UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901
SEP 13 2010

Matt Blevins
Western Area Power Administration
P.O. Box 281213
Lakewood, CO 80228-8213

Subject: Draft Environmental Impact Statement for Grapevine Canyon Wind Project, Coconino County, Arizona [CEQ# 20100264]

Dear Mr. Blevins:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the Grapevine Canyon Wind Project, Coconino County, Arizona. Our comments are provided pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

EPA supports increasing the development of renewable energy resources, as recommended in the National Energy Policy Act of 2005, in an expeditious and well planned manner. Using renewable energy resources such as wind power can help the nation meet its energy requirements while reducing greenhouse gas emissions. Given the large number of renewable energy project applications currently under consideration, particularly in the Desert Southwest, we believe it is imperative that project applicants coordinate early with federal agencies and stakeholders on site selection and project design in order to facilitate timely environmental reviews. We encourage federal agencies to apply land management and regulatory authorities in a manner that will promote a long-term sustainable balance between available energy supplies, energy demand, and protection of ecosystems and human health.

Foresight Flying M, LLC (Applicant) has submitted an application to the Western Area Power Administration (Western) to interconnect the Grapevine Canyon Wind Project (Proposed Project) to Western's power transmission system. The Proposed Project includes: a wind generating facility (wind park) up to 500 megawatts (MW); a 15-mile 345-kilovolt (kV) electrical transmission tie-line; and an interconnection switchyard.

Based on our review of the subject DEIS, we have rated the document as *Environmental Concerns – Insufficient Information* (EC-2). Please see the enclosed "Summary of Rating Definitions." An "EC" signifies that EPA's review of the DEIS has identified environmental impacts that should be avoided in order to provide adequate protection for the environment. A "2" rating signifies that the DEIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment.

In the enclosed detailed comments, we provide specific recommendations regarding

analyses and documentation to assist in assessing potential significant impacts from the proposed Project. EPA is concerned about potential impacts on aquatic resources, bats, and avian species, particularly the bald eagle and golden eagle; the alternatives analysis; and the discussion of air quality and climate change. We are also concerned by the lack of details provided in the DEIS about the design and layout of the proposed wind park. Although the wind park would be located on private and State trust lands, it appears to be dependent on the federal permitting of the transmission line and the construction and operation of the electrical switchyard on Federal lands. Thus, the impacts of constructing and operating the wind park are considered relevant to Western's approval or denial of the interconnection request. Without more detailed information on the size, location, and number of wind turbine generators, it is difficult to evaluate the full extent of impacts of Western's action.

We recommend that the Final Environmental Impact Statement (FEIS) include more detailed information on the design and layout of the proposed wind park. In addition, we recommend that the Applicant consult with the U.S. Corps of Engineers to determine if a Clean Water Act Section 404(b) permit will be required. The FEIS should quantify the potential impacts to waters of the U.S. and discuss the steps that would be taken to avoid and minimize such impacts. Regarding our concerns about avian and bat species, we recommend that the Applicant work closely with the U.S. Fish and Wildlife Service in the development of the Avian and Bat Protection Plan. The FEIS should clarify how the Applicant will comply with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. We also recommend that the Applicant complete pre-construction surveys of wildlife in all areas of the proposed wind park prior to construction, and conduct post-construction surveys of raptors for at least two years. Finally, we recommend that the Applicant utilize the most effective techniques and technology (e.g. bird and bat radar systems, feathering of blades, and shut down of turbines during strategic intervals to reduce take) to ensure maximum avoidance of bird and bat strikes.

EPA appreciates Western's coordination to date and the opportunity to provide input on this Project. If you have any questions, please contact me at (415) 972-3521, or contact Ann McPherson, the lead reviewer for this project. Ann can be reached at (415) 972-3545 or mcpherson.ann@epa.gov.

Sincerely,

Kathleen M. Goforth, Manager
Environmental Review Office

Enclosures: EPA Summary of Rating Definitions
EPA Detailed Comments

cc: Sally McGuire, U.S. Army Corps of Engineers
Shaula Hedwall, U.S. Fish and Wildlife Service
Reuben Ojeda, Arizona State Land Department
Mike Dunbar, Coconino National Forest

Chairman Leroy Shingoitewa, Hopi Tribe
Chairman Joe Shirley, Jr., Navajo Nation
Governor Norman Cooeyate, Zuni Pueblo

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

U.S. EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) FOR THE GRAPEVINE CANYON WIND PROJECT, COCONINO COUNTY, ARIZONA, SEPTEMBER 13, 2010

Foresight Flying M, LLC (Applicant) has submitted an application to the Western Area Power Administration (Western) to interconnect the Grapevine Canyon Wind Project (Proposed Project) to Western's power transmission system. The Proposed Project includes: a wind generating facility (wind park) up to 500 megawatts (MW); a 15-mile 345-kilovolt (kV) electrical transmission tie-line; and an interconnection switchyard. The wind park study area would encompass almost 100,000 acres of private land and State trust lands administered by the Arizona State Land Department. The electrical transmission tie-line would extend across 8.5 miles of Forest Service lands and up to 6.5 miles of State trust and private lands. The interconnection switchyard would be located on a 15-acre parcel on Forest Service land. The Forest Service will approve or deny the special use permit authorizing a right-of-way (ROW) for that portion of the 345-kV tie-line crossing Forest Service lands as well as the 15-acre parcel for the switchyard. Western will approve or deny the interconnection request. The project is located about 28 miles southeast of Flagstaff, Arizona in Coconino County.

Detailed Description of the Proposed Project

EPA is concerned that the DEIS provides an insufficient level of detail about the size, layout, and design of the proposed wind park. The DEIS states that the wind park would likely be built in two or more phases, and that power sale contracts would determine the size and number of turbines per phase, timing of wind park phases, and wind park layout and design (pg. 13). According to the DEIS, testing is not complete and these decisions will be made at a later date. Depending on the rating of the wind turbine generators (WTGs) (1.5 MW to 3.0 MW), the number of WTGs could range from 166 to 333. The extent of impacts on resources is dependent on the size, location, and number of WTGs. Without this type of information, it is difficult, if not impossible, to fully evaluate the impacts of the proposed project on specific resources.

> *Recommendation:*
> Provide additional information on the proposed wind park, including the layout and design of the project, within the FEIS so that environmental impacts may be more fully evaluated. If this information is not available, we recommend either not proceeding with publication of the FEIS until it can be included, or evaluating additional alternatives in the FEIS that encompass the full range of potential layouts and sizes and numbers of WTGs.

Alternatives Analysis

The Council on Environmental Quality (CEQ) Regulations for implementing NEPA (40 CFR, Parts 1500-1508) state that the alternatives section of an EIS should "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly describe the reasons for their having been eliminated" (40 CFR, part 1502.14). A robust range of alternatives will identify environmentally sensitive areas or areas with potential use conflicts and include options for avoiding significant environmental impacts.

The CEQ regulations also state that this "includes alternatives not within the jurisdiction of the lead agency" (40 CFR, part 1502.14).

The DEIS presents two action alternatives and a no-action alternative. The Proposed Project includes the wind park (up to 500 MW), 345-kV transmission tie-line, and a 345-kV electrical interconnection switchyard. The second alternative, identified by the Forest Service, identifies an alternate corridor for the transmission tie-line to address potential effects to visual resources, with the wind park and the switchyard located in the same places (pg. 44). According to the DEIS, several alternatives related to the transmission line and switchyard were considered but not carried forward. Alternatives addressing the location of the proposed wind park were not considered since decisions and actions related to the proposed wind park are outside of the scope of decisions that will be made by Western and the Forest Service and no alternative locations were proposed during the EIS scoping process (pg. 51). As previously noted, however, a robust alternatives analysis includes reasonable alternatives not within the jurisdiction of the lead agency (40 CFR, part 1502.14).

Recommendation:
Expand the alternatives analysis in the Final Environmental Impact Statement (FEIS) to include either alternate site locations (to the proposed wind park) or on-site alternatives that demonstrate a reduction of impacts.

Water Resources

Clean Water Act Section 404

EPA is concerned about the potential adverse impact to aquatic resources that may result from the Proposed Project. According to the DEIS, there are numerous named and unnamed drainages and ephemeral streams found in the wind park study area (pg. 131). Under Section 404 of the Clean Water Act (CWA), the U.S. Army Corps of Engineers (Corps) has authority to regulate the discharge of dredged and fill material into waters of the United States (WUS, jurisdictional waters). WUS include non-navigable tributaries that typically flow year-round or have flow at least seasonally (pg. 131). Wetlands, which are special aquatic sites, as well as drainages and ephemeral washes, can also be jurisdictional. Activities resulting in dredging or filling of jurisdictional waters would require authorization under a CWA Section 404 Permit.

According to the DEIS, field review of the water resources evaluation area and a review of National Wetlands Inventory (NWI) maps did not identify wetlands in the vicinity of the proposed project components (pg. 131). As described in the Grapevine Canyon Wind Project Site Characterization Report, however, woody wetlands are present in the Grapevine Canyon Wind Resource Area (GCWRA; 375.11 acres) and the Evaluation Area (524 acres) (Appendix D.1, pg. 10). Based on the NWI data, the GCWRA is includes 30.86 acres of wetland habitat and the Evaluation Area includes of 123.53 acres of wetland habitat (Appendix D.1, pg. 10). Thus, the information presented in the DEIS appears to contradict that which is presented in the Grapevine Canyon Wind Project Site Characterization Report.

Recommendation:
Clarify whether wetlands are present in the GCWRA and the Evaluation Area.

The DEIS states that, if required, the Applicant would apply for a Nationwide Permit No. 12 for utility line activities administered under Section 404 of the CWA. In addition, potential impacts to WUS or wetlands identified by the Forest Service that result from construction, operation, and maintenance of the proposed wind park and transmission tie-line would be minimized through implementing the Resource Protection Measures (RPMs) listed in Section 2.7 (pg. 131). We note, however, that in the absence of a formal jurisdictional determination verified by the Corps, it is difficult to discern the extent of impacts to waters based on information provided in the DEIS. EPA is concerned that the impacts to aquatic resources, particularly in the wind park, may be underestimated.

The DEIS states that the primary access road would require a crossing of Canyon Diablo, with an anticipated span of up to 80 feet. In addition to Canyon Diablo, the access road is expected to cross up to five smaller ephemeral washes (pg. 21). Culverts would likely be placed within these washes at crossings. Once primary access has been established, service roads to each wind turbine generator site would be constructed. Up to 143 miles of service roads would be needed if the wind park is fully built out to 500 MW (pg. 21). Proposed project construction associated with access roads and transmission line development could directly affect (via temporary or permanent fill) and indirectly affect drainages and ephemeral washes within the Proposed Project area. The document states that access roads will be designed to incorporate culverts for crossing waters on the project site, but there is no information on the extent of impact. Road crossings within WUS may result in the reduction of the physical extent of waters, adverse modification of stream hydrology and sediment transport, and adverse effects to habitat connectivity and wildlife movement.

If it is determined that there are jurisdictional waters within the project area, a CWA Section 404 permit from the Corps will be necessary for any discharges of dredged or fill material into these waters. If a Section 404 permit is required, EPA will review the project for compliance with the Federal Guidelines for Specification of Disposal Sites for Dredged or Fill Materials (40 CFR 230), promulgated pursuant to Section 404(b)(1) of the CWA (Guidelines). Pursuant to the Guidelines, any permitted discharge into WUS must be the Least Environmentally Damaging Practicable Alternative (LEDPA) available to achieve the project purpose. No discharge can be permitted if it will cause or contribute to significant degradation of WUS. Based on the information available within the DEIS, the applicant has not demonstrated compliance with the Guidelines.

If impacts to aquatic resources cannot be avoided, alternatives that minimize impacts must be fully considered. With projects such as transmission lines and wind parks, there are opportunities to avoid and minimize impacts to waters through sensitive design criteria such as the placement of towers/wind turbines out of waters, including drainages and washes, and a reduction of the construction footprint. Additional avoidance and minimization alternatives should be explored, such as bridging and the use of at-grade crossings or Arizona crossings. Pursuant to the Guidelines, the applicant must mitigate for unavoidable impacts to WUS. EPA offers the following recommendations to help facilitate compliance of the project with the Section 404 Guidelines:

Recommendations:
The project Applicant should consult with the Corps to determine if the proposed project requires a Section 404 permit under the CWA, and this information should be disclosed in the FEIS. The results of a jurisdictional delineation by the Corps should also be included in the FEIS.

The FEIS should include a table and clear narrative on the direct, indirect/secondary and temporary impacts to waters, including wetlands. Quantify, in the FEIS, potential impacts to WUS and discuss the steps that would be taken to avoid and minimize impacts. Include a mitigation plan for unavoidable impacts to WUS, as required by Corps and EPA regulations, and describe how the Proposed Project would meet 404 (b)(1) Guidelines, which require that projects first avoid, then minimize, and, finally, mitigate any impacts to WUS, including wetlands and other special aquatic sites.

Include an evaluation of the project alternatives with regard to compliance with the 404(b)(1) Guidelines and authorization of the LEDPA, if applicable. The location of bald and golden eagle home ranges and migration corridors in the vicinity of the project, as well as the need to avoid the take of eagles, should be considered during development of the LEDPA.

Characterize the functions of any aquatic features that could be affected by the project that are determined not to constitute WUS, and discuss potential mitigation.

Ephemeral Washes

The FEIS should include additional detailed information on the functions and locations of ephemeral washes. Natural ephemeral washes perform a diversity of hydrologic and biogeochemical functions that directly affect the integrity and functional condition of higher-order waters downstream. Healthy ephemeral waters with characteristic plant communities control rates of sediment deposition and dissipate the energy associated with flood flows. Ephemeral washes also provide habitat for breeding, shelter, foraging, and movement of wildlife. Many plant populations are dependent on these aquatic ecosystems and adapted to their unique conditions. Potential damage that could result from disturbance of flat-bottomed washes includes alterations to the hydrological functions that natural channels provide in arid ecosystems: adequate capacity for flood control, energy dissipation, and sediment movement, as well as impacts to valuable habitat for desert species.

Recommendations:
Provide, in the FEIS, additional information on the functions and locations of ephemeral washes in the project area and their hydrologic and biogeochemical roles in relationship to higher-order waters downstream.

Minimize ground disturbance, thus reducing impacts to species habitat and fill of ephemeral washes.

Threatened, Endangered, and Sensitive Wildlife Species

EPA is concerned about potential impacts to sensitive wildlife species, particularly avian and bat species. The wind park lies within the Intermountain West region of the American Pacific Flyway, one of five primary migratory routes for waterbirds, shorebirds, songbirds, and raptors (pg. 94). According to the DEIS, seventeen diurnal raptor species and eight owl species have the potential to occur within the biological resources evaluation area (pg. 94). In addition, thirty species of bat are known to occur in Arizona, with 20 species having an approximate range that includes the project area (pg. 95). The most likely roosting habitat for bats is within canyons, caves, crevices, and rock outcrops, features that are present in the wind park project area. During baseline studies conducted at a subsection of the proposed wind park (Study Area A), ten raptor species were observed using the area, including the bald eagle and golden eagle. In addition, two inactive golden eagle nests were observed within Grapevine Canyon (pg. 94).

As noted in the DEIS, all raptor and owl species are protected under the Migratory Bird Treaty Act (MBTA). The golden eagle and bald eagle also receive protection under the Bald and Golden Eagle Protection Act (BGEPA). In September 2009, the U.S. Fish and Wildlife Service (FWS) finalized permit regulations[1] under the BGEPA for the take of bald and golden eagles on a limited basis, provided that the take is compatible with preservation of the eagle and cannot be practicably avoided. The final rule states that if advanced conservation practices (ACPs) can be developed to significantly reduce take, the operator of a wind-power facility may qualify for a programmatic take permit. Most permits under the new regulations would authorize *disturbance*, rather than take.[2] Given the large home ranges of golden eagles and proximity of nests in the area, some birds are likely to be killed during operations even with protective measures. According to the DEIS, a regression analysis was used to predict raptor mortality at Study Area A. The analysis results predict an estimated fatality rate of 10 raptors per year per 100 MW of wind energy (pg. 102) or up to 50 raptors per year at full build out (500 MW). The DEIS does not adequately address the acquisition of permits associated with disturbance or take of bald and golden eagles.

Recommendations:
Identify, in the FEIS, specific measures to reduce impacts to eagles. Clarify how the proposed project will comply with the MBTA and BGEPA.

Discuss in the FEIS the applicability of the recently finalized FWS permit regulations (50 CFR Parts 13 and 22) to the proposed project. Elaborate on the process and likelihood of obtaining a permit via these regulations.

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[1] See Eagle Permits, 50 CFR parts 13 and 22, issued Sept. 11, 2009. See internet address: http://www.fws.gov/migratorybirds/CurrentBirdIssues/BaldEagle/Final%20Disturbance%20Rule%209%20Sept%202009.pdf

[2] See U.S. Fish Wildlife Service Migratory Bird Management Information: Eagle Rule Questions and Answers. http://www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BaldEagle/QAs%20for%20Eagle%20Rule.final.10.6.09.pdf

Commit, in the FEIS and Record of Decision (ROD), to additional data collection and analysis to identify areas that are important to bald and golden eagles to ensure proper siting and avoid take of these species.

If alternatives cannot be developed that avoid the take of eagles, develop an operational monitoring and adaptive management plan to address this issue, and include it in the FEIS and ROD.

Table 2.7-1 summarizes the RPMs that would be applied to the proposed project components. The RPMs state that additional bird and bat data collection *may* occur for portions of the wind park study area not already surveyed (pg. 56). Baseline biological studies were conducted at Study Area A (subsection of the proposed wind park) in 2007 and 2008, but have not been conducted over the rest of the wind park. In addition, after the wind park begins operation, the Applicant would conduct a formal post-construction monitoring study (1 year) designed to estimate avian and bat mortality (pg. 56). If the first year's monitoring suggests an extraordinary fatality rate, or where weather conditions are highly variable to affect migration timing and testing, additional post-construction monitoring would occur. The RPMs state that an Avian and Bat Protection Plan would be developed prior to wind park construction to help ensure the wind park is operated in an environmentally sustainable manner to minimize potential impacts to birds, bats, and other wildlife and their habitat (pg. 56).

The US Fish and Wildlife Service recently published a set of guidelines and recommendations[3] on how to avoid and minimize impacts of land-based wind farms on wildlife and habitat (March 2010). The document was prepared by the Wind Turbine Guidelines Advisory Committee and contains both policy recommendations and recommended voluntary guidelines for siting and operating wind energy projects in order to avoid or minimize potential impacts to wildlife and habitat. The Committee's Guidelines utilize a "tiered approach" to assess potential impacts to wildlife and their habitats. The five tiers include: 1) preliminary evaluation or screening of sites; 2) site characterization; 3) field studies to document site wildlife conditions and predict project impacts; 4) post-construction fatality studies; and 5) other post-construction studies. The Guidelines provide a consistent methodology for conducting pre-construction risk assessments and post-construction impact assessments to guide siting decisions by developers and agencies. Furthermore, the Guidelines address all elements of a wind energy facility, including the turbine string or array, access roads, ancillary buildings, and the above-and below-ground electrical lines which connect a project to the transmission system.

Recommendations:
Conduct additional pre-construction surveys of raptors and bats prior to siting turbines, including those areas not previously surveyed in 2007 and 2008 (Study Areas B and C).

[3] U.S. Fish and Wildlife Service Wind Turbine Guidelines Advisory Committee Recommendations, submitted to the Secretary of the Interior by the U.S. Fish and Wildlife Service, March 4, 2010. See Internet address: http://www.fws.gov/habitatconservation/windpower/Wind_Turbine_Guidelines_Advisory_Committee_Recommendations_Secretary.pdf

Commit to post-construction monitoring studies as described by the Wind Turbine Guidelines Advisory Committee. We strongly recommend that post-construction monitoring be conducted for at least two years.

Complete biological surveys for Study Areas B & C prior to construction in Study Area A.

Consider whether it would be prudent to conduct raptor studies over a broader area than Study Areas A, B, & C (wind park). Some raptor studies in California have extended up to 10 miles beyond the project boundary for a renewable energy project.

EPA encourages Western and the Applicant to include in the FEIS a commitment to reduce impacts to migratory birds and eagles. We encourage Western and the Applicant to relocate, reduce, or eliminate portions of the project footprint that would adversely affect threatened, endangered, or sensitive species or their potential habitat. Additional actions that should be considered are discussed below.

Recommendations:
Minimize placement of wind turbines near prairie dog towns within the proposed project area.

Consider a tactical shut down option during critical hours of species activity, as appropriate, to minimize adverse impacts on such species.

Consider blade feathering/idling (including on-the-spot and seasonal shutdowns), reducing cut-in speeds, and adjusting turbine speeds during strategic intervals to reduce take and to prevent mortality.

Consider utilizing unique types of radar technology to monitor for bird and bats. [4]

Implement and use design models that present the least threat to all wildlife for all transmission and distribution lines, as well as associated infrastructure at substations/switchyards.

The DEIS states that a Biological Assessment is being prepared under Section 7 of the Endangered Species Act (ESA) for federally listed species (pg. 180). Should it be determined that the proposed Federal actions would adversely affect federally listed species, Western will request a Biological Opinion from the U.S. Fish and Wildlife Service.

Recommendation:
EPA recommends Western include the Biological Assessment and the outcome of its consultation with the U.S. Fish and Wildlife Service in the FEIS.

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[4] For example, see http://www.detect-inc.com/avian.html and http://www.upi.com/Science_News/Resource-Wars/2010/03/18/Radar-reduces-wind-farm-risk-to-birds/UPI-71441268920323/. These resources are provided as examples only and do not constitute endorsement of any particular product by EPA.

According to the DEIS, any avian and bat mortalities caused by the operation of the wind park would be an unavoidable adverse impact, and would be addressed pursuant to its Avian and Bat Protection Plan.

Recommendation:
Include a copy of the Avian and Bat Protection Plan within the FEIS.

Implementation of Adaptive Management Techniques for Mitigation Measures

Adaptive management is an iterative process that requires selecting and implementing management actions, monitoring, comparing results with management and project objectives, and using feedback to make future management decisions. The process recognizes the importance of continually improving management techniques through flexibility and adaptation instead of adhering rigidly to a standard set of management actions. For adaptive management to succeed, there must be agreement to adjust management and/or mitigation measures if monitoring indicates that goals are not being met. Although adaptive management is not a new concept, it may be relatively new in its application to specific projects. As stated in a recent CEQ report, *Modernizing NEPA*, the effectiveness of adaptive management monitoring depends on a variety of factors including:

a) The ability to establish clear monitoring objectives;
b) Agreement on the impact thresholds being monitored;
c) The existence of a baseline or the ability to develop a baseline for the resources being monitored.
d) The ability to see the effects within an appropriate time frame after the action is taken;
e) The technical capabilities of the procedures and equipment used to identify and measure changes in the affected resources and the ability to analyze the changes;
f) The resources needed to perform the monitoring and respond to the results.

Recommendations:
EPA recommends that the Applicant consider adopting a formal Adaptive Management Plan to ensure the success of mitigation measures and to provide management flexibility to incorporate new research and information.

EPA recommends that the Adaptive Management Plan include a timeline for periodic reviews and adjustments, as well as a mechanism to consider and implement additional mitigation measures, as necessary, after the project is developed. Monitoring and evaluation should be used to determine if management actions are achieving objectives.

EPA recommends that Western, the Forest Service, and the Applicant review the specific discussion on Adaptive Management in the NEPA Task Force Report to the Council on Environmental Quality on *Modernizing NEPA*.

Air Quality

The DEIS provides standards of significance for air quality impacts and states that impacts would be greatest during the construction period (pg. 123). Air quality impacts would include emissions from internal combustion engines during equipment operation, fugitive dust from vehicle travel and site grading activities, and operation of a rock crushing plant and concrete batch plant. According to the DEIS, the batch plants proposed for use would emit less than 250 ton/year (tpy) of any criteria pollutant and would not require a major source permit, but rather a minor source permit from the Arizona Department of Environmental Quality (ADEQ). Operational impacts would be restricted to dust and internal combustion engine emissions due to periodic maintenance vehicle traffic. The DEIS indicates that, with implementation of the mitigation, construction activities and vehicle and equipment emissions are not expected to violate air quality standards, and air quality significance thresholds would not be exceeded (pg. 123; pg. 124). EPA is concerned that the DEIS does not provide estimates for construction emissions and vehicle and equipment emissions, as well as estimated mitigated annual emissions. In order to support the conclusions presented in the DEIS that standards and thresholds will not be exceeded, we request that the FEIS provide a more robust analysis of the emissions from the proposed project.

The DEIS states that there are currently no sources of electricity within the wind park study area. A temporary source of electricity would be required for construction. Two options are under consideration: 1) on-site generation, or 2) extending an electrical distribution line along Meteor Crater Road (pg. vi). Should the Applicant select on-site generation, these emissions should be accounted for in the air quality analysis.

Recommendation:
The FEIS should contain a more robust analysis of emissions from construction, vehicle use, and equipment use, including estimated mitigated annual emissions. Emissions associated with on-site generation of electricity during construction should be included in this analysis.

EPA supports incorporating mitigation strategies to minimize fugitive dust emissions, as well as emission controls for particulate matter (PM) and ozone precursors for construction-related activity. All applicable State and local requirements and the additional and/or revised measures listed below should be included in the FEIS in order to reduce impacts associated with ozone precursors, PM, and toxic emissions from construction-related activities.

Recommendations:
EPA recommends that best management practices, all applicable requirements under local or State rules, and the following additional measures be implemented at all times and incorporated into the FEIS, a Construction Emissions Mitigation Plan, and the Record of Decision.

Fugitive Dust Source Controls:

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate. This applies to both

inactive and active sites, during workdays, weekends, holidays, and windy conditions.

- Install wind fencing, and phase grading operations, where appropriate, and operate water trucks for stabilization of surfaces under windy conditions.
- When hauling material and operating non-earthmoving equipment, prevent spillage, and limit speeds to 15 miles per hour (mph). Limit speed of earth-moving equipment to 10 mph.

Mobile and Stationary Source Controls:

- Reduce use, trips, and unnecessary idling of heavy equipment.
- Maintain and tune engines per manufacturer's specifications to perform EPA certification levels, where applicable, and to perform at verified standards applicable to retrofit technologies. Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.
- Prohibit any tampering with engines and require continuing adherence to manufacturer's recommendations
- If practicable, lease new, clean equipment meeting the most stringent of applicable Federal or State Standards.
- Utilize EPA-registered particulate traps and other appropriate controls where suitable, to reduce emissions of diesel particulate matter and other pollutants at the construction site.
- Limit vehicle speeds on unpaved roads to 15 mph.

Administrative controls:

- Identify all commitments to reduce construction emissions and incorporate these reductions into the air quality analysis to reflect additional air quality improvements that would result from adopting specific air quality measures.
- Identify where implementation of mitigation measures is deemed to be not implementable due to economic infeasibility and provide comparable determinations for other similar projects as justification for this decision.
- Prepare an inventory of all equipment prior to construction, and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking. (Suitability of control devices is based on: whether there is reduced normal availability of the construction equipment due to increased downtime and/or power output, whether there may be significant damage caused to the construction equipment engine, or whether there may be a significant risk to nearby workers or the public.)
- Meet EPA diesel fuel requirement for off-road and on-highway (i.e., 15 ppm), and where appropriate use alternative fuels such as natural gas and electric.
- Develop construction traffic and parking management plan that minimizes traffic interference and maintains traffic flow.
- Identify sensitive receptors in the project area, such as children, elderly, and infirm, and specify the means by which you will minimize impacts to these populations. For example, locate construction equipment and staging zones away from sensitive receptors and fresh air intakes to buildings and air conditioners.

Climate Change

The DEIS presents a brief discussion on greenhouse gas emissions in Arizona in Section 3.5.1.2, Climate Change/Greenhouse Gas (pg. 122). Operation of the wind park would have a net benefit to air quality, as wind energy produces no air emissions (pg. 125). The DEIS does not, however, include measures to avoid, minimize, or mitigate the effects of climate change on the proposed project, nor does it discuss the extent to which climate change may alter the impacts of the proposed project on the environment. Scientific evidence supports the concern that continued increases in greenhouse gas emissions resulting from human activities will contribute to climate change. Effects on weather patterns, sea level, ocean acidification, chemical reaction rates, and precipitation rates can be expected. These changes may affect the scope and intensity of impacts resulting from the proposed project.

Recommendations:
Consider how climate change could affect the proposed project, specifically within sensitive areas, and assess how the impacts of the proposed project could be exacerbated by climate change.

Identify strategies to more effectively monitor for climate change impacts in the surrounding area, such as monitoring for groundwater change and effects on special status species.

Identify specific mitigation measures needed to protect the Proposed Project from the effects of climate change.

Quantify and disclose the anticipated climate change *benefits* of wind energy. We suggest quantifying the greenhouse gas emissions that would be produced by other types of electric generating facilities (solar, geothermal, natural gas, coal-burning, and nuclear) generating comparable amounts of electricity, and compiling and comparing these values.

Cultural Resources, National Historic Resources and Consultation with Tribal Governments

Consultation for tribal cultural resources is required under Section 106 of the National Historic Preservation Act (NHPA). Historic properties under the NHPA are properties that are included in the National Register of Historic Places (NRHP) or that meet the criteria for the National Register. Section 106 of the NHPA requires a federal agency, upon determining that activities under its control could affect historic properties, to consult with the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO).

Executive Order 13007, Indian Sacred Sites (May 24, 1996), requires federal land managing agencies to accommodate access to, and ceremonial use of, Indian sacred sites by Indian Religious practitioners, and to avoid adversely affecting the physical integrity, accessibility, or use of sacred sites. Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (November 6, 2000), was issued in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal

policies that have tribal implications, and to strengthen the United States' government-to-government relationships with Indian tribes. President Obama directed all federal agencies to develop an action plan to implement this Executive Order by February 3, 2010. For more information, refer to: http://www.whitehouse.gov/the-press-office/memorandum-tribal-consultation-signed-president.

The DEIS states that Western has initiated consultation with the Hopi and Zuni Tribes and the Navajo Nation. The DEIS indicates that research identified 678 previously recorded cultural resources within the cultural resources evaluation area. Twenty-four of these sites potentially occur within 100 feet of the wind park study area, tie-line, and/or switchyard. Of the 24 sites, four are recommended as eligible for listing in the NRHP. According to the DEIS, a draft Programmatic Agreement (PA) among Western, Coconino National Forest, Arizona State Lands Division, Arizona SHPO, the Applicant, Tribes and other interested parties has been prepared and is currently under review. The PA establishes the area of potential effect for the proposed project, proposes a treatment plan for identified resources that cannot be avoided, describes procedures for unanticipated discoveries, sets forth procedures for tribal consultation, and suggests general mitigation measures (pg. 112).

Recommendations:
Describe the process and outcome of government-to-government consultation between Western and each of the tribal governments within the project area, issues that were raised (if any), and how those issues were addressed in relation to the proposed action and selection of a preferred alternative.

Include a copy of the PA within the FEIS, if available.

Cumulative Impacts Analysis

The DEIS presents a summary of past, present, and reasonably foreseeable future actions including the Sunshine Wind Project (table 4.2-1).

Recommendation:
Provide an illustration of the location of the Sunshine Wind Project.

Project Decommissioning

The life of the proposed wind park is expected to be 25 years or more. The wind park owner may elect to renew the land leases at the end of the contracted agreements depending on power market conditions and future contracts for sale of electricity (pg. 183). The WTGs may also be updated with more efficient components, extending the life of the wind park. According to the DEIS, the wind park owner would have the obligation to decommission the facility and perform reclamation as required by the landowners and appropriate land management agencies or jurisdictional authorities.

Recommendations:
EPA recommends that the FEIS identify bonding or financial assurance strategies for decommissioning and reclamation. The projected 25-year lifespan should be used to ascertain the correct financial instruments that could be used for bond and or financial assurance calculations.

The FEIS should take into consideration the increased cost (projected future rates) of decommissioning in 25 years and make provisions for extended or refurbished use.