

U.S. Fish and Wildlife Service



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Twin Cities Field Office
4101 American Blvd E.
Bloomington, Minnesota 55425-1665

RECEIVED

OCT - 5 2009

HDR Engineering, Inc.

October 2, 2009

Patrick Smith
Geronimo Wind Energy
5050 Lincoln Dr #420
Edina, MN 55436

Re: Prairie Rose Wind Farm Review, Rock County, Minnesota
FWS TAILS #32410-2009-FA-0117

Dear Mr. Smith:

This is in response to your July 21, 2009, request for our review of the proposed Prairie Rose Wind Farm in Rock County, Minnesota. The proposed project includes the installation of wind turbines, and associated infrastructure including roads, transmission lines, and staging areas. The macro-siting project boundary sent to our office covers a total area of approximately 14,185 acres located in all or parts of sections 1, 2, 11-13, 23-27, 34, and 35, Township 104 North, Range 46 West, and sections 5-8, 17-20, 29, and 30, Township 104 North, Range 45 West, Rock County, Minnesota.

Representatives from the U.S. Fish and Wildlife Service (Service), Geronimo Wind Energy, HDR, and the Minnesota Department of Natural Resources (DNR) participated in a meeting/conference call on July 21, 2009, to discuss the project proposal, wildlife survey recommendations, setback recommendation, and Topeka shiner-related issues.

The following comments are being provided pursuant to the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), 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 Service has been in contact with the DNR as they have developed recommended survey protocols and site evaluations that will satisfy both state and federal wildlife statutes, and this letter describes these measures, in part. We appreciate your early coordination with both the Service and the DNR, and recommend continued collaboration on this project to ensure wildlife and habitat issues are fully and appropriately addressed.

The Fish and Wildlife Service supports the development of wind power as an alternative energy source. However, wind farms 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 rotor-swept 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.

The Service recommends that impacts to streams and wetlands be avoided, and buffers surrounding these systems be preserved. 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 migrating through the region.

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 St. Paul District of the Corps of Engineers should be contacted for possible need of a Section 404 permit.

Federally-listed Threatened, Endangered, and Candidate Species

Because of the potential for wind power projects to impact federally-listed species, they are subject to the Endangered Species Act (16 U.S.C. 1531-1544) section 9 provisions governing “take,” similar to any other development project. “Take” incidental to a lawful activity may be authorized through the initiation of formal consultation, if a Federal agency is involved. If a federal agency, federal funding, or a federal permit are not involved in the project, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA may be obtained upon completion of a satisfactory habitat conservation plan for the listed species. However, there is no mechanism for authorizing incidental take after the project is constructed and operational.

The Topeka shiner (*Notropis topeka*) is a federally-endangered fish species found in Rock County. A designated Topeka shiner Critical Habitat intermittent stream extends into the southeast corner of the project boundary at sections 20 and 29, T104N, R45W. Impacts to this stream channel need to be avoided during project construction and operation. Potential impacts to this stream could include but are not limited to increased sedimentation or nutrient loading caused by increased soil erosion, reduced surface water quantity input due to access road or turbine pad construction in close proximity to the stream, and potential stream channel disturbance caused by underground transmission or utility line stream crossings. The Service must be notified if any type of site preparation, construction, or land clearing work will be

completed within 300 feet of all streams (intermittent and permanent) within or adjacent to the project area.

Migratory Birds

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.

Monitoring should be conducted to assess the daily movement patterns of any species of raptor or ground nesting grassland birds whose nest is located within the proposed project site or within two miles of the proposed project site. During the incubation and rearing stage, the location of adult birds should be tracked for at least 4 hours twice per week until consistent activity patterns are established. These monitoring dates will be determined based upon identified species within two miles of the project boundary. Alternate monitoring strategies that assess the degree to which nesting birds utilize the proposed project site will be considered. Information collected will be used to document how frequently the birds enter the proposed project site, and this information can be utilized during micro-siting to minimize substantial risks to birds within close proximity of the project site.

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 take of protected wildlife.

Migratory Bird Concentration Areas and Conservation Lands

Touch the Sky Prairie National Wildlife Refuge is located approximately two miles south of the proposed Prairie Rose Wind Farm. At this time, the Service does not have any concerns that the Prairie Rose Wind Farm project will negatively affect the Touch the Sky Prairie National Wildlife Refuge or the wildlife that utilize the Refuge.

We also recommend that no turbines be located within ¼ mile of Conservation Reserve Program, Wetland Reserve Program, or other similar federally- or state-funded restoration projects.

Interim Service Guidelines

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 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, refuges, riparian corridors, etc.);
- 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 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. 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, and avoiding placing turbines between nearby habitat blocks.

If this proposal is to move forward, we strongly recommend that on-the-ground surveys using radar, infrared, and/or acoustic monitoring be conducted during the peak of spring and fall bird migrations and during the breeding season over a period of several years (consistent with the Service's *Interim Guidelines, op. cit.*) to identify breeding and feeding areas and migration stopover sites. Observations made from greater than ¼ mile of target areas are likely to be insufficient to accurately assess bird use of the landscape, particularly if the observer is moving. Generalized ground research survey protocols, such as those followed in the Waterfowl Breeding Population and Habitat Survey (Smith 1995) and the North American Breeding Bird Survey (Pardieck 2001), among others, often do not accept observations made at greater than ¼ mile from the observer due in part to high probabilities of missed detections (R. Russell, personal communication). Furthermore, spring and fall raptor migration surveys may be necessary, as will surveys to document movement patterns of bald eagles that may use the project area or surrounding habitat. We request that any on-the-ground survey protocols be consistent with the Service's *Interim Guidelines* (2003), and be coordinated with this office and with the Minnesota Department of Natural Resources prior to implementation.

Pre-Construction Surveys

The Service recommends that Geronimo Wind Energy and their consultants conduct rigorous assessments of bird and bat use of the area before proceeding with project design (i.e., preliminary siting of specific turbines). We strongly recommend development of a protocol for bird/bat surveys at this site. We encourage Geronimo Wind Energy to maintain consistency with other wind farm survey protocols, thus allowing us to compare results with other wind farm survey data. These comparisons will potentially provide valuable information that can be applied in future wind farm/turbine macro- and micro-siting.

In addition to on-the-ground (point or transect) surveys, we recommend that the assessments include the use of mobile, horizontally- and vertically-scanning radar to study the direction, altitude, and numbers of flying animals moving through and within the project area during the fall and spring migration of birds and bats, and the breeding period of birds in the area. We recommend that radar be employed for 24 hours a day, 7 days a week during migration, and at a minimum from dawn to dusk during the breeding period. Radar studies are providing useful information in evaluating bird and bat activity at wind generation sites in Wisconsin, Vermont, Massachusetts and other locations. The use of radar coupled with ground-truthing (surveys) can provide a more complete assessment of bird and bat use of a potential wind project area than point counts or other traditional survey methods alone. Such information could inform project design and minimize potential mortality associated with the project.

We recommend installation of two AnaBat SDI detectors per meteorological tower to be used within the project area, and recording of bat echolocation calls through November 15, 2009 and from March 15 - November 15, 2010. One AnaBat detector should be mounted at 5 meters above ground, and the other should be mounted as close to the rotor-swept area as possible. The AnaBat's sensitivity should be adjusted to detect a calibration tone at 20 meters. AnaBat units must monitor from 0.5 hour before sunset until 0.5 hour after sunrise. This will help to gauge bat

activity and to some degree, to determine bat species/guild composition within the project area during spring and fall migration and the maternity season.

Post Construction Surveys

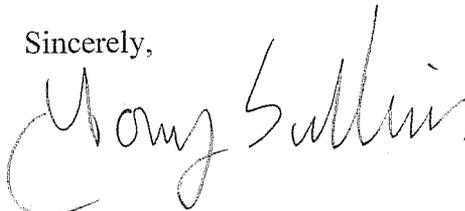
The Service recommends the project be monitored post-construction to determine impacts to migratory birds and bats. A specific post-construction monitoring plan should be prepared and reviewed by the Service and should include a scientifically robust, peer reviewed methodology of mortality surveys. Generally the Service recommends that surveys be conducted for a minimum of three years following construction to assess impacts to birds and bats. The duration of post construction surveys is project specific and will be determined based upon pre construction survey results. We also recommend that the post-construction mortality studies be conducted by an independent third party contractor with expertise in bird/bat mortality monitoring. Results of mortality surveys and other forms of monitoring should be used to adjust operations to reduce mortality if necessary and feasible, as well as improve design and siting of future wind generation facilities. **The Developer or its contractor should provide to this office each year, no later than December 31, copies of annual bird/bat mortality monitoring reports.**

Infrastructure Considerations

Development of transmission infrastructure associated with wind facilities also poses risks to wildlife. These risks include potential avian mortality, particularly electrocution of raptors (hawks, eagles, kites, falcons, and owls), that could occur when they attempt to perch on uninsulated or unguarded power poles. Recently published information about which types of power line poles and associated hardware (e.g., wires, transformers and conductors) pose the greatest danger of electrocution to raptors and what modifications can be made to reduce this threat can be found on the internet at <http://www.aplic.org/>

Thank you for the opportunity to provide comments on this proposed project. Please contact me at (612) 725-3548, ext. 2201, or Rich Davis, Fish and Wildlife Biologist, at (612) 725-3548, ext. 2214, if we can be of further assistance.

Sincerely,



Tony Sullins
Field Supervisor

cc: Michael DeRuyter, HDR Inc.
Kevin Mixon, MN DNR

March 10, 2010

Mr. Richard Davis
U.S. Fish and Wildlife Service
Twin Cities Field Office
4101 American Boulevard East
Bloomington, MN 55425

RE: Prairie Rose Wind Farm and 115 kV Transmission Line in
Rock and Pipestone Counties, MN.

Dear Mr. Davis:

Geronimo Wind Energy LLC (Geronimo) contacted you in July 2009, requesting USFWS comments in regards to the proposed Prairie Rose Wind Project in Rock County, Minnesota.

Recently, the project boundary has changed and now includes additional sections adjacent to the previous project boundary (Figure 1-2) in Rock and Pipestone Counties. The project nameplate capacity will be 101 MW. In addition, Geronimo is proposing to construct a 115 kilovolt (kV) High Voltage Transmission Line (HVTL) which would run between the project substation, located within the wind farm project boundary, and Xcel Energy's Split Rock Substation, located near Brandon, SD. The proposed route would run parallel to Rock County Highway 7 and Rose Dell Township Road 72 (Figure 1-1). This spring, Geronimo will submit a Site Permit Application for a Large Wind Energy Conversion System and a Route Permit Application for a HVTL to the Minnesota Public Utilities Commission (PUC).

Typically, wind facility construction includes erecting wind turbines and constructing associated facilities such as gravel access roads, and an underground and/or aboveground 34.5 kV collector system. Although final turbine locations, access roads, and electrical connections have not been determined at this time, the tables below identify Township sections potentially affected by the project:

Table 1 – Original Sections within the Project Boundary

Township Name	Township	Range	Sections
Denver	104N	45W	7, 18, 19, 30
Rose Dell	104N	46W	11-16, 21-27, 34 and 35

Table 2 – Updated Sections within the Project Boundary

County	Township Name	Township	Range	Sections
Rock	Rose Dell	104N	46W	1-2, 28, 33
Rock	Denver	104N	45W	2-6, 8-10, 15-17, 20-22, 27-29, and 31-34
Rock	Springwater	103N	46W	1-4, 9-12
Pipestone	Elmer	105N	45W	20, 29-30, 31-34
Pipestone	Eden	105N	46W	36

Table 3 – Proposed Transmission Line Corridor

Township Name	Township	Range	Sections
Rose Dell	104N	46W	27-34
Rose Dell	104N	47W	25, 26, 35, 36

We welcome any comments the U.S. Fish and Wildlife Service may have at this time or throughout the permit application process. Table 1 identifies the original sections within the Project boundary, Table 2 identifies updated sections within the expanded Project boundary, and Table 3 identifies sections adjacent to the proposed transmission line. In particular, HDR requests you review the sections located in Rose Dell, Denver, Springwater, Elmer, and Eden townships, identified in Tables 1, 2, and 3 for any comments on the new expansion areas.

Geronimo received a letter marked FWS TAILS #32410-2009-FA-0117 on October 2, 2009. Geronimo has committed to conducting preconstruction surveys this spring to identify the presence of wetlands and wet features (including Topeka shiner habitat), native prairie, and bedrock outcrops, which will be considered during final micrositing of project facilities.

Prairie Rose Wind Project
U.S. Fish and Wildlife Services
March 10, 2010

Enclosed are maps detailing the location and project boundary of the Prairie Rose Wind Farm and 115 kV Transmission Line. If you require further information or have questions regarding this matter, please call me at (763) 591-5479.

Sincerely,

A handwritten signature in black ink that reads "Mike DeRuyter". The signature is written in a cursive style with a long horizontal stroke extending to the right.

Mike DeRuyter
Environmental Scientist

Enclosures:

Figure 1-1 - Project Location Map (Transmission Line)

Figure 1-2 – Project Location Map (Wind Farm)

Cc: Patrick Smith, Geronimo Wind Energy, LLC



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Twin Cities Field Office
4101 American Blvd E.
Bloomington, Minnesota 55425-1665

April 21, 2010

Mike DeRuyter
HDR Engineering, Inc
701 Xenia Avenue South
Minneapolis, Minnesota 55416

Re: Prairie Rose Wind Farm Review, Rock and Pipestone Counties, Minnesota
FWS TAILS #32410-2009-FA-0117

Dear Mr. DeRuyter:

This is in response to your March 10, 2010, letter requesting our review of the expanded Prairie Rose Wind Farm in Rock and Pipestone Counties, Minnesota. Also requested in your letter was the review of the proposed 115 kV High Voltage Transmission Line (HVTL), which will extend for six total miles, two miles within the proposed Prairie Rose Wind Farm project boundary and four miles to the west of the proposed project boundary. The proposed project includes the installation of wind turbines, and associated infrastructure including roads, transmission lines, and staging areas. The original macro-siting project boundary sent to our office in July 2009 covered a total area of approximately 14,185 acres, and the revised project boundary sent to our office on March 10, 2010, covers a total area of approximately 35,959 acres.

The revised boundary of the Prairie Rose Wind Project is located in all or parts of sections 1, 2, 11-16, 21-28, and 33-35, Township 104 North, Range 46 West; sections 2-10, 15-22, and 27-34, Township 104 North, Range 45 West; and sections 1-4 and 9-12, Township 103 North, Range 46 West in Rock County, Minnesota. It is also located in sections 20 and 29-34, Township 105 North, Range 45 West, and section 36, Township 105 North, Range 46 West, Pipestone County, Minnesota. The proposed HVTL corridor is sections 27-34, Township 104 North, Range 46 West and sections 25, 26, 35 and 36, Township 104 North, Range 47 West, Rock County, Minnesota.

Comments and recommendations provided within this letter are made in addition to our October 2, 2009 letter, and this letter should not be viewed as a replacement to the Service's initial review and comment.

The following comments are being provided pursuant to the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), 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 Service has been in contact with the DNR as they have developed recommended survey protocols and site evaluations that will satisfy both state and federal wildlife statutes, and this letter describes these measures, in part. We appreciate your early coordination with both the Service and the DNR, and recommend continued collaboration on this project to ensure wildlife and habitat issues are fully and appropriately addressed.

The Fish and Wildlife Service supports the development of wind power as an alternative energy source. However, wind farms 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 rotor-swept 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.

The Service recommends that impacts to streams and wetlands be avoided, and buffers surrounding these systems be preserved. 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 migrating through the region.

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Federally-listed Threatened, Endangered, and Candidate Species

Because of the potential for wind power projects to impact federally-listed species, they are subject to the Endangered Species Act (16 U.S.C. 1531-1544) section 9 provisions governing “take,” similar to any other development project. “Take” incidental to a lawful activity may be authorized through the initiation of formal consultation, if a Federal agency is involved. If a federal agency, federal funding, or a federal permit are not involved in the project, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA may be obtained upon completion of a satisfactory habitat conservation plan for the listed species. However, there is no mechanism for authorizing incidental take after the project is constructed and operational.

The Topeka shiner (*Notropis topeka*) is a federally-endangered fish species found in Rock and Pipestone Counties. Due to the revised and expanded proposed project boundary three designated Topeka shiner Critical Habitat streams are located within the proposed project boundary. An intermittent/perennial stream (tributary to Poplar Creek) designated Critical Habitat, is within sections 32 and 33, T105N, R45W, Pipestone County. An intermittent stream (Beaver Creek) designated Critical Habitat, is within sections 20, 21, 28, 29 and 32, T104N, R45W, Rock County. An intermittent stream (tributary to Beaver Creek) designated Critical Habitat, is within section 1, T103N, R46W and section 36, T104N, R46W, Rock County.

Impacts to these designated Critical Habitat streams and all their tributaries, intermittent and perennial, must be avoided during project construction and operation. Potential impacts to these streams could include but are not limited to increased sedimentation or nutrient loading caused by increased soil erosion, reduced surface water quantity input due to access road or turbine pad construction in close proximity to the stream, stream crossing constructed for equipment mobilization, and potential stream channel disturbance caused by underground transmission or utility line crossings. The Service must be notified if any type of site preparation, construction, or land clearing work will be completed within 300 feet of all streams (intermittent and perennial) within or adjacent to the project area.

Migratory Birds

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.

Monitoring should be conducted to assess the daily movement patterns of any species of raptor whose nest (including ground or burrow nesting) is located within the proposed project site or within two miles of the proposed project site. During the incubation and rearing stage, the location of adult birds should be tracked for at least 4 hours twice per week until consistent activity patterns are established. These monitoring dates will be determined based upon identified species within two miles of the project boundary. Alternate monitoring strategies that assess the degree to which nesting birds utilize the proposed project site will be considered. Information collected will be used to document how frequently the birds enter the proposed project site, and this information can be utilized during micro-siting to minimize substantial risks to birds within close proximity of the project site.

There are large tracts of grasslands along the eastern and western edges of the proposed project boundary. The Service’s recommends additional avian surveys be completed in these areas, and the survey data should be used to determine turbine placement in a fashion that will result in the least amount of disturbance to avian species in the area.

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 take of protected wildlife.

Migratory Bird Concentration Areas and Conservation Lands

The Touch the Sky Prairie National Wildlife Refuge was approximately two miles south of the originally proposed Prairie Rose Wind Project boundary. Due to the revisions and expansion of the proposed boundary the project is now within a ½ mile of Touch the Sky Prairie National Wildlife Refuge. The Service strongly recommends additional avian surveys in the vicinity of Touch the Sky Prairie National Wildlife Refuge.

We also recommend that no turbines be located within ¼ mile of Conservation Reserve Program, Wetland Reserve Program, or other similar federally- or state-funded restoration projects.

Interim Service Guidelines

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.

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- 2) Rank potential sites by risk to wildlife;
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- 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.);
- 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 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. Red lights should not be used, as they appear to attract night-migrating birds at a higher rate than white lights;
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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, and avoiding placing turbines between nearby habitat blocks. If this proposal is to move forward, we strongly recommend that on-the-ground surveys using radar, infrared, and/or acoustic monitoring be conducted during the peak of spring and fall bird migrations and during the breeding season over a period of several years (consistent with the Service's *Interim Guidelines, op. cit.*) to identify breeding and feeding areas and migration stopover sites. Observations made from greater than ¼ mile of target areas are likely to be insufficient to accurately assess bird use of the landscape, particularly if the observer is moving. Generalized ground research survey protocols, such as those followed in the Waterfowl Breeding Population and Habitat Survey (Smith 1995) and the North American Breeding Bird Survey (Pardieck 2001), among others, often do not accept observations made at greater than ¼ mile from the observer due in part to high probabilities of missed detections (R. Russell, personal communication). Furthermore, spring and fall raptor migration surveys may be necessary, as will surveys to document movement patterns of bald eagles that may use the project area or surrounding habitat. We request that any on-the-ground survey protocols be consistent with the Service's *Interim Guidelines* (2003), and be coordinated with this office and with the Minnesota Department of Natural Resources prior to implementation.

Pre-construction Surveys

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other wind farm survey protocols, thus allowing us to compare results with other wind farm survey data. These comparisons will potentially provide valuable information that can be applied in future wind farm/turbine macro- and micro-siting.

In addition to on-the-ground (point or transect) surveys, we recommend that the assessments include the use of mobile, horizontally- and vertically-scanning radar to study the direction, altitude, and numbers of flying animals moving through and within the project area during the fall and spring migration of birds and bats, and the breeding period of birds in the area. We recommend that radar be employed for 24 hours a day, 7 days a week during migration, and at a minimum from dawn to dusk during the breeding period. Radar studies are providing useful information in evaluating bird and bat activity at wind generation sites in Wisconsin, Vermont, Massachusetts and other locations. The use of radar coupled with ground-truthing (surveys) can provide a more complete assessment of bird and bat use of a potential wind project area than point counts or other traditional survey methods alone. Such information could inform project design and minimize potential mortality associated with the project.

We recommend installation of two AnaBat SDI detectors per meteorological tower to be used within the project area, and recording of bat echolocation calls from May 1 - November 15, 2010. One AnaBat detector should be mounted at 5 meters above ground, and the other should be mounted as close to the rotor-swept area as possible. The AnaBat's sensitivity should be adjusted to detect a calibration tone at 20 meters. AnaBat units must monitor from 0.5 hour before sunset until 0.5 hour after sunrise. This will help to gauge bat activity and to some degree, to determine bat species/guild composition within the project area during spring and fall migration and the maternity season.

Post-construction Surveys

The Service recommends the project be monitored post-construction to determine impacts to migratory birds and bats. A specific post-construction monitoring plan should be prepared and reviewed by the Service and should include a scientifically robust, peer reviewed methodology of mortality surveys. Generally the Service recommends that surveys be conducted for a minimum of three years following construction to assess impacts to birds and bats. The duration of post construction surveys is project specific and will be determined based upon pre construction survey results. We also recommend that the post-construction mortality studies be conducted by an independent third party contractor with expertise in bird/bat mortality monitoring. Results of mortality surveys and other forms of monitoring should be used to adjust operations to reduce mortality if necessary and feasible, as well as improve design and siting of future wind generation facilities. **The Developer or its contractor should provide to this office each year, no later than December 31, copies of annual bird/bat mortality monitoring reports.**

Infrastructure Considerations

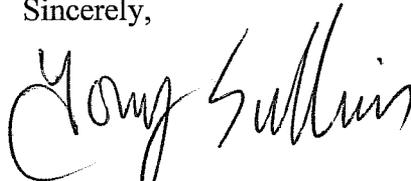
Development of transmission infrastructure associated with wind facilities also poses risks to wildlife. These risks include potential avian mortality, particularly electrocution of raptors

(hawks, eagles, kites, falcons, and owls), that could occur when they attempt to perch on uninsulated or unguarded power poles. Recently published information about which types of power line poles and associated hardware (e.g., wires, transformers and conductors) pose the greatest danger of electrocution to raptors and what modifications can be made to reduce this threat can be found on the internet at <http://www.aplic.org/>.

Although it does appear that the proposed 115 HVTL will be placed adjacent to an existing County Highway the potential for avian strike still exists. At a minimum the Service recommends that bird diverters be placed on the HVTL where it crosses the Split Rock Creek, and where the line will bisect a grassland complex in sections 28, 29, 32 and 33, T104N, R46W.

Thank you for the opportunity to provide comments on this proposed project. Please contact me at (612) 725-3548, ext. 2201, or Rich Davis, Fish and Wildlife Biologist, at (612) 725-3548, ext. 2214, if we can be of further assistance.

Sincerely,

A handwritten signature in black ink that reads "Tony Sullins". The signature is written in a cursive style with a large, looped initial "T".

Tony Sullins
Field Supervisor

cc: Patrick Smith, Geronimo Wind Energy, LLC
Kevin Mixon, MN DNR
Barry Christenson, USFWS, Windom WMD

U.S. Army Corp of Engineers

March 10, 2010

Mr. Dave Studenski
U.S. Army Corps of Engineers
Attn: OP-R
1114 South Oak Street
La Crescent, MN 55947-1338

RE: Prairie Rose Wind Farm and 115 kV Transmission Line in
Rock and Pipestone Counties, MN.

Dear Mr. Studenski:

Geronimo Wind Energy LLC (Geronimo) sent you a letter in contacted you in August 2009, requesting USACE comments in regard to the proposed Prairie Rose Wind Project in Rock County, Minnesota.

Recently, the project boundary has changed and now includes additional sections adjacent to the previous project boundary (Figure 1-2) in Rock and Pipestone Counties. The project nameplate capacity will be 101 MW. In addition, Geronimo is proposing to construct a 115 kV High Voltage Transmission Line (HVTL) which would run between the project substation, located within the wind farm project boundary, and Xcel Energy's Split Rock Substation, located near Brandon, SD. The proposed route would run parallel to Rock County Highway 7 and Rose Dell Township Road 72 (Figure 1-1). This spring, Geronimo will submit a Site Permit Application for a Large Wind Energy Conversion System and a Route Permit Application for a HVTL to the Minnesota Public Utilities Commission (PUC).

Typically, wind facility construction includes erecting wind turbines and constructing associated facilities such as gravel access roads, and an underground and/or aboveground 34.5 kV collector system. Although final turbine locations, access roads, and electrical connections have not been determined at this time, the tables below identify Township sections potentially affected by the project:

Table 1 – Original Sections within the Project Boundary

Township Name	Township	Range	Sections
Denver	104N	45W	7, 18, 19, 30
Rose Dell	104N	46W	11-16, 21-27, 34 and 35

Table 2 – Updated Sections within the Project Boundary

County	Township Name	Township	Range	Sections
Rock	Rose Dell	104N	46W	1-2, 28, 33
Rock	Denver	104N	45W	2-6, 8-10, 15-17, 20-22, 27-29, and 31-34
Rock	Springwater	103N	46W	1-4, 9-12
Pipestone	Elmer	105N	45W	20, 29-30, 31-34
Pipestone	Eden	105N	46W	36

Table 3 – Proposed Transmission Line Corridor

Township Name	Township	Range	Sections
Rose Dell	104N	46W	27-34
Rose Dell	104N	47W	25, 26, 35, 36

We welcome any comments the U.S. Army Corps of Engineers may have at this time or throughout the permit application process. Table 1 identifies the original sections within the Project boundary, Table 2 identifies updated sections within the expanded Project boundary, and Table 3 identifies sections adjacent to the proposed transmission line. In particular, HDR requests you review the sections located in Rose Dell, Denver, Springwater, Elmer, and Eden townships, identified in Tables 1, 2, and 3 for any comments on the new expansion areas.

Geronimo received a letter marked 2009-03763-DAS on August 27, 2009. Geronimo has committed to conducting preconstruction surveys this spring to identify the presence of wetlands and wet features (including Topeka shiner habitat), which will be considered during final micrositing of project facilities.

Prairie Rose Wind Project
U.S. Army Corps of Engineers
March 10, 2010

Enclosed are maps detailing the location and project boundary of the Prairie Rose Wind Farm and 115 kV Transmission Line. If you require further information or have questions regarding this matter, please call me at (763) 591-5479.

Sincerely,

A handwritten signature in black ink that reads "Mike DeRuyter". The signature is written in a cursive style with a long horizontal stroke extending to the right.

Mike DeRuyter
Environmental Scientist

Enclosures:

Figure 1-1 - Project Location Map (Transmission Line)

Figure 1-2 – Project Location Map (Wind Farm)

Cc: Patrick Smith, Geronimo Wind Energy, LLC

Department of Natural Resources



Minnesota Department of Natural Resources

Division of Ecological Resources – Reg. 4

261 Hwy 15 South

New Ulm, MN 56073-8915

Phone: (507) 359-6073 Fax: (507) 359-6018 E-mail: kevin.mixon@dnr.state.mn.us

August 3, 2009

Mr. Patrick Smith
Geronimo Wind Energy
5050 Lincoln Drive, #420
Edina, MN 55436

In re: Prairie Rose Wind Farm
Preliminary Review
Rock County, MN

Dear Mr. Smith:

The Minnesota Department of Natural Resources (DNR) has received information concerning the above referenced wind project located in Rock County, MN. The DNR is providing the following comments as a mechanism to collaboratively work together to identify potential natural resource issues that should be considered during project development.

The project area contains numerous areas enrolled in the Conservation Reserve Program (CRP) that could potentially be affected by this project. The Farm Service Agency located in the county(s) where the project is occurring should be contacted (<http://www.fsa.usda.gov/FSA/stateoffapp?mystate=mn&area=home&subject=landing&topic=landing>) in order to coordinate potential issues involving these properties.

Further coordination with Lisa Joyal, Natural Heritage Review Coordinator, is required in order to resolve any outstanding issues from her letter dated November 14, 2008. Please contact Lisa Joyal (651-259-5109) to resolve any outstanding issues prior to submitting information for the Site Application from the Public Utilities Commission.

Potential wetland impacts could involve the Wetland Conservation Act (WCA). Potential wetland impact(s) may require a boundary delineation and potential mitigation. If wetland impacts may occur you should contact the Board of Water and Soil Resources (www.bwsr.state.mn.us).

Additional project considerations include utilities and roads that could cross or impact waters, streams, or wetlands. Discharge of fill or dredge material in waters of the U.S. are regulated under Section 404 of the Clean Water Act and may require a permit from the U.S. Army Corp of Engineers.

The recommended minimum setback from wetlands and perennial streams (non-Public Waters) is 600 feet (FWS Circular 39 Type III, IV, and V). This is consistent with numerous county wind ordinances and conditional use permits. The setback is designed to reduce potential avian avoidance of the wetland and its associated habitat and to reduce avian and bat mortality.

The DNR recommends 2 years of post-construction mortality studies using the Minnesota Protocols to Monitor Bat & Bird Mortality at Large Wind Energy Conversion Systems (attached). The studies are needed due to the lack of information on mortality to birds and bats in southern Minnesota from operating wind farms. In addition, technological advances in the operation and size of turbines along with updated mortality study methods further justify the need for mortality surveys. The information requested is outlined in the Post-Construction Report Guidelines (attached).

This review constitutes an office review only and is not a substitute for reviewing potential turbine placement in the field. The DNR will provide a second review of the project that is site specific to the proposed tower locations, transmission lines, and access roads. The DNR may request a site visit when potential turbine locations are determined.

Minnesota Administrative Rules 7836.0500, Subpart 7, requires the applicant to analyze potential environmental impacts of the project, proposed mitigative measures, and any adverse environmental effects that cannot be avoided. Groundwater resources, surface waters, wetlands, vegetation, wildlife, rare and unique natural resources, etc. are included. In order to address the potential environmental impacts the applicant should resolve all outstanding issues with the DNR prior to applying for the Site Application Permit from the Public Utilities Commission.

The DNR looks forward to working in a positive and collaborative manner on this project to ensure that sustainable energy sources are developed while protecting Minnesota's natural resources. Please contact me directly at 507-359-6073 if you have any questions.

Very truly yours,



Kevin Mixon
Regional Environmental Assessment Ecologist
Division of Ecological Services

Mr. Patrick Smith

-3-

August 3, 2009

Cc: Mark Matuska, DNR
Lisa Joyal, DNR
John Schladweiler, DNR
Ken Varland, DNR
Wendy Krueger, DNR
Randall Doneen, DNR
Bob Hobart, DNR
Lisa Gelvin-Innvaer, DNR
Ben Schaefer, DNR
Rich Davis, U.S. FWS
Matt Langan, PUC

Protocols to Monitor Bat & Bird Mortality at Large Wind Energy Conversion Systems

**Minnesota Department of Natural Resources
Ecological Resources
July 15, 2009**

Post-Construction Mortality Monitoring

I. Duration and Frequency of Monitoring:

All mortality monitoring should be conducted 5 days per week for the period between April 1 and November 15 for 2 complete years following construction, unless other mortality information is available and the Minnesota Department of Natural Resources (DNR) can justify a reduced monitoring effort. In order to handle and possess carcasses you will need a DNR salvage permit from Wildlife Research (612-713-5438) and a U.S. Fish & Wildlife Service Migratory Bird Permit (612-713-5438).

II. Number of Turbines to Monitor:

The number of turbines monitored will follow the guidelines below as per “Standard Mortality Transect Survey”, and will include validation procedures to correct bias. Validation procedures include carcass removal trials and searcher efficiency. Monitored turbines shall be identified in consultation between the parties. Twenty percent of the turbines will be searched (minimum of 10 and maximum of 25). A different set of turbines should be monitored in the second year.

III. Mortality Monitoring Procedures

Carcass removal and searcher efficiency trials will be performed, and the duration, frequency and number of turbines to monitor are the same. The search area should be cleared of all carcasses prior to April 1 and the initiation of data collection. The carcasses should be identified and reported separately from the data collected from April 1-November 15 and should not be used in the mortality estimates.

At each turbine to be monitored, a rectangular plot that is 100 meters by 100 meters will be centered on the base of the turbine. Although evidence suggests that > 80% of the bat fatalities fall within ½ the maximum distance of turbine height to ground (Erickson 2003a,b) search areas vary and often do not allow surveys to consistently extend to this distance. Therefore, the searchable area underneath turbines will be delineated and mapped, and estimates of mortality will be produced. Maps are to be constructed illustrating all turbine locations, a designated numbering system for turbines, 100 meter plot, boundaries of survey areas, and searchable areas (broken down into visibility classes and transect numbering for standard transect surveys).

- 1) Each turbine should be searched for 1 person hour (1 person – 1 hour, 2 person-1/2 hour) starting on transects running past the base of the turbine and working outward. Times spent surveying each turbine should be recorded daily and remain consistent. Mortality monitoring should commence at sunrise and the surveys completed for all turbines within 8 hours.
- 2) All information gathered (i.e. specimen location, species, transect, etc.) should be entered on data sheets provided. Any mortality that occurs to state listed endangered or threatened species should be reported to the DNR within 24 hours.

- 3) Any large mortality events (>20 total animals) or mortality of any eagle, or threatened or endangered species that occur outside of the survey periods are to be reported to the DNR Regional Environmental Assessment Ecologist within 24 hours.
- 4) Separate data sheets will be used for each survey date. All carcasses are to be picked up and bagged upon discovery. They are to be identified, handled, and labeled properly with the date, turbine number, transect number, and unique specimen number. The specimen should be frozen for use in the carcass removal and searcher efficiency trials.
- 5) All specimens located should have an azimuth **from** tower and distance to turbine, and be recorded on the data sheet. It is appropriate to use a numbered flag for each specimen and record distance and azimuth upon completion of transect searches, so long as flags are removed after each day/turbine.
- 6) A summary report of this monitoring, including all data sheets and maps are to be submitted by January 1 of each year to the DNR Regional Environmental Assessment Ecologist.

Standard Mortality Transect Surveys:

The basis for the methods to be followed for this procedure are set forth by Erickson 2003a, 2003b, Bats and Wind Energy Cooperative 2005 final report, and Kerns and Kerlinger 2004. Areas defined for surveys should be mapped and depict not only prominent structures and area, but in addition to previous studies, label search areas into 1 of 4 visibility classes. All visibility classes represented should be included in the map and proportion of each noted in report. Each visibility class will be equally tested with a minimum of 200 trials using carcasses resulting from mortality at the site. If enough carcasses have not been recovered contact the DNR on how to proceed.

Visibility Classes: Each turbine will have the vegetation in the searchable area defined into one of the following 4 classes and mapped for submission.

Class 1 (easy): Bare ground 90% or greater; all ground cover sparse and 6 inches or less in height (i.e. gravel pad or dirt road).

Class 2 (moderate): Bare ground 25% or greater; all ground cover 6 inches or less in height and mostly sparse.

Class 3 (difficult): Bare ground 25% or less; 25% or less of ground cover over 12 inches in height.

Class 4 (very difficult): Little or no bare ground; more than 25% of ground cover over 12 inches in height.

- 1) Following the establishment of searchable areas, the breakdown of this area into visibility classes, and mapping of each turbine, transects should be established at no greater than 6 meters apart and marked every 10 meters.
- 2) Each transect will be walked with $\frac{1}{2}$ of the distance between transects equal to the distance on each side to be examined by the searcher.
- 3) As transects are searched, carcasses should be bagged and labeled properly (date, turbine number, transect number, carcass number) and a numbered flag placed in their place. At completion of each turbine, the distance and bearing from each turbine should be recorded and then all flags removed.

- 4) Searches will be abandoned if severe weather is present, and continue if it clears. The time spent searching at all turbines will be recorded and should be consistent.

IV. Validation Guidelines

Performing carcass removal by scavenger and searcher efficiency are the standard methods performed together to correct for bias in data collection. Below are accepted techniques to perform this correction.

Carcass Removal Trials

Because there are numerous variables that may make every turbine unique, we suggest placing an equal number of carcasses per turbine to be monitored for removal by scavengers. Additionally, all 4 visibility classes should have a sample size equal to the percentage of that visibility class (ex. 60% of search area of Class 1 gets 60% of the carcasses placed). A random bearing and distance from the turbine should be selected to determine placement of the carcass. For these trials, carcasses must be placed within the surveyed area underneath turbines after sunset and under darkness, and monitored for removal every 24 hours. The carcasses should be left in place for a 14 day trial length. Ideally, the total number of bird and bat carcasses used should be representative of the actual size and species of killed animals, with no less than 50 specimens monitored per year. These trials should be performed periodically throughout the season to account for varying conditions. Before placement, each carcass must be uniquely marked in a manner that does not cause additional attraction and have its location recorded. Records shall include the turbine number, a brief description of immediate vegetation that may impede visibility, classification using one of the 4 visibility classes described above, and length of time before removal.

V. Searcher Efficiency Trials

To produce the best estimates of mortality, a high number of searcher efficiency trials will be performed. A minimum of 200 individual trials will be performed to test searchers. The carcasses will be toe clipped to identify and number them. Carcasses missed by searchers will be picked up after their survey, frozen and be used again. The habitat surrounding turbines may vary considerably and searcher efficiency appears highly correlated to visibility and habitat types. Therefore, the search area defined for each turbine surveyed will be divided into the 4 visibility classes (illustrated on map). The distribution of carcasses is based on the percentage of each visibility class and will be placed at a random azimuth and distance. Each turbine monitored by searchers should be examined, with an equal number of carcasses placed at each turbine.

Testing should occur sporadically throughout monitoring periods and searchers should not be made aware they are being tested. An effort should be made to test searchers equally during both inclement and good weather, with weather conditions recorded. Carcasses placed should be representative of the percentage and number of species found during the mortality monitoring, and should replicate the manner in which the majority of bats are found in that visibility class (i.e. crawled under vegetation). An effort to maximize the number of carcasses placed is best, with no less than 200 per year.

Minnesota Department of Natural Resources
Ecological Resources
Regional Office Environmental Assessment Ecologist

LARGE WIND ENERGY CONVERSION SYSTEM
POST-CONSTRUCTION BIRD AND BAT MORTALITY SURVEY REPORT

Project Name: _____
PROJECT LOCATION: _____

Company/
Organization/
Name: _____

Address: _____

Phone: (_____) _____ - _____ Fax: (_____) _____ - _____

E-Mail: _____

Project Supervisor Name: _____

Supervisor Contact: Phone: (_____) _____

E-Mail: _____

If this is contracted work, provide the name & address of the individual/organization work is being performed for:

Description of Wind Turbine Searched for Carcasses

Project Name: _____ Turbine Number: _____

1. Diameter of Blade Span: _____ m Number of Blades: _____

2. Blade Height Above Ground- Max.: _____ m; Min.: _____ m

3. Surface Area of Search Plot: _____ m²

4. Attach a map of each turbine with 100 meter plot, search boundaries, location and numbering of transects, and vegetation classification on a separate sheet.

5. Attach a spread sheet with weather data collected at 60-minute intervals. Data should include wind speed, temperature, precipitation, cloud ceiling height, etc.

6. General Habitat Description and Topography within 100 m of Turbine:
(Use Anderson Classification System)

7. General Habitat Description and Topography >100m from Turbine:
(Use Anderson Classification System)

