulation needed to construct the wind turbines can also have adverse effects on Indiana bats. Extensive research has been conducted on the behavior and habitat use of Indiana bats during the summer period. Briefly, female Indiana bats form colonies ranging from 25 to 300 adult bats, with an average around 80. Each female rears a single pup. The colony typically has a single tree within wooded areas in which they roost together for most of the summer with decreasing frequency/dependency in latter part of the summer. Male Indiana bats are sometimes found among females, but more typically they roost singly or smaller groups. At dusk, the adults and volant young depart the roost tree to search for insect prey throughout the night. Their foraging habitat is primarily restricted to woodlots and forested streams although they will forage along the forest edge and tend to avoid open areas. Although there are observations of Indiana bats flying over open space, the vast majority of the records are within 1000 feet of a forested edge. Thus, we believe wind turbines constructed within 1000 feet of suitable habitat are likely to pose a threat to Indiana bats. Data also show that colonies show strong fidelity to their summer areas. Loss, modification or fragmentation of their traditional summer areas—whether or not such destruction occurs during summer period--can lead to adverse impacts to colonies.

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Recommendations

Given the above, we believe in order to sufficiently minimize the risk of taking of Indiana bats during the summer and migratory periods, the wind turbine should be located greater than 1000 feet from woodlots and forested streams corridors. Further, any associated construction activity should avoid potentially suitable roosting, foraging or commuting habitats. These measures will, we believe, substantially minimize the potential exposure of Indiana bats to your wind turbine and harm from habitat modification. If the turbine cannot be located greater than 1,000 ft from woodlots and forested stream corridors or habitat modification cannot be avoided, further consultation with this office is necessary to comply with the ESA.

Note: Research on the interaction of wind turbines and bats is active but in the beginning stages. As we indicated previously, there is still a great amount of uncertainty regarding the impacts of wind turbines on Indiana bat, particularly small scale wind facilities. Data are rapidly becoming available, and hence, our conclusions and recommendations necessarily evolve as this new information becomes available. We understand that DOE, in consultation with the Service, may be undertaking a regional monitoring program to help resolve some of the uncertainty surrounding impacts from small scale wind turbines. As these data become available, we will adapt our conclusions and recommendations accordingly. Please note that we currently believe that sufficient evidence suggests siting turbines greater than 20 miles from known hibernacula and farther than 1000 feet from summer habitat will likely avoid adverse impacts to Indiana bats. However, if new information reveals that these beliefs are in err, DOE will reinitiate consultation with the Service and you may be instructed to take further precautions (such as curtailing operations) to avoid or minimize the take of Indiana bats.

MIGRATORY BIRD COMMENTS:

The Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA) implements four treaties that provide for international protection of migratory birds. The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for allowing unauthorized take, the U.S. Fish and Wildlife Service (FWS) recognizes that some birds may be taken during activities such as wind turbine operation even if all reasonable measures to avoid take are implemented. The U.S. Fish and Wildlife Service's Office of Law Enforcement carries out its mission to protect migratory birds not only through investigation and enforcement, but also through fostering relationships with individuals and industries that proactively seeks to eliminate their impacts on migratory birds. Although it is not possible under the MBTA to absolve individuals, companies, or agencies from liability (even if they implement avian mortality avoidance or similar conservation measures), the Office of Law Enforcement focuses on those individuals, companies, or agencies that take migratory birds with disregard for their actions and the law, especially when conservation measures have been developed but are not properly implemented.

Your project lies within the range of the bald eagle (*Haliaeetus leucocephalus*), a species included under the Migratory Bird Treaty Act, but also afforded additional legal protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). The Bald and Golden Eagle Act prohibits the take of eagles without a permit. Interactions between eagles and turbines, particularly small single turbines, are poorly understood, and therefore appropriate siting of wind power facilities to avoid and minimize take remains our most effective tool. Because so little is known about interactions between eagles and single, small turbines, and how multiple small turbines across the landscape may affect eagles, it is difficult to predict if and how this project may affect eagles. However, the siting of the turbine in areas that generally do not provide high quality eagle habitat, and the small size and rotor-swept area of the turbine, leads us to believe that take of bald eagles from operation of the turbine is unlikely to occur. Additionally, bald eagle

nests are not known to currently occur within the project area or within 5 miles from the project area. The FWS has recently finalized official agency guidelines to assist project proponents in avoiding and minimizing impacts to migratory birds, including bald eagles. We encourage you to consider those aspects of the guidelines detailed below to minimize impacts to all migratory birds.

Note: As explained above for endangered species, given the uncertainties associated with the effects of small scale turbines locally and cumulatively on birds and bats, we are working with DOE to develop a research program. Although the precise study design has yet to be agreed upon, we anticipate this program will entail monitoring at a subset of DOE-funded small-scale wind turbines. This would aid in our assessment of future wind power projects, test the assumptions we are currently making, and promote the conservation of eagles.

The full text of the Service's guidelines is available at <http://www.fws.gov/habitatconservation/wind.pdf>. The Service believes that implementing these guidelines may help reduce mortality caused by wind turbines. We particularly encourage you to consider the following excerpted suggestions from the Service's guidelines in an effort to minimize impacts to all migratory birds and bats.

- 1) Pre-development evaluations of potential wind farm sites to be conducted by a team of Federal and/or State agency wildlife professions with no vested interest in potential sites.
- 2) Rank potential sites by risk to wildlife.
- 3) Avoid placing turbines in documented locations of federally-listed species.
- 4) Avoid locating turbines in known bird flyways or migration pathways, or near areas of high bird concentrations (i.e., rookeries, leks, State or Federal refuges, staging areas, wetlands, riparian corridors, etc.). Avoid known daily movement flyways and areas with a high incidence of fog, mist or low visibility.
- 5) Avoid placing turbines near known bat hibernation, breeding, or maternity colonies, in migration corridors, or in flight paths between colonies and feeding areas.
- 6) Configure turbine arrays to avoid potential avian mortality where feasible (i.e., group turbines and orient rows of turbines parallel to known bird movements). Implement storm water management practices that do not create attractions for birds, and maintain contiguous habitat for area-sensitive species.
- 7) Avoid fragmenting large, contiguous tracts of wildlife habitat. Wherever practical, place turbines on lands already disturbed and away from intact healthy native habitats. If not practical, select fragmented or degraded habitats over relatively intact areas.
- 8) Minimize roads, fences, and other infrastructure. Wherever possible, align collection lines and access roads to minimize disturbance.
- 9) Develop a habitat restoration plan for the proposed site that avoids or minimizes negative impacts on vulnerable wildlife while maintaining or enhancing habitat values for other species (i.e., avoid attracting prey animals used by raptors).
- 10) Use tubular supports with pointed tops rather than lattice supports to minimize bird perching and nesting opportunities. Avoid placing external ladders and platforms on tubular towers to minimize

Appendix C, Attachment C3

perching/nesting. Avoid use of guy wires for turbine or meteorological tower supports. All existing guy wires should be marked with bird deterrents (Avian Power Line Interaction Committee 1996).

11) If taller turbines (top of rotor-swept area is greater than 199 feet above ground level) require lights for aviation safety, the minimum amount of lighting specified by the Federal Aviation Administration (FAA) should be used. Unless otherwise requested by the FAA, only white strobe lights should be used at night, and should be of the minimum intensity and frequency of flashes allowable.

12) Adjust tower height to reduce risk of strikes in areas of high risk for wildlife.

13) Wherever feasible, place electric power lines underground or on the surface as insulated, shielded wire to avoid electrocution of birds. Use recommendations of the Avian Power Line Interaction Committee (1996) for any required above-ground lines, transformers, or conductors.

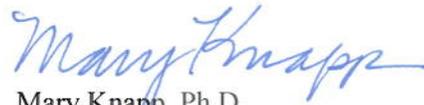
WATER RESOURCE COMMENTS:

Generally speaking, streams and wetlands provide valuable habitat for fish and wildlife resources, and the filtering capacity of wetlands helps to improve water quality. Naturally vegetated buffers surrounding these systems are also important in preserving their wildlife-habitat and water quality-enhancement properties. Furthermore, forested riparian systems (wooded areas adjacent to streams) provide important stopover habitat for birds and bats migrating through the region. As such, we also recommend that impacts to streams and wetlands be avoided, and buffers surrounding these systems be preserved even in areas where endangered species are not to occur. The proposed activities do not constitute a water-dependent activity, as described in the Section 404(b)(1) guidelines, 40 CFR 230.10. Therefore, practicable alternatives that do not impact aquatic sites are presumed to be available, unless clearly demonstrated otherwise. Therefore, before applying for a Section 404 permit, the client should closely evaluate all project alternatives that do not affect streams or wetlands, and if possible, select an alternative that avoids impacts to the aquatic resource. If water resources will be impacted, the Corps of Engineers should be contacted for possible need of a Section 404 permit.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act of 1973, as amended, and are consistent with the intent of the National Environmental Policy Act of 1969 and the U. S. Fish and Wildlife Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

Thank you for the opportunity to provide comments on this proposed project. Please contact Megan Seymour of this office for further information.

Sincerely,


Mary Knapp, Ph.D.
Field Supervisor

Cc: Brian Mitch, ODNR, Columbus, OH
Keith Lott, ODNR, Huron, OH



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
 4625 Morse Road, Suite 104
 Columbus, Ohio 43230
 (614) 416-8993 / FAX (614) 416-8994

October 29, 2010

DOE Golden Field Office
 c/o Melissa Rossiter
 1617 Cole Boulevard
 Golden, CO 80401

TAILS: 31420-2010-I-1114

Dear Ms. Rossiter:

This letter is in response to your Notice of Public Scoping for the proposed Kenston Local Schools Wind Turbine which involves the construction and operation of a single 600 kW wind turbine at the school located at 17419 Snyder Road, Chagrin Falls, Geauga County, Ohio. Funding for the project is being sought through the Department of Energy (DOE). The U.S. Fish and Wildlife Service (Service) has previously provided comments on this project in letters dated September 2, 2010, and September 18, 2009. Additionally, the Service and DOE and the Applicant have recently participated in numerous phone discussions and e-mails regarding this project and potential impacts on the **Indiana bat** (*Myotis sodalis*), a Federal endangered species. This letter summarizes the Service's current position regarding the proposed project and Indiana bat concerns.

The project area is an existing school complex comprising approximately 100 acres, and the proposed turbine location is a mowed grass area adjacent to a road and parking lot near the center of the complex. The majority of the school facility is composed of developed space, recreational fields, and mowed grass. The proposed turbine location is 850 feet away from the closest upland wooded area and there are no stream corridors within 1,000 feet of the project area. However the greater landscape of the project area is a mix of forested, suburban, and rural, with relatively large contiguous wooded areas to the north, east and west of the project area. The Service's initial review in 2009 focused on the lack of suitable habitat within the project area and the fact that no Indiana bats are known to occur within 5 miles of the project area, and documented that take was unlikely to occur. Our September 2, 2010 letter requested additional consultation with the Service if the turbine could not be relocated greater than 1,000 feet from woodlots because an Indiana bat mortality was recently documented at a utility scale wind farm in Indiana during fall migration, in an area that is dominated by agriculture and has few trees, indicating that Indiana bats may be susceptible to turbines even in areas that do not have suitable habitat.

The Service has further evaluated the proposed turbine project relative to the surrounding habitat, and relative to what is known about Indiana bat behavior and habitat use. Our conclusions are summarized below:

Summer Period

Although monitoring to date shows that wind turbine-related bat mortality is greatest during the fall migration period, substantial bat fatalities have been recorded during the summer, including *Myotis* species. For this reason, we believe turbines sited within or near (1000 ft) suitable Indiana bat summer habitat could lead to the take of Indiana bats. However, the proposed single turbine is located 850 feet

from suitable roosting or foraging habitat, and is located within a highly developed/impacted area, approximately 100 acres in size. Forested habitat outside of the project area and 850-foot buffer area is plentiful, and we believe that any Indiana bats that may use the greater project area during the summer would be likely to remain within or closely adjacent to existing forested areas, and would be unlikely to fly over 100 acres of buildings, recreational fields, and parking lots to forage. There are no areas suitable for roosting within the project area or the 850-foot buffer area and no suitable habitat will be impacted for construction of the project. Coupled with the smaller rotorswept area of the proposed turbine relative to commercial sized turbine the Service believes that it is extremely unlikely that Indiana bats would be exposed to the single turbine during the summer maternity season.

Migration Period

The vast majority of the documented bat fatalities across U.S. and Canada have occurred during the fall *migratory* season (Arnett *et al.* 2008). Most of these mortalities were “long-distant migratory tree bats,” which are a group of bats that exhibit substantially different behaviors during migration than species like Indiana bat. Although not as frequently recorded, there have been a notable number of fatalities for other species of bats as well, with an Indiana bat mortality incident detected at a wind power facility in Indiana.

Interactions between bats and wind turbines, particularly small-size, single turbines, are poorly understood, and therefore appropriate siting of wind power facilities to avoid and minimize take remains our most effective tool. Generally speaking, we expect that Indiana bats are substantially less vulnerable to take at single, small turbines compared to utility-scale wind facilities. However, there is a confounding factor of blade height with the smaller-sized turbines. We lack data on the height at which Indiana bats fly while migrating. Mortality of little brown bat (*Myotis lucifugus*) at wind facilities across the range indicate that this closely related species migrates at heights typical of the rotorswept area of commercial turbines. This coupled with the record of an Indiana bat killed at a commercial wind facility suggest that Indiana bats may often fly at heights that intersect *commercial* sized turbines during migration. This mortality event occurred in an unforested area. Thus, we believe that Indiana bats are susceptible to wind turbine mortality anywhere within the range of Indiana bats. At small scale wind sites, the area of exposure is substantially less than the cumulative rotorswept area of a commercial sized facility, and thus, so too is the likelihood of an Indiana bat intersecting a turbine.

In areas where suitable habitat is nearby, however, the risk of mortality during migration is higher. Data from migration studies indicate that Indiana bats will fly at or above the tree canopy level during the migration period. While there is no conclusive data on Indiana bat landscape use during migration in the Midwest Recovery Unit (which includes Ohio), there is some evidence in the northeast region that bats go out of their way to follow tree lines, including riparian buffers along streams through otherwise developed areas, and avoid open areas (Turner 2006). We have evidence indicating that during the summer Indiana bats typically remain within 1,000 feet of forested areas and stream corridors. The layout and compositions of the school complex, which encompasses approximately 100 acres of developed areas, compared to the layout of the greater landscape, which includes multiple forested areas north, east, and west of the school complex area, are substantially different. We believe it is reasonable to assume that any Indiana bats migrating near the project area would be likely to remain within or closely adjacent to existing forested areas, and would be unlikely to fly over 100 acres of buildings and parking lots when they could stay east or west of the school complex within forested areas. Coupled with the smaller rotorswept area of the proposed turbine relative to commercial sized turbine, the Service believes that it is very unlikely that Indiana bats would be exposed to the single turbine during the migratory season.

Winter (and fall swarming) Period

In fall just before entering caves for hibernation, Indiana bats use the surrounding forested area to forage and build up fat reserves for their 6-7 month hibernation period. Data available suggest that Indiana bats

Appendix C, Attachment C4

will forage up to 10 to 20 miles from their hibernacula. Turbines placed within this fall swarming range may take Indiana bats. The proposed project area is approximately 7 miles from several caves where small numbers of Indiana bats have been documented swarming in the fall, but have never been documented emerging in the spring despite multiple years of survey. This indicates that Indiana bats may just be swarming here in the fall, or they may be hibernating here in very small numbers. Because suitable habitat is so plentiful in the surrounding landscape, including in areas near the caves, and because Indiana bats have been detected in such low numbers, we believe it is reasonable to assume that fall swarming Indiana bats are unlikely to be exposed to this single small turbine 7 miles away from the caves, in a developed area, and therefore we believe it is unlikely that take of Indiana bats will occur during the fall swarming and hibernation period.

Recommendations

We have fully evaluated the potential exposure of Indiana bats at this single turbine project, and we believe that due to the site-specific layout of the project area, the surrounding landscape, and what we know and assume about Indiana bat habitat use and biology, that take of Indiana bats at this specific project is extremely unlikely to occur.

Research on the interaction of wind turbines and bats is active but in the beginning stages. As we indicated previously, there is still a great amount of uncertainty regarding the impacts of wind turbines on Indiana bat, particularly small scale wind facilities. Data are rapidly becoming available, and hence, our conclusions and recommendations necessarily evolve as this new information becomes available. We understand that DOE, in consultation with the Service, may be undertaking a regional monitoring program to help resolve some of the uncertainty surrounding impacts from small scale wind turbines. As these data become available, we will adapt our conclusions and recommendations accordingly. Please note that we currently believe that sufficient evidence suggests this project is not likely to result in take or adverse impacts to Indiana bats. However, if new information reveals that these beliefs are in err, DOE will reinitiate consultation with the Service and you may be instructed to take further precautions (such as curtailing operations) to avoid or minimize the take of Indiana bats.

These comments have been prepared under the authority of the Endangered Species Act of 1973, as amended, and are consistent with the intent of the National Environmental Policy Act of 1969 and the Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

Thank you for the opportunity to provide comments on this proposed project. Please contact Megan Seymour of this office for further information.

Sincerely,



Mary Knapp, Ph.D.
Field Supervisor

Cc: Brian Mitch, ODNR, Columbus, OH
Keith Lott, ODNR, Huron, OH
Aaron Godwin, The Renaissance Group, 8281 Euclid Chardon Road, Suite E, Kirtland, Ohio
44094

Appendix C, Attachment C4

Citations:

Arnett, E.B., K. Brown, W.P. Erickson, J. Fiedler, T.H. Henry, G.D. Johnson, J. Kerns, R.R. Kolford, T. Nicholson, T. O'Connell, M. Piorkowski, and R. Tankersly. 2008. Patterns of fatality of bats at wind energy facilities in North America. *Journal of Wildlife Management*, 72:61–78.

Turner, G. G. 2006. Bat Migratory Behaviors and Routes in Pennsylvania and Maryland. Proceedings NWCC Wildlife Workgroup Research Planning Meeting VI, San Antonio, Texas, USA. November 14-15, 2006.



OHIO DEPARTMENT OF TRANSPORTATION AVIATION

2829 W. DUBLIN-GRANVILLE ROAD • COLUMBUS, OH • 43235-2786

August 3, 2010

Kenston Schools
Attn: Aaron Godwin
17419 Snyder Road
Chagrin Falls, OH 44023

Proposal: Wind Turbine
Lat: N41°-23'-39.61"
Lon: W81°-18'-17.98"
Height: 275 ft AGL 1530 ft AMSL

Subject: APPLICATION FOR CONSTRUCTION/ALTERATION PERMIT
Aeronautical Study No: 2010-DOT-659-OE

To Whom It May Concern,

The purpose of this letter is to notify you that your application concerning construction at the specified latitude, longitude and proposed height does not require a permit from this office. Your proposal falls outside the limits set forth in Section 4561.32 of the Ohio Revised Code. However, this does not exempt you from filing with the FAA or contacting local zoning authorities regarding compliance with local zoning ordinances.

If you have any questions, please call; (614)387-2346.

Respectively,

E-SIGNATURE

John A. Milling, Aviation Specialist
ODOT Office of Aviation
2829 W. Dublin-Granville Road
Columbus, OH 43235

AN EQUAL OPPORTUNITY EMPLOYER



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

Issued Date: 07/15/2008

Dr. Robert Lee
 Kenston Local School District
 17419 Snyder Road
 Chagrin Falls, OH 44023

**** 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 Kenston Schools Wind Turbine
 Location: Chagrin Falls, OH
 Latitude: 41-23-39.61N NAD 83
 Longitude: 81-18-17.98W
 Heights: 275 feet above ground level (AGL)
 1530 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)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 01/15/2010 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.

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.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, 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.

A copy of this determination will be forwarded to the Federal Communications Commission if the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-AGL-3977-OE.

Signature Control No: 576383-102322606

(DNE)

Michael Blaich
Specialist



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

Aeronautical Study No.
2008-AGL-3977-OE

Issued Date: 01/15/2010

Dr. Robert Lee
Kenston Local School District
17419 Snyder Road
Chagrin Falls, OH 44023

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Wind Turbine Kenston Schools Wind Turbine
Location:	Chagrin Falls, OH
Latitude:	41-23-39.61N NAD 83
Longitude:	81-18-17.98W
Heights:	275 feet above ground level (AGL) 1530 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 01/15/2012 unless otherwise extended, revised, or terminated by this office.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the 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 (718) 553-2611. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-AGL-3977-OE.

Signature Control No: 576383-121893080

Angelique Lestrade
Technician

(EXT -WT)

cc: FCC



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

Aeronautical Study No.
 2010-WTE-14362-OE
 Prior Study No.
 2008-AGL-3977-OE

Issued Date: 11/09/2010

Dr. Robert Lee
 Kenston Local School District
 17419 Snyder Road
 Chagrin Falls, OH 44023

**** 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 Kenston Schools Wind Turbine
 Location: Chagrin Falls, OH
 Latitude: 41-23-37.95N NAD 83
 Longitude: 81-18-19.03W
 Heights: 305 feet above ground level (AGL)
 1557 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)

This determination expires on 05/09/2012 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.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO

SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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 2010-WTE-14362-OE.

Signature Control No: 131696804-132987517

(DNE -WT)

Michael Blaich
Specialist



UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and
Information Administration
Washington, D.C. 20230

OCT 18 2010

Ms. Caroline Mann
Office of Energy Efficiency and Renewable Energy (EE-40)
US Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Re: Kilowatts Wind Project, in Geauga County, OH

Dear Ms. Mann:

In response to your request on August 19, 2010, the National Telecommunications and Information Administration provided to the federal agencies represented in the Interdepartment Radio Advisory Committee (IRAC) the plans for the Kilowatts for Kenston Wind Energy Project, located in Geauga County, Ohio.

After a 45 day period of review, no federal agencies identified any concerns regarding blockage of their radio frequency transmissions.

While the IRAC agencies did not identify any concerns regarding radio frequency blockage, this does not eliminate the need for the wind energy facilities to meet any other requirements specified by law related to these agencies. For example, this review by the IRAC does not eliminate any need that may exist to coordinate with the Federal Aviation Administration concerning flight obstruction.

Thank you for the opportunity to review these proposals.

Sincerely,

A handwritten signature in black ink, appearing to read "Edward M. Davison".

Edward M. Davison
Deputy Associate Administrator
Office of Spectrum Management



KENSTON
S C H O O L S

Bainbridge Township Zoning Certificate

Exhibit 2

Zoning Certificate

BAINBRIDGE TOWNSHIP

Geauga County, Ohio

Zoning Department

17826 Chillicothe Road, Chagrin Falls, Ohio 44023

440 543-9871

Certificate Number: x4005

ADDRESS: **17425 Snyder Road**

PARCEL NO.: **02-711900**

ZONING: **R-5-A**

NUMBER OF UNITS: **1**

ISSUED TO: **KENSTON BOARD OF
17419 SNYDER RD
CHAGRIN OH 44022**

PERMIT TYPE: **SCHOOL ADDITION**

DETAILS: **Wind Turbine(height exempt ch.161)**

PERMIT DATE: **05/04/2010**

FEE: **\$0.00**

EXPIRE DATE: **05/04/2012**

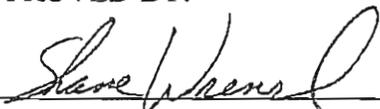
It is hereby certified that the above use as shown on the plats and plans submitted with the application conforms with all applicable provisions of the Bainbridge Township Zoning Resolution. The issuance of this Permit does not allow the violation of Bainbridge Township Zoning Resolutions or other governing Regulations.

The applicant is responsible for obtaining a building permit (if required) prior to commencing work on the proposed improvement. Contact the Zoning Department at 543-9871 prior to pouring footers and / or concrete slabs.

BEST STORM WATER MANAGEMENT PRACTICES TO BE OBSERVED AT ALL TIMES DURING CONSTRUCTION. FAILURE TO COMPLY SHALL RESULT IN CERTIFICATE REVOCATION.

APPROVED BY:

DATE:



05/06/2010

Zoning Inspector